Stormwater Asset Management Plan and Funding Assessment

Town of Cobourg

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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
CCTV	Closed-circuit television
GFA	Gross floor area
MPAC	Municipal Property Assessment Corporation
OGS	Oil and grit separators
O. Reg.	Ontario Regulation
RSL%	Percentage of remaining service life

Chapter 1
Introduction

1. Introduction

1.1 Overview

The Town of Cobourg (Town) owns, operates, and maintains a stormwater management system comprising approximately 70 kilometres of stormwater mains, more than 3,470 maintenance holes and catch basins, six stormwater management facilities (ponds), three pump stations, 65 outlet points, and four oil and grit separators. The stormwater management system provides for the collection of stormwater in order to protect properties and roads from flooding, to effectively remove contaminants from stormwater runoff, and to manage the discharge rate of stormwater back into the natural environment.

The Town retained Watson & Associates Economists Ltd. (Watson) to develop an asset management plan and funding assessment for the Town's stormwater infrastructure. One of the objectives of this plan is to move the Town's asset management practices into compliance with Ontario Regulation (O. Reg.) 588/17. It is intended to be a tool for municipal staff and Council to use during various decision-making processes, including the annual budgeting process.

Furthermore, stormwater infrastructure in the Town is not currently funded from a dedicated source but rather from various sources, including the general tax levy and grants. The funding assessment contained in this study seeks to identify, review, and evaluate alternative funding approaches to support the Town's stormwater management program and to recommend a preferred funding alternative.

1.2 Legislative Context for the Asset Management Plan

Asset management planning in Ontario has evolved significantly over the past decade.

Before 2009, capital assets were recorded by municipalities as expenditures in the year of acquisition or construction. The long-term issue with this approach was the lack of a capital asset inventory in the municipality's accounting system and financial statements. As a result of revisions to section 3150 of the Public Sector Accounting Board (PSAB) handbook, effective for the 2009 fiscal year, municipalities were required to capitalize tangible capital assets, thus creating an inventory of assets.

In 2012, the Province launched the Municipal Infrastructure Strategy. As part of that initiative, municipalities and local service boards seeking provincial funding were required to demonstrate how any proposed project fits within a detailed asset management plan. In addition, asset management plans encompassing all municipal assets needed to be prepared by the end of 2016 to meet Federal Gas Tax agreement requirements. To help define the components of an asset management plan, the Province produced a document entitled Building Together: Guide for Municipal Asset Management Plans. This guide documented the components, information, and analysis required to be included in municipal asset management plans under this initiative.

The Province's *Infrastructure for Jobs and Prosperity Act, 2015* (IJPA) was proclaimed on May 1, 2016. This legislation detailed principles for evidence-based and sustainable long-term infrastructure planning. The IJPA also gave the Province the authority to guide municipal asset management planning by way of regulation. In late 2017, the Province introduced O. Reg. 588/17 under the IJPA. The intent of O. Reg. 588/17 is to establish standard content for municipal asset management plans. Specifically, the regulations require that asset management plans be developed that define the current levels of service, identify the lifecycle activities that would be undertaken to achieve these levels of service, and provide a financial strategy to support the levels of service and lifecycle activities.

This plan has been developed to fully address the requirements of O. Reg. 588/17. It utilizes the best information available to the Town at this time.

1.3 Asset Management Plan and Funding Assessment Development

This asset management plan and funding assessment was developed using an approach that leverages the Town's asset management principles as identified within its strategic asset management policy (Policy # PW-OPS19), capital asset database information, and staff input.

The development of the Town's stormwater asset management plan and funding assessment is based on the steps summarized below:

1. Compile available information pertaining to the Town's stormwater infrastructure to be included in the plan, including attributes such as size, material type, useful

life, age, and current replacement cost valuation. Update the current replacement cost valuation, where required, using benchmark costing data or applicable inflationary indices.

2. Define and assess current asset conditions, based on a combination of input from Town staff, existing background reports and studies (e.g., 2020 Stormwater Management Pond Inventory and Capital Needs Assessment), and an asset age-based condition analysis.

3. Define and document current levels of service based on analysis of available data and consideration of various background reports.

4. Develop lifecycle management strategies that identify the activities required to sustain the levels of service discussed above. The outputs of these strategies are summarized in the forecast of annual capital and operating expenditures required to achieve these levels of service outcomes.

5. Develop a financial summary of the expected costs arising from the lifecycle management strategy.

6. Complete an assessment of alternative funding models and rate structures that can be used to recover the costs of stormwater services.

7. Undertake rate calculations and assess rate payer impacts based on the preferred funding structure for stormwater services.

8. Document the asset management plan and funding assessment in a formal report to inform future decision-making and to communicate planning to municipal stakeholders.

Chapter 2
State of Local Infrastructure

2. State of Local Infrastructure and Levels of Service

2.1 Introduction

This chapter provides an analysis of the Town's stormwater assets and the current service levels provided by those assets.

O. Reg. 588/17 requires that for each asset category included in the asset management plan, the following information must be identified:

- Summary of the assets;
- Replacement cost of the assets;
- Average age of the assets (it is noted that the regulation specifically requires average age to be determined by assessing the age of asset components);
- Information available on condition of assets; and
- Approach to condition assessments (based on recognized and generally accepted good engineering practices where appropriate).

Asset management plans must identify the current levels of service being provided for each asset category. For core municipal infrastructure assets, both the qualitative descriptions pertaining to community levels of service and metrics pertaining to technical levels of service are prescribed by O. Reg. 588/17.

Asset management plans must also include proposed levels of service. The proposed levels of service will be defined using the qualitative descriptions and technical metrics that the municipality uses to define current levels of service.

The rest of this chapter addresses the requirements identified above as they pertain to the Town's stormwater assets.

2.2 State of Local Infrastructure

2.2.1 Asset Quantities and Replacement Costs

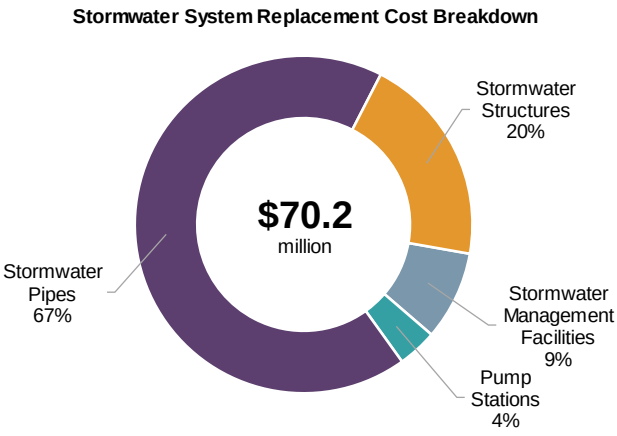
The Town's stormwater collection system comprises approximately 70 kilometres of mains, more than 3,470 maintenance holes and catch basins, six stormwater

management facilities (ponds), three pump stations, 65 outlet points, and four oil and grit separators (OGS). The current replacement cost of the system is estimated at $70.2 million. A breakdown of the total replacement cost by asset category is provided in Figure 2-1, below. Stormwater pipes represent the biggest share of the estimated replacement cost, at approximately 67%. Stormwater structures, which include catch basins, maintenance holes, outlet points, and OGS, represent approximately 20% of the total replacement cost. Stormwater management facilities and pump stations represent approximately 9% and 4% of the replacement cost, respectively. A spatial illustration of the Town's stormwater system and its extent is provided in Map 2-1.

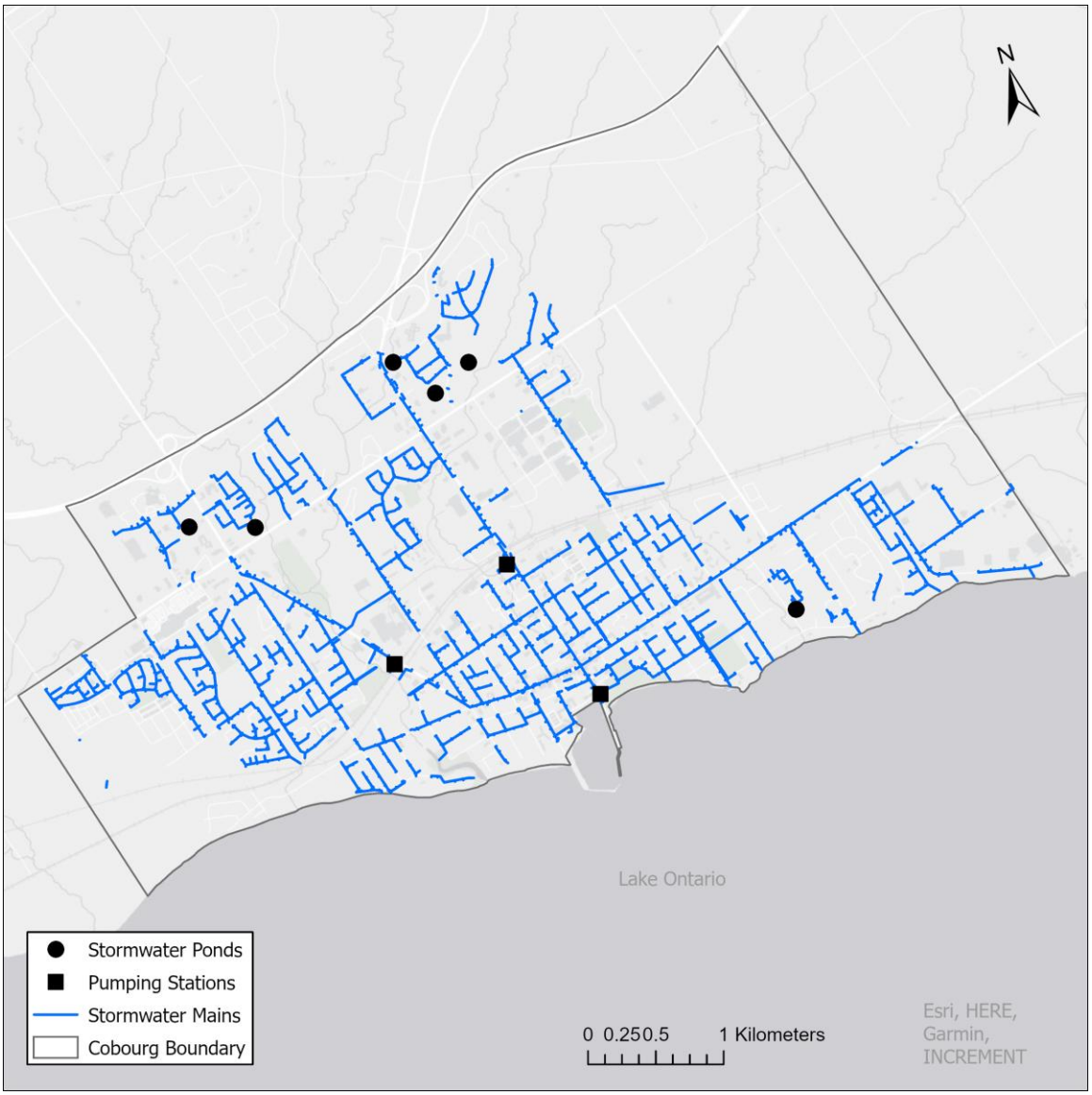
Figure 2-1: Stormwater System Summary Information – Asset Quantities and Replacement Costs

Asset	Quantity	Unit of Measure	Replacement Cost
Stormwater Management Facilities	6	each	$ 6,000,000
Pump Stations	3	each	$ 2,650,140
Stormwater Pipes	70,070	metres	$ 47,391,574
Stormwater Structures			
Double Catch Basins	129	each	$ 451,500
Catch Basins	2,093	each	$ 5,232,500
Catchbasin Maintenance Holes	468	each	$ 2,808,000
Manholes	784	each	$ 4,704,000
Outlet Points [A]	65	each	$ 731,250
Oil/Grit Separators	4	each	$ 275,000
			$ 70,243,964

[A] Replacement cost applies only to outlet points that have a headwall associated with them. It has been assumed that 75% of the outlet points have a headwall.



