Township of Leeds and the Thousand Islands

Water and Wastewater Rate Study

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Planning for growth

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1. Introduction

1.1 Background

The Township of Leeds and the Thousand Islands has a present population of approximately 9,300 people and contains approximately 5,600 households. There are approximately 300 water and wastewater users using the Township's systems, attached to 266 meters.

All customers are currently charged a monthly base (minimum) charge and a consumption rate for both water and wastewater. The base (minimum) charge includes the consumption of 20 m^3 of water, the consumptive charge applies to the consumption in excess 20 m^3 per month. The water and wastewater rates currently imposed are summarized below.

Table 1-1
2015 Water and Wastewater Rates

2015 - Water Billing Rates		
Consumptive Charge		
1 ½" or Less	$	2.80
2" or More	$	3.15
Minimum Monthly Bill		
1 ½" or Less	$	56.00
2" or More	$	63.00

2015 - Wastewater Billing Rates		
Consumptive Charge		
1 ½" or Less	$	2.80
2" or More	$	3.15
Minimum Monthly Bill		
1 ½" or Less	$	56.00
2" or More	$	63.00

1.2 Study Process

Watson & Associates Economists Ltd. was retained by the Township of Leeds and the Thousand Islands 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:

- Calculate water and wastewater service demand assumptions based on analysis of historical consumption and recent trends;
- Estimate future consumption levels by applying revised demand assumptions to forecast growth identified by Township staff;
- Build a capital program that blends lifecycle needs arising from the Township's Asset Management Plan with specific needs identified by Township staff;

- Identify potential methods of cost recovery from the capital needs listing, as an offset to recovery through the water and wastewater rates;
- Forecast annual operating costs and rate-based funding requirements;
- Assess adequacy of forecast water and wastewater rates within the Township's by-law in addressing long-term financial plan needs; and
- Develop a long-term water and wastewater rate forecast and present findings to Township staff and Council for their consideration.

In approaching this study, the following analysis in provided herein:

Chapter 1 – Introduction
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 Regulatory Changes in Ontario

Resulting from the water crisis in Walkerton, significant regulatory changes have been made in Ontario. These changes arose as a result of 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.

1.4 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 the 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.

1.5 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 Safe Drinking Water Act is being implemented in stages.

> "The purpose of the Safe Drinking Water Act is to protect human health through the control and regulation of drinking-water systems and drinking-water testing. Building on existing policy and practice in Ontario's treatment and distribution of drinking water, the Safe Drinking Water Act requires that all municipal drinking water systems obtain an approval from the Director of the Ministry of the Environment in order to operate. Operators are required to be trained and certified to provincial standards. The act also provides legally binding standards for testing of drinking water and requires that testing be done in licensed and accredited laboratories."[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 licence each water system.

[1] The Ministry of Environment
http://www.ene.gov.on.ca/environment/en/legislation/safe_drinking_water_act/index.html

1.6 Financial Plans Regulation

On August 16, 2007, the Ministry of Environment introduced Ontario Regulation 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 License.
- 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 license.
- 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. can be updated if there are significant changes to budgets) but 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. However, many of the prescriptive requirements 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.

1.7 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;
- Prepare sustainability plans for municipal water services, municipal wastewater services and municipal stormwater services.

With regard to the sustainability plans:

- The Bill 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;
- 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 Sustainability 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;
- 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:

- 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;
- May be different for different municipal service providers or for municipal services in different areas of the Province.

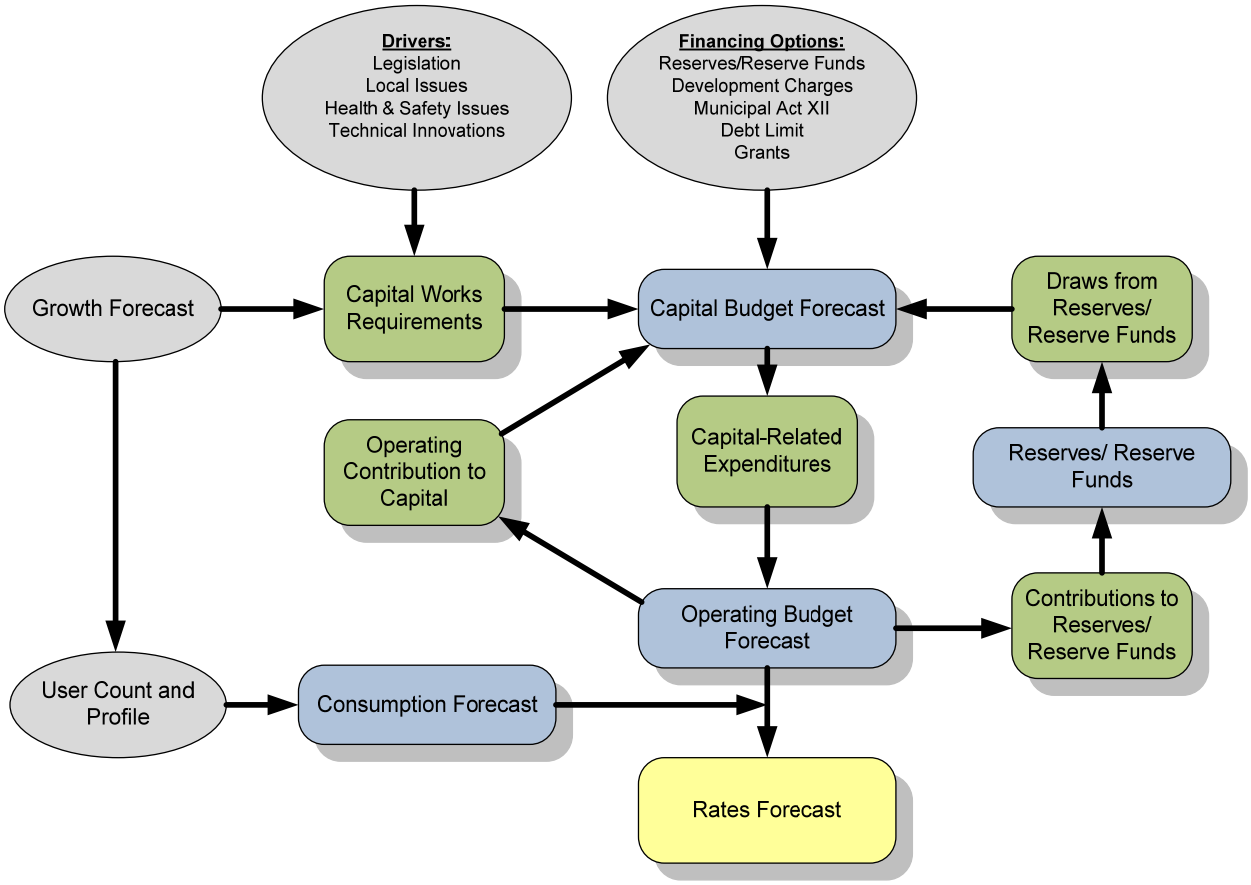
Regulations will prescribe:

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

1.8 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 5 major elements:

1. Customer Demands and Consumption Forecast

This first step in the analysis is important as it produces the current base revenue by source and assumptions for forecasting purposes. The base charge revenues are forecast with customer growth. The customer profile forecast is modeled based on the Township's anticipated growth forecast, by type, applying generally witnessed metered size assumptions by use. Moreover, the customer forecast is modelled for the water and wastewater systems independently to identify differences in service demands, if any.

The water consumption forecast is prepared by applying average annual consumption estimates to future development. The forecast may adjust the base consumption levels for anticipated water conservation based on historic trends and industry witnessed practices. Consumption estimates are based on average consumption levels by customer type drawn from billing records over multiple years. The non-residential consumption estimates are generally adjusted to net out large consuming water customers that may skew anticipated consumption levels of future growth. Consistent with the customer forecast, the water consumption forecast used to determine the wastewater consumptive rates is adjusted to reflect differences in service demands.

2. Capital Needs Forecast

The capital needs forecast is developed to measure program/service level adjustments, lifecycle requirements and growth-related needs. The Township's recently completed asset management plan provided the base capital forecast with adjustments made by Township staff for specific projects. Capital expenditures are forecast with inflationary adjustments based on capital costs indices.

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

in against the Township's debt policies and annual repayment limits to ensure a practical and sustainable funding mix.

4. Operating Budget Forecast

   The operating budget forecast considers adjustments to the Township'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 base charge and consumptive rate components net of anticipated operating revenues, such as connection fees, rental fees and other miscellaneous revenues.

5. Rate Forecast and Structure

   The rate forecast and structure component of the analysis considers various rate structures to recovery 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 for base charge and consumptive components of the rates, 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.

2. Forecast Growth and Service Demands

2.1 Current Service Demands

In preparing the demands forecast for water and wastewater services, a list of water and wastewater customer accounts was extracted from the Township's billing system.

There are currently 300 water and wastewater customers, with consumption being measured on 266 meters.

2.2 Forecast Service Demands

Historic average annual consumption levels by customer type were applied to the Township's growth projections for the urban service area to forecast future service demands. The growth forecast estimates were provided by Township staff.

Water and wastewater system customers are anticipated to increase by 54 customers by 2024. This results in an increase from 300 customers currently to 354 for both the water and wastewater systems. Table 2-1 provides the detailed growth forecast for the period.

In addition, Township staff provided consumption estimates for system users. Taking into account the 20 m^3 included in the monthly base charge, an estimate of 15 m^3 additional consumption and flows respectively per customer per year has been calculated for water and wastewater customers. Applying these estimates to new customers, results in an estimated increase in water and wastewater consumption/flows (in excess of 20 m^3 per month) from 4,890 m^3 currently per year to 5,707 m^3 per year by 2024.

In addition, total consumption estimates were determined. An estimate of 150 m3 consumption and flows respectively per customer has been calculated. Applying these estimates to new customers, results in an estimated increase in water and wastewater consumption/flows from 45,259 m^3 currently to 53,410 m^3 by 2024. Table 2-2 provides the detailed consumption and flow forecast.

Table 2-1
Township of Leeds and the Thousand Islands
Water and Wastewater Customer Forecast

Water Customer Forecast	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Existing - 1 1/2" or less	279	279	279	279	279	279	279	279	279	279
Existing - 2" or more	21	21	21	21	21	21	21	21	21	21
New - Growth (1 1/2" or less)	-	9	26	41	49	50	51	52	53	54
Total	300	309	326	341	349	350	351	352	353	354

Wastewater Customer Forecast	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Existing - 1 1/2" or less	279	279	279	279	279	279	279	279	279	279
Existing - 2" or more	21	21	21	21	21	21	21	21	21	21
New - Growth (1 1/2" or less)	-	9	26	41	49	50	51	52	53	54
Total	300	309	326	341	349	350	351	352	353	354

Table 2-2
Township of Leeds and the Thousand Islands
Water Consumption and Wastewater Flow Forecast

Water Consumption Forecast (m^3) - Billed above 20m^3 monthly	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Existing - 1 1/2" or less	4,198	4,198	4,198	4,198	4,198	4,198	4,198	4,198	4,198	4,198
Existing - 2" or more	692	692	692	692	692	692	692	692	692	692
New (1 1/2" or less)	-	136	393	620	741	756	771	786	801	816
Total	4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707

Note: Consumption assumption above only includes consumption exceeding 20m3 per user per month.

Water Consumption Forecast (m^3) - Total Consumption	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Existing - 1 1/2" or less	42,112	42,112	42,112	42,112	42,112	42,112	42,112	42,112	42,112	42,112
Existing - 2" or more	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
New (1 1/2" or less)	-	1,358	3,924	6,189	7,396	7,547	7,698	7,849	8,000	8,151
Total	45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410

Wastewater Flows Forecast (m^3) - Billed above 20m3 monthly	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Existing - 1 1/2" or less	4,198	4,198	4,198	4,198	4,198	4,198	4,198	4,198	4,198	4,198
Existing - 2" or more	692	692	692	692	692	692	692	692	692	692
New (1 1/2" or less)	-	136	393	620	741	756	771	786	801	816
Total	4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707

Note:
Above flows are water flows on which the wastewater billing will be calculated
Consumption assumption above only includes consumption exceeding 20m3 per user per month.

Wastewater Flows Forecast (m^3) - Total Flows	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Existing - 1 1/2" or less	42,112	42,112	42,112	42,112	42,112	42,112	42,112	42,112	42,112	42,112
Existing - 2" or more	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
New (1 1/2" or less)	-	1,358	3,924	6,189	7,396	7,547	7,698	7,849	8,000	8,151
Total	45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410

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.

By definition, 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 which 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.

3.1.2 Financing Costs

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

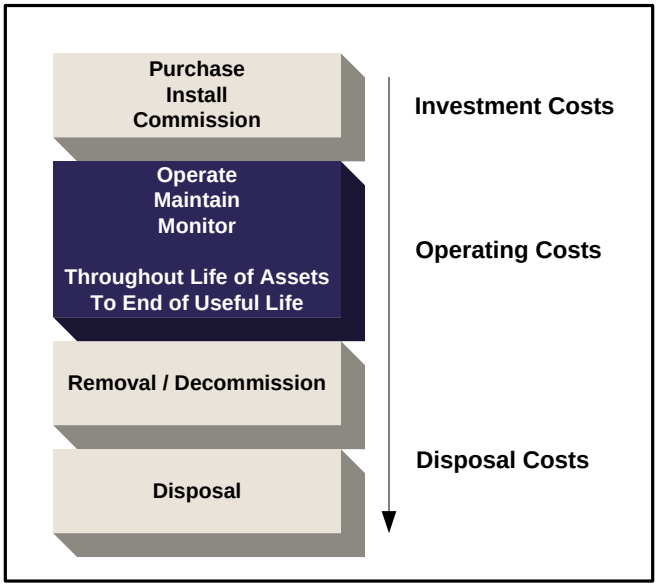
In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the municipality. Over the past few decades, new financing techniques such as development charges have been employed based on the underlying principle of having tax/rate payers who benefit directly from the service paying 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, development charges, reserves, developer contributions and debentures.

