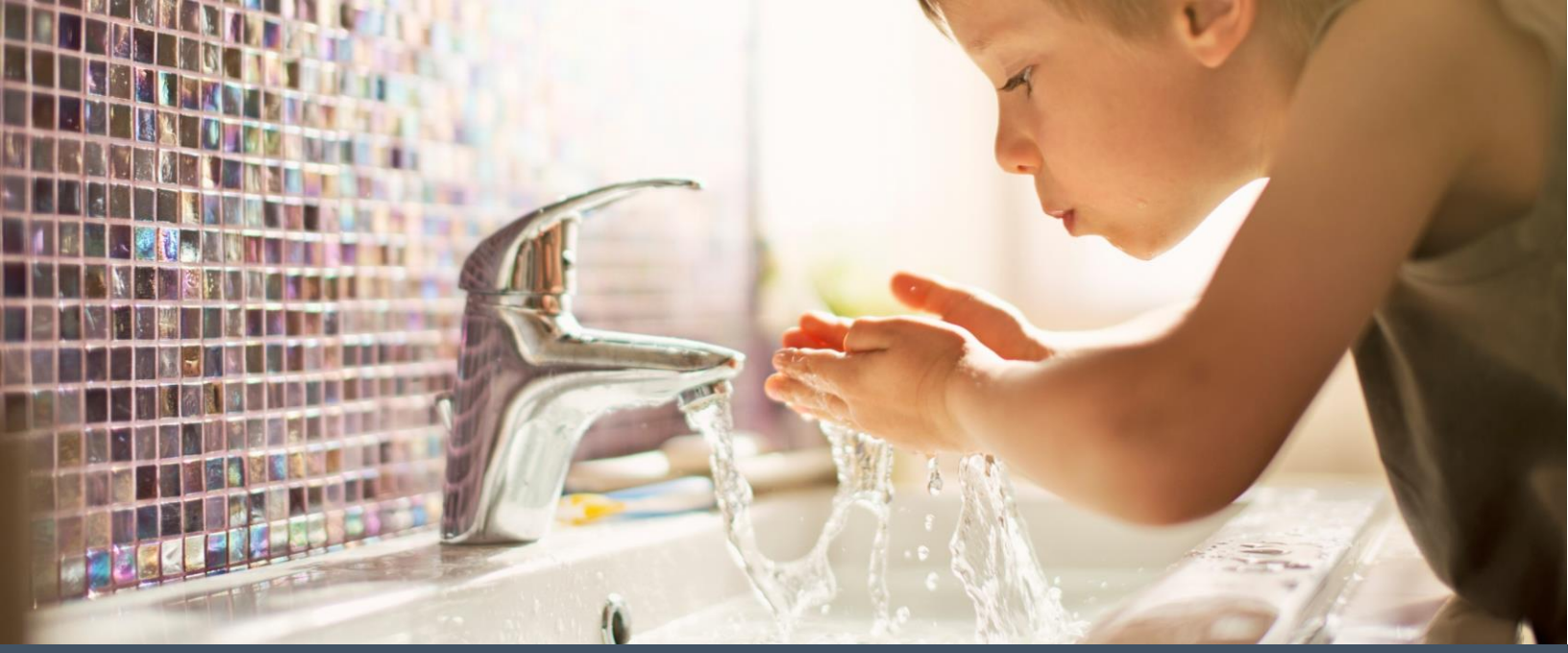

Water and Wastewater Rate Study

Municipality of Mississippi Mills

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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
C.P.I.	Consumer Price Index
D.C.	Development Charges
G.I.S.	Geographic Information System
O. Reg.	Ontario Regulation
OCWA	Ontario Clean Water Agency
P.I.L.	Payment-in-Lieu
Q.S.R.	Quick Score Rating
S.D.W.A.	Safe Drinking Water Act
S.F.D.E.	Single Family Dwelling Equivalent

Report

Chapter 1
Introduction

1. Introduction

1.1 Background

The Municipality of Mississippi Mills (Municipality) has a present population of approximately 13,163 people, based on the 2016 Census. There are approximately 3,474 customers using the municipal water and wastewater systems. The treatment, storage, and distribution/collection of water and wastewater are the responsibility of the Municipality.

All customers are currently billed a combined annual base charge for both water and wastewater. Additionally, a combined consumptive rate applied to metered water consumption is billed for both water and wastewater. The water and wastewater rates currently imposed are summarized below in Table 1-1.

Table 1-1
Municipality of Mississippi Mills
2021 Water and Wastewater Rates

2021 - Wastewater & WasteWastewater Billing Rates		
Base Charge		
Annual	$	657
Volume Charge		
$	12.28	per 1,000 gallons

1.2 Study Process

The Municipality retained Watson & Associates Economists Ltd. (Watson) to undertake a water and wastewater rate study. The objectives of the study and the steps involved in carrying out this assignment are summarized below:

- Update water and wastewater service demand assumptions based on analysis of the current customer profile, historical consumption, and recent trends;
- Estimate future consumption levels by applying revised demand assumptions to forecast growth identified in the Municipality's Official Plan Amendment No. 22;
- Identify all current and future water and wastewater system capital needs to assess the immediate and longer-term implications;
- Build a capital program that addresses specific needs identified by OCWA, the Municipality's 2018 Master Plan Update Report, and Municipality staff;
- Identify potential methods of cost recovery with respect to the capital needs listing. These recovery methods may include other statutory authorities (e.g. *Development Charges Act, 1997*, *Municipal Act*, etc.) as an offset to recovery through the water and wastewater rates;
- Forecast annual operating costs and rate-based funding requirements;
- Develop a long-term water and wastewater rate forecast;
- Provide an impact assessment on the rate payers;
- Develop a water financial plan based on the findings of the study; and
- Present findings to staff and Council for their consideration.

In approaching this study, the following analysis in provided:

Chapter 2 – Forecast Growth and Service Demands
Chapter 3 – Capital Infrastructure Needs
Chapter 4 – Capital Cost Financing Options
Chapter 5 – Operating Expenditure Forecast
Chapter 6 – Forecast Water and Wastewater Rates

1.3 Legislative Context

Resulting from the water crisis in Walkerton, significant regulatory changes have been made in Ontario. These changes arose in consequence to the Walkerton Commission and the 93 recommendations made by the Walkerton Inquiry Part II report. Areas of recommendation included:

- watershed management and source protection;
- quality management;
- preventative maintenance;
- research and development;
- new performance standards;
- sustainable asset management; and
- lifecycle costing.

The following sections describe significant applicable regulatory areas.

1.3.1 Sustainable Water and Sewage Systems Act

The *Sustainable Water and Sewage Systems Act* was passed on December 13, 2002. The intent of the Act was to introduce the requirement for municipalities to undertake an assessment of the "full cost" of providing their water and wastewater services. In total, there were 40 areas within the Act to which the Minister may make regulations; however regulations were never issued. On December 31, 2012, the *Sustainable Water and Sewage Systems Act* was repealed.

1.3.2 Safe Drinking Water Act

The *Safe Drinking Water Act* was passed in December 2002. The *Safe Drinking Water Act* provides for 50 of the 93 Walkerton Part II recommendations. It focuses on the administrative and operational aspects of the provision of water.

The purposes of the *Safe Drinking Water Act* are to "recognize that the people of Ontario are entitled to expect their drinking water to be safe and to provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of drinking water systems and drinking water testing. 2002, c. 32, s. 1."

The following is a brief summary of the key elements included in the *Safe Drinking Water Act*:

- Mandatory licensing and accreditation of testing laboratories;
- New standards for treatment, distribution quality and testing;
- Mandatory operator training and certification;
- Mandatory licensing of municipal water providers;
- Stronger enforcement and compliance provisions; and
- "Standard of care" requirements for municipalities.

This legislation impacts the costs of operating a water system with the need for higher skilled operators including increased training costs, increased reporting protocols and requirements, continuing enhancements to quality standards, and the costs to license each water system.

1.3.3 Financial Plans Regulation

On August 16, 2007, the Ministry of Environment introduced Ontario Regulation (O. Reg.) 453/07 which requires the preparation of financial plans for water systems (and municipalities are encouraged to prepare plans for wastewater systems). The Ministry of Environment has also provided a Financial Plan Guideline to assist municipalities with preparing the plans. A brief summary of the key elements of the regulation is provided below:

- The financial plan will represent one of the key elements to obtain a Drinking Water Licence.
- The plan is to be completed, approved by Council Resolution, and submitted to the Ministry of Municipal Affairs and Housing as part of the application for receiving approval of a water licence.
- The financial plans shall be for a period of at least six years, but longer planning horizons are encouraged.
- As the regulation is under the *Safe Drinking Water Act*, the preparation of the plan is mandatory for water services and encouraged for wastewater services.
- The plan is considered a living document (i.e., it can be updated if there are significant changes to budgets) but an update will need to be undertaken at a minimum every five years.