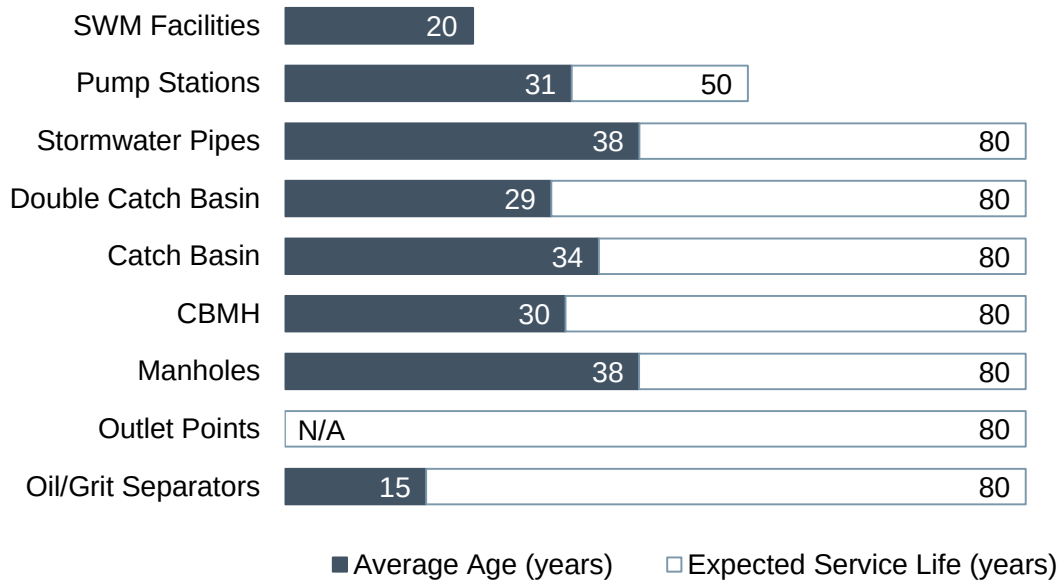
Map 2-1: Scope and Extent of the Town's Stormwater System



2.2.2 Asset Age

The age of an asset, relative to its expected useful life, provides an indication of how soon major investments may be required to rehabilitate or replace the asset so that it continues to serve its intended function. The average age of the Town's stormwater assets, by category, is presented in Figure 2-2 below.

Figure 2-2: Average Age of Stormwater Assets



SWM = Stormwater Management
CBMH = Catchbasin Maintenance Holes

A few notes to assist with the interpretation of average age information are provided below:

- An expected service life is not provided for stormwater management facilities because these assets generally do not require replacement. There are other major lifecycle activities associated with stormwater management facilities which are discussed in more detail in Chapter 3 of this report.
- Average age for each of the pump stations was calculated as a weighted average of component ages, with replacement costs used as weights. The weighted average ages of the three pump stations were then averaged together to produce an overall average. The expected service life of 50 years is reflective of the pump station overall. Average service lives of individual components vary from 25 to 50 years.
- Age data for stormwater pipes and stormwater structures (except OGS) is currently incomplete. Approximately 12% of stormwater pipe length (8.5 km) and approximately 34% of stormwater structures have unknown installation dates. The averages presented in Figure 2-2 are reflective of the structures with known age only.

2.2.3 Asset Condition

The condition of the Town's stormwater management facilities was comprehensively assessed in 2019 and 2020 and is documented in the Stormwater Management Facility Inventory and Capital Needs Assessment prepared by CIMA+. Condition scoring out of five was assigned for each pond element. Table 2-1 provides a summary of how condition scores were assigned to qualitative condition states from Excellent to Very Poor.

A formal condition assessment of the Town's stormwater pump stations has not been completed to date. It is noted, however, that the Town is currently completing a condition assessment of its five sewer pump houses and is planning to undertake a similar assessment of the three stormwater pump stations in 2023. The costs of this planned assessment have been included in the proposed capital program presented in section 3.2 of this report. For the time being, the condition has been approximated based on remaining service lives provided by Town staff for each of the pump station components. The remaining service life was compared to the average life expectancy for the component to calculate the percentage of remaining service life (RSL%). The RSL% values were assigned to qualitative condition states using the scale shown in Table 2-1.

The condition of the Town's storm sewers has not been directly assessed through a physical condition assessment. The Town is planning to establish a closed-circuit television (CCTV) inspection program which will ensure that every segment of pipe is assessed at least once every ten years. The costs of the CCTV inspection program have been included in the proposed operating program presented in section 3.3 of this report. For the purposes of this asset management plan, remaining service life has been used as a proxy for the condition state. The remaining service life, based on each pipe's age, was compared to the average life expectancy to calculate the RSL%. It is possible for storm sewers to have an RSL% less than 0%, which occurs if a storm sewer has exceeded its typical life expectancy but continues to be in service. This is not necessarily a cause for concern; however, it must be recognized that storm sewers that are near or beyond their typical life expectancy are more likely to require replacement in the near term. The RSL% values were assigned to qualitative condition states using the scale shown in Table 2-1.

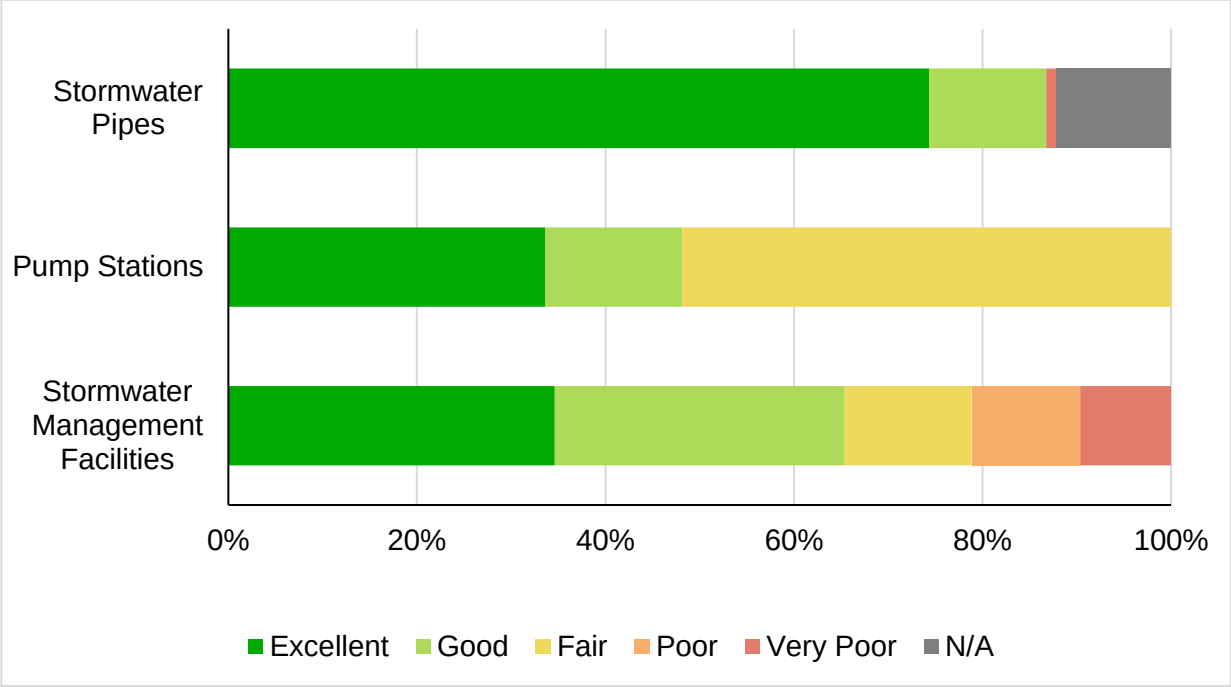
The condition of stormwater structures has not been assessed and is not reported in this asset management plan. It is expected that the Town will formally assess the condition of some stormwater structures (e.g., maintenance holes) through the CCTV assessment program noted above and informally for other structures (e.g., catch basins and OGS) through regular cleanout programs.

Table 2-1: Asset Condition State Definitions

Condition	Remaining Service Life (%) (Stormwater Pipes and Pump Stations)	Condition Score (Stormwater Management Facilities)
Excellent	100% to 55%	5
Good	55% to 10%	4
Fair	10% to 0%	3
Poor	0% to -25%	2
Very Poor	≤ -25%	1

A breakdown of each asset category by condition state is presented in Figure 2-3. For stormwater pipes, the breakdown represents the length of pipe in each condition state. For pump stations, the breakdown represents the replacement cost of pump station components in each condition state. For stormwater management facilities, the breakdown represents the number of facility elements in each condition state.

Figure 2-3: Breakdown of Asset Condition by Asset Category



2.3 Levels of Service

The levels of service currently provided by the Town's stormwater system are, in part, a result of the state of local infrastructure identified above. A levels of service analysis defines the current levels of service, establishes targets, and enables the Town to periodically evaluate these service level objectives as performance gets tracked over time.

Stormwater assets have prescribed levels of service reporting requirements under O. Reg. 588/17. These requirements include levels of service reporting at two different levels, i.e., community levels of service and technical levels of service. Community levels of service objectives describe service levels in terms that customers understand and reflect customers' expectations with respect to the scope and reliability of the stormwater system. Technical levels of service describe these aspects of the Town's stormwater system through performance measures that can be quantified and evaluated. These performance measures can be used to assess how effectively a municipality is achieving its established targets.

Table 2-2 and Table 2-3 present the current and proposed levels of service. They include the requirements mandated by O. Reg. 588/17 and several additional performance measures of interest to the Town. The proposed levels of service were established based on discussions with Town staff.

Table 2-2: Community Levels of Service

Service Attribute	Community Levels of Service
Scope	The stormwater management system provides for the collection of stormwater in order to protect properties and roads from flooding, to effectively remove contaminants from stormwater runoff, and to manage the discharge rate of stormwater back into the natural environment.
	The scope of the Town's stormwater system is illustrated in Map 2-1. The map shows the geographical distribution of municipal stormwater mains and locations of stormwater management facilities (ponds) and pump stations.
	The stormwater management system is resilient to five-year storms and ensures most properties in serviced areas are resilient to 100-year storms.
Reliability	The Town inspects and maintains the stormwater system to ensure that it functions as intended.

Table 2-3: Technical Levels of Service

Service Attribute	Performance Measure	2021 Performance	Proposed Level of Service
Scope	Percentage of properties in the municipality resilient to a 100-year storm.	94.5%	94.5%
	Percentage of the municipal stormwater management system resilient to a five-year storm.	100%	100%
Reliability	Percentage of catch basins cleaned at least once within the past five years.	100%	100%
	Percentage of the stormwater linear network inspected (CCTV) within the past 10 years.	~1%	100%
	Percentage of the stormwater linear network flushed within the past 10 years.	~1%	100%
	Percentage of oil/grit separators inspected within the past year.	0%	100%
	Percentage of stormwater management facilities comprehensively inspected (including sediment depth monitoring) within the past five years.	100%	100%
	Percentage of pump stations where condition assessments have been completed within the past 10 years.	0%	100%

Currently, the Town is deficient in three of the proposed performance measures identified above. These deficiencies are addressed in the Lifecycle Management Strategy section of this report (Chapter 3) and the operating programs identified therein will enable the Town to work towards achieving the proposed service levels.

It is recommended that the Town begins tracking and reporting on the performance measures identified in Table 2-3 on an annual basis, as a way of measuring its progress towards implementing this asset management plan.

Chapter 3
Lifecycle Management Strategy

3. Lifecycle Management Strategy

3.1 Introduction

This chapter details the lifecycle management strategies required to achieve the proposed levels of service presented in Chapter 2. Within the context of this asset management plan, lifecycle activities are the specified actions that can be performed on an asset to ensure it is performing at an appropriate level, and/or to extend its service life. These actions can be carried out on a planned schedule in a prescriptive manner, or through a dynamic approach where the lifecycle activities are only carried out when specified conditions are met.

O. Reg. 588/17 requires that all potential lifecycle activity options be considered, with the aim of analyzing these options in search of identifying the set of lifecycle activities that can be undertaken at the lowest cost to maintain current levels of service or to provide proposed levels of service. Asset management plans must include a 10-year capital plan that forecasts the lifecycle activities resulting from the lifecycle management strategy.