New construction related to growth could produce development charges 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.

Figure 3-1
Lifecycle Costing



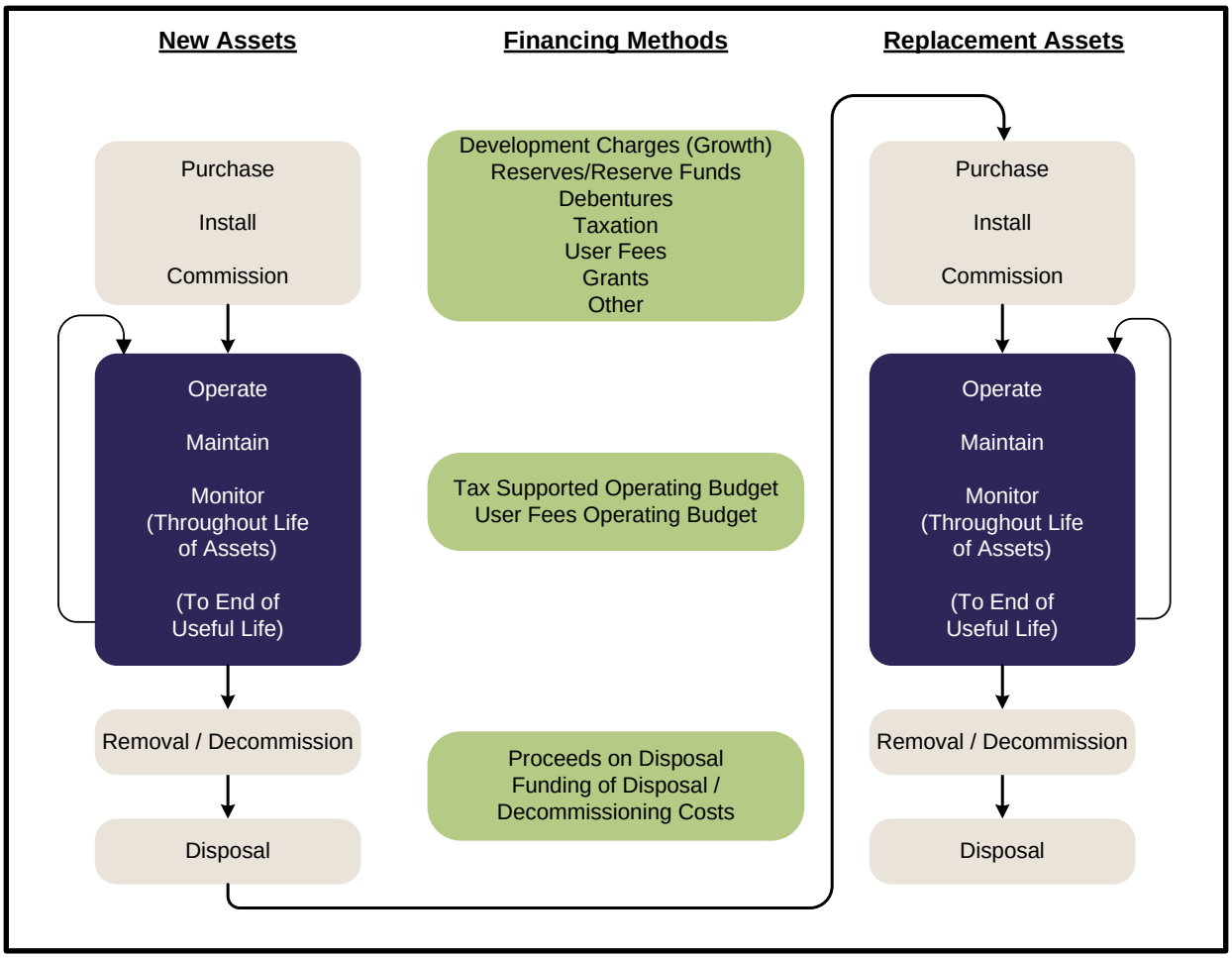
However, capital construction to replace existing infrastructure is largely not growth-related and will therefore not yield development charges or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves and contributions from the operating 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 development charges 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 debenturing 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 debenturing and, possibly, a contribution from the operating budget should be used to fund this work.

Figure 3-2
Financing Lifecycle Costs



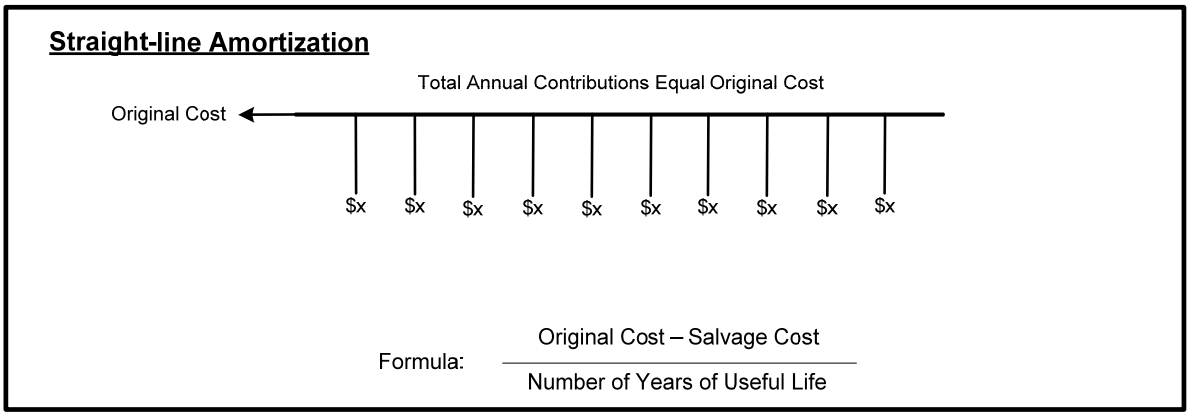
Charging for the cost of using up of an asset is the fundamental concept behind amortization methods utilized by the private sector. This concept allows for expending the asset as it is used up in the production process. The tracking of these costs forms part of the product's selling price and hence 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.

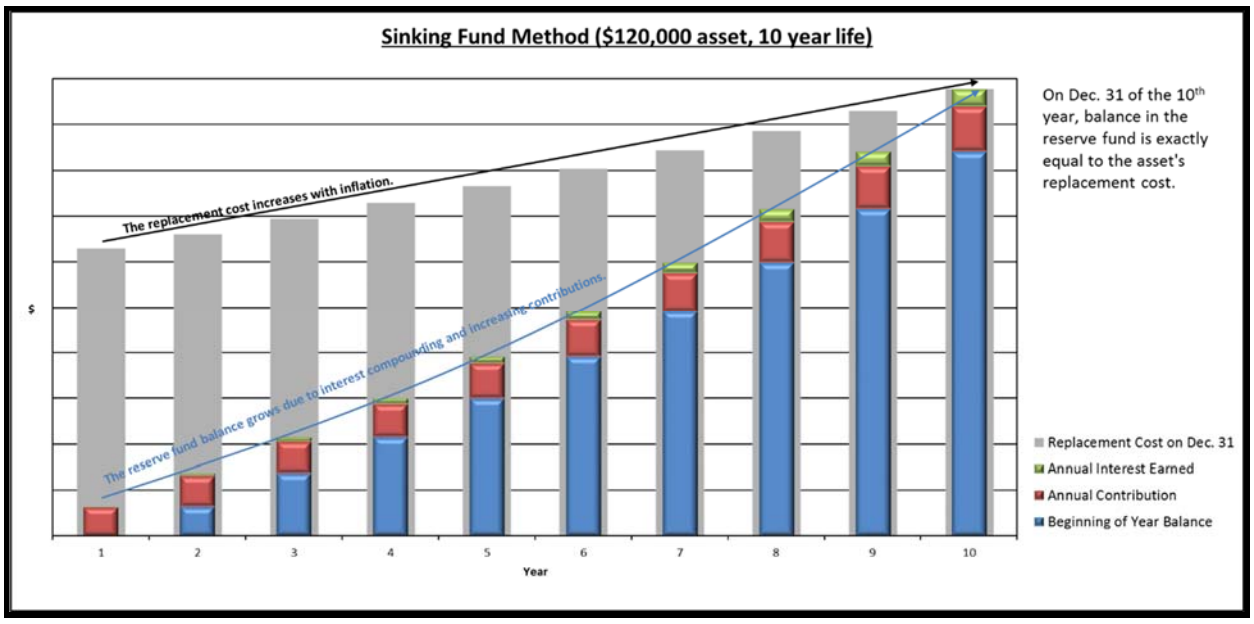
3.1.3 Costing Methods

There are two fundamental 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. The first method is the Amortization Method. This method recognizes the reduction in the value of the asset through wear and tear, and aging. There are two commonly used forms of amortization: the straight-line method and the reducing balance method.

The straight line method is calculated by taking the original cost of the asset, subtracting its estimated salvage value (estimated value of the asset at the time it is disposed of) and dividing this by the estimated number of years of useful life. The reducing balance method is calculated by utilizing a fixed percentage rate and this rate is applied annually to the undepreciated balance of the asset value.



The second method of lifecycle costing is the sinking fund method. This method first estimates the future value of the asset at the time of replacement. This is done by inflating the original cost of the asset at an assumed annual inflation rate. A calculation is then performed to determine annual contributions (equal or otherwise) which, when invested, will grow with interest to equal the future replacement cost.



The preferred method used herein is the sinking fund method of lifecycle costing.

3.2 Asset Inventory

Water and wastewater capital asset inventory information was obtained from the Township's Asset Management Plan inventory database. The information from the Asset Management Plan was used to develop the ten year capital forecast. Please refer to the Township's 2014 Asset Management Plan for detailed capital asset inventories.

Lifecycle "sinking fund" 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 estimated 2015 asset replacement value and long-term annual lifecycle replacement needs in 2015 and 2024 dollars, representing the first and last years of the forecast period.

Table 3-1
Township of Leeds and the Thousand Islands
Summary of Water and Wastewater Infrastructure
(2015$)

Area	Total Replacement Value (2015$)	Annual Lifecycle Replacement 2015$	Annual Lifecycle Replacement 2024$
Water			
Water Facilities	6,592,000	131,840	172,021
Water Distribution System	2,677,920	83,921	109,498
Total Water	**9,269,920**	**215,761**	**281,520**
Wastewater			
Wastewater Facilities	8,677,750	173,555	226,450
Wastewater Collection System	3,809,366	151,971	198,288
Total Wastewater	**12,487,116**	**325,526**	**424,738**
Total	**21,757,036**	**541,288**	**706,258**

3.3 Capital Forecast

Ten-year capital forecasts have been developed for the water and wastewater systems to address capital needs across all areas for the system. The forecasts include projects to implement recommendations from the Asset Management Plan and other staff identified needs.

All of the Township's systems are in relatively good condition, with a few lifecycle asset replacements and maintenance needed during the forecast period, as identified in the Asset Management Plan and adjusted by Township staff. Through discussions with Township staff, it is anticipated that major capital replacement needs will be taking place in approximately 20 years at an estimated cost of $11.7 million (2034 $).

The capital forecasts are summarized in Tables 3-1 and 3-2 for water and wastewater services respectively. These capital needs are forecast in current year dollars (i.e. 2015 $). The water capital plan totals $718,900. For wastewater services, the capital plan totals $304,450 for the forecast period.

For rate determination purposes, the capital needs forecast will be indexed by 3% annually. This reflective of the annual capital cost inflation witnessed in the Statscan Construction Price Index in recent years.

Table 3-2
Township of Leeds and the Thousand Islands
Water Service
Capital Budget Forecast – Uninflated$

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Well Building No. 1											
Process Mechanical	54,400	5,600	4,200	3,600	4,200	13,600	6,200	3,600	4,200	3,600	5,600
Heating, Ventilation and Air Conditioning	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Control and Instrumentation	52,000	3,000	3,000	3,000	9,000	3,000	7,000	7,000	7,000	7,000	3,000
Well Building No. 2											
Siteworks	5,000	5,000	-	-	-	-	-	-	-	-	-
Structural/Architectural	11,000	1,000	1,000	1,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000
Process Mechanical	10,000	-	-	-	-	-	-	10,000	-	-	-
Lansdowne Standpipe and Valve Chamber											
Siteworks	6,000	-	-	-	1,000	-	-	-	-	5,000	-
Structural/Architectural	320,000	295,000	5,000	-	2,000	-	8,000	10,000	-	-	-
Process Mechanical	85,500	85,000	-	-	500	-	-	-	-	-	-
Heating, Ventilation and Air Conditioning	1,500	1,500	-	-	-	-	-	-	-	-	-
Water Distribution System	-										
Preventative Maintenance	47,500	2,500	6,000	4,500	4,500	6,000	4,500	4,500	6,000	4,500	4,500
Process Mechanical	8,000	4,000	-	-	-	-	-	-	-	-	4,000
Inspection Services	10,000	-	-	-	-	10,000	-	-			-
Repair Work	75,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Studies:											
Rate Study and Financial Plan	23,000	11,500	-	-	-	-	11,500	-	-	-	-
Total Capital Expenditures	**718,900**	**422,600**	**27,700**	**20,600**	**31,700**	**42,100**	**46,700**	**44,600**	**26,700**	**29,600**	**26,600**

Table 3-3
Township of Leeds and the Thousand Islands
Wastewater Service
Capital Budget Forecast – Uninflated$

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Seasonal Retention Lagoons Infrastructure											
Siteworks	53,750	4,500	5,000	-	15,000	-	5,750	-	-	20,000	3,500
Structural/Architectural	8,000	8,000	-	-	-	-	-	-	-	-	-
Process Mechanical	17,000	2,000	-	-	-	15,000	-	-	-	-	-
Railway Street Pumping Station											
Structural/Architectural	11,500	11,500	-	-	-	-	-	-	-	-	-
Process Mechanical	5,200	-	-	-	600	-	-	-	-	4,000	600
Miscellaneous	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Control and Instrumentation	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Lansdowne Santiary Collection System											
Preventative Maintenance	59,000	9,000	5,000	5,000	5,000	5,000	10,000	5,000	5,000	5,000	5,000
Inspection Services	25,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Repair Work	72,000	6,000	6,000	6,000	6,000	8,000	8,000	8,000	8,000	8,000	8,000
Studies:											
Rate Study and Financial Plan	23,000	11,500	-	-	-	-	11,500	-	-	-	-
Total Capital Expenditures	**304,450**	**58,000**	**21,500**	**16,500**	**32,100**	**33,500**	**40,750**	**18,500**	**18,500**	**42,500**	**22,600**

4. Capital Cost Financing Options

4.1 Summary of Capital Cost Financing Alternatives

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 bylaws); 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 Ontario Regulation 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	4.2
• Municipal Act o Fees and Charge o Local Improvements	4.3
• Grant Funding	4.4
• Reserves/Reserve Funds	4.5
• Debenture Financing	4.6

4.2 Development Charges Act, 1997

The Development Charges Act received royal asset 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 provides for limitations and ceilings on services that can be included in the charges.