- The plans generally require the forecasting of capital, operating and reserve fund positions, and providing detailed capital inventories. In addition, Public Sector Accounting Board full accrual information on the system must be provided for each year of the forecast (i.e., total non-financial assets, tangible capital asset acquisitions, tangible capital asset construction, betterments, write-downs, disposals, total liabilities, net debt, etc.).
- The financial plans must be made available to the public (at no charge) upon request and be available on the municipality's web site. The availability of this information must also be advertised.

In general, the financial principles of this regulation follow the intent of the *Sustainable Water and Sewage Systems Act*, *2002* to move municipalities towards financial sustainability for water services. Many of the prescriptive requirements, however, have been removed (e.g. preparation of two separate documents for provincial approval, auditor opinions, engineer certifications, etc.).

A guideline ("Towards Financially Sustainable Drinking-Water and Wastewater Systems") has been developed to assist municipalities in understanding the Province's direction and provides a detailed discussion on possible approaches to sustainability. The Province's Principles of Financially Sustainable Water and Wastewater Services are provided below:

Principle #1: Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system(s) to which they relate.

Principle #2: An integrated approach to planning among water, wastewater, and storm water systems is desirable given the inherent relationship among these services.

Principle #3: Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.

Principle #4: Lifecycle planning with mid-course corrections is preferable to planning over the short term, or not planning at all.

Principle #5: An asset management plan is a key input to the development of a financial plan.

Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.

Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.

Principle #8: Financial Plans are "living" documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.

Principle #9: Financial plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal council.

1.3.4 Water Opportunities Act

The *Water Opportunities Act* received Royal Assent on November 29, 2010. The Act provides for the following elements:

- Foster innovative water, wastewater, and stormwater technologies, services, and practices in the private and public sectors;
- Prepare water conservation plans to achieve water conservation targets established by the regulations; and
- Prepare sustainability plans for municipal water services, municipal wastewater services, and municipal stormwater services.

With regard to the sustainability plans:

- The Act extends from the water financial plan and requires a more detailed review of the water financial plan, and requires a full plan for wastewater and stormwater services; and
- Regulations (when issued) will provide performance targets for each service – these targets may vary based on the jurisdiction of the regulated entity or the class of entity.

The Financial Plan shall include:

- An asset management plan for the physical infrastructure;

- Financial Plan;
- For water, a water conservation plan;
- Assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks; and
- Strategies for maintaining and improving the municipal service, including strategies to ensure the municipal service can satisfy future demand, consider technologies, services, and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources, and increase co-operation with other municipal service providers.

Performance indicators will be established by service that:

- May relate to the financing, operation, or maintenance of a municipal service or to any other matter in respect of which information may be required to be included in a plan; and
- May be different for different municipal service providers or for municipal services in different areas of the Province.

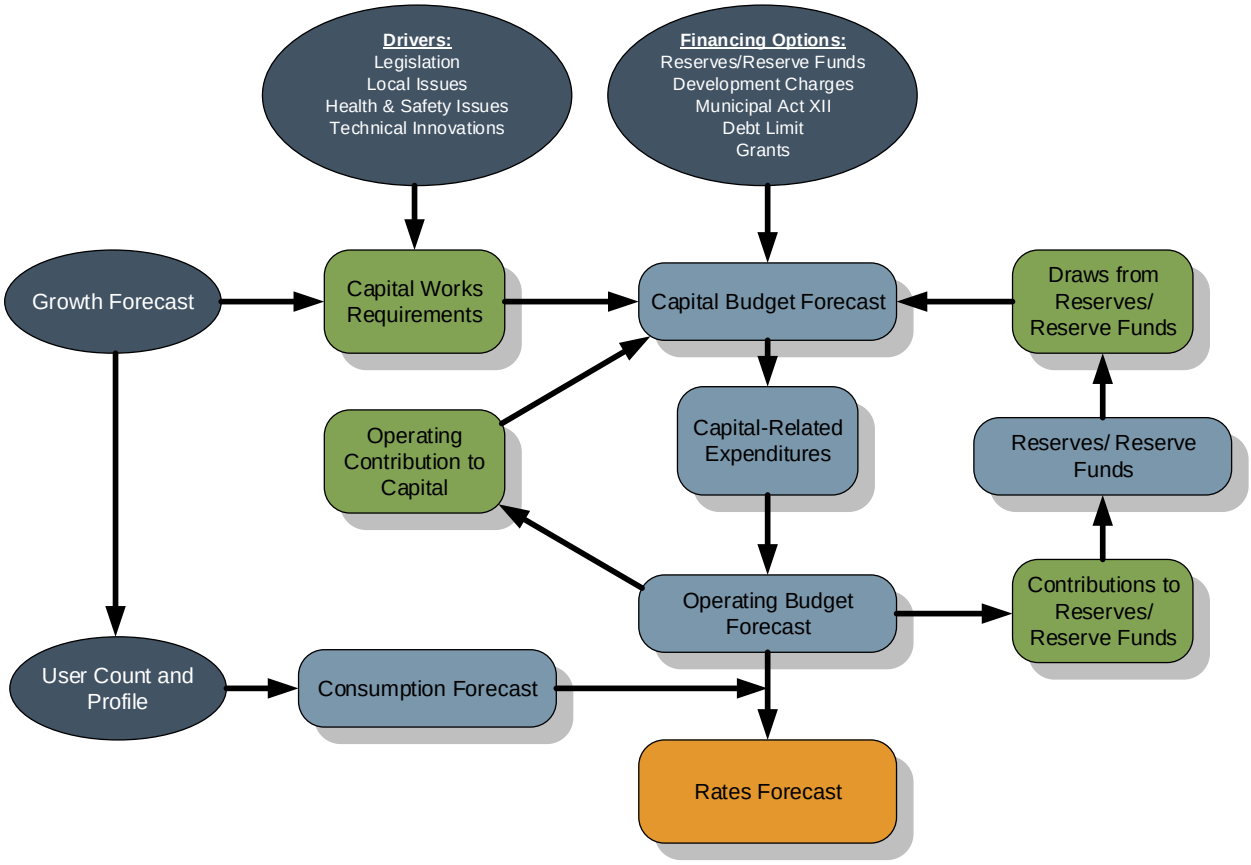
Regulations will prescribe:

- Timing;
- Contents of the plans;
- Portions of the plan that will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

1.4 Water and Wastewater Rate Calculation Methodology

Figure 1-1 illustrates the general methodology used in determining the full cost recovery water and wastewater rate forecast.

Figure 1-1
Water and Wastewater Rate Calculation Methodology



The methodology employed generally consists of five major elements:

1.4.1 Customer Demands and Consumption Forecast

As noted in section 1.1, the Municipality employs a rate structure consisting of an annual base charge and a consumptive rate charged based on metered water consumption. The consumptive rate is imposed as a constant rate based on consumption.

This first step in the analysis is important as it produces the current base revenue by source and assumptions for forecasting purposes. The annual base charge revenues are forecast with customer growth. The customer profile forecast is modelled based on the growth targets outlined in the Municipality's Official Plan Amendment No. 22 and recent trends.

Water consumption has been forecast to grow with residential development at average per customer levels witnessed over the past three years.

1.4.2 Capital Needs Forecast

The capital needs forecast is developed to measure program/service level adjustments, lifecycle requirements, and growth-related needs. The capital forecast is informed by the Municipality's 2018 Master Plan Update Report (Master Plan) by J.L. Richards, in addition to analysis conducted by Municipality staff and the Ontario Clean Water Agency (OCWA), the operator of the Municipality's systems. Capital expenditures are forecast with inflationary adjustments based on capital cost indices.

1.4.3 Capital Funding Plan

The capital funding plan considers the potential funding sources available to address the capital needs forecast. The sources of capital funding include rate-based support, reserves/reserve funds, and debt for program/service level improvements. The use of rate-based funding is measured against the revenue projections and affordability impacts. The reserve/reserve fund sources are measured against the sustainability of these funds, relative to lifecycle demands, revenue projections, and affordability impacts. Debt financing is considered for significant capital expenditures where funding is required beyond long-term lifecycle needs or to facilitate rate transition policies. Debt financing is measured against annual repayment limits to ensure a practical and sustainable funding mix.

1.4.4 Operating Budget Forecast

The operating budget forecast considers adjustments to the Municipality's base budget reflecting program/service level changes, operating fund impacts associated with infrastructure, and financing for capital needs. The operating expenditures are forecast with inflationary adjustments and growth in service demand, based on fixed and variable cost characteristics. The operating budget forecast ties the capital funding plan and

reserve/reserve fund continuity forecast to the rate-based revenue projections. This ensures sufficient funding for both the ongoing annual operation and maintenance of water and wastewater services, as well as the capital cost requirements to ensure service sustainability. Operating revenues are projected to identify the billing revenues net of anticipated operating revenues, such as interest and dividends, connection fees, hydrant rentals, and other miscellaneous fees.