A high-level summary of the lifecycle activities specific to each asset category is presented in

Table 3-1, below. A detailed discussion of the specific lifecycle programs, both capital and operating, is provided in the following sections.

Table 3-1: Lifecycle Activities by Asset Category

Asset Category	Lifecycle Activities - Operating	Lifecycle Activities - Capital
Stormwater Management Facilities	• Grass cutting • Debris and litter removal • Inspections • Sediment depth monitoring • Structural repairs	• Cleanout • Rehabilitation
Stormwater Pipes	• Flushing • CCTV inspections	• Replacement
Maintenance holes	• Adjustments • Minor repairs • Inspections	• Replacement
Catch Basins	• Cleaning • Adjustments • Minor repairs	• Replacement
Oil/Grit Separators	• Cleaning • Inspections	• Replacement
Outlet Points	• Debris and litter removal • Inspections	• Replacement (headwall)
Pump Stations	• Maintenance • Inspections	• Component replacement

3.2 Lifecycle Activities – Capital

In recent years, the Town has been replacing approximately 500 metres of stormwater pipe annually. Given the estimated service life of 80 years for these assets, the Town should be planning to replace one-eightieth (1.25%) of the system annually. With a current inventory of more than 70 kilometres of stormwater pipes, this translates to an annual replacement of approximately 880 metres of stormwater pipe. The Town will continue to address the replacement of storm sewers through coordinated reconstruction projects where possible, to minimize overall lifecycle costs. The proposed capital program was designed to gradually increase the investment into storm sewer replacement such that, by 2031, the Town would be able to replace 880 metres of pipe annually. As noted in subsection 2.2.3, the Town is planning to implement a CCTV inspection program. More specific replacement/rehabilitation priorities may be identified through that program, in which case the Town will update the 10-year capital plan accordingly.

The replacement of stormwater structures directly related to stormwater pipes, such as maintenance holes and catch basins, is assumed to also take place through coordinated reconstruction projects. The replacement costs of these structures have been averaged over the total length of pipe and apportioned into the capital forecast based on the length of pipe forecast to be replaced in each year. Because the age of outlet points is not known, the specific rehabilitation/replacement needs have not been estimated by year. Instead, an annual provision for the replacement of the structures on an as-needed basis has been built into the capital forecast. None of the four OGS are expected to require replacement over the next 10 to 20 years.

The lifecycle activities related to the three pump stations have been estimated based on component-level estimates of remaining service life provided by Town staff. As noted in subsection 2.2.3, a formal condition assessment of the Town's stormwater pump stations has not been completed to date; however, the Town is planning to undertake a condition assessment of the three stormwater pump stations in 2023. The specific rehabilitation/replacement activities and the associated cost estimates are expected to be refined through the formal condition assessment, and the Town's capital forecast for the pump stations will subsequently be updated accordingly.

The lifecycle needs of the Town's stormwater management facilities are identified in the Stormwater Management Pond Inventory and Capital Needs Assessment completed in 2020 by CIMA+. The report identifies both a capital works program and an operational and maintenance program for each of the six existing stormwater management facilities. The estimated operational and maintenance costs for all stormwater management facilities have been included in the operating budget forecast presented in section 3.3. The cleanout and rehabilitation costs unique to each stormwater management facility have been included in the proposed capital program.

The lifecycle activities described above were incorporated into a multi-year capital forecast, a summary of which is shown in Table 3-2, below. In total, the Town is planning to complete replacement and rehabilitation activities totalling approximately $11.6 million (in 2021$) from 2022 to 2032.

Table 3-2: Capital Budget Forecast (2022 to 2032) – Uninflated

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Stormwater Management Facilities											
Terry Fox (SWMF ID #1)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 37,000	$ 480,000
Burnham (SWMF ID #3)	$ -	$ -	$ -	$ -	$ 54,000	$ 1,676,000	$ -	$ -	$ -	$ -	$ -
Densmore Rd. (SWMF ID #4)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 37,000
Read/Otto (SWMF ID #5)	$ 31,000	$ 91,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Chris Garret (SWMF ID #7)	$ 50,000	$ 1,004,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Foote Cres. (SWMF ID #12)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SWM Assessment Update	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,000	$ -	$ -	$ -
Pump Stations											
William Street Pump Station	$ -	$ -	$ -	$ 571,450	$ -	$ -	$ 120,000	$ -	$ -	$ -	$ -
Division Street North Pump Station	$ -	$ -	$ -	$ 608,440	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Division Street South Pump Station	$ -	$ -	$ -	$ 193,950	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pump Station Assessment	$ -	$ 45,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pipes											
Storm Sewer Replacement Program (through coordinated reconstruction projects)	$ 338,000	$ 358,000	$ 379,000	$ 401,000	$ 424,000	$ 449,000	$ 475,000	$ 502,000	$ 532,000	$ 592,000	$ 592,000
Other Assets											
Catch Basins, Double Catch Basins, CBMH, Maintenance Holes	$ 94,000	$ 100,000	$ 105,000	$ 112,000	$ 118,000	$ 125,000	$ 132,000	$ 140,000	$ 148,000	$ 157,000	$ 157,000
Outlet Points	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141	$ 9,141
Oil/Grit Separators	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	**$ 522,141**	**$ 1,607,141**	**$ 493,141**	**$ 1,895,981**	**$ 605,141**	**$ 2,259,141**	**$ 736,141**	**$ 701,141**	**$ 689,141**	**$ 795,141**	**$ 1,275,141**

3.3 Operating Costs

A summary of the existing stormwater program, along with proposed changes, is provided in Table 3-3. The corresponding operating budget forecast is presented in Table 3-4.

Operating costs related to the stormwater program are forecast to increase from approximately $413,000 in 2022 to approximately $581,000 by 2032. The key drivers behind this increase are summarized below:

- Expansion of the stormwater management facility maintenance program to account for additional facilities that are expected to be assumed by the Town over the forecast period.
- Proposed new Storm Sewer Flushing and CCTV Inspection Program that will enable the Town to flush and inspect 10% of the storm network annually. This program has been included to support the proposed levels of service identified in section 2.3.
- Proposed annual provision for additional studies to be undertaken over the forecast period.

Table 3-3: Summary of Stormwater Operating Program Areas

Operating Program Area	Description of Current Program	Proposed Changes to Current Program
Stormwater Operations & Management		
Salaries, Wages, and Benefits	Includes allocation of staff positions that support the overall operations and management of the stormwater program (including Director of Public Works, Manager of Roads/Sewers, Manager of Engineering, Engineering Technician, and GIS (geographic information system) Coordinator). Approximately 0.5 full-time employees (FTEs) in total.	
Storm Drain System		
Salaries, Wages, and Benefits Storm Sewer Maintenance and Repairs	Includes allocation of staff that carry out storm sewer maintenance and repairs (including catch basin cleanouts and SWM facility inspections). Approximately 1.25 FTEs.	
Street Sweeping	Includes allocation of staff that carry out the annual street sweeping program. Approximately 0.65 FTEs.	
Materials Equipment Rentals	Rental of Gradall machine for ditching.	
Operating Materials	Purchases of operating materials, including storm iron works, culverts, gravel, concrete.	
Sweeper Truck Operating Costs	Annual operating costs related to the road sweeper (75% storm share).	
Contracted Services Third party contracts for roadway storm sewer work	Third-party contracts for roadway storm sewer work such as curb installation and paving.	

Operating Program Area	Description of Current Program	Proposed Changes to Current Program
Stormwater Management Facility Maintenance	Contracted services related to the annual stormwater management pond maintenance program.	Program expansion as additional stormwater management facilities are assumed by the Town (increase budget by $5,900 annually).
Nickerson Path Drainage Improvement	Investigation and implementation of solution to drainage issues along Nickerson.	One-time project that will not be carried to future years.
Storm Sewer Flushing and CCTV Inspection Program	Not Applicable	Proposed new program to provide flushing and CCTV inspections of 10% of the storm network annually. Program includes CCTV data analysis, creation of repair designs and tenders, and contract administration/ inspection (annual program cost of $119,000).
Pump Stations		
Salaries, Wages, and Benefits	Allocation of staff from Environmental Services to perform maintenance of pump stations.	
Materials Alarm Line Charges	Annual monitoring and reporting fee for alarms at storm pump stations.	
Building Maintenance - Exterior	Repairs to pump station structure.	
144 Division Storm Maintenance	General repair and upkeep of pump station.	
519 Division Storm Maintenance	General repair and upkeep of pump station.	
505 William Storm Maintenance	General repair and upkeep of pump station.	
Utilities	Cost of heat and hydro at pump stations.	
Financial Payment in Lieu of Taxes	Payment in lieu of property taxes.	
Studies and Special Projects		
Provision for Studies and Special Projects	Not Applicable	Proposed annual provision for additional studies to be undertaken over the forecast period (annual provision of $20,000).

Table 3-4: Operating Budget Forecast (2022 to 2032) – Uninflated

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Stormwater Operations & Management											
Salaries, Wages, and Benefits	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000	$ 66,000
Storm Drain System											
Salaries, Wages, and Benefits											
Storm Sewer Maintenance and Repairs	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Street Sweeping	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000	$ 52,000
Materials											
Equipment Rentals	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Operating Materials	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Sweeper Truck Operating Costs	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000
Contracted Services											
Third-party Contracts for Roadway Storm Sewer Work	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Stormwater Management Facility Maintenance	$ 50,000	$ 55,900	$ 61,800	$ 67,700	$ 73,600	$ 79,500	$ 85,400	$ 91,300	$ 97,200	$ 103,100	$ 109,000
Nickerson Path Drainage Improvement	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storm Sewer Flushing and CCTV Inspection Program	$ -	$ 119,000	$ 119,000	$ 119,000	$ 119,000	$ 119,000	$ 119,000	$ 119,000	$ 119,000	$ 119,000	$ 119,000
Pump Stations											
Salaries, Wages, and Benefits	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000	$ 18,000
Materials											
Alarm Line Charges	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530	$ 1,530
Building Maintenance - Exterior	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550
144 Division Storm Maintenance	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550	$ 2,550
519 Division Storm Maintenance	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570
505 William Storm Maintenance	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570	$ 3,570
Utilities	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240	$ 12,240
Financial											
Payment in Lieu of Taxes	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106	$ 4,106
Studies and Special Projects											
Provision for Studies and Special Projects	$ -	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Total Operating Costs	**$ 413,116**	**$ 528,016**	**$ 533,916**	**$ 539,816**	**$ 545,716**	**$ 551,616**	**$ 557,516**	**$ 563,416**	**$ 569,316**	**$ 575,216**	**$ 581,116**

3.4 Estimating Long-run Needs

As noted in subsection 2.2.1, the Town currently owns and manages more than $70 million worth of stormwater infrastructure. The 10-year capital forecast presented in section 3.2 identifies the specific rehabilitation, renewal, and replacement needs expected to be required over the forecast period. In addition to these specific needs, it is important to quantify the average annual lifecycle costs related to these assets. The average annual lifecycle costs were calculated based on the replacement cycles (expected service lives) and other recurring capital costs (e.g., pond cleanouts and rehabilitations) for each asset. These calculations establish the sustainable level of annual lifecycle funding required to sustain the assets over their full lifecycle. This annual lifecycle funding investment is then included in the full cost assessment of stormwater services and rate forecast.

There are two additional assets that support stormwater services – a Vactor truck and a road sweeper. The Vactor truck has an estimated replacement cost of $600,000 and an expected service life of 10 years. The road sweeper has an estimated replacement cost of $420,000 and an expected service life of 10 years. The average annual costs have been apportioned to the stormwater program based on the estimated share of time that each vehicle supports stormwater activities.