The Township does not impose development charges on new development therefore the capital funding plan does not identify Development Charges as a source of funding for anticipated capital needs.

4.3 Municipal Act

4.3.1 Part XII of the Municipal Act provides municipalities with broad powers to impose fees and charges via passage of a by-law. These powers, as presented in s.391(1), include imposing fees or charges:

- "for services or activities provided or done by or on behalf of it;
- for costs payable by it for services or activities provided or done by or on behalf of any other municipality or local board; and
- for the use of its property including property under its control."

Restrictions are provided to ensure that the form of the charge is not akin to a poll tax. Any charges not paid under this authority may be added to the tax roll and collected in a like manner. The fees and charges imposed under this part are not appealable to the Ontario Municipal Board.

4.3.2 s 391(2) of the Municipal Act permits municipalities to impose charges to recover capital costs, by by-law, from owners or occupants of land who receive an immediate benefit or a benefit at some later point in time. For a by-law imposed under this section of the Act:

- A variety of different means could be used to establish the rate, and recovery of the costs could be imposed by a number of methods at the discretion of Council (i.e. lot size, frontage, number of benefiting properties, etc.);
- Rates could be imposed in respect to costs of major capital works, even though an immediate benefit is not enjoyed;
- Non-abutting owners could be charged;
- Recovery could be authorized against existing works, where new infrastructure was added to such works, "notwithstanding that the capital costs of existing works has in whole or in part been paid";

- Charges on individual parcels could be deferred;
- Exemptions could be established; and
- Ontario Municipal Board approval is not required.

4.3.3 Under the previous Local Improvement Act:

- A variety of different types of works could be undertaken, such as water main, storm and sanitary sewer projects, supply of electrical light or power, bridge construction, sidewalks, road widening and paving;
- Council could pass a by-law for undertaking such work on petition of a majority of benefiting taxpayers, on a 2/3 vote of Council and on sanitary grounds, based on the recommendation of the Minister of Health. The by-law was required to go to the Ontario Municipal Board, which might hold hearings and alter the by-law, particularly if there were objections;
- The entire cost of a work was assessed only upon the lots abutting directly on the work, according to the extent of their respective frontages, using an equal special rate per metre of frontage; and
- As noted, this Act was repealed as of April 1, 2003; however, Ontario Regulation 119/03 was enacted on April 19, 2003 which restores many of the previous Local Improvement Act provisions; however, the authority is now provided under the Municipal Act.

4.4 Grant Funding Availability

In August 2012, the Province of Ontario initiated the Municipal Infrastructure Investment Initiative. In supporting the efforts of communities to restore and revitalize their public infrastructure, this initiative provides one-time provincial funding to improve asset management planning in small municipalities and local service boards. In addition, funding will be made available for municipal infrastructure projects under this initiative. Any municipality or local service board seeking capital funding in the future must demonstrate how its proposed project fits within a detailed asset management plan. To assist in defining the components of an asset management plan, the Province produced a document entitled, “Building Together: Guide for Municipal Asset Management Plans.” This guide documents the components, information and analysis that are required to be included in a municipality’s asset management plan under this initiative.

The Township does not anticipate receiving grant funding during the forecast period. To the extent that the Township is successful in achieving grant funding for future infrastructure needs and the financial impacts are material, the rate forecast may be revisited.

4.5 Existing Reserves/Reserve Funds

The Township has established reserves for water and wastewater capital costs. The established water and wastewater 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 2015 opening balances. As the Township currently maintains one reserve for both water and wastewater services, it has been assumed that the balance represents 50% water funds and 50% wastewater funds. It is recommended that the Township split the reserve into a Water reserve and a Wastewater reserve moving forward. What's more, it is recommended that the Township consider converting the reserves into reserve funds, which would allow for earned interest to accumulate within the funds.

Table 4-1
Township of Leeds and the Thousand Islands
Water and Wastewater Projected Reserve Balances
(as at Jan. 1, 2015)

Reserves	Projected Balances
Water Capital Reserve	$295,000
Wastewater Capital Reserve	$295,000

4.6 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. Ontario Regulations 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 Township has no outstanding internal or external debt for water or wastewater services.

The capital forecast proposes debt financing for water capital in the amount of $100,000 in 2015 for rehabilitation work on the Landsdowne Standpipe. The analysis assumes that these funds would be externally debentured.

4.7 Recommended Approach

The following table summarizes the recommended capital funding sources supporting the capital needs forecast, for consideration by the Township:

Table 4-2
Township of Leeds and the Thousand Islands
2015-2024 Water and Wastewater Capital Funding Program

Description	Water (2015-2024)	Wastewater (2015-2024)	Total (2015-2024)
Capital Financing			
Provincial/Federal Grants	-	-	-
Debenture Requirements	100,000	-	100,000
Reserve Fund	667,700	346,300	1,014,000
Total Capital Financing	**767,700**	**346,300**	**1,114,000**

Tables 4-3 and 4-4 provide for the full capital expenditure and funding program by year for water and wastewater services respectively. These capital funding plans are provided in inflated dollars.

Table 4-3
Township of Leeds and the Thousand Islands
Water Service
Capital Budget Forecast – Inflated$

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Well Building No. 1											
Process Mechanical	62,200	5,600	4,300	3,800	4,600	15,300	7,200	4,300	5,200	4,600	7,300
Heating, Ventilation and Air Conditioning	11,500	1,000	1,000	1,100	1,100	1,100	1,200	1,200	1,200	1,300	1,300
Control and Instrumentation	60,400	3,000	3,100	3,200	9,800	3,400	8,100	8,400	8,600	8,900	3,900
Well Building No. 2											
Siteworks	5,000	5,000	-	-	-	-	-	-	-	-	-
Structural/Architectural	12,600	1,000	1,000	1,100	2,200	1,100	1,200	1,200	1,200	1,300	1,300
Process Mechanical	11,900	-	-	-	-	-	-	11,900	-	-	-
Lansdowne Standpipe and Valve Chamber											
Siteworks	7,400	-	-	-	1,100	-	-	-	-	6,300	-
Structural/Architectural	323,600	295,000	5,200	-	2,200	-	9,300	11,900	-	-	-
Process Mechanical	85,500	85,000	-	-	500	-	-	-	-	-	-
Heating, Ventilation and Air Conditioning	1,500	1,500	-	-	-	-	-	-	-	-	-
Water Distribution System											
Preventative Maintenance	54,800	2,500	6,200	4,800	4,900	6,800	5,200	5,400	7,400	5,700	5,900
Process Mechanical	9,200	4,000	-	-	-	-	-	-	-	-	5,200
Inspection Services	11,300	-	-	-	-	11,300	-	-	-	-	-
Repair Work	86,000	7,500	7,700	8,000	8,200	8,400	8,700	9,000	9,200	9,500	9,800
Studies:											
Rate Study and Financial Plan	24,800	11,500	-	-	-	-	13,300	-	-	-	-
Total Capital Expenditures	**767,700**	**422,600**	**28,500**	**22,000**	**34,600**	**47,400**	**54,200**	**53,300**	**32,800**	**37,600**	**34,700**
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Debenture Requirements	100,000	100,000	-	-	-	-	-	-	-	-	-
Reserve Fund	667,700	322,600	28,500	22,000	34,600	47,400	54,200	53,300	32,800	37,600	34,700
Total Capital Financing	**767,700**	**422,600**	**28,500**	**22,000**	**34,600**	**47,400**	**54,200**	**53,300**	**32,800**	**37,600**	**34,700**

Table 4-4
Township of Leeds and the Thousand Islands
Wastewater Service
Capital Budget Forecast – Inflated$

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Seasonal Retention Lagoons Infrastructure											
Siteworks	62,700	4,500	5,200	-	16,400	-	6,700	-	-	25,300	4,600
Structural/Architectural	8,000	8,000	-	-	-	-	-	-	-	-	-
Process Mechanical	18,900	2,000	-	-	-	16,900	-	-	-	-	-
Railway Street Pumping Station											
Structural/Architectural	11,500	11,500	-	-	-	-	-	-	-	-	-
Process Mechanical	6,600	-	-	-	700	-	-	-	-	5,100	800
Miscellaneous	11,500	1,000	1,000	1,100	1,100	1,100	1,200	1,200	1,200	1,300	1,300
Control and Instrumentation	23,000	2,000	2,100	2,100	2,200	2,300	2,300	2,400	2,500	2,500	2,600
Lansdowne Santiary Collection System											
Preventative Maintenance	67,100	9,000	5,200	5,300	5,500	5,600	11,600	6,000	6,100	6,300	6,500
Inspection Services	28,800	2,500	2,600	2,700	2,700	2,800	2,900	3,000	3,100	3,200	3,300
Repair Work	83,400	6,000	6,200	6,400	6,600	9,000	9,300	9,600	9,800	10,100	10,400
Studies:											
Rate Study and Financial Plan	24,800	11,500	-	-	-	-	13,300	-	-	-	-
Total Capital Expenditures	**346,300**	**58,000**	**22,300**	**17,600**	**35,200**	**37,700**	**47,300**	**22,200**	**22,700**	**53,800**	**29,500**
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Reserve Fund	346,300	58,000	22,300	17,600	35,200	37,700	47,300	22,200	22,700	53,800	29,500
Total Capital Financing	**346,300**	**58,000**	**22,300**	**17,600**	**35,200**	**37,700**	**47,300**	**22,200**	**22,700**	**53,800**	**29,500**

5. Operating Expenditure Forecast

5.1 Operating Expenditures

In this report the forecasted operating budget figures for water and wastewater services are based on the Township's 2015 operating budgets. The expenditures for each component of the operating budget have been reviewed with staff to establish inflationary adjustments.

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 (i.e. 2% annually), the capital-related aspects tend to increase more specifically with the increase in capital funding requirements.

As a result of the inflationary and capital-related expenditure increases, the water and wastewater operating expenditures are anticipated to increase over the forecast period. Gross operating expenditures for water services are anticipated to increase from $242,510 in 2015 to $424,397 by 2024. Similarly, for wastewater services annual gross expenditures are forecast to increase from $240,216 to $388,665 by 2024.

5.2 Operating Revenues

The Township has operating revenue sources such penalty and interest income, frontage and connection fees and other miscellaneous revenues that offset some of the annual operating costs. These operating revenues have been forecast over the period with growth demands. Furthermore, a significant source of revenue is secured from the monthly base (minimum) charge rate for water and wastewater services, based on the existing billing revenue rate structure. Billing revenues have been forecast in total for this chapter, and will be addressed in various rate structures outlined in Chapter 7.

The annual operating revenues (excluding base charge revenue) for water services are forecast to decrease from $14,625 in 2015 to $12,230 by 2024. For wastewater services, annual operating revenues (excluding base charge revenue) are forecast to decrease from $14,365 in 2015 to $12,140 by 2024.

Tables 5-1 to 5-2 provide the water and wastewater operating budget forecasts. The forecast operating budgets are provided in inflated dollars. Operating expenditures have been increased annually based on operating cost inflation assumed at 2%. The forecast operating budgets are provided in inflated dollars.