1.4.5 Rate Forecast and Structure

The rate forecast and structure component of the analysis considers various rate structures to recover the forecast rate-based revenue from the projected customer demands. At this stage in the analysis, the full costs of service are measured against the customer growth and consumption demands to determine full cost recovery rates. The analysis may consider alternative structures, consistent with municipal policies/strategies, industry practice, and customer affordability. Providing context to the rate forecast, the results are quantified to measure the impacts on a range of customer types and in relation to other municipalities.

Chapter 2
Forecast Growth and Service Demands

2. Forecast Growth and Service Demands

2.1 Current Service Demands

In preparing the demands forecast for water and wastewater services, annual water and wastewater billing records from 2018 to 2020 were analyzed. These records detailed the number of customers by type, enabling the development of a comprehensive profile of existing customers.

Based on analysis of this information, there were 3,474 water and wastewater customers in the Municipality at year-end 2020. The majority of customers on the Municipality's water and wastewater systems are residential, accounting for approximately 91% of all customer accounts.

2.2 Forecast Service Demands

Over the next ten years (i.e., to 2031), the number of water and wastewater system customers is anticipated to increase by 1,142 residential customers. The growth rate for the forecast period is based on the population targets to 2038 contained within the Municipality's Official Plan Amendment No. 22. Adjustments to the pace of growth have been considered to reflect volumes of building permits issued over recent years, resulting in higher customer growth initially. Customer growth is forecasted to continue at current levels (i.e., 150 new customers added annually) for the next four years, and subsequently taper off to an annual average of 83 new customers for the remainder of the forecast period. Table 2-1 provides the detailed customer forecast for the period 2021 to 2031 for water and wastewater.

Consumption records from 2018 to 2020 were used to develop a forecast of water demands for the period 2021 to 2031. Annual consumption levels by customer type were calculated from these consumption records and utilized to calculate an annual average per customer. Annual water demand per residential customer was approximately 31,321 gallons (i.e., 142 m^3) over the past three years. This is lower than the consumption assumption used in previous studies of 32,285 (i.e., 147 m^3 per year) due to conservation efforts. Table 2-2 presents the forecast of annual chargeable water consumption.

Table 2-1
Municipality of Mississippi Mills
Water and Wastewater Customer Forecast

Customer Forecast	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Existing - Residential	3,156	3,156	3,156	3,156	3,156	3,156	3,156	3,156	3,156	3,156	3,156
Existing - Large Non-Residential	10	10	10	10	10	10	10	10	10	10	10
Existing - Other Non-Residential	308	308	308	308	308	308	308	308	308	308	308
New - Growth	75	225	375	525	642	725	809	892	975	1,058	1,142
Total	**3,549**	**3,699**	**3,849**	**3,999**	**4,116**	**4,199**	**4,283**	**4,366**	**4,449**	**4,532**	**4,616**

Table 2-2
Municipality of Mississippi Mills
Water Consumption Forecast (imperial gallons)

Water Volume Forecast (gallons)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Existing - Residential	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339	98,849,339
Existing - Large Non-Residential	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141	17,595,141
Existing - Other Non-Residential	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946	10,891,946
New	2,349,081	7,047,244	11,745,406	16,443,569	20,108,136	22,707,786	25,338,757	27,938,406	30,538,056	33,137,706	35,768,677
Total	**129,685,508**	**134,383,670**	**139,081,833**	**143,779,995**	**147,444,562**	**150,044,212**	**152,675,183**	**155,274,833**	**157,874,483**	**160,474,133**	**163,105,104**

Chapter 3
Capital Infrastructure Needs

3. Capital Infrastructure Needs

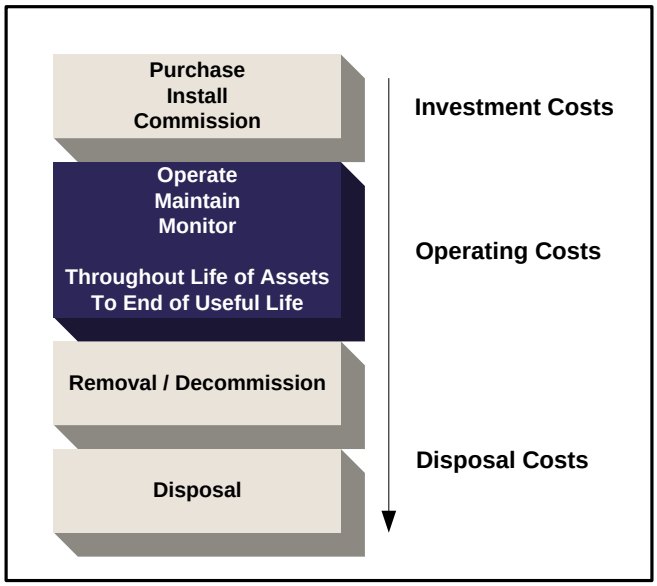
3.1 Overview of Lifecycle Costing

3.1.1 Definition

For many years, lifecycle costing has been used in the field of maintenance engineering and to evaluate the advantages of using alternative materials in construction or production design. The method has gained wider acceptance and use in the areas of industrial decision-making and the management of physical assets.

Lifecycle costs are all the costs which are incurred during the lifecycle of a physical asset, from the time its acquisition is first considered, to the time it is taken out of service for disposal or redeployment. The stages that the asset goes through in its lifecycle are specification, design, manufacture (or build), installation, commissioning, operation, maintenance, and disposal. Figure 3-1 depicts these stages in a schematic form.

Figure 3-1
Lifecycle Costing



3.1.2 Financing Costs

This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the municipality. Over the past few decades, new financing techniques such as D.C.s have been employed, based on the underlying principle of having tax/rate payers who benefit directly from the service, pay for that service. Operating costs which reflect the cost of the service for that year are charged directly to all existing tax/rate payers who have received the benefit. Operating costs are normally charged through the tax base or user rates.

Capital expenditures are recouped through several methods, the most common being operating budget contributions, D.C., reserves, developer contributions and debentures.

New construction related to growth could produce D.C.s and developer contributions (e.g. works internal to a subdivision which are the responsibility of the developer to construct) to fund a significant portion of projects, where new assets are being acquired to allow growth within the municipality to continue. As well, debentures could be used to fund such works, with the debt charge carrying costs recouped from taxpayers in the future.

Capital construction to replace existing infrastructure, however, is largely not growth-related and will therefore not yield D.C.s or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves, and contributions from the operating budget to fund these works.

Figure 3-2 depicts the costs of an asset from its initial conception through to replacement and then continues to follow the associated costs through to the next replacement.

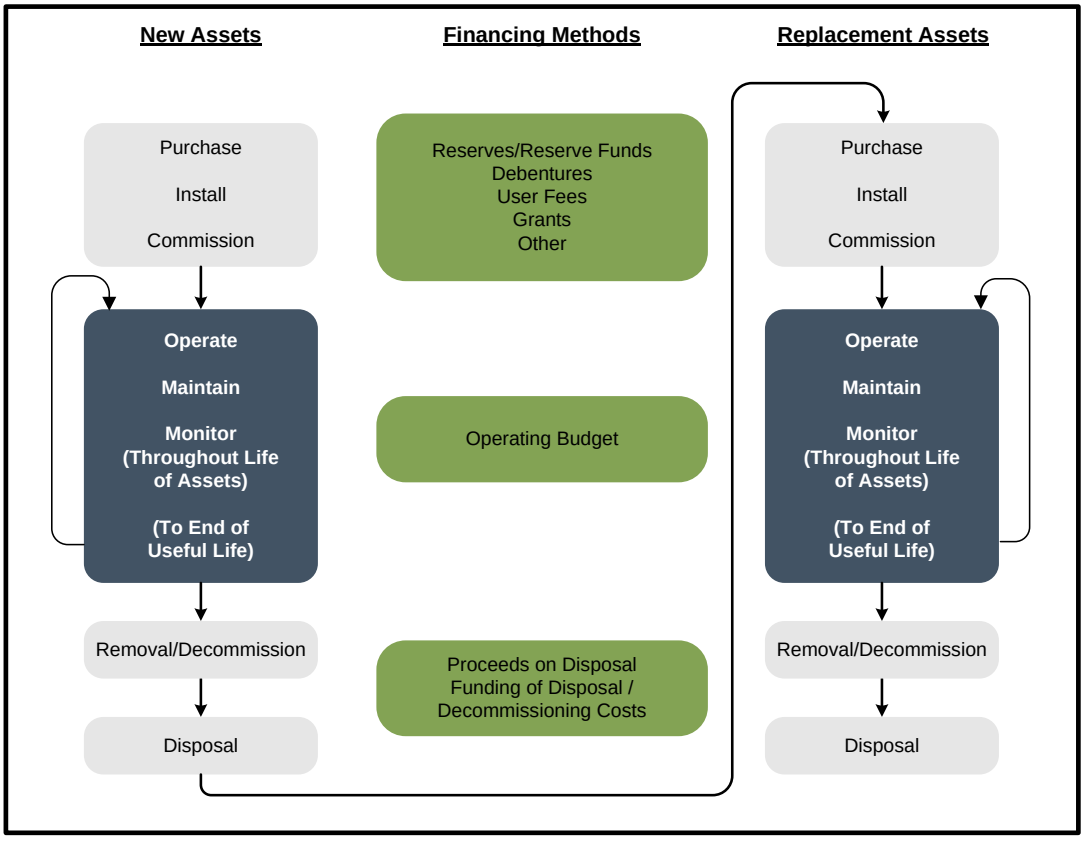
As referred to earlier, growth-related financing methods such as D.C.s and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of this asset. Other financing methods may be used as well