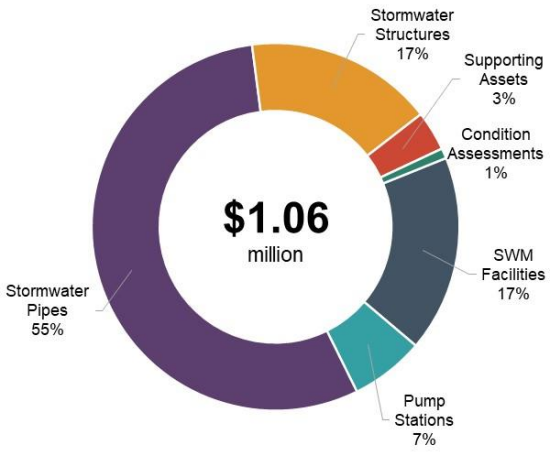
Table 3-5: Summary of Assets Partially Supporting Stormwater Services

Asset	Replacement Cost	Expected Service Life	Stormwater Share
Vactor Truck	$600,000	10 years	10%
Road Sweeper	$420,000	10 years	75%

The average annual lifecycle costs by asset category are summarized in Table 3-6, below. The average annual lifecycle costs represent approximately 1.5% of the replacement cost of these assets. An additional $9,500 has been included, reflective of the recurring assessments of the pump stations and stormwater management facilities (both every 10 years), since these assessments are considered to be an integral component of the assets' lifecycle.

Table 3-6: Average Annual Lifecycle Costs by Asset Category

Asset Category	Average Annual Lifecycle Cost
SWM Facilities	$185,545
Pump Stations	$69,860
Stormwater Pipes	$592,395
Stormwater Structures	$177,528
Supporting Assets	$37,500
Condition Assessments	$9,500
Total	**$1,062,828**



3.5 Population and Employment Growth

Based on the Town's 2021 Development Charges Background Study, the Town's population is expected to grow by approximately 3,655 by 2031. Furthermore, employment is expected to increase by approximately 2,179 employees over the same timeframe.

It is expected that the Town's inventory of stormwater infrastructure will expand over the coming years due to development. While the full extent of additional infrastructure is unknown at this time, some aspects can be estimated. For example, the Town maintains a list of stormwater storage and treatment infrastructure that is expected to be assumed through the development process. As a result, the annual lifecycle funding requirements will grow proportionately. These incremental lifecycle costs have been incorporated into the proposed operating budget forecast and financial strategy contained herein.

The Town's stock of stormwater infrastructure will also expand as a result of the servicing needs related to the Cobourg East Community area. The servicing requirements are summarized in the Town's 2021 Development Charges Background Study, and the gross capital costs of this infrastructure, comprised primarily of trunk

sewer networks, are estimated at $29.5 million. These costs are an estimate of what will be required to service the Cobourg East Community area to full buildout, the timing of which is expected to extend beyond 2041. Therefore, the future ongoing annual lifecycle funding requirements related to this infrastructure have not been included in this asset management plan. Similarly, the extent of linear infrastructure and stormwater structures that will be emplaced by developers internal to subdivisions, and will eventually be assumed by the Town, has not been estimated. The lifecycle activities and costs of these assets will be included in future updates of this asset management plan as the infrastructure is constructed.

Chapter 4
Funding Framework

4. Funding Framework

Creating a rational relationship/nexus between the stormwater management services and the manner in which they are funded is foundational to creating a stable, defensible, equitable and adequate funding strategy. In assessing the potential revenue streams for stormwater services, the evaluation of data and the selection of a preferred methodology is a critical step in choosing an equitable way to distribute stormwater fees across a community.

Through consultation with Town staff regarding proposed levels of service and developing a corresponding operating and capital program, it was determined that the Town required a segregated funding source to provide sustainable funding for this critical infrastructure. As such, the following sections provide an overview of the various approaches for establishing a segregated funding source and identify the preferred funding structure.

4.1 Current Funding Sources

The Town's stormwater services, as defined through this asset management plan, are currently funded from three sources:

- **Property Taxes** – Operating costs related to stormwater services are currently predominantly funded from the general tax levy.
- **Federal/Provincial Grants** – Some capital investments related to stormwater services are partially funded through grant programs such as the Canada Community Building Fund (formerly the Gas Tax Fund) and the Ontario Community Infrastructure Fund (OCIF).
- **Development Charges** – Costs of new and expanded stormwater infrastructure required as a result of growth-related development are recovered through development charges.

4.2 Alternative Funding Models

An important consideration with respect to establishing a stormwater funding model is identifying the underlying charging parameters that most closely relate to the benefits of service received. In this regard, there are several approaches which have been used

by municipalities across Ontario. A brief commentary is provided for each type of funding model:

- **Property Taxes** – This is the predominant funding approach used by municipalities throughout Ontario. The net expenditures for the service are added to the tax levy and recovered from properties based on the assessed value of each property. There is no clear relationship between the benefits of service received by a property and the basis for paying the cost for the service, other than ability to pay.
- **Flat Rates** – Generally, the total cost for the service is divided by the number of properties to provide a "per property" charge. The rate may be varied by type of user to denote some variation in the service received (e.g., modification for non-permeable land area). Dependent on the use of service benefit factors to modify flat rates, the level of service received, and the cost of the service may not necessarily directly correlate.
- **Land Area** – This approach recognizes that there is some relationship between the size of a property and the volume of stormwater runoff which may be generated by the property. While area is a key factor for the amount of rainfall absorbed by a property, this approach does not directly reflect the rate at which the water migrates from the property into the municipal storm system. Similar to the modified flat rate approach described above, modifications of land area for stormwater runoff produce a charging basis that more closely relates to the benefits of service received.
- **Utility Rate** – This approach imposes a charge based upon the metered volumes of water consumed by constituents as measured through water meters. This is used by municipalities that recover stormwater service costs through water and wastewater rates. While this approach provides a segregated revenue source (i.e., user rate funded vs. tax funded) and stormwater is traditionally included within the definition of wastewater, there is little correlation between the benefit of service and cost of service. Moreover, not all benefiting landowners may be included in the recovery of water and wastewater fees, whereby rural or private service customers without municipal water meters would be exempt from such fees.
- **Runoff Coefficient** – The percentage of rainfall that migrates as stormwater runoff from a property (or surface) is called the runoff coefficient. These coefficients are used by engineers as part of a formula for calculating the amount

of runoff from a property. Generally, very grassy, vegetated lands have a low runoff coefficient, whereas lands with large amounts of hard surfaces (parking lots, buildings, etc.) have a high runoff coefficient. Applying these factors to a flat rate or a land area fee structure would provide a calculation that takes the size of the property (or class of property) and the character of the property into account when determining the charge. Under this approach a runoff coefficient could be developed for various property classes and imposed on a property-specific basis based on the constituent land area and calculated impervious area, or on a flat rate basis reflecting the characteristics of the broader property class (e.g., residential, non-residential, etc.).

- **Impervious Area of the Properties** – While similar to the runoff coefficient approach described above, this approach is based on the actual measured amount of imperviousness for each property as opposed to a broader property type. To calculate this rate structure, a detailed analysis of each property must be undertaken through GIS and aerial mapping measurements.

4.3 Survey of Municipal Practice in Ontario

A survey of Ontario municipalities that employ dedicated stormwater funding mechanisms was undertaken to compare funding models and rate structure approaches. Figure 4-1 contains the survey of 16 municipalities including the municipalities of Aurora, Brampton, Guelph, Hamilton, Kitchener, London, Markham, Middlesex Centre, Mississauga, Newmarket, Ottawa, Richmond Hill, St. Thomas, Vaughan, Waterloo, and Whitchurch-Stouffville. Most of the 16 municipalities surveyed employ some variation of a flat rate charge, a smaller number employ a charge based on measured impervious area, and only one imposes a utility rate. Municipalities that utilize a variation of the flat rate structure can be segregated into two general types – those with highly aggregated fees (e.g., residential and non-residential), and those with disaggregated fees (e.g., low-density residential, high-density residential, etc.). These two general types can be further subdivided into municipalities that impose the fees based on specific imperviousness characteristics of each property, and those that impose fees based on general imperviousness characteristics of the property type (e.g., residential as a whole).

Figure 4-1: Summary of Stormwater Rate Structures in Ontario Municipalities

Municipality	Type of Rate Based Structure	Rate Categories
Markham	Flat Rate Charge per Property	Residential
	Current Value Assessment (CVA)	Non-residential
Ottawa	Residential - Flat Rate per Property (by property type, Urban & Rural)	Residential (RS) and Multi-Residential (RA) - Urban/Rural
	Non-Residential - Tiered Flat Fee (based on CVA, Urban/Rural)	ICI - 8 CVA ranges/categories - Urban and Rural
Aurora	Flat Rate Charge per Unit	Residential and condominium properties
		Non-residential and multi-residential properties
Richmond Hill	Flat Rate Charge per Property	Residential and farm properties
		Industrial, commercial, multi-unit, and condominium properties
Whitchurch-Stouffville	Flat Rate Charge per Property	Residential
		Commercial, Industrial, and Multi-residential
Hamilton	Utility Rate (based on water consumption)	Residential - 2 tiers (based on monthly consumption)
		Non-residential
London	Flat Rate Charge per Property	Land area 0.4 hectares or less
		Residential land area 0.4 hectares or less without a stormdrain within 90m
	Rate per hectare	Land area above 0.4 hectares
Middlesex Centre	Flat Rate Charge per Property	Land area 0.4 hectares or less
	Rate per hectare	Non-residential land area above 0.4 hectares
St. Thomas	Flat Rate per Property	Residential & commercial/institutional under 1,800 m^2 land area
	Rate per Hectare	Commercial/institutional over 1,800 m^2 land area & all industrial
Vaughan	Flat Rate Charge per Property	3 Residential categories
		Agricultural/vacant
		3 Non-Residential categories
Waterloo	Flat Rate per Property (by property type & size)	3 residenital categories & 3 multi-residential categories
		3 institutional categories & 4 industrial/commercial categories
Kitchener	Tiered Flat Fee (based on property type and size of impervious area)	10 residential categories
		6 non-residential categories
Newmarket	Tiered charge per unit of land area	3 tiers by runoff level group
Guelph	Flat Rate Charge	Residential - applied to every detached home, townhouse, apartment, and condo
	Rate per Equivalent Residential Unit (ERU) based on impervious area (ERU multiplier = impervious area/188 m2)	Industrial, commercial, and institutional properties
Brampton	Tiered Flat Fee (based on roofprint area)	5 categories for Single Residential properties
	Rate per m2 of impervious area (impervious area individually assessed for each property)	Multi-residential & non-residential properties
Mississauga	Tiered Flat Fee (based on roofprint area)	5 categories for Single Residential properties
	Rate per m^2 of impervious area (impervious area individually assessed for each property)	Multi-residential & non-residential properties

4.4 Assessment of Alternative Funding Models

4.4.1 Assessment Criteria

"Ease of Calculation" is a criterion to capture the relative data intensity required to support a given funding model. In the presence of good data, any given funding structure can be calculated with relative ease, but the difficulty lies in the ability to obtain and maintain a comprehensive and accurate data source.

"Linkage between Cost Paid and Benefit Derived from Services" measures how closely the amount paid by any given property owner reflects the benefits of service received.

Although all Town residents benefit from a well-functioning stormwater system, property owners with more impervious areas on their properties produce more stormwater runoff, and hence place higher demands on the Town's infrastructure. Under the current funding model utilized by the Town (i.e., property taxes), owners of property with a higher current value assessment pay more for stormwater services, even though there is no clear link between a property's assessed value and stormwater service benefits. A more direct linkage between the amount paid and the benefit derived from services is considered desirable, and funding structures that provide this are therefore preferred.

"Cost of Administration" reflects the fact that although a funding structure that is well supported by data and provides a tight relationship between the ultimate cost to, and benefits received by, the person paying them may be more desirable, the costs of administering such a funding structure typically rise. This is an important consideration because any increase in the costs of administration would have the effect of diverting funding from actual stormwater system needs. Therefore, the benefit of recovering service costs from benefiting parties needs to be measured against the costs of implementation.

"Users' Control over Charging Mechanism" considers how much control a property owner has over the amount they must pay. More control in this regard is considered a positive attribute and, therefore, funding structures that provide the property owner with a greater degree of control are ranked higher. For example, under a funding model that charges a flat rate per property, the property owner would have little control over the charge for service.

4.4.2 Assessment of Alternatives

Table 4-1 provides the spectrum of options for stormwater cost recovery and the ranking of each, relative to various service criteria discussed in the previous section.

Generally, moving from the top of the table to the bottom, the relationship between the amount paid and benefits derived from the service is more direct. However, the costs to populate and maintain the "denominator" for the calculation also increases when progressing down the table.