Table 5-1
Township of Leeds and the Thousand Islands
Water Service
Operating Budget Forecast – Inflated$

Description	Budget 2015	Forecast 2016	2017	2018	2019	2020	2021	2022	2023	2024
EXPENDITURES										
Operating Costs										
Office Supplies	250	260	270	280	290	300	310	320	330	340
Advertising	250	260	270	280	290	300	310	320	330	340
Mailing	1,400	1,430	1,460	1,490	1,520	1,550	1,580	1,610	1,640	1,670
Insurance	4,888	4,990	5,090	5,190	5,290	5,400	5,510	5,620	5,730	5,840
Consultants	12,500	12,750	13,010	13,270	13,540	13,810	14,090	14,370	14,660	14,950
Audit Fees	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,160	1,180
Water & Sewer - Grant In Lieu	2,805	2,860	2,920	2,980	3,040	3,100	3,160	3,220	3,280	3,350
Other Maintenance	10,000	10,200	10,400	10,610	10,820	11,040	11,260	11,490	11,720	11,950
Program Support Costs	9,188	9,370	9,560	9,750	9,950	10,150	10,350	10,560	10,770	10,990
Miscellaneous	480	490	500	510	520	530	540	550	560	570
OCWA	135,865	138,580	141,350	144,180	147,060	150,000	153,000	156,060	159,180	162,360
Sub Total Operating	*178,626*	*182,210*	*185,870*	*189,600*	*193,400*	*197,280*	*201,230*	*205,260*	*209,360*	*213,540*
Capital-Related										
Debentures										
New Debt (Principal)	-	3,024	3,175	3,334	3,501	3,676	3,860	4,053	4,255	4,468
New Debt (Interest)	-	5,000	4,849	4,690	4,523	4,348	4,164	3,971	3,769	3,556
Transfers										
Transfer to Reserve - Water	63,884	66,290	88,851	111,573	129,800	142,726	156,447	170,996	186,441	202,833
Sub Total Capital Related	*63,884*	*74,314*	*96,875*	*119,597*	*137,824*	*150,750*	*164,471*	*179,020*	*194,465*	*210,857*
Total Expenditures	**242,510**	**256,524**	**282,745**	**309,197**	**331,224**	**348,030**	**365,701**	**384,280**	**403,825**	**424,397**
Revenues										
Other Revenue										
Interest	2,400	2,450	2,500	2,550	2,600	2,650	2,700	2,750	2,810	2,870
Penalty and Interest	1,100	1,120	1,140	1,160	1,180	1,200	1,220	1,240	1,260	1,290
Water - Frontage and Connection	4,375	-	-	-	-	-	-	-	-	-
Water and Sewer - Taxation Recoveries	6,250	6,380	6,510	6,640	6,770	6,910	7,050	7,190	7,330	7,480
Miscellaneous	500	510	520	530	540	550	560	570	580	590
Transfers										
Transfer from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Sub Total Operating Revenue	*14,625*	*10,460*	*10,670*	*10,880*	*11,090*	*11,310*	*11,530*	*11,750*	*11,980*	*12,230*
Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*
Total Revenue	**242,510**	**256,524**	**282,745**	**309,197**	**331,224**	**348,030**	**365,701**	**384,280**	**403,825**	**424,397**

Table 5-2
Township of Leeds and the Thousand Islands
Wastewater Service
Operating Budget Forecast – Inflated$

Description	Budget	Forecast								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
EXPENDITURES										
Operating Costs										
Office Supplies	250	260	270	280	290	300	310	320	330	340
Advertising	250	260	270	280	290	300	310	320	330	340
Mailing	1,400	1,430	1,460	1,490	1,520	1,550	1,580	1,610	1,640	1,670
Insurance	4,888	4,990	5,090	5,190	5,290	5,400	5,510	5,620	5,730	5,840
Consultants	12,500	12,750	13,010	13,270	13,540	13,810	14,090	14,370	14,660	14,950
Audit Fees	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,160	1,180
Water & Sewer - Grant In Lieu	2,805	2,860	2,920	2,980	3,040	3,100	3,160	3,220	3,280	3,350
Other Maintenance	10,000	10,200	10,400	10,610	10,820	11,040	11,260	11,490	11,720	11,950
Program Support Costs	9,188	9,370	9,560	9,750	9,950	10,150	10,350	10,560	10,770	10,990
Miscellaneous	480	490	500	510	520	530	540	550	560	570
OCWA	103,938	106,020	108,140	110,300	112,510	114,760	117,060	119,400	121,790	124,230
Sub Total Operating	*146,698*	*149,650*	*152,660*	*155,720*	*158,850*	*162,040*	*165,290*	*168,600*	*171,970*	*175,410*
Capital-Related										
Debentures										
New Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfers										
Transfer to Reserve - Wastewater	93,519	102,484	122,830	142,896	158,213	168,204	178,665	189,627	201,165	213,255
Sub Total Capital Related	*93,519*	*102,484*	*122,830*	*142,896*	*158,213*	*168,204*	*178,665*	*189,627*	*201,165*	*213,255*
Total Expenditures	**240,216**	**252,134**	**275,490**	**298,616**	**317,063**	**330,244**	**343,955**	**358,227**	**373,135**	**388,665**
Revenues										
Other Revenue										
Interest	2,400	2,450	2,500	2,550	2,600	2,650	2,700	2,750	2,810	2,870
Penalty and Interest	1,100	1,120	1,140	1,160	1,180	1,200	1,220	1,240	1,260	1,290
Sewer - Frontage and Connection	4,115	-	-	-	-	-	-	-	-	-
Water and Sewer - Taxation Recoveries	6,250	6,380	6,510	6,640	6,770	6,910	7,050	7,190	7,330	7,480
Miscellaneous	500	500	500	500	500	500	500	500	500	500
Transfers										
Transfer from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Sub Total Other Revenue	*14,365*	*10,450*	*10,650*	*10,850*	*11,050*	*11,260*	*11,470*	*11,680*	*11,900*	*12,140*
Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*
Total Revenue	**240,216**	**252,134**	**275,490**	**298,616**	**317,063**	**330,244**	**343,955**	**358,227**	**373,135**	**388,665**

Figures 5-1 and 5-2 illustrate the annually net operating budget increase for water and wastewater service respectively over the forecast period by component, illustrating the increase in annual revenues for increased capital funding purposes.

Figure 5-1
Township of Leeds and the Thousand Islands
2015-2024 Water Annual Net Operating Forecast by Major Component

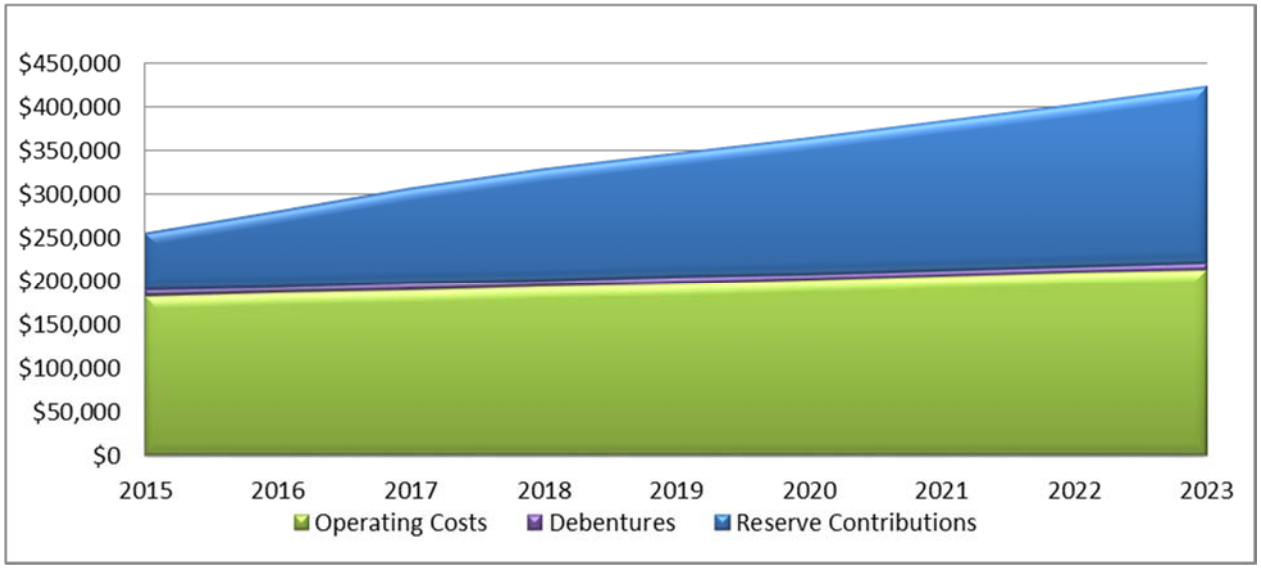
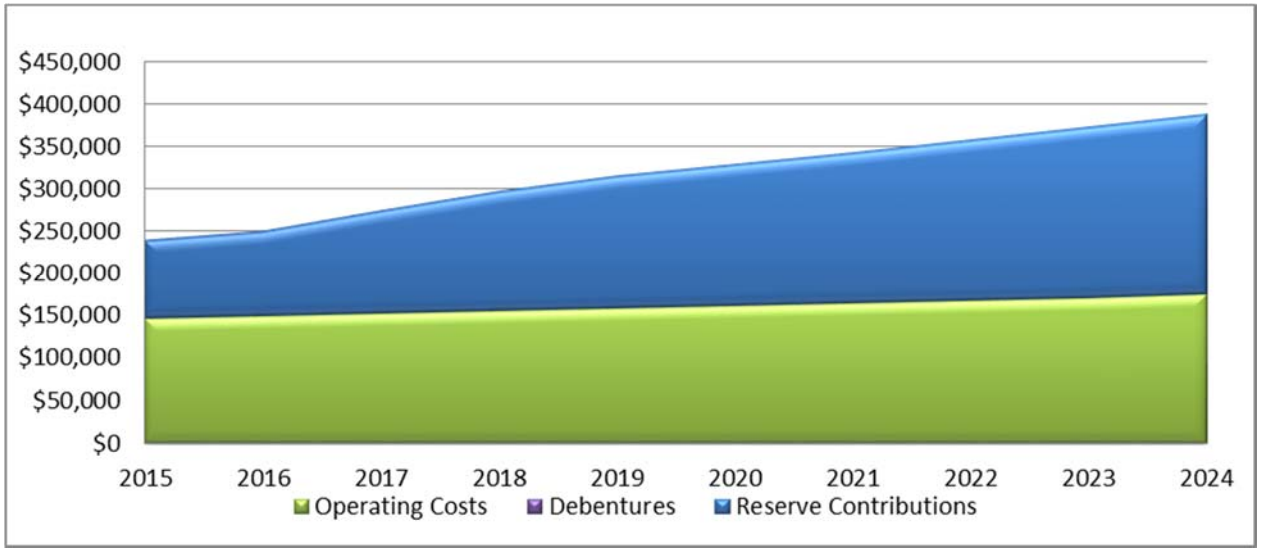


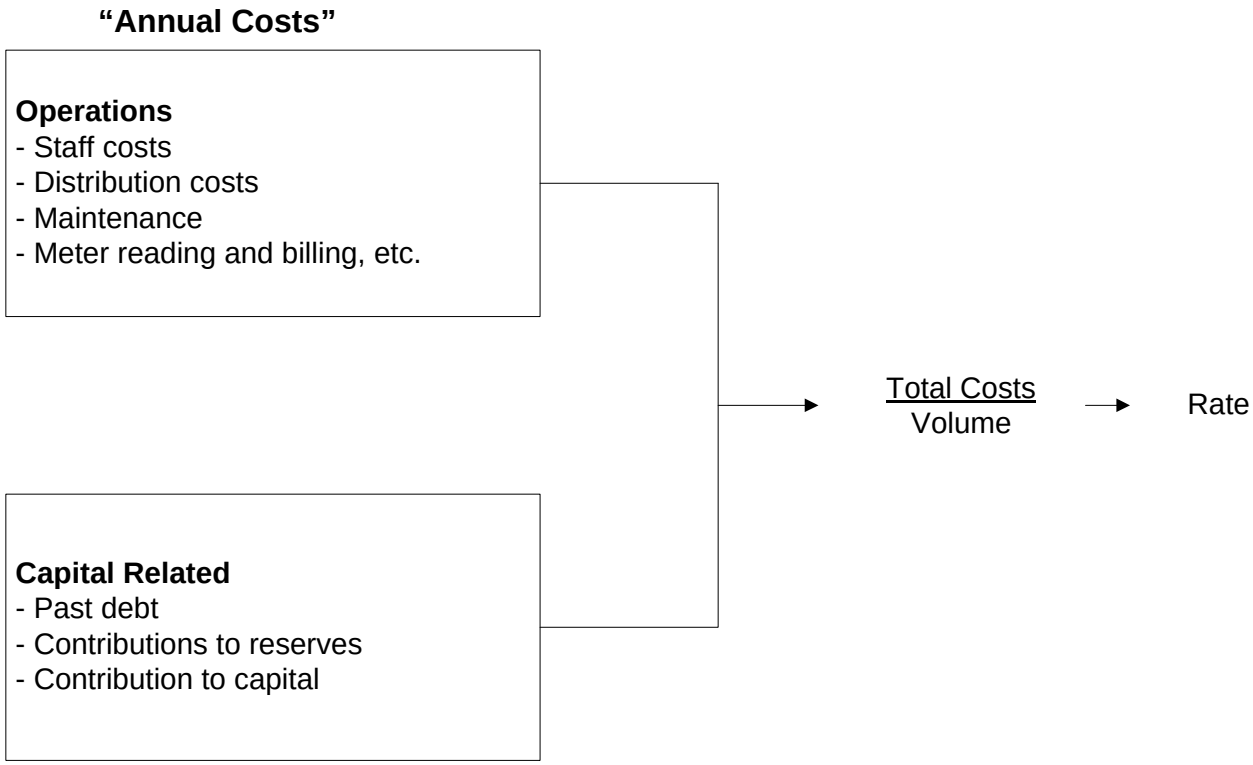
Figure 5-2
Township of Leeds and the Thousand Islands
2015-2024 Wastewater Annual Net Operating Forecast by Major Component



6. Pricing Structures

6.1 Introduction

Rates in their simplest form can be defined as total costs to maintain the utility function divided by the total expected volume to be generated for the period. Total costs are usually a combination of operating costs (e.g. staff costs, distribution costs, maintenance, administration, etc.) and capital-related costs (e.g. past debt to finance capital projects, transfers to reserves to finance future expenditures, etc.). The schematic below provides a simplified illustration of the rate calculation.



These operating and capital expenditures will vary over time. Examples of factors which will affect the expenditures over time are provided below.

Operations

- Inflation;
- Increased maintenance as system ages;
- Changes to provincial legislation.

Capital Related

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

6.2 Alternative Pricing Structures

Throughout Ontario, and as well, Canada, the use of pricing mechanisms varies between municipalities. The use of a particular form of pricing depends upon numerous factors, including Council preference, administrative structure, surplus/deficit system capacities, and economic/demographic conditions, to name a few.

Municipalities within Ontario have two basic forms of collecting revenues for water purposes, those being through incorporation of the costs within the tax rate charged on property assessment and/or through the establishment of a specific water rate billed to the customer.