to finance the non-growth-related component of this project: reserves which have been collected from past tax/rate payers, operating budget contributions which are collected from existing tax/rate payers, and debt financing which will be carried by future tax/rate payers. Ongoing costs for monitoring, operating, and maintaining the asset will be charged annually to the existing tax/rate payer.

When the asset requires replacement, the sources of financing will be limited to reserves, debentures, and contributions from the operating budget. At this point, the question is raised: "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset, should the past tax/rate payer pay for this cost or should future rate payers assume this cost?" If the position is taken that the past user has used up the asset, hence he should pay for the cost of replacement, then a charge should be assessed annually through the life of the asset to have funds available to replace it when the time comes. If the position is taken that the future tax/rate payer should assume this cost, then debt financing and possibly a contribution from the operating budget should be used to fund this work.

Charging for the cost of using up an asset is the fundamental concept behind amortization methods utilized by the private sector. This concept allows for expending the asset as it is used up in the production process. The tracking of these costs forms part of the product's selling price and hence end users are charged for the asset's amortization. The same concept can be applied in a municipal setting to charge existing users for the asset's use and set those funds aside in a reserve to finance the cost of replacing the asset in the future.

Figure 3-2
Financing Lifecycle Costs



3.1.3 Costing Methods

Two methods of calculating the cost of the usage of an asset and for the provision of the revenue required when the time comes to retire and replace it were utilized. For water and wastewater facilities, the Canadian Infrastructure Report Card was consulted for the suggested annual reinvestment rates relative to asset replacement cost. Based on the range of annual reinvestment rates applicable to water and wastewater facility assets (from 1.7% to 2.5% of asset replacement value), an average of 2.1% of was utilized to estimate the annual lifecycle cost of all water and wastewater facilities.

For all other water and wastewater assets (i.e., mains, water meters, and vehicles), annual lifecycle costs were calculated using the straight-line method, whereby the current replacement cost of the asset is divided by the estimated number of years of useful life.

3.1.4 Asset Inventory

Water and wastewater capital asset inventory information was compiled from the Municipality's asset management inventory and discussions with Municipality staff.

Lifecycle contribution amounts for each piece of infrastructure have also been included. These calculations determine the level of capital investment to be included in the full cost assessment and rate forecast. Table 3-1 summarizes the current asset replacement value and long-term average annual lifecycle replacement needs (2021 $). It is expected that the estimates of annual lifecycle costs will be further refined in the coming years through the Municipality's ongoing asset management efforts.

Table 3-1
Municipality of Mississippi Mills
Summary of Water and Wastewater Infrastructure (2021 $)

Asset	Total Replacement Cost	Annual Lifecycle Cost
Water		
PRV Access	150,000	3,150
Water Main	30,789,587	384,870
Well	3,000,000	63,000
Water Storage (NEW)	3,250,000	68,250
Water Tower	2,500,000	52,500
Water Meter	1,650,150	82,508
Total Water	**41,339,737**	**654,277**
Wastewater		
Forcemain	3,427,387	42,842
Lagoon Outfall	662,150	8,277
Pumping Station	2,987,042	62,728
Sewer Main	26,223,575	284,661
WWTP	40,000,000	840,000
Total Wastewater	**73,300,155**	**1,238,508**
Shared		
Vehicles	195,000	19,500
Total Shared	**195,000**	**19,500**
Total	**114,834,892**	**1,912,286**

3.2 Capital Needs Forecast

Seven-year capital forecasts were provided by OCWA and further refined through discussions with Municipality staff to address known capital needs across the water and wastewater systems. Additionally, capital works identified in the Municipality's Master Plan and D.C. Background Study have been included. Lastly, annual provisions for the replacement of aging water and wastewater mains have been included based on an age analysis of the asset inventory.

The Master Plan identified the anticipated capital needs for water and wastewater services to provide municipal services to accommodate future growth over the buildout of the service area. These works have been incorporated into the Municipality's D.C. Background Study to summarize the total growth-related capital spending and to measure the impacts on the Municipality's D.C. by-law.

Some of the most significant works identified for water and wastewater services include the following:

- Medium and long-term water supply and treatment improvements to Wells 7 & 8 to address future demands;
- Construction of a new storage reservoir to provide additional capacity for future growth;
- Upgrades to water and wastewater mains to ensure sufficient transmission capacity; and
- Replacement of specific water and wastewater mains in the downtown core to address aging infrastructure.

The total capital forecast—in current dollars—includes approximately $32.90 million in capital needs. The capital forecast includes lifecycle renewal/replacement needs of the Municipality's water and wastewater infrastructure.

The average annual value of the capital program is approximately $2.99 million, which includes all growth-related capital needs. However, when considering only the renewal/replacement needs (i.e., non-growth) of the forecast, the average annual costs total approximately $1.97 million. This level of expenditure closely aligns with the annual lifecycle costs identified in section 3.1.4. This suggests that the 11-year forecast of infrastructure renewal and replacement needs identified in this study are generally in

alignment with the longer-term capital funding requirements of the Municipality's current water and wastewater infrastructure.

The listing of water and wastewater capital needs is presented in Tables 3-2 and 3-3, respectively. For rate determination purposes, the capital needs forecast has been indexed by 3.5% annually. This is generally reflective of the average annual capital cost inflation witnessed in the Statistics Canada Building Construction Price Index over the past 20 years.

Table 3-2
Municipality of Mississippi Mills
Water Capital Budget Forecast (Uninflated $)

Description	Total	Budget	Forecast									
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Capital Expenditures												
OCWA-WATER TREATMENT CAPITAL	1,206,560	53,560	101,000	98,000	116,000	116,000	124,000	118,000	135,000	115,000	115,000	115,000
CHLORINE ANALYZERS	20,000	20,000										
WELL 7 & 8 GENERATOR WIRING	5,000	5,000										
ENGINEERING DESIGN/MOECC APPROVAL	37,000	37,000										
RADIO FREQUENCY METER CONVERSION PER LTFP	19,500	19,500										
SAMPLE MONITORING WELLS UPSTREAM OF WELL 5 (REGULATORY)	17,000	17,000										
W&S RATE STUDY/FINANCIAL PLAN UPDATE	14,250	14,250										
WATER TOWER REPAIRS	55,000	55,000										
WELL 3 MAINTENANCE	32,700	32,700										
REPLACE VEHICLE W014	17,500	17,500										
Water Related to Condition Assessment	599,000		49,000	145,000	108,000	136,000	89,000	-	72,000			
Downtown Core Renewal Water	1,314,775		1,314,775									
RADIO FREQUENCY METER CONVERSION PER LTFP	19,500		19,500									
SAMPLE MONITORING WELLS UPSTREAM OF WELL 5 (REGULATORY)	17,000		17,000									
Upgrade RF Reciver/Software	10,000		10,000									
Replace 1 PRV	30,000		30,000									
REPLACE VEHICLE W015	23,750		23,750									
Linear Network Replacement Provision	1,161,000			129,000	129,000	129,000	129,000	129,000	129,000	129,000	129,000	129,000
Growth Related:												
Mid-Term Supply Option (wells 7 & 8) - Increase capacity to demonstrated yield	3,129,000					447,000	1,341,000	1,341,000				
Mid-Term Storage Option - Construct a Reservoir at a new site	3,300,000	3,300,000										
County Road 29 Looping Wylie to Dunn Street Upgrades - Design	35,000		35,000									
County Road 29 Looping Wylie to Dunn Street Upgrades - Construction	105,000			105,000								
Ottawa Street and Industrial Street Looping	893,000			893,000								
Create Pressure Zone 3	140,000											140,000
Modify Pressure Zone 2/Pressure Zone 2 Optimization	212,000				212,000							
Water/Sewer Master Plan Updates (5 year cycle)	95,000		67,500					27,500				
County Road 29 Well 6 to Wylie Street Upgrade	888,000							888,000				