Table 4-1: Spectrum of Options for Stormwater Cost Recovery

Funding Model	Basis of Calculation	Ease of Calculation	Linkage Between Amount Paid and Benefit Derived from Services	Cost of Administration	Users' Control Over Charging Mechanism
Property Taxes	Tax rate applied to assessed value	Easy	Low	Low	Medium
Flat Rate per Property	$/property	Easy	Low	Low	Low
Utility Rate	$/$m^3$ of water consumption	Easy	Low	Low	High
Runoff Coefficient by Property Type	$/unit (varied by type)	Medium	Medium	Medium	Low
Impervious Area Sampling by Property Type	$/unit (varied by type)	Medium	Medium	Medium	Low
Runoff Coefficient by Actual Land Area per Property	$/impervious acre	Hard	High	Medium/High	Medium
Impervious Area Sampling by Actual Land Area per Property	$/impervious acre	Hard	High	Medium/High	Medium
Actual Impervious Area per Property	$/impervious acre	Hard	High	High	High

Property Taxes

At present, property taxes are utilized by the Town to fund most of the stormwater service needs. Property taxes are considered easy to calculate since this is a funding model currently in use and hence data is readily available to support assessment calculations. Similarly, the cost of administration is considered low since the Town already maintains a tax database and has the resources in place to maintain and update it as needed. Property assessment is not considered a good proxy for the benefits that a given property receives from the Town's stormwater system. Property owners have some control over how much they pay, however, as they may choose a property with a different assessment.

Flat Rate per Property

Charging a uniform flat rate per property would be the easiest approach both computationally and administratively. Data on the number of properties is readily available through the Town's tax database and determining an appropriate flat fee would simply entail dividing the net costs of the stormwater program by the number of properties. From an administrative perspective, a flat rate approach would be quite inexpensive, as each year the number of properties would simply be adjusted for any subdivisions/severances that take place. This type of funding structure, however, provides no direct link between the amount paid and the benefits derived from the stormwater system, as it does not capture any property characteristics and simply treats every property the same. Additionally, property owners would not have any control over how much they pay, since every property owner pays the same amount under this approach.

Utility Rate

Similar to property taxation, utility billing is an established mechanism available to the Town via Lakefront Utilities, and therefore consumption data is readily available to support rate calculations. The cost of administration is also considered low, since this would be no different than the current regular updates to water and wastewater rates. Volumetric utility rates provide customers with a high degree of control over how much they pay, by giving them the option of adjusting water consumption patterns. A weak area of the utility rate approach is its disconnect from system benefits. There is little evidence of a correlation between water usage and imperviousness of properties.

Runoff Coefficient by Property Type

This funding structure would group properties into categories (e.g., low-density residential, commercial, industrial, etc.) and subsequently runoff coefficients would be applied to the assumed land area within each category to come up with an estimate of impervious area within each category, and within the Town as a whole. The relative share of total impervious land would drive the share of system costs that are attributed to each property category. The share of costs attributed to a category would then be spread evenly over the number of properties within it. As such, all properties within a single category (e.g., low-density residential) would pay the same fee, but this amount would be different from the amount paid by other property categories. Such an approach recognizes that there are distinct physical differences between different types

of development and property types. For example, residential properties tend to have a smaller proportion of impervious area relative to commercial properties. Users' control over the charging mechanism would be low under this approach. There is an improvement of the linkage between costs and benefits as compared to the funding structures described above. Data requirements and calculations are considered somewhat more difficult since the impervious area needs to be calculated for each property category. Administratively it becomes somewhat more difficult and expensive to maintain such a funding structure, because the relative distribution of costs between property categories would need to be recalculated with regular frequency to account for the effects of continued development in the Town.

Impervious Area Sampling by Property Type

This approach is very similar to applying runoff coefficients by property type. Instead of making assumptions on appropriate runoff coefficients, however, imperviousness characteristics would be determined for each property category by means of statistical sampling from the Town's GIS. The ranking of this approach would be the same as for the above (runoff coefficient by property type), albeit there is a possibility that the link between costs and benefits would be slightly improved.

Runoff Coefficient by Actual Land Area per Property

Taking the Runoff Coefficient by Property Type approach a step further, this method would apply runoff coefficients to each individual property's land area, thereby estimating each property's impervious area. Summing the impervious areas of all properties would facilitate the calculation of a charge per impervious hectare, which would then be applied to each property's estimated impervious area. The data requirements to support these calculations are greater, as the land area of each property would have to be known. Although the Town's tax database contains size information for most properties, there are also properties with missing size parameters. There would be additional effort requirements and costs associated with assessing the properties with missing size information, and annual costs of maintaining and updating the property database could potentially be significant. Since each property's size would be taken into account individually, however, the linkage between the cost paid and the benefits derived from the system would potentially be greatly improved. Furthermore, property owners would exercise some control over the charging mechanism through their choice of property.

Impervious Area Sampling by Actual Land Area per Property

Borrowing elements from the previous two funding structures discussed, this approach would apply runoff coefficients determined through statistical sampling to each property's actual land area.

Actual Impervious Area per Property

As the heading suggests, this approach would require actual measurement of the impervious area of each property, either physically, through GIS, or through a combination of both. Each property owner would then pay an amount directly proportionate to the amount of impervious area on their property, and consequently the link between costs and benefits would be very strong. Property owners would also have a high degree of control over the amount they are required to pay, since they have direct control over pertinent site characteristics such as the amount of paved cover (size of driveway, patio, etc.). On the other hand, the desirable attributes of this rate structure come at a significant cost from an initial data acquisition and rate calculation perspective, as well as from the annual data maintenance perspective.

4.5 Recommended Funding Model

All the funding model options described above in section 4.4 were discussed with Town staff. Based on these discussions and the feedback received, the "Runoff Coefficient by Actual Land Area per Property" approach emerged as the preferred funding model. Therefore, all subsequent financial analysis was carried out on this basis.

Some advantages to this model include:

- Dedicated and stable funding sources which allow for better long-term planning;
- Segregation of revenue directly aligned with service provision;
- Increased equity as properly designed stormwater fees follow a user pay principle; and
- Increased awareness of the importance of stormwater management and associated costs which can increase public support.

Chapter 5
Rate Analysis

5. Rate Analysis

5.1 Introduction

Rates in their simplest form can be defined as total costs to maintain the utility function divided by the total expected amount of a charging parameter to be generated for the period. The charging parameter could, for example, be the volume of water consumption, number of properties, or hectares of impervious area. Total costs are usually a combination of operating costs (e.g., staff costs, materials and supplies, contracted services, maintenance, administration, etc.) and capital-related costs (e.g., past debt to finance capital projects, transfers to reserves to finance future expenditures, etc.). These operating and capital expenditures will vary over time. Examples of factors that will affect the expenditures over time are provided below.

Operations:

- Inflation;
- Increased maintenance as system ages;
- Changes in costs reflecting level of service investments; and
- Changes to provincial legislation.

Capital Related:

- Replacement capital needed as system ages;
- New capital emplaced or built as areas expand;
- Financing of capital costs which is a function of policy regarding reserves and direct financing from rates (pay as you go), debt, and user pay methods (e.g., development charges).

Chapter 4 summarizes the process undertaken to arrive at the preferred funding structure for stormwater services. The following sections describe the analysis undertaken to calculate the range of potential impacts resulting from the preferred funding model. It is noted that additional work would be required to develop a billing database and review rate calculations for the Town's preferred funding structure if a decision is made to proceed with this approach.

5.2 Financial Model

5.2.1 Operating and Capital Expenditure Forecast

The detailed operating and capital expenditure forecasts provided in Chapter 3 were presented in current dollars to better demonstrate the effects of the various level of service recommendations affecting annual stormwater program expenditures. Inflationary pressures over time will also impact expenditures; therefore, inflationary adjustments were applied in the rate calculations. For operating expenditures, an annual inflation rate of 2% was applied, while capital expenditures were indexed at a rate of 3.5% annually.

5.2.2 Sources of Capital Funding

Grants

As noted earlier in section 4.1, the Town is currently funding some capital investments related to stormwater services through grant programs such as the Canada Community Building Fund (formerly the Gas Tax Fund) and the Ontario Community Infrastructure Fund (OCIF). While it is expected that these external grant funding programs are going to continue to be available over the forecast period, they will not be relied on to support stormwater services once a dedicated stormwater charge is established. The financial forecast only includes the Canada Community Building Fund and OCIF funding for the capital works budgeted for 2022, consistent with the Town's approved budget. The Town, however, may apply for other grant funding that may be available to offset the costs of specific stormwater investments. For example, the Town was recently successful in securing a grant in the amount of $576,000 which will be put towards the planned cleanouts/rehabilitations of stormwater management facilities.

Debenture Financing

Although it is not a direct method of minimizing the overall cost to the ratepayer, debentures are used by municipalities to assist in cash flowing large capital expenditures.

The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act*. O. Reg. 403/02 provides the current rules respecting municipal debt and financial obligations. Through

the rules established under this regulation, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e., debt charges).

It should be noted, however, that the issuance of debt should be managed at levels sustainable by the municipality. Issuance of large amounts of debt in any one year can have dramatic impacts on taxes and rates. Hence, proper management of capital spending and the level of debt issued annually must be monitored and evaluated over the longer-term period.

Within the context of the Town's stormwater program, projections show that additional debt financing of approximately $2.4 million would not be required over the forecast period.

Development Charges

The Town currently imposes development charges in respect of stormwater services within the Cobourg East Community area. While development charges are an important mechanism for the recovery of capital costs related to new development, these charges do not offset any of the costs identified in the forecast presented in Table 3-2.

5.3 Growth Forecast

In preparing the rate forecasts for a 10-year period, a number of assumptions were necessary to project the service demands and changes in charging parameters.

To estimate the potential impacts of imposing a stormwater charge based on the "Runoff Coefficient by Actual Land Area" approach, a forecast of land area by property type was required. As the Town undergoes development, vacant developable lands become subdivided and in turn are developed as lots. They ultimately result in developed residential and non-residential properties. To model this relationship, the residential unit growth forecast and non-residential gross floor area (GFA) forecast from the Town's 2021 Development Charges Background Study was utilized. Residential units were converted into land area by applying assumptions of units per hectare for low-, medium-, and high-density residential units. Similarly, for non-residential development, land coverage assumptions were applied to projected GFA growth to estimate land area growth within each non-residential category, i.e., commercial,

industrial, and institutional. The total annual increase in developed land area was then subtracted from the agricultural/vacant property type.

5.4 Stormwater Rates

5.4.1 Property Classification

Town staff provided the 2020 tax database, which includes information on all properties within the Town. Each property is associated with a property code that gets assigned by the Municipal Property Assessment Corporation (MPAC) as part of the assessment process. The Town's tax database includes 117 unique property codes. These 117 property codes were mapped to seven broad property types, including:

- Commercial;
- Industrial;
- Institutional;
- Agricultural/Vacant;
- Residential (Low Density);
- Residential (Medium Density); and
- Residential (High Density).

A detailed mapping of the property codes into broader property types is provided in Appendix A.

Once the property codes were classified by property type, the total land area of each parcel was extracted from the Town's tax database. There were a number of parcels with missing land area, and in these cases land area was imputed based on average land area of other properties with the same property code. Runoff coefficients were subsequently applied to the total land area within each property type category to estimate the impervious area associated with each of the property types. Runoff coefficients approximate the proportion of rainwater that runs off a property as a result of not being able to be absorbed into the ground. Thus, property types that tend to have larger building footprints or larger paved areas relative to the parcel size have higher runoff coefficients, reflective of the fact that they generate more stormwater runoff. The more runoff a property generates, the larger the cost it imposes on the municipal stormwater system.