The definitions and general application of the various methods and rate structures are as follows:

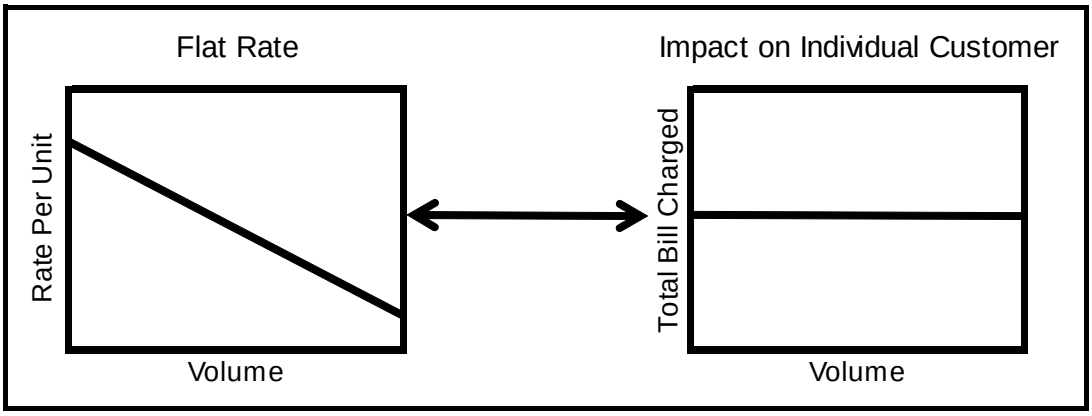
6.2.1 Property Assessment

This method incorporates the total costs of providing water into the general requisition or the assessment base of the municipality. This form of collection is a "wealth tax," as payment increases directly with the value of property owned and bears no relationship to actual consumption. This form is easy to administer as the costs to be recovered are incorporated in the calculation for all general services, normally collected through property taxes.

6.2.2 Flat Rate

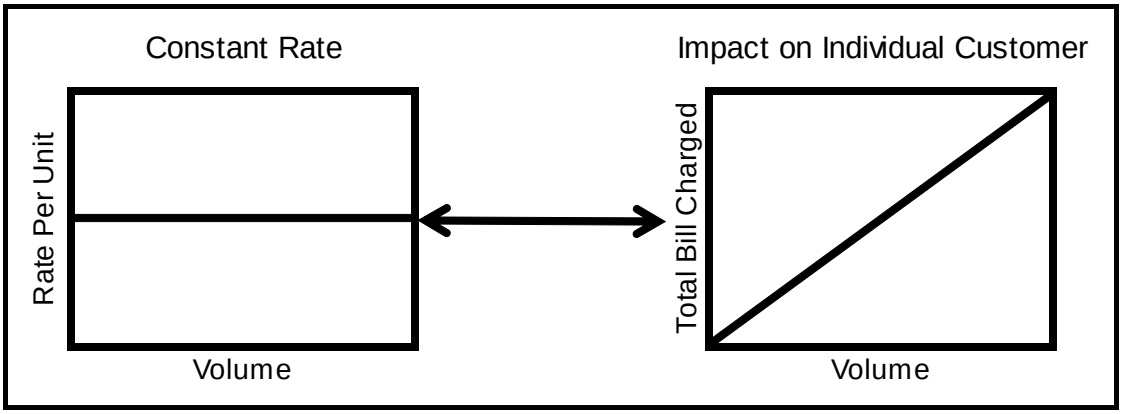
This rate is a constant charge applicable to all customers served. The charge is calculated by dividing the total number of user households and other entities (e.g. businesses) into the costs to be recovered. This method does not recognize differences in actual consumption but provides for a uniform spreading of costs across all users. Some municipalities categorize users into different classes of similar consumption patterns, such as commercial users, residential users and industrial users, and charge a flat rate by class. Each user is then billed on a periodic basis. No meters are required

to facilitate this method, but an accurate estimate of the number of users is required. This method ensures set revenue for the collection period but is not sensitive to consumption, hence may cause a shortfall or surplus of revenues collected.



6.2.3 Constant Rate

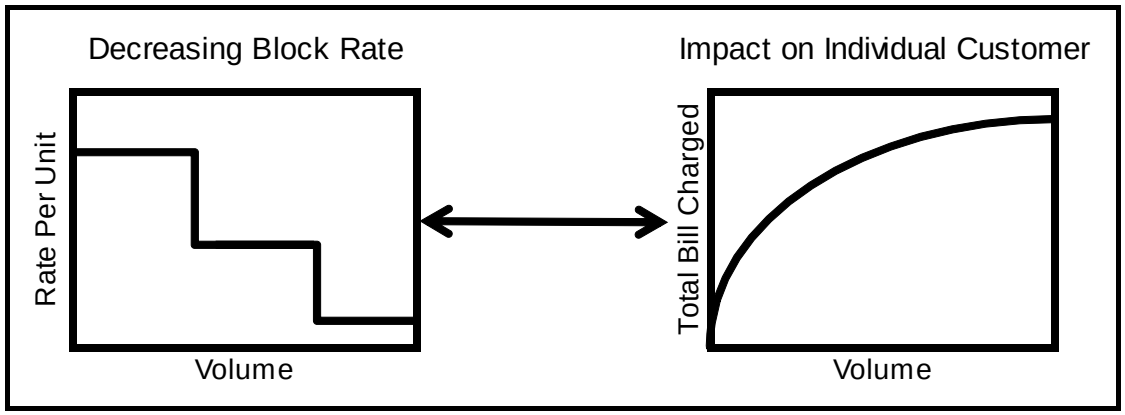
This rate is a volume-based rate, in which the consumer pays the same price per unit consumed, regardless of the volume. The price per unit is calculated by dividing the total cost of the service by the total volume used by total consumers. The bill to the consumer climbs uniformly as the consumption increases. This form of rate requires the use of meters to record the volume consumed by each user. This method closely aligns the revenue recovery with consumption. Revenue collected varies directly with the consumption volume.



6.2.4 Decreasing Block Rate

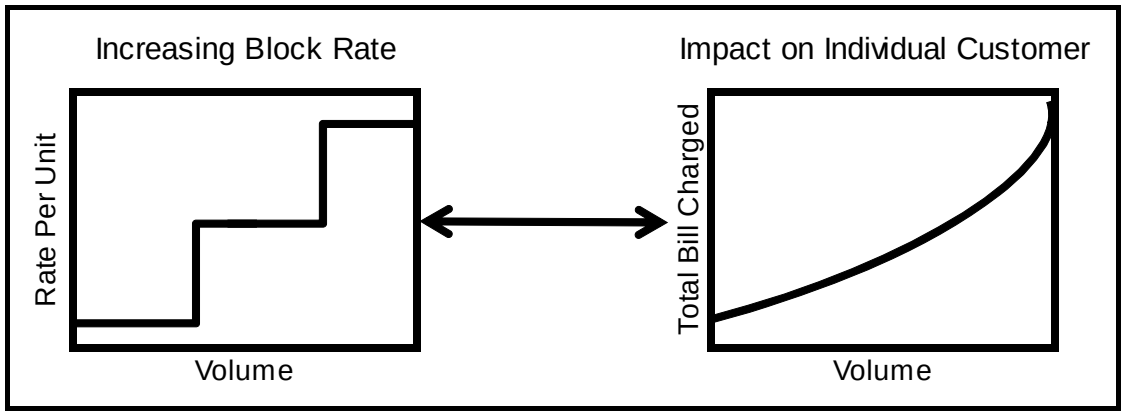
This rate structure charges a successively lower price for set volumes, as consumption increases through a series of "blocks." That is to say that within set volume ranges, or blocks, the charge per unit is set at one rate. Within the next volume range the charge

per unit decreases to a lower rate, and so on. Typically, the first, or first and second blocks cover residential and light commercial uses. Subsequent blocks are normally used for heavier commercial and industrial uses. This rate structure requires the use of meters to record the volume consumed by each type of user. This method requires the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect revenue from rate payers.



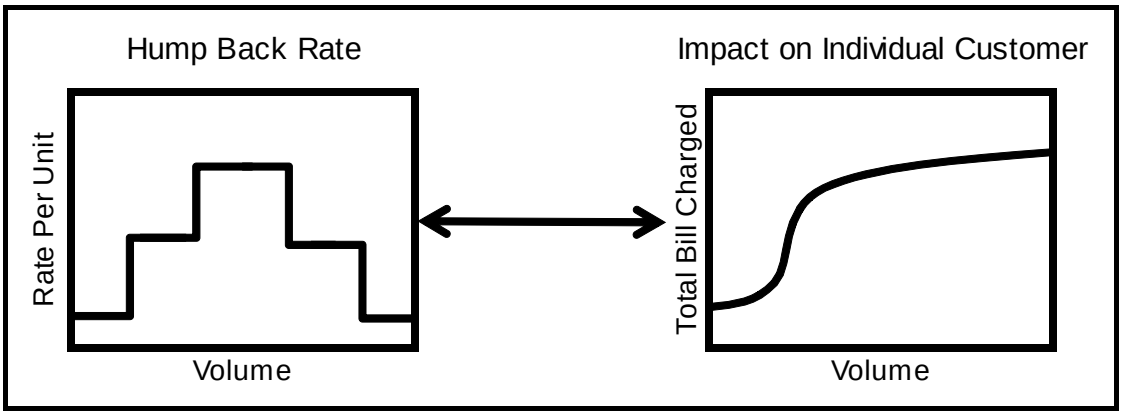
6.2.5 Increasing Block Rate

The increasing block rate works essentially the same way as the declining block rate, except that the price of water in successive blocks increases rather than declines. Under this method the consumer's bill rises faster with higher volumes used. This rate structure also requires the use of meters to record the volume consumed by each user. This method requires, as with the declining block structure, the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect from rate payers.



6.2.6 Hump Back Rate

The hump back rate is a combination of an increasing block rate and the declining block rate. Under this method the consumer's bill rises with higher volumes used up to a certain level and then begins to fall for volumes in excess of levels set for the increasing black rate.



6.2.7 Base Charges

A base charge is a fixed sum which is imposed per bill whether any billable volume is read in the meter. The use of this charge is to ensure that contributions are being made towards the service even if no use of the system is being made by the customer (i.e. on vacation). Historically, the development of a base charge often reflected either the recovery of meter reading/billing/collection costs, plus administration or those costs plus certain fixed costs (such as capital contributions or reserve contributions). More recently, many municipalities have started to establish base charges based on ensuring a secure portion of the revenue stream which does not vary with volume consumption.

Often small to medium size municipalities have a single charge for both the water and wastewater systems. Others elect to increase the charge depending on the meter size. Selection of the quantum of the base charge is a matter of policy selected by individual municipalities. If an increasing base charge by meter size is desired, this can be established by calculation or by policy. As noted, the advantage of a base charge is revenue stability, as it guarantees a fixed amount of revenue to be collected. The disadvantages of a base charge is that if it is set too high, it reduces the effectiveness of rate setting as an encouragement for conservation. As well, for low income customers, it will impose a higher charge with limited ability to reduce their water bill by using water sparingly.

6.2.8 Minimum Charge

A minimum charge is a fixed fee that includes an allotment of water consumption. The allotment is the minimum amount of consumption for which the customer is billed regardless of whether or not the water is used. Minimum charges generally result in higher revenues as there will be customers who do not use their full allotment for the period but pay for it in the rate.

6.3 Assessment of Alternative Pricing Structures

The adoption by a municipality or utility of any one particular pricing structure is normally a function of a variety of administrative, social, demographic and financial factors. The number of factors and the weight that each particular factor receives can vary between municipalities. The following is a review of some of the more prevalent factors:

Cost Recovery

Cost recovery is a prime factor in establishing a particular pricing structure. Costs can be loosely defined into different categories: operations; maintenance; capital; financing; administration. These costs often vary between municipalities and even within a municipality, based on consumption patterns, infrastructure age, economic growth, etc.

The pricing alternatives defined earlier can all achieve the cost recovery goal, but some do so more precisely than others. Fixed pricing structures, such as Property Assessment and Flat Rate, are established on the value of property or on the number of units present in the municipality, but do not adjust in accordance with consumption. Thus, if actual consumption for the year is greater than projected, the municipality incurs a higher cost of production while the revenue base remains static, which potentially causes a funding shortfall. Conversely, if the consumption level declines below projections, fixed pricing structures will produce more revenue than actual costs incurred.

The other pricing methods (declining block, constant rate, increasing block) are consumption based and generally will generate revenues in proportion to actual consumption.

Administration

Administration is defined herein as the staffing, equipment and supplies required to support the undertaking of a particular pricing strategy. This factor not only addresses

the physical tangible requirements to support the collection of the revenues, but also the intangible requirements, such as policy development.

The easiest pricing structure to support is the Property Assessment structure. As municipalities undertake the process of calculating property tax bills and the collection process for their general services, the incorporation of the water costs into this calculation would have virtually no impact on the administrative process and structure.

The Flat Rate pricing structure is relatively easy to administer as well. It is normally calculated to collect a set amount, either on a monthly, quarterly, semi-annual or annual basis and is billed directly to the customer. The impact on administration centres mostly on the accounts receivable or billing area of the municipality, but normally requires minor additional staff or operating costs to undertake.

The three remaining methods, those being Increasing Block Rate, Constant Rate and Declining Block Rate, have a more pronounced effect on administration. These methods are dependent upon actual consumption and hence involve a major structure in place to administer. First, meters must be installed in all existing units in the municipality and units to be subsequently built must be required to include these meters. Second, meter readings must be undertaken periodically. Hence staff must be available for this purpose or a service contract must be negotiated. Third, the billings process must be expanded to accommodate this process. Billing must be done per a defined period, requiring staff to produce the bills. Lastly, either through increased staffing or by service contract, an annual maintenance program must be set up to ensure meters are working effectively in recording consumed volumes.

Equity

Equity is always a consideration in the establishment of pricing structures but its definition can vary depending on a municipality's circumstances and based on the subjective interpretation of those involved. For example: is the price charged to a particular class of rate payer consistent with those of a similar class in surrounding municipalities; through the pricing structure does one class of rate payer pay more than another class; should one pay based on ability to pay, or on the basis that a unit of water costs the same to supply regardless of who consumes it; etc. There are many interpretations. Equity therefore must be viewed broadly in light of many factors as part of achieving what is best for the municipality as a whole.

Conservation

In today's society, conservation of natural resources is being increasingly more valued. Controversy continuously focuses on the preservation of non-renewable resources and on the proper management of renewable resources. Conservation is also a concept which applies to a municipality facing physical limitations in the amount of water which can be supplied to an area. As well, financial constraints can encourage conservation in a municipality where the cost of providing each additional unit is increasing.