Table 3-2 (continued)
Municipality of Mississippi Mills
Water Capital Budget Forecast (Uninflated $)

Description	Total	Budget	Forecast									
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Martin Street North, from Teskey Street to Adelaide	642,000						642,000					
Princess Street and Martin Street North Upgrades	190,000			190,000								
Union Street North, from Princess Street to Carss Street - Design	90,500		90,500									
Union Street North, from Princess Street to Carss Street - Construction	384,500				384,500							
Carss Street, from Mitcheson Street to Union Street North	140,000				140,000							
Carss Street, from Union Street North to Mississippi River	246,000					246,000						
Mississippi River Third Crossing	2,838,000					2,838,000						
Well 3 rehabilitation to demonstrated yield	670,000								670,000			
Well 5 rehabilitation to demonstrated yield	670,000									670,000		
Appleton Side Road Looping	682,000										682,000	
Total Capital Expenditures	**19,949,535**	**3,571,510**	**1,758,025**	**1,560,000**	**1,089,500**	**3,912,000**	**2,325,000**	**2,503,500**	**1,006,000**	**914,000**	**926,000**	**384,000**

Table 3-3
Municipality of Mississippi Mills
Wastewater Capital Budget Forecast (Uninflated $)

Description	Total	Budget	Forecast									
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Capital Expenditures												
OCWA-SANITARY PUMP STATION CAPITAL PER LTFP	825,700	70,700	65,000	71,000	76,000	65,000	65,000	65,000	144,000	68,000	68,000	68,000
OCWA-WASTEWATER TREATMENT PLANT CAPITAL PER LTFP	1,861,430	181,430	169,000	162,000	164,000	159,000	170,000	167,000	185,000	168,000	168,000	168,000
WWTP TURBO BLOWER 3 REPLACEMENT	107,500	107,500										
WWTP-FILTER MEDIA TOP-UP/REPLACEMENT	17,000	17,000										
WWTP FENCING ALTERATIONS	5,000	5,000										
WWTP PUMP REPAIRS	27,200	27,200										
WWTP ROOF REPAIRS	140,000	140,000										
WWTP UV SYSTEM MAINTENANCE	10,000	10,000										
WWTP ATAD-SNDR TANK AND FILTRATE CLEANOUT	17,500	17,500										
ELECTRICAL/INSTRUMENTATION/CONTROLS -PUMP STATIONS	50,000	50,000										
ENGINEERING DESIGN/MOECC APPROVAL	37,000	37,000										
SANITARY SEWER REPAIRS	230,976	230,976										
ANNUAL CLEANING AND CCTV PROGRAM-INFILTRATION PER LTFP	40,000	40,000										
RADIO FREQUENCY METER CONVERSION PER LTFP	19,500	19,500										
W&S RATE STUDY/FINANCIAL PLAN UPDATE	14,250	14,250										
REPLACE VEHICLE W014	17,500	17,500										
SPS Related to Condition Assessment	92,000		20,000	11,000	42,000	19,000	-	-	-			
Odour Study at pump stations	15,000		15,000									
Willam street	25,000		25,000									
Infiltration /sewer Lining	275,000		275,000									
Downtown Core Renewal Sanitary	1,308,500		1,308,500									
ANNUAL CLEANING AND CCTV PROGRAM-INFILTRATION PER LTFP	45,000		45,000									
RADIO FREQUENCY METER CONVERSION PER LTFP	19,500		19,500									
Upgrade RF Reciver/Software	10,000		10,000									
REPLACE VEHICLE W015	23,750		23,750									
WWTP Turbo Blowers Replacement	400,000						400,000					
Linear Network Replacement Provision	3,771,000			419,000	419,000	419,000	419,000	419,000	419,000	419,000	419,000	419,000

Table 3-3 (continued)
Municipality of Mississippi Mills
Wastewater Capital Budget Forecast (Uninflated $)

Description	Total	Budget	Forecast									
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Growth Related:												
Gemmill's Bay SPS Expansion - Design	130,000	130,000										
Gemmill's Bay SPS Expansion - Construction	429,000			429,000								
Union Street North Upgrades - Design	90,500		90,500									
Union Street North Upgrades - Construction	2,144,500				2,144,500							
Water/Sewer Master Plan Updates (5 year cycle)	92,500		65,000					27,500				
Spring Street SPS Expansion - Design	41,000			41,000								
Spring Street SPS Expansion - Construction	115,000					115,000						
Collection System - Industrial Park Sewer	504,475	504,475										
Total Capital Expenditures	**12,952,281**	**1,620,031**	**2,131,250**	**1,133,000**	**2,845,500**	**777,000**	**1,054,000**	**678,500**	**748,000**	**655,000**	**655,000**	**655,000**

Chapter 4
Capital Cost Financing Options

4. Capital Cost Financing Options

Historically, the powers that municipalities have had to raise alternative revenues to taxation to fund capital services have been restrictive. Over the past number of years, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g. Bill 130 providing for natural person powers for fees and charges by-laws); while others appear to restrict them (Bill 98 in 1997 providing amendments to the *Development Charges Act*).

The most recent *Municipal Act* came into force on January 1, 2003, with significant amendments in 2006 through the *Municipal Statute Law Amendment Act*. Part XII of the Act and O. Reg. 584/06 govern a municipality's ability to impose fees and charges. This Act provides municipalities with broadly defined powers and provides the ability to impose fees for both operating and capital purposes. Under s. 484 of the *Municipal Act*, *2001*, the *Local Improvement Act* was repealed with the in-force date of the *Municipal Act* (January 1, 2003). The municipal powers granted under the *Local Improvement Act* now fall under the jurisdiction of the *Municipal Act*.

The methods of capital cost recovery available to municipalities are provided as follows:

Recovery Methods	Section Reference
Development Charges Act, *1997*	4.1
Municipal Act, *2001* o Fees and Charges o Local Improvements	4.2
Grant Funding	4.3
Reserves/Reserve Funds	4.4
Debenture Financing	4.5

4.1 Development Charges Act, 1997

The *Development Charges Act* received Royal Assent on December 8, 1997, replacing the previous Act, which had been in-force since November 23, 1989.

The Province's stated intentions were to "create new construction jobs and make home ownership more affordable" by reducing the charges and to "make municipal Council decisions more accountable and more cost effective." The basis for this Act is to allow municipalities to recover the growth-related capital cost of infrastructure necessary to accommodate new growth within the municipality. The *Development Charges Act, 1997* as amended, provides for limitations and ceilings on services that can be included in the charges.

The Municipality currently imposes D.C.s on new development as a source of funding for anticipated growth-related capital needs. However, it is noted that the Municipality's current D.C.s were calculated with build-out of the systems in mind but were based on lower growth projections than those contained in the Municipality's Official Plan Amendment No. 22. As a result, deductions to the otherwise chargeable amount were made to account for the post period benefits to growth that would occur after the time horizon that the D.C.s were calculated upon (i.e., 2037). For the purposes of this Rate Study, the Post Period Benefit deductions identified in the Municipality's 2018 D.C. Background Study have been reduced considering the increased amount of growth identified in the Official Plan Amendment No. 22. It is important to note that these assumptions will need to be thoroughly reviewed through the next update of the Municipality's D.C. Background Study in 2023.

4.2 Municipal Act

The *Municipal Act, 2001*, came into force on January 1, 2003. Part XII Fees and Charges, gives municipalities the statutory authority to recover the costs of services, including capital costs, through by-law. Municipalities have used these types of charges to recover infrastructure costs associated with the extension of municipal services to private service users, to recover capital improvement costs from existing developments, and to recover growth-related costs of service extensions. These by-laws are typically used where D.C.s would not be applicable (e.g. recovery from existing developments)

or where existing and growth-related cost recovery would be simplified under the administration of one by-law.

The Municipality does not recover capital costs through capital charges imposed under the *Municipal Act*.

4.3 Grant Funding Availability

No capital grant funding has been identified as a funding source for the Municipality's water and wastewater systems. To the extent that the Municipality is successful in securing additional grant funding for future infrastructure needs and the financial impacts are material, the rate forecast may be revisited.

4.4 Existing Reserves/Reserve Funds

The Municipality has established reserves for water and wastewater capital costs. These reserves have been used in the capital funding forecast for rate-based needs. The following table summarizes the water and wastewater reserves utilized in this analysis and the respective January 1, 2021 opening balances.

Table 4-1
Municipality of Mississippi Mills
Water and Wastewater Projected Reserve/Reserve Fund Balances

Reserve	2021 Balance
Water & Sewer	$ 4,248,181
Total	**$ 4,248,181**

4.5 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 and Housing 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 these regulations, 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).