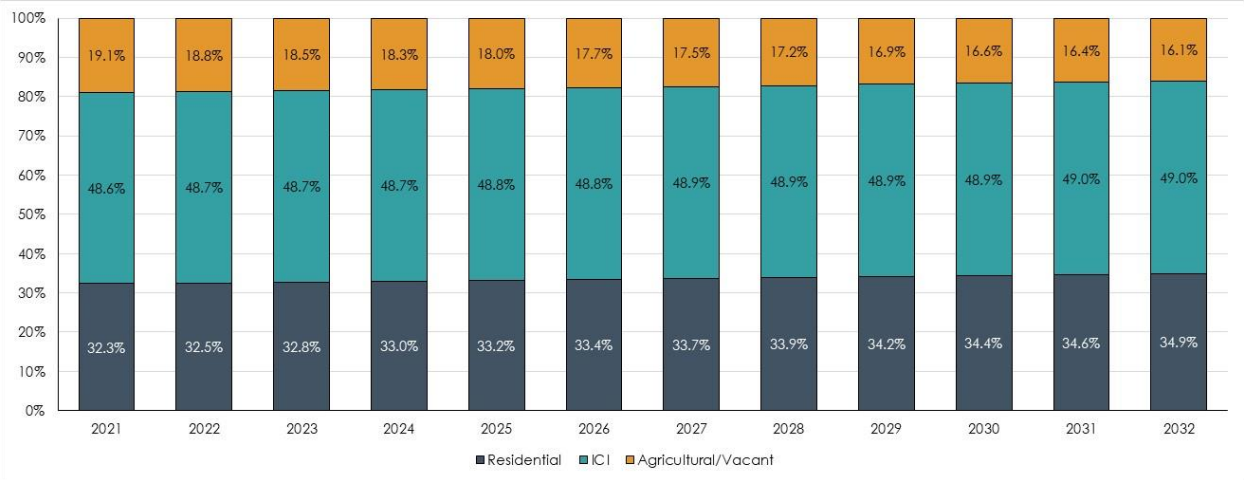
A high-level summary of the seven property types is provided in Table 5-1, including the total land area within each property type, the respective runoff coefficients, and resulting impervious area estimates.

Table 5-1: Property Classification

Property Type	Land Area (hectares)	Runoff Coefficient	Estimated Impervious Area (hectares)	Share of Total Impervious Area
Commercial	179	0.90	161	20%
Industrial	240	0.80	192	24%
Institutional	52	0.75	39	5%
Agricultural/Vacant	769	0.20	154	19%
Residential (Low Density)	482	0.45	217	27%
Residential (Medium Density)	23	0.60	14	2%
Residential (High Density)	39	0.75	29	4%
Total	**1,784**		**806**	**100%**

It is noted that as a result of future growth within the Town, as described in section 5.3, and the corresponding shift of land from undeveloped (agricultural/vacant) to the various developed property types, the relative share of impervious land area within each property type category will vary over time. The relative share of impervious land area for each property type is summarized in Figure 5-1, below.

Figure 5-1: Relative Share of Estimated Impervious Land Area by Property Type



The net costs of the stormwater service are recovered from the various property types based on the ratios of impervious land identified in Table 5-1. These costs are subsequently divided by the total amount of land area within the given property type classification (e.g., low-density residential, etc.) to arrive at an estimated rate per hectare.

5.5 Stormwater Rate Impacts

This section provides an overview of the projected rate forecast for a dedicated stormwater charge based on imperviousness characteristics of properties. Detailed calculations are provided in Appendix B.

Table 5-2 provides the rate forecast and Table 5-3 provides the annual stormwater bill impacts that could be expected by different property owners. Table 5-3 also provides a comparison of the bill impacts of a dedicated stormwater charge relative to the share of the property tax bill that went towards stormwater services in 2021.

The assumptions utilized for calculating the bill impact for each hypothetical property are summarized below:

- Residential Single Detached – assumes property size of 0.084 hectares which is reflective of a typical single family detached home.
- Small Commercial Property – assumes property size of 0.105 hectares which could, for example, be a small fast-food restaurant with a parking lot.
- Medium Commercial Property – assumes property size of 0.494 hectares which could, for example, be a car dealership.
- Large Commercial Property – assumes property size of 9.939 hectares which could, for example, be a commercial plaza/shopping mall with associated large parking areas.

Table 5-2: Stormwater Rate Forecast

Property Type	Annual Charge per Hectare of Land Area										
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Commercial	$ 250.20	$ 1,809.44	$ 1,872.70	$ 1,938.16	$ 2,005.91	$ 2,074.47	$ 2,147.01	$ 2,222.07	$ 2,299.76	$ 2,380.17	$ 2,463.66
Institutional	$ 208.50	$ 1,507.87	$ 1,560.58	$ 1,615.13	$ 1,671.60	$ 1,728.73	$ 1,789.17	$ 1,851.73	$ 1,916.47	$ 1,983.48	$ 2,053.05
Industrial	$ 222.40	$ 1,608.39	$ 1,664.62	$ 1,722.81	$ 1,783.04	$ 1,843.98	$ 1,908.45	$ 1,975.18	$ 2,044.24	$ 2,115.71	$ 2,189.92
Agricultural/Vacant	$ 55.60	$ 402.10	$ 416.15	$ 430.70	$ 445.76	$ 460.99	$ 477.11	$ 493.79	$ 511.06	$ 528.93	$ 547.48
Residential (Low Density)	$ 125.10	$ 904.72	$ 936.35	$ 969.08	$ 1,002.96	$ 1,037.24	$ 1,073.50	$ 1,111.04	$ 1,149.88	$ 1,190.09	$ 1,231.83
Residential (Medium Density)	$ 166.80	$ 1,206.29	$ 1,248.46	$ 1,292.11	$ 1,337.28	$ 1,382.98	$ 1,431.34	$ 1,481.38	$ 1,533.18	$ 1,586.78	$ 1,642.44
Residential (High Density)	$ 208.50	$ 1,507.87	$ 1,560.58	$ 1,615.13	$ 1,671.60	$ 1,728.73	$ 1,789.17	$ 1,851.73	$ 1,916.47	$ 1,983.48	$ 2,053.05

Table 5-3: Estimated Bill Impacts for Sample Properties

Sample Property	Annual Stormwater Bill										
	2021[A]	2022[B]	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Residential Single Detached	$ 37.44	$ 36.09	$ 76.25	$ 78.92	$ 81.67	$ 84.53	$ 87.42	$ 90.48	$ 93.64	$ 96.91	$ 100.30	$ 103.82
Small Commercial	$ 108.57	$ 100.42	$ 190.39	$ 190.39	$ 197.04	$ 203.93	$ 211.06	$ 218.27	$ 225.90	$ 233.80	$ 241.98	$ 250.44
Medium Commercial	$ 156.64	$ 230.43	$ 893.35	$ 924.58	$ 956.90	$ 990.35	$ 1,024.20	$ 1,060.01	$ 1,097.08	$ 1,135.43	$ 1,175.13	$ 1,216.35
Large Commercial	$ 5,392.92	$ 6,166.93	$ 17,984.20	$ 18,612.90	$ 19,263.56	$ 19,936.98	$ 20,618.39	$ 21,339.29	$ 22,085.39	$ 22,857.58	$ 23,656.76	$ 24,486.58

[A] The Annual Bill amounts presented for 2021 include the proportionate share of the property tax bill related to stormwater services.

[B] The Annual Bill amounts presented for 2022 include the proportionate share of the property tax bill related to stormwater services and the estimated stormwater charge that would be applied in 2022.

Based on the comparison of annual bills for a cross-section of Town customers provided in Table 5-3:

- For the hypothetical single detached residential customer, the annual stormwater bill would increase from $37.44 in 2021 to $76.25 in 2023 with a dedicated stormwater charge. If the Town was to support the proposed stormwater program through the current funding model (i.e., property taxes), the estimated stormwater charge for this customer would be $150.07 in 2023.
- For the hypothetical small commercial customer, the annual stormwater bill would increase from $108.57 in 2021 to $190.39 in 2023 with a dedicated stormwater charge. If the Town was to support the proposed stormwater program through the current funding model (i.e., property taxes), the estimated stormwater charge for this customer would be $435.20 in 2023.
- For the hypothetical medium commercial customer, the annual stormwater bill would increase from $156.64 in 2021 to $893.35 in 2023 with a dedicated stormwater charge. If the Town was to support the proposed stormwater program through the current funding model (i.e., property taxes), the estimated stormwater charge for this customer would be $627.89 in 2023.
- For the hypothetical large commercial customer, the annual stormwater bill would increase from $5,392.92 in 2021 to $17,984.20 in 2023 with a dedicated stormwater charge. If the Town was to support the proposed stormwater program through the current funding model (i.e., property taxes), the estimated stormwater charge for this customer would be $21,617.04 in 2023.
- After 2023, all properties could expect their annual stormwater bill to increase by approximately 3.5% annually over the remainder of the forecast period.

It is important to note that the impacts felt by individual properties could vary widely depending on the size of the property and its assessed value for taxation purposes.

As part of a future implementation phase, the Town should consider options for a credit program to recognize investments made by property owners to better manage stormwater on properties thereby giving them greater control over their stormwater bill.

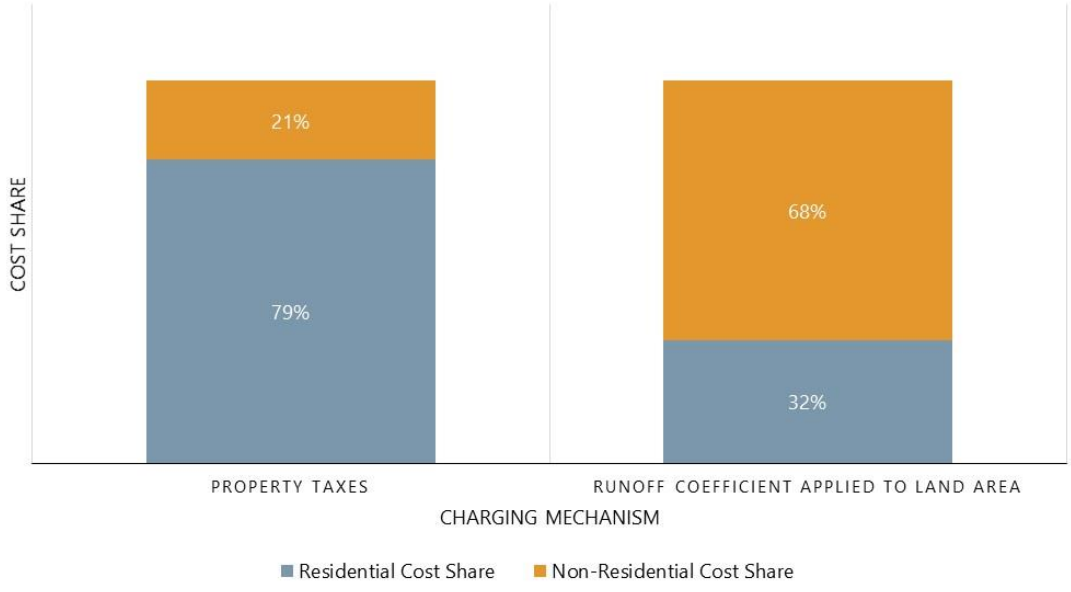
Chapter 6
Recommendations

6. Recommendations

Based on discussions with Town staff throughout the development of this asset management plan and funding assessment, the "Runoff Coefficient by Actual Land Area per Property" approach emerged as the preferred funding model.

One of the most compelling reasons for introducing a user fee is that the costs related to stormwater management would be more fairly distributed amongst benefitting properties. To illustrate this point, Figure 6-1 provides a comparison of how stormwater costs are shared between residential and non-residential properties under the Town's current cost recovery model (i.e., property taxes) versus a user fee model that uses the "Runoff Coefficient Applied to Land Area" approach. Based on the Town's 2020 Financial Information Return, approximately 21% of property tax revenues come from non-residential properties, and 79% come from residential properties. However, preliminary estimates of the runoff generated by these broad property classifications (using runoff coefficients) show that approximately 68% of runoff is associated with non-residential properties and 32% is associated with residential properties. As such, the Town's current approach of funding stormwater services through the general tax levy does not fairly distribute costs between these two high-level property classifications and, as a result, residential properties are effectively subsidizing non-residential properties.

Figure 6-1: Residential vs. Non-Residential Cost Share under Different Charging Mechanisms



If a decision is made by Council to move ahead with the new stormwater management program and rate structure, an implementation phase will follow this study. The implementation phase would include the development of a billing database in preparation for sending out stormwater bills to customers. The rates presented in this report should be reviewed based on the information in the billing database (i.e., land area by property category for billable properties) and updated if necessary. The implementation phase should include public engagement to inform the public about the importance of stormwater services, the proposed 10-year plan, and the changes to the funding model and rate structure.