Pricing structures such as property assessment and flat rate do not, in themselves, encourage conservation. In fact, depending on the price which is charged, they may even encourage resource "squandering," either because consumers, without the price discipline, consume water at will, or want to get their money's worth and hence adopt more liberal consumption patterns. The fundamental reason for this is that the price paid for the service bears no direct relationship to the volume consumed and hence is viewed as a "tax," instead of being viewed as the price of a purchased commodity.

The Declining Block Rate provides a decreasing incentive towards conservation. By creating awareness of volumes consumed, the consumer can reduce his total costs by restricting consumption; however the incentive lessens as more water is consumed, because the marginal cost per unit declines as the consumer enters the next block of the pricing range. Similarly, those whose consumption level is at the top end of a block have less of an incentive to reduce consumption.

The Constant Rate structure presents the customer with a linear relationship between consumption and the cost thereof. As the consumer pays a fixed cost per unit, his bill will vary directly with the amount consumed. This method presents a tangible incentive for consumers to conserve water. As metering provides direct feedback about usage patterns and the consumer has direct control over the total amount paid for the commodity, the consumer is encouraged to use only those volumes that are reasonably required.

The Inverted Block method presents the most effective pricing method for encouraging conservation. Through this method, the price per unit consumed increases as the total volume consumed grows. The consumer becomes aware of consumption through metering with the charges increasing dramatically with usage. Hence, there normally is an awareness that exercising control over usage can produce significant savings. Although this method encourages conservation, it may also penalize legitimate high volume users if not properly structured.

7. Forecast Water and Wastewater Rates

7.1 Introduction

To summarize the analysis undertaken thus far, Chapter 3 reviewed capital-related issues for all customers within the water and wastewater systems and responds to the lifecycle needs of the Township. 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 10-year operating forecast of expenditures for Leeds and the Thousand Islands water and wastewater systems. The following calculations will be based on the net operating expenditures provided in Chapter 5.

Based on the alternative rate structures included in Chapter 6, Township staff explored various rate structure options. Five alternative rate options were considered, and are discussed and illustrated below. As Tables 5-1 and 5-2 outline the billing revenue required to fund the required expenses each year, each rate structure option explores various methods of recovering these billing revenue amounts.

In addition, at Township staff's request, lifecycle contributions to both water and wastewater reserves were established to allow for the eventual replacement of 50% of the value of water and wastewater main infrastructure in approximately 20 years. The remaining 50% would require alternate funding sources, such as debentures.

7.2 Water Rates

Option 1 – Maintaining the Current Rate Structure

The billing revenue identified in Table 5-1 is reduced by the anticipated base (minimum monthly) charge revenue, with the remaining revenue divided by the water consumption forecast in excess of the 20 m^3 to calculate consumptive rates. The majority of the billing revenues reflect the base (minimum monthly) charge revenues. The base (minimum monthly) charges are imposed by meter size.

Option 2 – Increase the Gap Between Fees by Meter Size

This option maintains the Township's current rate structure, including the 20 m^3 base (minimum monthly) charge. Increases to the base (minimum monthly) charge and consumption rates for the 2" or more meter size charge occurs in 2015 and is

maintained thereafter. This increase widens the rate gap between the 1 ½" or less meters and the 2" or more meters.

Option 3 – 100% Flat Rate

For Option 3, the billing revenue requirement is divided by the number of customers (by meter size) to calculate a monthly flat rate fee. This fee would be imposed monthly to each customer without regard for actual consumption.

Option 4 – 100% Consumptive Rate

Option 4 takes the opposite approach to Option 3. The billing revenue requirement is divided by annual consumption estimates (by meter size) to calculate the consumptive rates that would be imposed if no flat rate fee existed. As a result, each customer would be provided with a monthly bill that would be exclusively based on consumption.

Option 5 – Base Charge and Consumptive Rate

Lastly, Option 5 is calculated using a similar structure to the Township's existing rate structure, however the monthly base charge in this option would not be a minimum charge. Therefore, each customer would pay a base monthly charge as well as a consumptive charge, with the consumptive charge being applicable to total consumption by that customer.

The resultant option rate forecasts for water services are presented in Tables 7-1 to 7-5. The detailed financial forecast and rate calculations for water services are provided in Appendix A to this report.

7.3 Wastewater Rates

Similar to water services, the same five rate options were calculated for wastewater. The resulting option rate forecasts for wastewater are presented in Tables 7-6 to 7-10. The detailed financial forecast and rate calculations for wastewater services are provided in Appendix B to this report.

Table 7-1
Township of Leeds and the Thousand Islands
Water Service – Option 1: Maintain Current Rate Structure
Water Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	213,532	230,877	255,645	280,680	301,575	317,554	334,378	352,089	370,736	390,368
Consumptive Charge	14,353	15,188	16,430	17,637	18,559	19,166	19,793	20,441	21,109	21,799
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		14,353	15,188	16,430	17,637	18,559	19,166	19,793	20,441	21,109	21,799
Consumption over 20 m^3 per Month:											
Consumption 1 1/2" or less		4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more		692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)		4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate: 1 1/2" or less	**2.80**	**2.88**	**2.97**	**3.06**	**3.15**	**3.25**	**3.34**	**3.44**	**3.55**	**3.65**	**3.76**
Constant Rate: 2" or more	**3.15**	**3.24**	**3.34**	**3.44**	**3.55**	**3.65**	**3.76**	**3.87**	**3.99**	**4.11**	**4.23**
Annual Percentage Change: 1 1/2" or less		**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Annual Percentage Change: 2" or more		**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.80**	**61.74**	**64.83**	**68.07**	**71.47**	**75.05**	**78.80**	**82.74**	**86.87**	**91.22**
Minimum Monthly Charge: 2" or more	**63.00**	**66.15**	**69.46**	**72.93**	**76.58**	**80.41**	**84.43**	**88.65**	**93.08**	**97.73**	**102.62**
Annual Percentage Change: 1 1/2" or less		**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Annual Percentage Change: 2" or more		**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table 7-2
Township of Leeds and the Thousand Islands
Water Service – Option 2: Increase Gap Between Fees by Meter Size
Water Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	214,855	232,266	257,104	282,211	303,183	319,243	336,151	353,951	372,691	392,420
Consumptive Charge	13,030	13,798	14,971	16,106	16,951	17,478	18,020	18,579	19,154	19,747
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		13,030	13,798	14,971	16,106	16,951	17,478	18,020	18,579	19,154	19,747
Consumption over 20 m^3 per Month:											
Consumption 1 1/2" or less		4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more		692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)		4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate: 1 1/2" or less	**2.80**	**2.54**	**2.62**	**2.72**	**2.81**	**2.90**	**2.98**	**3.06**	**3.15**	**3.24**	**3.33**
Constant Rate: 2" or more	**3.15**	**3.40**	**3.50**	**3.61**	**3.71**	**3.83**	**3.94**	**4.06**	**4.18**	**4.31**	**4.43**
Annual Percentage Change: 1 1/2" or less		**-9.2%**	**3.2%**	**3.5%**	**3.4%**	**3.1%**	**2.8%**	**2.8%**	**2.8%**	**2.8%**	**2.8%**
Annual Percentage Change: 2" or more		**7.9%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.80**	**61.74**	**64.83**	**68.07**	**71.47**	**75.05**	**78.80**	**82.74**	**86.87**	**91.22**
Minimum Monthly Charge: 2" or more	**63.00**	**71.40**	**74.97**	**78.72**	**82.65**	**86.79**	**91.13**	**95.68**	**100.47**	**105.49**	**110.76**
Annual Percentage Change: 1 1/2" or less		**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Annual Percentage Change: 2" or more		**13.3%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table 7-3
Township of Leeds and the Thousand Islands
Water Service – Option 3: 100% Flat Rate Structure
Water Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Customers 1 1/2" or less		279	288	305	320	328	329	330	331	332	333
Customers 2" or more		21	21	21	21	21	21	21	21	21	21
Total Customers		300	309	326	341	349	350	351	352	353	354
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**62.75**	**65.80**	**68.99**	**72.35**	**75.87**	**79.57**	**83.46**	**87.54**	**91.82**	**96.31**
Minimum Monthly Charge: 2" or more	**63.00**	**70.60**	**74.03**	**77.62**	**81.39**	**85.35**	**89.52**	**93.89**	**98.48**	**103.30**	**108.35**
Annual Percentage Change - Flate Rate: 1 1/2" or less		**12.1%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**
Annual Percentage Change - Flate Rate: 2" or more		**12.1%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**

Table 7-4
Township of Leeds and the Thousand Islands
Water Service – Option 4: 100% Consumptive Rate Structure
Water Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Consumptive Charge	227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate: 1 1/2" or less	**2.80**	**4.99**	**5.23**	**5.49**	**5.75**	**6.03**	**6.33**	**6.63**	**6.96**	**7.30**	**7.65**
Constant Rate: 2" or more	**3.15**	**5.62**	**5.90**	**6.19**	**6.50**	**6.83**	**7.17**	**7.53**	**7.90**	**8.30**	**8.71**
Annual Percentage Change: 1 1/2" or less		**78.3%**	**4.8%**	**4.8%**	**4.8%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**
Annual Percentage Change: 2" or more		**78.3%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table 7-5
Township of Leeds and the Thousand Islands
Water Service – Option 5: Base Charge and Consumptive Rate Structure
Water Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge	146,520	158,382	175,298	192,397	206,685	217,632	229,156	241,290	254,063	267,511
Consumptive Charge	81,365	87,682	96,777	105,920	113,449	119,089	125,014	131,240	137,782	144,656
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		81,365	87,682	96,777	105,920	113,449	119,089	125,014	131,240	137,782	144,656
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate: 1 1/2" or less	**2.80**	**1.78**	**1.86**	**1.95**	**2.04**	**2.13**	**2.23**	**2.34**	**2.45**	**2.56**	**2.68**
Constant Rate: 2" or more	**3.15**	**2.05**	**2.15**	**2.26**	**2.37**	**2.49**	**2.61**	**2.74**	**2.88**	**3.03**	**3.18**
Annual Percentage Change: 1 1/2" or less		**-36.5%**	**4.6%**	**4.6%**	**4.7%**	**4.7%**	**4.6%**	**4.7%**	**4.7%**	**4.7%**	**4.7%**
Annual Percentage Change: 2" or more		**-35.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Monthly Base Charge: 1 1/2" or less	**56.00**	**40.00**	**42.00**	**44.10**	**46.31**	**48.62**	**51.05**	**53.60**	**56.28**	**59.10**	**62.05**
Monthly Base Charge: 2" or more	**63.00**	**50.00**	**52.50**	**55.13**	**57.88**	**60.78**	**63.81**	**67.00**	**70.36**	**73.87**	**77.57**
Annual Percentage Change: 1 1/2" or less		**-28.6%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Annual Percentage Change: 2" or more		**-20.6%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table 7-6
Township of Leeds and the Thousand Islands
Wastewater Service – Option 1: Maintain Current Rate Structure
Wastewater Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	211,499	226,500	248,410	270,139	287,485	299,835	312,713	326,141	340,143	354,744
Consumptive Charge	14,353	15,184	16,430	17,626	18,528	19,149	19,772	20,406	21,092	21,782
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		14,353	15,184	16,430	17,626	18,528	19,149	19,772	20,406	21,092	21,782
Consumption over 20 m^3 per Month:											
Consumption 1 1/2" or less		4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more		692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)		4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate 1 /12" or less	**2.80**	**2.88**	**2.97**	**3.06**	**3.15**	**3.24**	**3.34**	**3.44**	**3.54**	**3.65**	**3.76**
Constant Rate 2" or more	**3.15**	**3.24**	**3.34**	**3.44**	**3.55**	**3.65**	**3.76**	**3.87**	**3.99**	**4.11**	**4.23**
Annual Percentage Change: 1 1/2" or less		**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Annual Percentage Change: 2" or more		**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.24**	**60.57**	**62.99**	**65.51**	**68.13**	**70.86**	**73.69**	**76.64**	**79.71**	**82.89**
Minimum Monthly Charge: 2" or more	**63.00**	**65.52**	**68.14**	**70.87**	**73.70**	**76.65**	**79.72**	**82.90**	**86.22**	**89.67**	**93.26**
Annual Percentage Change: 1 1/2" or less		**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**
Annual Percentage Change: 2" or more		**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

Table 7-7
Township of Leeds and the Thousand Islands
Wastewater Service – Option 2: Increase Gap Between Fees by Meter Size
Wastewater Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	212,809	227,863	249,828	271,613	289,018	301,429	314,371	327,865	341,936	356,609
Consumptive Charge	13,042	13,821	15,012	16,152	16,995	17,554	18,114	18,681	19,299	19,917
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		13,042	13,821	15,012	16,152	16,995	17,554	18,114	18,681	19,299	19,917
Consumption over 20 m^3 per Month:											
Consumption 1 1/2" or less		4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more		692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)		4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate 1 /12" or less	**2.80**	**2.54**	**2.62**	**2.72**	**2.81**	**2.90**	**2.98**	**3.07**	**3.16**	**3.26**	**3.35**
Constant Rate 2" or more	**3.15**	**3.45**	**3.55**	**3.66**	**3.77**	**3.88**	**4.00**	**4.12**	**4.24**	**4.37**	**4.50**
Annual Percentage Change - Constant Rate: 1 1/2" or less		**-9.4%**	**3.3%**	**3.7%**	**3.4%**	**3.1%**	**3.0%**	**2.9%**	**2.8%**	**3.1%**	**2.9%**
Annual Percentage Change - Constant Rate: 2" or more		**9.5%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.24**	**60.57**	**62.99**	**65.51**	**68.13**	**70.86**	**73.69**	**76.64**	**79.71**	**82.89**
Minimum Monthly Charge: 2" or more	**63.00**	**70.72**	**73.55**	**76.49**	**79.55**	**82.73**	**86.04**	**89.48**	**93.06**	**96.79**	**100.66**
Annual Percentage Change: 1 1/2" or less		**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**
Annual Percentage Change: 2" or more		**12.3%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