The Municipality has outstanding external debt for water and wastewater services. As of 2021, annual water and wastewater debt servicing costs (principal and interest) total approximately $642,400.

The capital forecast proposes debt financing for both the water and wastewater systems. Debt financing of $6.23 million for the water system and $1.05 million for the wastewater system have been proposed throughout the forecast period.

4.6 Recommended Approach

The following table summarizes the capital funding sources for the capital needs forecast, for consideration by the Municipality.

Table 4-2
Municipality of Mississippi Mills
2021 to 2031 Water and Wastewater Capital Funding Program (Inflated $)

Description	Total
Provincial/Federal Grants	$ -
Development Charges Reserve Fund	$ 8,219,055
Non-Growth Related Debenture Requirements	$ 2,699,664
Growth Related Debenture Requirements	$ 4,585,831
Operating Contributions	$ 443,690
Water/Wastewater Reserve	$21,744,301
Total	**$37,692,541**

Table 4-3 provides the full 11-year capital expenditure and funding program. These capital funding plans are provided in inflated dollars.

Table 4-3
Municipality of Mississippi Mills
Water and Wastewater Service Capital Budget Forecast (Inflated $)

Description	Total	Budget	Forecast									
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Capital Expenditures												
Water	22,885,510	3,571,510	1,821,000	1,671,000	1,208,000	4,489,000	2,761,000	3,078,000	1,280,000	1,203,000	1,262,000	541,000
Wastewater	14,807,031	1,620,031	2,207,000	1,215,000	3,156,000	892,000	1,252,000	834,000	951,000	863,000	893,000	924,000
Total Capital Expenditures	**37,692,541**	**5,191,541**	**4,028,000**	**2,886,000**	**4,364,000**	**5,381,000**	**4,013,000**	**3,912,000**	**2,231,000**	**2,066,000**	**2,155,000**	**1,465,000**
Capital Financing												
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	8,219,055	937,789	137,384	996,019	825,642	3,462,337	283,823	51,053	492,414	509,753	431,367	91,474
Non-Growth Related Debenture Requirements	2,699,664	2,699,664	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	4,585,831	57,831	-	-	710,000	-	1,663,000	2,155,000	-	-	-	-
Operating Contributions	443,690	443,690	-	-	-	-	-	-	-	-	-	-
Water/Wastewater Reserve	21,744,301	1,052,567	3,890,616	1,889,981	2,828,358	1,918,663	2,066,177	1,705,947	1,738,586	1,556,247	1,723,633	1,373,526
Total Capital Financing	**37,692,541**	**5,191,541**	**4,028,000**	**2,886,000**	**4,364,000**	**5,381,000**	**4,013,000**	**3,912,000**	**2,231,000**	**2,066,000**	**2,155,000**	**1,465,000**

Chapter 5
Net Operating Expenditure Forecast

5. Net Operating Expenditure Forecast

5.1 Operating Expenditures

The Municipality provided its 2021 Operating Budget and draft 2022 Operating Budget which formed the basis for the water and wastewater services net operating expenditure forecast, which was further refined through discussions with Municipality staff. The operating expenditure estimates were inflated at 2% annually, reflecting historical Consumer Price Index (C.P.I.) rates. An additional adjustment was made in the operating expenditure forecast to account for increases in operating costs resulting form further growth in customers and the associated increased water demands and wastewater flows, as well as expansions/extensions of infrastructure. This additional adjustment factor was set at half of the annual customer growth rate.

The operating budget forecast generally includes two components – operating expenditures and capital-related expenditures. The former is based on the Municipality's projected annual spending for ongoing operations and maintenance, while the latter is based on the capital funding plan decisions (i.e., transfers to reserve funds, debt repayment, and capital fund transfers) presented earlier.

Capital-related annual expenditures in the forecast include annual debt repayments and contributions to reserves and reserve funds to support the forecast and future needs. While operating aspects identified above generally increase with inflation over the period, the capital-related aspects tend to increase more specifically with the increase in capital funding requirements.

As a result, gross operating expenditures for water and wastewater services are projected to increase from $2.22 million in 2021 to $3.16 million by 2031.

5.2 Operating Revenues

The Municipality has operating revenue sources including interest and dividends, hydrant rentals, connection charges, and other miscellaneous revenues that offset some of the annual operating costs. These operating revenues have generally been forecast over the period with general inflation of 2% annually. Additionally, operating revenues include transfers from D.C. Reserve Funds to offset the principal and interest

payments for growth-related debt. The annual operating revenues are forecast to increase from $512,600 in 2021 to $871,100 by 2031. Increases in operating revenues are mainly a result of increasing growth-related debt payments over the forecast period.

Table 5-1 provides the operating budget forecasts for water and wastewater. The operating budget forecast is presented in inflated dollars.

Table 5-1
Municipality of Mississippi Mills
Water and Wastewater Service Operating Budget Forecast (Inflated $)

Description	Budget	Forecast									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Expenditures											
Operating Costs											
Water	1,353,795	1,493,819	1,554,600	1,615,400	1,656,000	1,683,100	1,733,600	1,782,200	1,833,300	1,885,200	1,939,900
Wastewater	867,776	936,240	975,100	1,014,000	1,052,800	1,074,000	1,087,000	1,119,100	1,150,200	1,183,200	1,216,400
Sub-Total Operating Costs	**2,221,571**	**2,430,059**	**2,529,700**	**2,629,400**	**2,708,800**	**2,757,100**	**2,820,600**	**2,901,300**	**2,983,500**	**3,068,400**	**3,156,300**
Capital-Related											
Existing Debt (Principal) - Growth Related	134,965	140,597	146,463	152,575	158,941	165,573	172,482	179,679	187,177	194,987	203,123
Existing Debt (Interest) - Growth Related	214,153	208,521	202,655	196,543	190,177	183,545	176,636	169,439	161,942	154,131	145,995
New Growth Related Debt (Principal)	-	2,045	2,117	2,191	27,374	28,332	88,129	167,416	173,276	179,341	185,618
New Growth Related Debt (Interest)	-	2,024	1,953	1,878	26,652	25,694	82,907	155,248	149,388	143,323	137,046
Existing Debt (Principal) - Non-Growth Related	167,182	168,709	169,805	174,680	179,973	184,781	167,564	168,446	173,657	178,883	184,446
Existing Debt (Interest) - Non-Growth Related	126,107	121,060	116,118	111,243	105,950	100,623	95,379	90,520	85,308	80,137	74,585
New Non-Growth Related Debt (Principal)		95,463	98,804	102,262	105,842	109,546	113,380	117,348	121,456	125,707	130,106
New Non-Growth Related Debt (Interest)		94,488	91,147	87,689	84,110	80,405	76,571	72,603	68,496	64,245	59,845
Transfer to Capital	443,690	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (exemption funding)	-	47,492	49,155	50,875	52,656	54,499	56,406	37,203	38,505	39,853	33,316
Transfer to Capital Reserve	1,129,126	1,363,769	1,507,701	1,656,196	1,797,487	1,939,515	2,096,546	2,245,581	2,376,317	2,512,497	2,663,605
Sub-Total Capital-Related	**2,215,223**	**2,244,169**	**2,385,918**	**2,536,133**	**2,729,160**	**2,872,513**	**3,126,000**	**3,403,483**	**3,535,521**	**3,673,103**	**3,817,684**
Total Expenditures	**4,436,794**	**4,674,228**	**4,915,618**	**5,165,533**	**5,437,960**	**5,629,613**	**5,946,600**	**6,304,783**	**6,519,021**	**6,741,503**	**6,973,984**
Revenues											
Operating Revenues											
Interest & Dividends-ORPC	26,115	26,600	27,200	27,700	28,300	28,900	29,400	30,000	30,600	31,200	31,900
Interest and Dividends-MRPC	61,200	62,500	63,600	64,900	66,200	67,500	68,900	70,300	71,700	73,100	74,600
Waterworks-Remote meters	43,350	44,200	45,200	46,000	47,000	47,800	48,800	49,800	50,800	51,800	52,800
Waterworks-W&S Connections	9,180	9,400	9,600	9,800	10,000	10,200	10,400	10,600	10,800	11,000	11,200
Waterworks-Hydrant Rental	3,500	3,600	3,600	3,700	3,800	3,900	3,900	4,000	4,100	4,200	4,300
Waterworks-Other Fees & S/C	100	130	130	130	130	130	130	130	140	140	140
Interest on overdue water accounts	20,000	20,400	20,800	21,200	21,700	22,100	22,500	23,000	23,400	23,900	24,400
Transfer from DC Reserve Fund	349,118	353,187	353,187	353,187	403,143	403,143	520,154	671,782	671,782	671,782	671,782
Sub-Total Operating Revenues	**512,563**	**520,017**	**523,317**	**526,617**	**580,273**	**583,673**	**704,184**	**859,612**	**863,322**	**867,122**	**871,122**
Billing Revenues											
Base Charge	2,331,693	2,436,319	2,541,453	2,647,097	2,731,356	2,793,400	2,856,405	2,919,038	2,981,967	3,045,192	3,109,388
Consumptive Charge	1,592,538	1,717,892	1,850,848	1,991,818	2,126,331	2,252,539	2,386,011	2,526,132	2,673,732	2,829,189	2,993,474
Sub-Total Billing Revenues	**3,924,231**	**4,154,210**	**4,392,300**	**4,638,916**	**4,857,687**	**5,045,939**	**5,242,416**	**5,445,171**	**5,655,699**	**5,874,381**	**6,102,862**
Total Revenues	**4,436,794**	**4,674,228**	**4,915,618**	**5,165,533**	**5,437,960**	**5,629,613**	**5,946,600**	**6,304,783**	**6,519,021**	**6,741,503**	**6,973,984**