With respect to the asset management plan contained in this study, it is recommended that the Town begins tracking and reporting on the performance measures identified in Table 2-3 on an annual basis, as a way of measuring its progress towards implementing this asset management plan.

The asset management plan is a snapshot in time and is based on several assumptions regarding expected lifecycles and the future performance of assets, lifecycle intervention costs, among others. The Town will need to establish processes for reviewing and updating these assumptions on a regular basis to keep the plan relevant. At a minimum, the asset management plan will need to be updated every five years as required by O. Reg. 588/17.

Appendices

Appendix A
Property Classification

Property Classification

MPAC Property Code	MPAC Description	Stormwater Rate Classification	Properties with Size Data		Properties without Size Data		Total Estimated Site Area (hectares)
			# of Roll numbers with Size Data	Total Site Area (hectares)	# of Roll numbers w/o Size Data	Estimated Site Area of these Properties	
100	Vacant residential land not on water	Agricultural/Vacant	372	177.62	8	3.82	181.44
102	Conservation authority land	Agricultural/Vacant	1	12.51	-	-	12.51
103	Municipal park (excludes provincial parks, federal parks, campgrounds)	Agricultural/Vacant	23	19.80	1	0.86	20.66
105	Vacant commercial land	Agricultural/Vacant	26	18.39	-	-	18.39
106	Vacant industrial land	Agricultural/Vacant	19	66.15	-	-	66.15
110	Vacant residential/recreational land on water	Agricultural/Vacant	31	21.73	-	-	21.73
112	Multi-residential vacant land	Agricultural/Vacant	11	9.43	-	-	9.43
113	Condominium development land—residential (vacant lot)	Agricultural/Vacant	8	2.18	-	-	2.18
125	Residential development land	Agricultural/Vacant	10	66.11	1	6.61	72.72
127	Townhouse block—freehold units	Agricultural/Vacant	7	1.32	-	-	1.32
130	Non-buildable land (walkways, buffer/berm, storm water management pond, etc.)	Agricultural/Vacant	69	8.67	1	0.13	8.80
134	Land designated and zoned for open space	Agricultural/Vacant	11	13.21	-	-	13.21
140	Common land	Agricultural/Vacant	1	0.05	-	-	0.05
211	Farm with residence—with or without secondary structures; with farm outbuildings	Agricultural/Vacant	1	1.02	-	-	1.02
260	Vacant residential/commercial/ industrial land owned by a non-farmer with a portion being farmed	Agricultural/Vacant	11	285.50	1	25.95	311.46
261	Land owned by a non-farmer improved with a non-farm residence with a portion being farmed	Agricultural/Vacant	1	3.98	-	-	3.98
301	Single family detached (not on water)	Residential (Low Density)	5,039	424.69	67	5.65	430.34
302	More than one structure used for residential purposes with at least one of the structures occupied permanently	Residential (Medium Density)	8	3.53	-	-	3.53
303	Residence with a commercial unit	Commercial	19	2.48	-	-	2.48
304	Residence with a commercial/ industrial use building	Commercial	3	1.21	-	-	1.21
309	Freehold townhouse/row house—more than two units in a row with separate ownership	Residential (Medium Density)	321	9.36	-	-	9.36
311	Semi-detached residential—two residential homes sharing a common centre wall with separate ownership.	Residential (Low Density)	348	14.69	2	0.08	14.77
313	Single family detached on water—year-round residence	Residential (Low Density)	71	24.07	1	0.34	24.41
314	Clergy Residence	Residential (Low Density)	1	0.44	-	-	0.44
322	Semi-detached residence with both units under one ownership—two residential homes sharing a common centre wall.	Residential (Low Density)	38	3.92	-	-	3.92
332	Typically a Duplex—residential structure with two self-contained units.	Residential (Low Density)	81	7.46	-	-	7.46
333	Residential property with three self-contained units	Residential (Medium Density)	28	2.37	1	0.08	2.46
334	Residential property with four self-contained units	Residential (Medium Density)	12	1.00	-	-	1.00
335	Residential property with five self-contained units	Residential (Medium Density)	7	1.03	-	-	1.03
336	Residential property with six self-contained units	Residential (Medium Density)	18	2.12	-	-	2.12
340	Multi-residential, with seven or more self-contained units (excludes row-housing)	Residential (High Density)	43	23.11	-	-	23.11
341	Multi-residential, with seven or more self-contained residential units, with small commercial unit(s)	Commercial	1	0.10	-	-	0.10
350	Row housing, with three to six units under single ownership	Residential (Medium Density)	1	0.05	-	-	0.05
352	Row housing, with seven or more units under single ownership	Residential (High Density)	1	1.59	-	-	1.59
360	Rooming or boarding house—rental by room/bedroom; tenant(s) share a kitchen, bathroom and living quarters.	Residential (Medium Density)	1	0.06	-	-	0.06
365	Group home as defined in Claus 240(1) of the Municipal Act, 2001—a residence licensed or funded under a federal or provincial statute for the accommodation of three to ten persons, exclusive of staff, living under supervision in a single housekeeping unit and who, by reason of their emotional, mental, social or physical condition or legal status, require a group living arrangement for their well being.	Residential (Medium Density)	1	0.10	-	-	0.10
367	Service or Amenity Unit (Condominium or Freehold title, owned by a condo corporation)	Exclude	-	-	17	-	-
370	Residential condominium (Condominium units in buildings with <= 6 units)	Residential (Medium Density)	6		1,289		3.51
370	Residential condominium (Condominium units in buildings with > 6 units)	Residential (High Density)					11.79
374	Cooperative housing—non-equity: Non-equity co-op corporations are not owned by individual shareholders; the shares are often owned by groups such as unions or non-profit organizations which provide housing to the people they serve. The members who occupy the co-operative building do not hold equity in the corporation. Members are charged housing costs as a result of occupying a unit.	Residential (High Density)	1	2.66	-	-	2.66
376	Condominium locker unit—separately deeded.	Exclude	-	-	4	-	-
377	Condominium parking space/unit—separately deeded.	Exclude	27	0.00	14	0.00	0.00
380	Residential common elements condominium corporation – consists only of the common elements not units.	Exclude	13	2.09	-	-	2.09
383	Bed and breakfast establishment	Residential (Medium Density)	1	0.08	-	-	0.08
391	Seasonal/recreational dwelling—first tier on water	Residential (Low Density)	2	1.15	-	-	1.15
400	Small office building (generally single tenant or owner occupied under 7,500 s.f.)	Commercial	22	4.48	-	-	4.48
401	Small medical/dental building (generally single tenant or owner occupied under 7,500 s.f.)	Commercial	7	0.76	-	-	0.76
402	Large office building (generally multi-tenanted, over 7,500 s.f.)	Commercial	7	5.70	-	-	5.70
403	Large medical/dental building (generally multi-tenanted over 7,500 s.f.)	Commercial	1	0.55	-	-	0.55
405	Office use converted from house	Commercial	9	0.93	-	-	0.93
406	Retail use converted from house	Commercial	3	0.30	-	-	0.30
407	Retail lumber yard	Commercial	4	5.02	-	-	5.02
408	Freestanding Beer Store or LCBO - not associated with power or shopping centre	Commercial	2	0.46	-	-	0.46
409	Retail—one storey, generally over 10,000 s.f.	Commercial	2	1.82	-	-	1.82
410	Retail—one storey, generally under 10,000 s.f.	Commercial	48	8.24	-	-	8.24
411	Restaurant—conventional	Commercial	3	0.12	-	-	0.12
412	Restaurant—fast food	Commercial	1	0.11	-	-	0.11
414	Restaurant—fast food, national chain	Commercial	7	2.22	-	-	2.22
420	Automotive fuel station with or without service facilities	Commercial	4	1.59	-	-	1.59
421	Specialty automotive shop/auto repair/collision service/car or truck wash	Commercial	13	5.85	-	-	5.85
422	Auto dealership	Commercial	12	10.04	1	0.84	10.88
425	Neighbourhood shopping centre—more than two stores attached, under one ownership, with anchor; generally less than 150,000 s.f.	Commercial	1	3.91	1	3.91	7.83
427	Big box shopping/power centre—greater than 100,000 s.f. with 2 or more main anchors such as discount or grocery stores with a collection of box or strip stores and in a commercial concentration concept	Commercial	3	8.29	-	-	8.29
429	Community shopping centre	Commercial	1	9.94	-	-	9.94
430	Neighbourhood shopping centre - with more than 2 stores attached, under one ownership, without anchor - generally less than 150,000 s.f.	Commercial	14	10.11	2	1.44	11.56
432	Banks and similar financial institutions, including credit unions; typically single-tenanted, generally less than 7,500 s.f.	Commercial	4	0.20	-	-	0.20
434	Freestanding grocery store	Commercial	1	0.79	-	-	0.79
435	Large retail building centre, generally greater than 30,000 s.f.	Commercial	3	5.63	-	-	5.63
441	Tavern/public house/small hotel	Commercial	1	0.10	-	-	0.10
445	Limited service hotel	Commercial	2	2.25	-	-	2.25
451	Seasonal motel	Commercial	6	3.05	-	-	3.05
471	Retail or office with residential unit(s) above or behind—less than 10,000 s.f. gross building area (GBA), street or onsite parking, with 6 or less apartments, older downtown core	Commercial	69	4.76	-	-	4.76
472	Retail or office with residential unit(s) above or behind—greater than 10,000 s.f. GBA, street or onsite parking, with 7 or more apartments, older downtown core	Commercial	7	0.99	-	-	0.99
475	Commercial condominium	Commercial	5		25		
477	Retail with office(s)—less than 10,000 s.f., GBA with offices above	Commercial	2	0.12	-	-	0.12
480	Surface parking lot—excludes parking facilities that are used in conjunction with another property	Commercial	2	0.71	-	-	0.71
482	Surface parking lot—used in conjunction with another property	Commercial	1	0.05	-	-	0.05
486	Campground	Agricultural/Vacant	2	1.57	-	-	1.57
490	Golf course	Agricultural/Vacant	1	21.40	-	-	21.40
492	Marina—located on waterfront; defined as a commercial facility for the maintenance, storage, service and/or sale of watercraft	Commercial	1	45.47	-	-	45.47
496	Communication buildings	Commercial	1	0.27	-	-	0.27

MPAC Property Code	MPAC Description	Stormwater Rate Classification	Properties with Size Data		Properties without Size Data		Total Estimated Site Area (hectares)
			# of Roll numbers with Size Data	Total Site Area (hectares)	# of Roll numbers w/o Size Data	Estimated Site Area of these Properties	
520	Standard industrial properties not specifically identified by other industrial property codes	Industrial	37	107.91	-	-	107.91
530	Warehouse	Industrial	3	5.78	-	-	5.78
531	Mini-warehousing	Industrial	3	2.19	-	-	2.19
540	Other industrial (all other types not specifically defined)	Industrial	15	54.39	1	3.63	58.01
544	Truck terminal	Industrial	1	0.68	-	-	0.68
558	Hydro One transformer station	Industrial	1	0.01	-	-	0.01
560	MEU transformer station	Industrial	6	1.24	-	-	1.24
580	Industrial mall	Industrial	6	11.78	-	-	11.78
588	Pipelines—transmission, distribution, field & gathering and all other types including distribution connections	Industrial	-	-	1	-	-
590	Water treatment/filtration/water towers/pumping station	Industrial	10	14.12	-	-	14.12
597	Railway right-of-way	Industrial	1	17.08	1	17.08	34.16
598	Railway buildings and lands described as assessable in the Assessment Act	Industrial	2	2.81	1	1.41	4.22
605	School—elementary or secondary, including private	Exclude	12	31.84	1	2.65	34.49
608	Daycare	Institutional	2	0.20	-	-	0.20
610	Other educational institution, e.g. schools for the blind, deaf, special education, training	Institutional	1	0.54	-	-	0.54
611	Other institutional residence	Institutional	1	4.05	-	-	4.05
621	Hospital, private or public	Institutional	1	8.26	-	-	8.26
624	Retirement/nursing home (combined)	Institutional	2	2.97	-	-	2.97
625	Nursing home	Institutional	2	8.43	-	-	8.43
626	Old age/retirement home	Institutional	2	1.41	1	0.71	2.12
631	Provincial correctional facility	Institutional	1	12.93	-	-	12.93
700	Place of worship—with a clergy residence	Institutional	1	0.38	-	-	0.38
701	Place of Worship—without a clergy residence	Institutional	9	5.98	-	-	5.98
702	Cemetery	Commercial	4	16.63	-	-	16.63
705	Funeral home	Commercial	1	0.34	-	-	0.34
710	Recreational sport club—non-commercial (excludes golf clubs and ski resorts)	Institutional	2	1.30	-	-	1.30
720	Commercial sport complex	Commercial	2	3.45	-	-	3.45
721	Non-commercial sports complex	Institutional	-	-	1	-	-
730	Museum and/or art gallery	Institutional	1	0.06	-	-	0.06
731	Library and/or literary institutions	Institutional	1	0.75	-	-	0.75
735	Assembly hall, community hall	Commercial	1	0.07	-	-	0.07
736	Clubs—private, fraternal	Commercial	7	3.04	-	-	3.04
742	Public transportation—easements and rights	Commercial	1	0.59	-	-	0.59
805	Post office or depot	Institutional	1	0.32	-	-	0.32
810	Fire hall	Institutional	1	0.72	-	-	0.72
812	Ambulance station	Institutional	1	1.76	-	-	1.76
815	Police station	Institutional	2	1.14	-	-	1.14