Table 7-8
Township of Leeds and the Thousand Islands
Wastewater Service – Option 3: 100% Flat Rate Structure
Wastewater Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Customers 1 1/2" or less		279	288	305	320	328	329	330	331	332	333
Customers 2" or more		21	21	21	21	21	21	21	21	21	21
Total Customers		300	309	326	341	349	350	351	352	353	354
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**62.19**	**64.63**	**67.16**	**69.79**	**72.52**	**75.38**	**78.35**	**81.43**	**84.65**	**87.98**
Minimum Monthly Charge: 2" or more	**63.00**	**69.97**	**72.71**	**75.55**	**78.51**	**81.59**	**84.81**	**88.15**	**91.61**	**95.23**	**98.98**
Annual Percentage Change - Flate Rate: 1 1/2" or less		**11.1%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**
Annual Percentage Change - Flate Rate: 2" or more		**11.1%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**

Table 7-9
Township of Leeds and the Thousand Islands
Wastewater Service – Option 4: 100% Consumptive Rate Structure
Wastewater Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Consumptive Charge	225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate: 1 1/2" or less	**2.80**	**4.95**	**5.14**	**5.34**	**5.55**	**5.77**	**5.99**	**6.23**	**6.47**	**6.73**	**7.00**
Constant Rate: 2" or more	**3.15**	**5.57**	**5.79**	**6.02**	**6.26**	**6.51**	**6.77**	**7.04**	**7.32**	**7.62**	**7.92**
Annual Percentage Change: 1 1/2" or less		**76.7%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**
Annual Percentage Change: 2" or more		**76.7%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

Table 7-10
Township of Leeds and the Thousand Islands
Wastewater Service – Option 5: Base Charge and Consumptive Rate Structure
Wastewater Rate Forecast – Inflated$

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge	146,520	155,365	168,683	181,611	191,382	197,679	204,183	210,899	217,834	224,995
Consumptive Charge	79,331	86,319	96,157	106,154	114,632	121,304	128,302	135,648	143,401	151,530
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		79,331	86,319	96,157	106,154	114,632	121,304	128,302	135,648	143,401	151,530
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate 1 /12" or less	**2.80**	**1.74**	**1.83**	**1.94**	**2.05**	**2.16**	**2.28**	**2.40**	**2.53**	**2.67**	**2.81**
Constant Rate 2" or more	**3.15**	**1.98**	**2.10**	**2.22**	**2.34**	**2.48**	**2.62**	**2.77**	**2.93**	**3.09**	**3.27**
Annual Percentage Change: 1 1/2" or less		**-38.0%**	**5.7%**	**5.6%**	**5.6%**	**5.5%**	**5.5%**	**5.5%**	**5.4%**	**5.4%**	**5.3%**
Annual Percentage Change: 2" or more		**-37.0%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**40.00**	**41.20**	**42.44**	**43.71**	**45.02**	**46.37**	**47.76**	**49.19**	**50.67**	**52.19**
Minimum Monthly Charge: 2" or more	**63.00**	**50.00**	**51.50**	**53.05**	**54.64**	**56.28**	**57.96**	**59.70**	**61.49**	**63.34**	**65.24**
Annual Percentage Change: 1 1/2" or less		**-28.6%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Annual Percentage Change: 2" or more		**-20.6%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

7.4 Recommendations

Based upon the above analysis, the following recommendations are put forth for Council's consideration:

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

2. That Council approve 2015 water and wastewater rates as shown in Chapter 7 based on a specific rate structure option;

3. That Council consider breaking down the current water and wastewater capital reserve into separate reserves, and consider transitioning the reserves into reserve funds; and

4. That Council direct staff to consider the results of the rate study in future amendments to the Township's asset management plan.

Appendix A – Detailed Water Rate Calculations

Appendix A – Detailed Water Rate Calculations

The following appendix contains the tables outlining the detailed wastewater rate calculations as follows:

Table W-1
Township of Leeds and The Thousand Islands
Water Service
Capital Budget Forecast
Uninflated $

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Well Building No. 1											
Process Mechanical	54,400	5,600	4,200	3,600	4,200	13,600	6,200	3,600	4,200	3,600	5,600
Heating, Ventilation and Air Conditioning	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Control and Instrumentation	52,000	3,000	3,000	3,000	9,000	3,000	7,000	7,000	7,000	7,000	3,000
Well Building No. 2											
Siteworks	5,000	5,000	-	-	-	-	-	-	-	-	-
Structural/Architectural	11,000	1,000	1,000	1,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000
Process Mechanical	10,000	-	-	-	-	-	-	10,000	-	-	-
Lansdowne Standpipe and Valve Chamber											
Siteworks	6,000	-	-	-	1,000	-	-	-	-	5,000	-
Structural/Architectural	320,000	295,000	5,000	-	2,000	-	8,000	10,000	-	-	-
Process Mechanical	85,500	85,000	-	-	500	-	-	-	-	-	-
Heating, Ventilation and Air Conditioning	1,500	1,500	-	-	-	-	-	-	-	-	-
Water Distribution System	-										
Preventative Maintenance	47,500	2,500	6,000	4,500	4,500	6,000	4,500	4,500	6,000	4,500	4,500
Process Mechanical	8,000	4,000	-	-	-	-	-	-	-	-	4,000
Inspection Services	10,000	-	-	-	-	10,000	-	-			-
Repair Work	75,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Studies:											
Rate Study and Financial Plan	23,000	11,500	-	-	-	-	11,500	-	-	-	-
Total Capital Expenditures	**718,900**	**422,600**	**27,700**	**20,600**	**31,700**	**42,100**	**46,700**	**44,600**	**26,700**	**29,600**	**26,600**

Table W-2
Township of Leeds and The Thousand Islands
Water Service
Capital Budget Forecast
Inflated $

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Well Building No. 1											
Process Mechanical	62,200	5,600	4,300	3,800	4,600	15,300	7,200	4,300	5,200	4,600	7,300
Heating, Ventilation and Air Conditioning	11,500	1,000	1,000	1,100	1,100	1,100	1,200	1,200	1,200	1,300	1,300
Control and Instrumentation	60,400	3,000	3,100	3,200	9,800	3,400	8,100	8,400	8,600	8,900	3,900
Well Building No. 2											
Siteworks	5,000	5,000	-	-	-	-	-	-	-	-	-
Structural/Architectural	12,600	1,000	1,000	1,100	2,200	1,100	1,200	1,200	1,200	1,300	1,300
Process Mechanical	11,900	-	-	-	-	-	-	11,900	-	-	-
Lansdowne Standpipe and Valve Chamber											
Siteworks	7,400	-	-	-	1,100	-	-	-	-	6,300	-
Structural/Architectural	323,600	295,000	5,200	-	2,200	-	9,300	11,900	-	-	-
Process Mechanical	85,500	85,000	-	-	500	-	-	-	-	-	-
Heating, Ventilation and Air Conditioning	1,500	1,500	-	-	-	-	-	-	-	-	-
Water Distribution System											
Preventative Maintenance	54,800	2,500	6,200	4,800	4,900	6,800	5,200	5,400	7,400	5,700	5,900
Process Mechanical	9,200	4,000	-	-	-	-	-	-	-	-	5,200
Inspection Services	11,300	-	-	-	-	11,300	-	-	-	-	-
Repair Work	86,000	7,500	7,700	8,000	8,200	8,400	8,700	9,000	9,200	9,500	9,800
Studies:											
Rate Study and Financial Plan	24,800	11,500	-	-	-	-	13,300	-	-	-	-
Total Capital Expenditures	**767,700**	**422,600**	**28,500**	**22,000**	**34,600**	**47,400**	**54,200**	**53,300**	**32,800**	**37,600**	**34,700**
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Debenture Requirements	100,000	100,000	-	-	-	-	-	-	-	-	-
Reserve Fund	667,700	322,600	28,500	22,000	34,600	47,400	54,200	53,300	32,800	37,600	34,700
Total Capital Financing	**767,700**	**422,600**	**28,500**	**22,000**	**34,600**	**47,400**	**54,200**	**53,300**	**32,800**	**37,600**	**34,700**

Table W-3
Township of Leeds and The Thousand Islands
Water Service
Schedule of Non-Growth Related Debenture Repayments
Inflated $

Debenture Year	Principal (Inflated)	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
2015	100,000		8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024
2016	-			-	-	-	-	-	-	-	-
2017	-				-	-	-	-	-	-	-
2018	-					-	-	-	-	-	-
2019	-						-	-	-	-	-
2020	-							-	-	-	-
2021	-								-	-	-
2022	-									-	-
2023	-										-
2024	-										
Total Annual Debt Charges	**100,000**	-	8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024	8,024

Table W-4
Township of Leeds and The Thousand Islands
Water Service
Water Reserves/ Reserve Funds Continuity
Inflated $

Water Reserve Fund	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Opening Balance	295,000	36,284	74,074	140,925	217,898	300,297	388,823	491,970	630,166	779,007
Transfer from Operating	63,884	66,290	88,851	111,573	129,800	142,726	156,447	170,996	186,441	202,833
Transfer to Capital	322,600	28,500	22,000	34,600	47,400	54,200	53,300	32,800	37,600	34,700
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	36,284	74,074	140,925	217,898	300,297	388,823	491,970	630,166	779,007	947,139

Table W-5
Township of Leeds and The Thousand Islands
Water Services
Operating Budget Forecast
Inflated $

Description	Budget	Forecast								
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
EXPENDITURES										
Operating Costs										
Office Supplies	250	260	270	280	290	300	310	320	330	340
Advertising	250	260	270	280	290	300	310	320	330	340
Mailing	1,400	1,430	1,460	1,490	1,520	1,550	1,580	1,610	1,640	1,670
Insurance	4,888	4,990	5,090	5,190	5,290	5,400	5,510	5,620	5,730	5,840
Consultants	12,500	12,750	13,010	13,270	13,540	13,810	14,090	14,370	14,660	14,950
Audit Fees	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,160	1,180
Water & Sewer - Grant In Lieu	2,805	2,860	2,920	2,980	3,040	3,100	3,160	3,220	3,280	3,350
Other Maintenance	10,000	10,200	10,400	10,610	10,820	11,040	11,260	11,490	11,720	11,950
Program Support Costs	9,188	9,370	9,560	9,750	9,950	10,150	10,350	10,560	10,770	10,990
Miscellaneous	480	490	500	510	520	530	540	550	560	570
OCWA	135,865	138,580	141,350	144,180	147,060	150,000	153,000	156,060	159,180	162,360
Sub Total Operating	*178,626*	*182,210*	*185,870*	*189,600*	*193,400*	*197,280*	*201,230*	*205,260*	*209,360*	*213,540*
Capital-Related										
Debentures										
New Debt (Principal)	-	3,024	3,175	3,334	3,501	3,676	3,860	4,053	4,255	4,468
New Debt (Interest)	-	5,000	4,849	4,690	4,523	4,348	4,164	3,971	3,769	3,556
Transfers										
Transfer to Reserve - Water	63,884	66,290	88,851	111,573	129,800	142,726	156,447	170,996	186,441	202,833
Sub Total Capital Related	*63,884*	*74,314*	*96,875*	*119,597*	*137,824*	*150,750*	*164,471*	*179,020*	*194,465*	*210,857*
Total Expenditures	**242,510**	**256,524**	**282,745**	**309,197**	**331,224**	**348,030**	**365,701**	**384,280**	**403,825**	**424,397**
Revenues										
Other Revenue										
Interest	2,400	2,450	2,500	2,550	2,600	2,650	2,700	2,750	2,810	2,870
Penalty and Interest	1,100	1,120	1,140	1,160	1,180	1,200	1,220	1,240	1,260	1,290
Water - Frontage and Connection	4,375	-	-	-	-	-	-	-	-	-
Water and Sewer - Taxation Recoveries	6,250	6,380	6,510	6,640	6,770	6,910	7,050	7,190	7,330	7,480
Miscellaneous	500	510	520	530	540	550	560	570	580	590
Transfers										
Transfer from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Sub Total Operating Revenue	*14,625*	*10,460*	*10,670*	*10,880*	*11,090*	*11,310*	*11,530*	*11,750*	*11,980*	*12,230*
Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*
Total Revenue	**242,510**	**256,524**	**282,745**	**309,197**	**331,224**	**348,030**	**365,701**	**384,280**	**403,825**	**424,397**

Table W-6
Township of Leeds and The Thousand Islands
Water Services
Water Rate Forecast - Maintain Current Rate Structure

Description	Forecast									
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Billing Revenue										
Base Charge (minimum monthly charge)	213,532	230,877	255,645	280,680	301,575	317,554	334,378	352,089	370,736	390,368
Consumptive Charge	14,353	15,188	16,430	17,637	18,559	19,166	19,793	20,441	21,109	21,799
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Total Water Billing Recovery		14,353	15,188	16,430	17,637	18,559	19,166	19,793	20,441	21,109	21,799
Consumption over 20 m^3 per Month:											
Consumption 1 1/2" or less		4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more		692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)		4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate: 1 1/2" or less	**2.80**	**2.88**	**2.97**	**3.06**	**3.15**	**3.25**	**3.34**	**3.44**	**3.55**	**3.65**	**3.76**
Constant Rate: 2" or more	**3.15**	**3.24**	**3.34**	**3.44**	**3.55**	**3.65**	**3.76**	**3.87**	**3.99**	**4.11**	**4.23**
Annual Percentage Change: 1 1/2" or less		**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Annual Percentage Change: 2" or more		**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.80**	**61.74**	**64.83**	**68.07**	**71.47**	**75.05**	**78.80**	**82.74**	**86.87**	**91.22**
Minimum Monthly Charge: 2" or more	**63.00**	**66.15**	**69.46**	**72.93**	**76.58**	**80.41**	**84.43**	**88.65**	**93.08**	**97.73**	**102.62**
Annual Percentage Change: 1 1/2" or less		**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Annual Percentage Change: 2" or more		**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table W-7
Township of Leeds and The Thousand Islands
Water Services
Water Rate Forecast - Increase Gap Between Fees by Meter Size