Chapter 6
Forecast Water and Wastewater Rates

6. Forecast Water and Wastewater Rates

To summarize the analysis presented thus far, Chapter 3 reviewed capital-related needs for all customers within the water and wastewater systems and responds to the lifecycle needs of the Municipality's infrastructure. Chapter 4 provided a review of capital financing options of which internal sources (i.e., reserve fund transfers) and external sources (i.e., debt) will be the predominant basis for financing future capital needs. Chapter 5 established the 11-year operating forecast of expenditures for the Municipality's water and wastewater systems. This chapter presents the calculated rates over the next 10-year period. These calculations are based on the net operating expenditures identified in Chapter 5 and the customer counts and water volumes forecasted in Chapter 2.

The calculated rate forecasts are provided to address full costs of the water and wastewater systems, including annual operating and capital expenditures from a lifecycle perspective.

The resultant rate forecast is presented in Table 6-1 below. The detailed financial forecast and rate calculations for water and wastewater services are provided in Appendix A to this report.

6.1 Forecast Water and Wastewater Rate Impacts

Table 6-2 summarizes the impacts of the proposed rates on a typical medium-density residential customer, an average low density residential customer, and a large non-residential customer.

For a typical medium-density residential customer consuming 18,700 gallons (i.e., 85 m^3) annually, the current 2021 annual bill would be approximately $887. Under the proposed 2022 rates the annual bill would total $898, which represents an $11 (1.2%) increase relative to what the bill would be based on the rates that are currently in effect. The annual water and wastewater bill for this type of customer would further increase by approximately 1.3% to 1.5% annually thereafter over the forecast period.

For an average low density residential customer consuming 34,000 gallons (i.e., 155 m^3) annually, the current 2021 annual bill would be approximately $1,076. Under the proposed 2022 rates the annual bill would total $1,094, which represents a $19 (1.7%)

increase relative to what the bill would be based on the rates that are currently in effect. The annual water and wastewater bill for this type of customer would further increase by approximately 1.8% to 2.1% annually thereafter over the forecast period.

For a large non-residential customer consuming 1.01 million gallons (i.e., 5,000 m^3) annually, the current 2021 annual bill would be approximately $14,163. Under the proposed 2022 rates the annual bill would total $14,719, which represents a $555 (3.9%) increase relative to what the bill would be based on the rates that are currently in effect. The annual water and wastewater bill for this type of customer would further increase by approximately 3.9% to 4.0% annually thereafter over the forecast period.

Table 6-1
Municipality of Mississippi Mills
Water and Wastewater Rate Forecast

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Annual Base Charge	$ 657.00	$ 658.64	$ 660.29	$ 661.94	$ 663.59	$ 665.25	$ 666.92	$ 668.58	$ 670.26	$ 671.93	$ 673.61
Annual Percentage Change		0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Consumptive Charge per 1,000 gallons	$ 12.28	$ 12.78	$ 13.31	$ 13.85	$ 14.42	$ 15.01	$ 15.63	$ 16.27	$ 16.94	$ 17.63	$ 18.35
Annual Percentage Change		4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%

Table 6-2
Municipality of Mississippi Mills
Annual Water and Wastewater Bill Impact

Customer	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Average Medium Density Residential	$ 887	$ 898	$ 909	$ 921	$ 933	$ 946	$ 959	$ 973	$ 987	$ 1,002	$ 1,017
$ Increase		$ 11	$ 11	$ 12	$ 12	$ 13	$ 13	$ 14	$ 14	$ 15	$ 15
% Increase		1.2%	1.3%	1.3%	1.3%	1.4%	1.4%	1.4%	1.5%	1.5%	1.5%
Average Low Density Residential	$ 1,076	$ 1,094	$ 1,114	$ 1,134	$ 1,155	$ 1,177	$ 1,200	$ 1,223	$ 1,248	$ 1,273	$ 1,299
$ Increase		$ 19	$ 20	$ 20	$ 21	$ 22	$ 23	$ 24	$ 24	$ 25	$ 26
% Increase		1.7%	1.8%	1.8%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.1%
Large Non-Residential	$14,163	$14,719	$15,297	$15,898	$16,525	$17,177	$17,855	$18,562	$19,297	$20,062	$20,859
$ Increase		$ 555	$ 578	$ 602	$ 626	$ 652	$ 679	$ 706	$ 735	$ 765	$ 797
% Increase		3.9%	3.9%	3.9%	3.9%	3.9%	4.0%	4.0%	4.0%	4.0%	4.0%

6.2 Recommendations

Based upon the analysis in this report, the following recommendations are provided for Council's consideration:

1. That Council provide for the recovery of all water and wastewater costs through full cost recovery rates and maintain reserve funds for water and wastewater services;

2. That Council approve the water and wastewater rates presented in Table 6-1;

3. That Council approve the Rate Study and direct staff to prepare the Water Financial Plan in the format required under O.Reg. 453/07 and submit the plan to the Province to maintain the Municipality's Municipal Drinking Water License; and

4. That Council direct staff to prepare an update to this study in the coming years after updates to the Municipality's Official Plan, the Master Plan, and the D.C. Background Study are completed.

Appendices

Appendix A
Water and Wastewater Services

Table A-1
Municipality of Mississippi Mills
Water & Wastewater Service
Capital Budget Forecast
Inflated $

Description	Total	Budget	Forecast									
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Capital Expenditures												
Water	22,885,510	3,571,510	1,821,000	1,671,000	1,208,000	4,489,000	2,761,000	3,078,000	1,280,000	1,203,000	1,262,000	541,000
Wastewater	14,807,031	1,620,031	2,207,000	1,215,000	3,156,000	892,000	1,252,000	834,000	951,000	863,000	893,000	924,000
Total Capital Expenditures	**37,692,541**	**5,191,541**	**4,028,000**	**2,886,000**	**4,364,000**	**5,381,000**	**4,013,000**	**3,912,000**	**2,231,000**	**2,066,000**	**2,155,000**	**1,465,000**
Capital Financing												
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	8,219,055	937,789	137,384	996,019	825,642	3,462,337	283,823	51,053	492,414	509,753	431,367	91,474
Non-Growth Related Debenture Requirements	2,699,664	2,699,664	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	4,585,831	57,831	-	-	710,000	-	1,663,000	2,155,000	-	-	-	-
Operating Contributions	443,690	443,690	-	-	-	-	-	-	-	-	-	-
Water/Wastewater Reserve	21,744,301	1,052,567	3,890,616	1,889,981	2,828,358	1,918,663	2,066,177	1,705,947	1,738,586	1,556,247	1,723,633	1,373,526
Total Capital Financing	**37,692,541**	**5,191,541**	**4,028,000**	**2,886,000**	**4,364,000**	**5,381,000**	**4,013,000**	**3,912,000**	**2,231,000**	**2,066,000**	**2,155,000**	**1,465,000**

Table A-2
Municipality of Mississippi Mills
Water & Wastewater Service
Schedule of Non-Growth Related Debenture Repayments
Inflated $

Debenture	Principal	Budget	Forecast									
Year	(Inflated)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2021	2,699,664		189,951	189,951	189,951	189,951	189,951	189,951	189,951	189,951	189,951	189,951
2022	-			-	-	-	-	-	-	-	-	-
2023	-				-	-	-	-	-	-	-	-
2024	-					-	-	-	-	-	-	-
2025	-						-	-	-	-	-	-
2026	-							-	-	-	-	-
2027	-								-	-	-	-
2028	-									-	-	-
2029	-										-	-
2030	-											-
2031	-											
Total Annual Debt Charges	**2,699,664**	**-**	**189,951**	**189,951**	**189,951**	**189,951**	**189,951**	**189,951**	**189,951**	**189,951**	**189,951**	**189,951**

Table A-3
Municipality of Mississippi Mills
Water & Wastewater Service
Schedule of Growth Related Debenture Repayments
Inflated $