Appendix B
Detailed Rate Calculations

Table B-1
Town of Cobourg
Capital Budget Forecast
Inflated $

	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Expenditures												
Stormwater Management Facilities												
Terry Fox (SWMF ID #1)	$ 752,978	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 52,192	$ 700,785
Burnham (SWMF ID #3)	$ 2,124,367	$ -	$ -	$ -	$ -	$ 64,135	$ 2,060,232	$ -	$ -	$ -	$ -	$ -
Densmore Rd. (SWMF ID #4)	$ 54,019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 54,019
Read/Otto (SWMF ID #5)	$ 129,566	$ 32,085	$ 97,481	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Chris Garret (SWMF ID #7)	$ 1,127,260	$ 51,750	$ 1,075,510	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Foote Cres. (SWMF ID #12)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SWM Assessment Update	$ 65,840	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 65,840	$ -	$ -	$ -
Pump Stations												
William Street Pump Station	$ 808,426	$ -	$ -	$ -	$ 655,752	$ -	$ -	$ 152,674	$ -	$ -	$ -	$ -
Division Street North Pump Station	$ 698,199	$ -	$ -	$ -	$ 698,199	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Division Street South Pump Station	$ 222,562	$ -	$ -	$ -	$ 222,562	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pump Station Assessment	$ 48,205	$ -	$ 48,205	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pipes												
Storm Sewer Replacement Program (through coordinated reconstruction projects)	$ 6,359,013	$ 349,830	$ 383,499	$ 420,204	$ 460,157	$ 503,579	$ 551,936	$ 604,333	$ 661,038	$ 725,061	$ 835,074	$ 864,302
Stormwater Structures	$ 1,872,167	$ 106,751	$ 116,914	$ 126,550	$ 139,012	$ 151,003	$ 164,893	$ 179,570	$ 196,390	$ 214,167	$ 234,358	$ 242,560
Total Capital Expenditures	**$ 14,262,602**	**$ 540,416**	**$ 1,721,609**	**$ 546,754**	**$ 2,175,681**	**$ 718,717**	**$ 2,777,061**	**$ 936,576**	**$ 923,268**	**$ 939,228**	**$ 1,121,624**	**$ 1,861,667**
Capital Financing												
Provincial/Federal Grants	$ 1,032,581	$ 540,416	$ 492,165	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Growth Related Debenture Requirements	$ 2,299,194	$ -	$ 150,692	$ -	$ 641,891	$ -	$ 1,356,568	$ -	$ -	$ -	$ -	$ 150,043
Lifecycle Reserve Fund	$ 10,930,827	$ -	$ 1,078,752	$ 546,754	$ 1,533,791	$ 718,717	$ 1,420,492	$ 936,576	$ 923,268	$ 939,228	$ 1,121,624	$ 1,711,623
Total Capital Financing	**$ 14,262,602**	**$ 540,416**	**$ 1,721,609**	**$ 546,754**	**$ 2,175,681**	**$ 718,717**	**$ 2,777,061**	**$ 936,576**	**$ 923,268**	**$ 939,228**	**$ 1,121,624**	**$ 1,861,667**

Table B-2
Town of Cobourg
Schedule of Non-Growth Related Debenture Repayments
Inflated $

Debenture Year	Principal (inflated)	Forecast										
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	$ 150,692	$ -	$ -	$ 16,776	$ 16,776	$ 16,776	$ 16,776	$ 16,776	$ 16,776	$ 16,776	$ 16,776	$ 16,776
2024	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	$ 641,891	$ -	$ -	$ -	$ -	$ 71,459	$ 71,459	$ 71,459	$ 71,459	$ 71,459	$ 71,459	$ 71,459
2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	$ 1,356,568	$ -	$ -	$ -	$ -	$ -	$ -	$ 151,022	$ 151,022	$ 151,022	$ 151,022	$ 151,022
2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2030	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2031	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2032	$ 150,043	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Annual Debt Charges	**$ 2,299,194**	**$ -**	**$ -**	**$ 16,776**	**$ 16,776**	**$ 88,235**	**$ 88,235**	**$ 239,258**	**$ 239,258**	**$ 239,258**	**$ 239,258**	**$ 239,258**

Table B-3
Town of Cobourg
Stormwater Lifecycle Reserve Fund Continuity
Inflated $

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Opening Balance	$ -	$ 96,425	$ -	$ 472,516	$ -	$ 326,864	$ -	$ 63,888	$ 202,295	$ 389,444	$ 459,552
Transfer from Operating	$ 95,000	$ 982,327	$ 1,012,287	$ 1,061,275	$ 1,040,750	$ 1,093,629	$ 999,520	$ 1,058,686	$ 1,120,621	$ 1,184,941	$ 1,252,071
Transfer to Capital	$ -	$ 1,078,752	$ 546,754	$ 1,533,791	$ 718,717	$ 1,420,492	$ 936,576	$ 923,268	$ 939,228	$ 1,121,624	$ 1,711,623
Interest	$ 1,425	$ -	$ 6,983	$ -	$ 4,830	$ -	$ 944	$ 2,990	$ 5,755	$ 6,791	$ -
Closing Balance	**$ 96,425**	**$ -**	**$ 472,516**	**$ -**	**$ 326,864**	**$ -**	**$ 63,888**	**$ 202,295**	**$ 389,444**	**$ 459,552**	**$ -**

Table B-4
Town of Cobourg
Operating Budget Forecast
Inflated $

Description	Forecast										
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Expenditures											
Operating Costs											
Stormwater Operations & Management	$ 66,000	$ 67,300	$ 68,700	$ 70,000	$ 71,400	$ 72,900	$ 74,300	$ 75,800	$ 77,300	$ 78,900	$ 80,500
Storm Drain System	$ 299,000	$ 401,800	$ 416,000	$ 430,500	$ 445,500	$ 461,000	$ 476,800	$ 493,100	$ 509,900	$ 527,200	$ 544,900
Pumping Stations	$ 48,100	$ 49,100	$ 50,100	$ 51,100	$ 52,100	$ 53,100	$ 54,200	$ 55,300	$ 56,400	$ 57,500	$ 58,700
Studies and Special Projects	$ -	$ 20,400	$ 20,800	$ 21,200	$ 21,600	$ 22,100	$ 22,500	$ 23,000	$ 23,400	$ 23,900	$ 24,400
Sub-Total Operating	$ 413,100	$ 538,600	$ 555,600	$ 572,800	$ 590,600	$ 609,100	$ 627,800	$ 647,200	$ 667,000	$ 687,500	$ 708,500
Capital-Related											
Debt Servicing (P&I) - Existing Non-Growth-Related Debt	$ -	$ 80,200	$ 80,200	$ 80,200	$ 80,200	$ 80,200	$ 80,200	$ 80,200	$ 80,200	$ 80,200	$ 80,200
Debt Servicing (P&I) - New Non-Growth-Related Debt	$ -	$ -	$ 16,776	$ 16,776	$ 88,235	$ 88,235	$ 239,258	$ 239,258	$ 239,258	$ 239,258	$ 239,258
Transfer to Vehicle Reserve	$ -	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500
Transfer to Stormwater Lifecycle Reserve Fund	$ 95,000	$ 982,327	$ 1,012,287	$ 1,061,275	$ 1,040,750	$ 1,093,629	$ 999,520	$ 1,058,686	$ 1,120,621	$ 1,184,941	$ 1,252,071
Sub-Total Capital Related	$ 95,000	$ 1,100,027	$ 1,146,763	$ 1,195,751	$ 1,246,686	$ 1,299,564	$ 1,356,477	$ 1,415,644	$ 1,477,578	$ 1,541,899	$ 1,609,029
Total Expenditures	**$ 508,100**	**$ 1,638,627**	**$ 1,702,363**	**$ 1,768,551**	**$ 1,837,286**	**$ 1,908,664**	**$ 1,984,277**	**$ 2,062,844**	**$ 2,144,578**	**$ 2,229,399**	**$ 2,317,529**
Revenues											
Operating Recoveries	$ 5,000	$ 5,100	$ 5,200	$ 5,300	$ 5,400	$ 5,500	$ 5,600	$ 5,700	$ 5,900	$ 6,000	$ 6,100
Tax Levy	$ 278,100	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Revenue	**$ 283,100**	**$ 5,100**	**$ 5,200**	**$ 5,300**	**$ 5,400**	**$ 5,500**	**$ 5,600**	**$ 5,700**	**$ 5,900**	**$ 6,000**	**$ 6,100**
Stormwater Billing Recovery - Total	**$ 225,000**	**$ 1,633,527**	**$ 1,697,163**	**$ 1,763,251**	**$ 1,831,886**	**$ 1,903,164**	**$ 1,978,677**	**$ 2,057,144**	**$ 2,138,678**	**$ 2,223,399**	**$ 2,311,429**

Table B-5
Town of Cobourg
Stormwater Rate Forecast
Inflated $

Property Type	Annual Charge per Hectare of Land Area										
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Commercial	$ 250.20	$ 1,809.44	$ 1,872.70	$ 1,938.16	$ 2,005.91	$ 2,074.47	$ 2,147.01	$ 2,222.07	$ 2,299.76	$ 2,380.17	$ 2,463.66
Institutional	$ 208.50	$ 1,507.87	$ 1,560.58	$ 1,615.13	$ 1,671.60	$ 1,728.73	$ 1,789.17	$ 1,851.73	$ 1,916.47	$ 1,983.48	$ 2,053.05
Industrial	$ 222.40	$ 1,608.39	$ 1,664.62	$ 1,722.81	$ 1,783.04	$ 1,843.98	$ 1,908.45	$ 1,975.18	$ 2,044.24	$ 2,115.71	$ 2,189.92
Agricultural/Vacant	$ 55.60	$ 402.10	$ 416.15	$ 430.70	$ 445.76	$ 460.99	$ 477.11	$ 493.79	$ 511.06	$ 528.93	$ 547.48
Residential (Low Density)	$ 125.10	$ 904.72	$ 936.35	$ 969.08	$ 1,002.96	$ 1,037.24	$ 1,073.50	$ 1,111.04	$ 1,149.88	$ 1,190.09	$ 1,231.83
Residential (Medium Density)	$ 166.80	$ 1,206.29	$ 1,248.46	$ 1,292.11	$ 1,337.28	$ 1,382.98	$ 1,431.34	$ 1,481.38	$ 1,533.18	$ 1,586.78	$ 1,642.44
Residential (High Density)	$ 208.50	$ 1,507.87	$ 1,560.58	$ 1,615.13	$ 1,671.60	$ 1,728.73	$ 1,789.17	$ 1,851.73	$ 1,916.47	$ 1,983.48	$ 2,053.05