Debenture Year	Principal (Inflated)	Budget 2021	Forecast 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2021	57,831		4,069	4,069	4,069	4,069	4,069	4,069	4,069	4,069	4,069	4,069
2022	-			-	-	-	-	-	-	-	-	-
2023	-				-	-	-	-	-	-	-	-
2024	710,000					49,956	49,956	49,956	49,956	49,956	49,956	49,956
2025	-						-	-	-	-	-	-
2026	1,663,000							117,010	117,010	117,010	117,010	117,010
2027	2,155,000								151,628	151,628	151,628	151,628
2028	-									-	-	-
2029	-										-	-
2030	-											-
2031	-											
Total Annual Debt Charges	**4,585,831**	**-**	**4,069**	**4,069**	**4,069**	**54,025**	**54,025**	**171,036**	**322,664**	**322,664**	**322,664**	**322,664**

Table A-4
Municipality of Mississippi Mills
Water & Wastewater Service
Water & Wastewater Reserves/ Reserve Funds Continuity
Inflated $

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	4,248,181	4,367,987	1,859,551	1,492,044	323,081	203,924	78,035	473,321	990,119	1,828,291	2,643,326
Transfer from Operating	1,129,126	1,363,769	1,507,701	1,656,196	1,797,487	1,939,515	2,096,546	2,245,581	2,376,317	2,512,497	2,663,605
Transfer to Capital	1,052,567	3,890,616	1,889,981	2,828,358	1,918,663	2,066,177	1,705,947	1,738,586	1,556,247	1,723,633	1,373,526
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	**4,324,740**	**1,841,140**	**1,477,272**	**319,882**	**201,905**	**77,263**	**468,635**	**980,316**	**1,810,189**	**2,617,154**	**3,933,404**
Interest	43,247	18,411	14,773	3,199	2,019	773	4,686	9,803	18,102	26,172	39,334

Table A-5
Municipality of Mississippi Mills
Water & Wastewater Service
Water & Wastewater Development Charges Reserve Fund Continuity
Inflated $

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	2,291,060	2,188,004	2,977,150	2,951,165	3,142,687	105,671	287,697	608,827	358,058	119,469	2,289
Development Charge Proceeds	1,162,188	1,202,748	1,244,848	1,288,360	774,762	811,646	829,903	872,678	903,258	946,093	961,406
Transfer from Rates	-	47,492	49,155	50,875	52,656	54,499	56,406	37,203	38,505	39,853	33,316
Transfer to Capital	937,789	137,384	996,019	825,642	3,462,337	283,823	51,053	492,414	509,753	431,367	91,474
Transfer to Operating	349,118	353,187	353,187	353,187	403,143	403,143	520,154	671,782	671,782	671,782	671,782
Closing Balance	**2,166,341**	**2,947,673**	**2,921,946**	**3,111,571**	**104,624**	**284,849**	**602,799**	**354,512**	**118,286**	**2,266**	**233,754**
Interest	21,663	29,477	29,219	31,116	1,046	2,848	6,028	3,545	1,183	23	2,338
Required from Development Charges	995,620	137,384	996,019	1,535,642	3,462,337	1,946,823	2,206,053	492,414	509,753	431,367	91,474

Table A-6
Municipality of Mississippi Mills
Water & Wastewater Service
Operating Budget Forecast
Inflated $

Description	Budget 2021	Forecast 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Expenditures											
Operating Costs											
Water	1,353,795	1,493,819	1,554,600	1,615,400	1,656,000	1,683,100	1,733,600	1,782,200	1,833,300	1,885,200	1,939,900
Wastewater	867,776	936,240	975,100	1,014,000	1,052,800	1,074,000	1,087,000	1,119,100	1,150,200	1,183,200	1,216,400
Sub-Total Operating Costs	**2,221,571**	**2,430,059**	**2,529,700**	**2,629,400**	**2,708,800**	**2,757,100**	**2,820,600**	**2,901,300**	**2,983,500**	**3,068,400**	**3,156,300**
Capital-Related											
Existing Debt (Principal) - Growth Related	134,965	140,597	146,463	152,575	158,941	165,573	172,482	179,679	187,177	194,987	203,123
Existing Debt (Interest) - Growth Related	214,153	208,521	202,655	196,543	190,177	183,545	176,636	169,439	161,942	154,131	145,995
New Growth Related Debt (Principal)	-	2,045	2,117	2,191	27,374	28,332	88,129	167,416	173,276	179,341	185,618
New Growth Related Debt (Interest)	-	2,024	1,953	1,878	26,652	25,694	82,907	155,248	149,388	143,323	137,046
Existing Debt (Principal) - Non-Growth Related	167,182	168,709	169,805	174,680	179,973	184,781	167,564	168,446	173,657	178,883	184,446
Existing Debt (Interest) - Non-Growth Related	126,107	121,060	116,118	111,243	105,950	100,623	95,379	90,520	85,308	80,137	74,585
New Non-Growth Related Debt (Principal)		95,463	98,804	102,262	105,842	109,546	113,380	117,348	121,456	125,707	130,106
New Non-Growth Related Debt (Interest)		94,488	91,147	87,689	84,110	80,405	76,571	72,603	68,496	64,245	59,845
Transfer to Capital	443,690	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (exemption funding)	-	47,492	49,155	50,875	52,656	54,499	56,406	37,203	38,505	39,853	33,316
Transfer to Capital Reserve	1,129,126	1,363,769	1,507,701	1,656,196	1,797,487	1,939,515	2,096,546	2,245,581	2,376,317	2,512,497	2,663,605
Sub-Total Capital-Related	**2,215,223**	**2,244,169**	**2,385,918**	**2,536,133**	**2,729,160**	**2,872,513**	**3,126,000**	**3,403,483**	**3,535,521**	**3,673,103**	**3,817,684**
Total Expenditures	**4,436,794**	**4,674,228**	**4,915,618**	**5,165,533**	**5,437,960**	**5,629,613**	**5,946,600**	**6,304,783**	**6,519,021**	**6,741,503**	**6,973,984**
Revenues											
Operating Revenues											
Interest & Dividends-ORPC	26,115	26,600	27,200	27,700	28,300	28,900	29,400	30,000	30,600	31,200	31,900
Interest and Dividends-MRPC	61,200	62,500	63,600	64,900	66,200	67,500	68,900	70,300	71,700	73,100	74,600
Waterworks-Remote meters	43,350	44,200	45,200	46,000	47,000	47,800	48,800	49,800	50,800	51,800	52,800
Waterworks-W&S Connections	9,180	9,400	9,600	9,800	10,000	10,200	10,400	10,600	10,800	11,000	11,200
Waterworks-Hydrant Rental	3,500	3,600	3,600	3,700	3,800	3,900	3,900	4,000	4,100	4,200	4,300
Waterworks-Other Fees & S/C	100	130	130	130	130	130	130	130	140	140	140
Interest on overdue water accounts	20,000	20,400	20,800	21,200	21,700	22,100	22,500	23,000	23,400	23,900	24,400
Transfer from DC Reserve Fund	349,118	353,187	353,187	353,187	403,143	403,143	520,154	671,782	671,782	671,782	671,782
Sub-Total Operating Revenues	**512,563**	**520,017**	**523,317**	**526,617**	**580,273**	**583,673**	**704,184**	**859,612**	**863,322**	**867,122**	**871,122**
Billing Revenues											
Base Charge	2,331,693	2,436,319	2,541,453	2,647,097	2,731,356	2,793,400	2,856,405	2,919,038	2,981,967	3,045,192	3,109,388
Consumptive Charge	1,592,538	1,717,892	1,850,848	1,991,818	2,126,331	2,252,539	2,386,011	2,526,132	2,673,732	2,829,189	2,993,474
Sub-Total Billing Revenues	**3,924,231**	**4,154,210**	**4,392,300**	**4,638,916**	**4,857,687**	**5,045,939**	**5,242,416**	**5,445,171**	**5,655,699**	**5,874,381**	**6,102,862**
Total Revenues	**4,436,794**	**4,674,228**	**4,915,618**	**5,165,533**	**5,437,960**	**5,629,613**	**5,946,600**	**6,304,783**	**6,519,021**	**6,741,503**	**6,973,984**

Table A-7
Municipality of Mississippi Mills
Water & Wastewater Service
Combined Water & Wastewater Rate Forecast
Inflated $

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Annual Base Charge	$ 657.00	$ 658.64	$ 660.29	$ 661.94	$ 663.59	$ 665.25	$ 666.92	$ 668.58	$ 670.26	$ 671.93	$ 673.61
Annual Percentage Change		0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Consumptive Charge per 1,000 gallons	$ 12.28	$ 12.78	$ 13.31	$ 13.85	$ 14.42	$ 15.01	$ 15.63	$ 16.27	$ 16.94	$ 17.63	$ 18.35
Annual Percentage Change		4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%