Description	Forecast									
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Billing Revenue										
Base Charge (minimum monthly charge)	214,855	232,266	257,104	282,211	303,183	319,243	336,151	353,951	372,691	392,420
Consumptive Charge	13,030	13,798	14,971	16,106	16,951	17,478	18,020	18,579	19,154	19,747
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Total Water Billing Recovery		13,030	13,798	14,971	16,106	16,951	17,478	18,020	18,579	19,154	19,747
Consumption over 20 m^3 per Month:											
Consumption 1 1/2" or less		4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more		692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)		4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate: 1 1/2" or less	**2.80**	**2.54**	**2.62**	**2.72**	**2.81**	**2.90**	**2.98**	**3.06**	**3.15**	**3.24**	**3.33**
Constant Rate: 2" or more	**3.15**	**3.40**	**3.50**	**3.61**	**3.71**	**3.83**	**3.94**	**4.06**	**4.18**	**4.31**	**4.43**
Annual Percentage Change: 1 1/2" or less		**-9.2%**	**3.2%**	**3.5%**	**3.4%**	**3.1%**	**2.8%**	**2.8%**	**2.8%**	**2.8%**	**2.8%**
Annual Percentage Change: 2" or more		**7.9%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.80**	**61.74**	**64.83**	**68.07**	**71.47**	**75.05**	**78.80**	**82.74**	**86.87**	**91.22**
Minimum Monthly Charge: 2" or more	**63.00**	**71.40**	**74.97**	**78.72**	**82.65**	**86.79**	**91.13**	**95.68**	**100.47**	**105.49**	**110.76**
Annual Percentage Change: 1 1/2" or less		**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Annual Percentage Change: 2" or more		**13.3%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table W-8
Township of Leeds and The Thousand Islands
Water Services
Water Rate Forecast - 100% Flat Rate Structure (i.e. No Consumptive Charge)

Description	Forecast									
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Billing Revenue										
Base Charge (minimum monthly charge)	227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Total Water Billing Recovery		227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Customers 1 1/2" or less		279	288	305	320	328	329	330	331	332	333
Customers 2" or more		21	21	21	21	21	21	21	21	21	21
Total Customers		300	309	326	341	349	350	351	352	353	354
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**62.75**	**65.80**	**68.99**	**72.35**	**75.87**	**79.57**	**83.46**	**87.54**	**91.82**	**96.31**
Minimum Monthly Charge: 2" or more	**63.00**	**70.60**	**74.03**	**77.62**	**81.39**	**85.35**	**89.52**	**93.89**	**98.48**	**103.30**	**108.35**
Annual Percentage Change - Flate Rate: 1 1/2" or less		**12.1%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**
Annual Percentage Change - Flate Rate: 2" or more		**12.1%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**

Table W-9
Township of Leeds and The Thousand Islands
Water Services
Water Rate Forecast - 100% Consumptive Rate Structure (i.e. No Flate Rate)

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Consumptive Charge	227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		227,885	246,064	272,075	298,317	320,134	336,720	354,171	372,530	391,845	412,167
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate: 1 1/2" or less	**2.80**	**4.99**	**5.23**	**5.49**	**5.75**	**6.03**	**6.33**	**6.63**	**6.96**	**7.30**	**7.65**
Constant Rate: 2" or more	**3.15**	**5.62**	**5.90**	**6.19**	**6.50**	**6.83**	**7.17**	**7.53**	**7.90**	**8.30**	**8.71**
Annual Percentage Change: 1 1/2" or less		**78.3%**	**4.8%**	**4.8%**	**4.8%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**
Annual Percentage Change: 2" or more		**78.3%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Table W-10
Township of Leeds and The Thousand Islands
Water Services
Water Rate Forecast - Base Charge with Consumptive Rate (No Minimum Charge)

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge	146,520	158,382	175,298	192,397	206,685	217,632	229,156	241,290	254,063	267,511
Consumptive Charge	81,365	87,682	96,777	105,920	113,449	119,089	125,014	131,240	137,782	144,656
Total Billing Revenue	*227,885*	*246,064*	*272,075*	*298,317*	*320,134*	*336,720*	*354,171*	*372,530*	*391,845*	*412,167*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Water Billing Recovery		81,365	87,682	96,777	105,920	113,449	119,089	125,014	131,240	137,782	144,656
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate: 1 1/2" or less	**2.80**	**1.78**	**1.86**	**1.95**	**2.04**	**2.13**	**2.23**	**2.34**	**2.45**	**2.56**	**2.68**
Constant Rate: 2" or more	**3.15**	**2.05**	**2.15**	**2.26**	**2.37**	**2.49**	**2.61**	**2.74**	**2.88**	**3.03**	**3.18**
Annual Percentage Change: 1 1/2" or less		**-36.5%**	**4.6%**	**4.6%**	**4.7%**	**4.7%**	**4.6%**	**4.7%**	**4.7%**	**4.7%**	**4.7%**
Annual Percentage Change: 2" or more		**-35.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Monthly Base Charge: 1 1/2" or less	**56.00**	**40.00**	**42.00**	**44.10**	**46.31**	**48.62**	**51.05**	**53.60**	**56.28**	**59.10**	**62.05**
Monthly Base Charge: 2" or more	**63.00**	**50.00**	**52.50**	**55.13**	**57.88**	**60.78**	**63.81**	**67.00**	**70.36**	**73.87**	**77.57**
Annual Percentage Change: 1 1/2" or less		**-28.6%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Annual Percentage Change: 2" or more		**-20.6%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**	**5.0%**

Appendix B – Detailed Wastewater Rate Calculations

Appendix B – Detailed Wastewater Rate Calculations

The following appendix contains the tables outlining the detailed wastewater rate calculations as follows:

Table WW-1
Township of Leeds and The Thousand Islands
Wastewater Service
Capital Budget Forecast
Uninflated $

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Seasonal Retention Lagoons Infrastructure											
Siteworks	53,750	4,500	5,000	-	15,000	-	5,750	-	-	20,000	3,500
Structural/Architectural	8,000	8,000	-	-	-	-	-	-	-	-	-
Process Mechanical	17,000	2,000	-	-	-	15,000	-	-	-	-	-
Railway Street Pumping Station											
Structural/Architectural	11,500	11,500	-	-	-	-	-	-	-	-	-
Process Mechanical	5,200	-	-	-	600	-	-	-	-	4,000	600
Miscellaneous	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Control and Instrumentation	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Lansdowne Santiary Collection System											
Preventative Maintenance	59,000	9,000	5,000	5,000	5,000	5,000	10,000	5,000	5,000	5,000	5,000
Inspection Services	25,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Repair Work	72,000	6,000	6,000	6,000	6,000	8,000	8,000	8,000	8,000	8,000	8,000
Studies:											
Rate Study and Financial Plan	23,000	11,500	-	-	-	-	11,500	-	-	-	-
Total Capital Expenditures	**304,450**	**58,000**	**21,500**	**16,500**	**32,100**	**33,500**	**40,750**	**18,500**	**18,500**	**42,500**	**22,600**

Table WW-2
Township of Leeds and The Thousand Islands
Wastewater Service
Capital Budget Forecast
Inflated $

Description	Total	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditures											
Seasonal Retention Lagoons Infrastructure											
Siteworks	62,700	4,500	5,200	-	16,400	-	6,700	-	-	25,300	4,600
Structural/Architectural	8,000	8,000	-	-	-	-	-	-	-	-	-
Process Mechanical	18,900	2,000	-	-	-	16,900	-	-	-	-	-
Railway Street Pumping Station											
Structural/Architectural	11,500	11,500	-	-	-	-	-	-	-	-	-
Process Mechanical	6,600	-	-	-	700	-	-	-	-	5,100	800
Miscellaneous	11,500	1,000	1,000	1,100	1,100	1,100	1,200	1,200	1,200	1,300	1,300
Control and Instrumentation	23,000	2,000	2,100	2,100	2,200	2,300	2,300	2,400	2,500	2,500	2,600
Lansdowne Santiary Collection System											
Preventative Maintenance	67,100	9,000	5,200	5,300	5,500	5,600	11,600	6,000	6,100	6,300	6,500
Inspection Services	28,800	2,500	2,600	2,700	2,700	2,800	2,900	3,000	3,100	3,200	3,300
Repair Work	83,400	6,000	6,200	6,400	6,600	9,000	9,300	9,600	9,800	10,100	10,400
Studies:											
Rate Study and Financial Plan	24,800	11,500	-	-	-	-	13,300	-	-	-	-
Total Capital Expenditures	**346,300**	**58,000**	**22,300**	**17,600**	**35,200**	**37,700**	**47,300**	**22,200**	**22,700**	**53,800**	**29,500**
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Reserve Fund	346,300	58,000	22,300	17,600	35,200	37,700	47,300	22,200	22,700	53,800	29,500
Total Capital Financing	**346,300**	**58,000**	**22,300**	**17,600**	**35,200**	**37,700**	**47,300**	**22,200**	**22,700**	**53,800**	**29,500**

Table WW-3
Township of Leeds and The Thousand Islands
Wastewater Service
Schedule of Debenture Repayments
Inflated $

Debenture Year	Principal (Inflated)	Forecast									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
2015	-		-	-	-	-	-	-	-	-	-
2016	-			-	-	-	-	-	-	-	-
2017	-				-	-	-	-	-	-	-
2018	-					-	-	-	-	-	-
2019	-						-	-	-	-	-
2020	-							-	-	-	-
2021	-								-	-	-
2022	-									-	-
2023	-										-
2024	-										
Total Annual Debt Charges	**-**	-	-	-	-	-	-	-	-	-	-

Table WW-4
Township of Leeds and The Thousand Islands
Wastewater Service
Wastewater Reserves/ Reserve Funds Continuity
Inflated $

Wastewater Reserve Fund	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Opening Balance	295,000	330,519	410,703	515,933	623,628	744,142	865,045	1,021,510	1,188,437	1,335,802
Transfer from Operating	93,519	102,484	122,830	142,896	158,213	168,204	178,665	189,627	201,165	213,255
Transfer to Capital	58,000	22,300	17,600	35,200	37,700	47,300	22,200	22,700	53,800	29,500
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	330,519	410,703	515,933	623,628	744,142	865,045	1,021,510	1,188,437	1,335,802	1,519,557

Table WW-5
Township of Leeds and The Thousand Islands
Wastewater Services
Operating Budget Forecast
Inflated $

Description	Budget 2015	Forecast 2016	2017	2018	2019	2020	2021	2022	2023	2024
EXPENDITURES										
Operating Costs										
Office Supplies	250	260	270	280	290	300	310	320	330	340
Advertising	250	260	270	280	290	300	310	320	330	340
Mailing	1,400	1,430	1,460	1,490	1,520	1,550	1,580	1,610	1,640	1,670
Insurance	4,888	4,990	5,090	5,190	5,290	5,400	5,510	5,620	5,730	5,840
Consultants	12,500	12,750	13,010	13,270	13,540	13,810	14,090	14,370	14,660	14,950
Audit Fees	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,160	1,180
Water & Sewer - Grant In Lieu	2,805	2,860	2,920	2,980	3,040	3,100	3,160	3,220	3,280	3,350
Other Maintenance	10,000	10,200	10,400	10,610	10,820	11,040	11,260	11,490	11,720	11,950
Program Support Costs	9,188	9,370	9,560	9,750	9,950	10,150	10,350	10,560	10,770	10,990
Miscellaneous	480	490	500	510	520	530	540	550	560	570
OCWA	103,938	106,020	108,140	110,300	112,510	114,760	117,060	119,400	121,790	124,230
Sub Total Operating	*146,698*	*149,650*	*152,660*	*155,720*	*158,850*	*162,040*	*165,290*	*168,600*	*171,970*	*175,410*
Capital-Related										
Debentures										
New Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfers										
Transfer to Reserve - Wastewater	93,519	102,484	122,830	142,896	158,213	168,204	178,665	189,627	201,165	213,255
Sub Total Capital Related	*93,519*	*102,484*	*122,830*	*142,896*	*158,213*	*168,204*	*178,665*	*189,627*	*201,165*	*213,255*
Total Expenditures	**240,216**	**252,134**	**275,490**	**298,616**	**317,063**	**330,244**	**343,955**	**358,227**	**373,135**	**388,665**
Revenues										
Other Revenue										
Interest	2,400	2,450	2,500	2,550	2,600	2,650	2,700	2,750	2,810	2,870
Penalty and Interest	1,100	1,120	1,140	1,160	1,180	1,200	1,220	1,240	1,260	1,290
Sewer - Frontage and Connection	4,115	-	-	-	-	-	-	-	-	-
Water and Sewer - Taxation Recoveries	6,250	6,380	6,510	6,640	6,770	6,910	7,050	7,190	7,330	7,480
Miscellaneous	500	500	500	500	500	500	500	500	500	500
Transfers										
Transfer from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Sub Total Other Revenue	*14,365*	*10,450*	*10,650*	*10,850*	*11,050*	*11,260*	*11,470*	*11,680*	*11,900*	*12,140*
Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*
Total Revenue	**240,216**	**252,134**	**275,490**	**298,616**	**317,063**	**330,244**	**343,955**	**358,227**	**373,135**	**388,665**

Table WW-6
Township of Leeds and The Thousand Islands
Wastewater Services
Wastewater Rate Forecast - Maintain Current Rate Structure

Description	Forecast									
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Billing Revenue										
Base Charge (minimum monthly charge)	211,499	226,500	248,410	270,139	287,485	299,835	312,713	326,141	340,143	354,744
Consumptive Charge	14,353	15,184	16,430	17,626	18,528	19,149	19,772	20,406	21,092	21,782
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Total Wastewater Billing Recovery	14,353	15,184	16,430	17,626	18,528	19,149	19,772	20,406	21,092	21,782
Consumption over 20 m^3 per Month:										
Consumption 1 1/2" or less	4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more	692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)	4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate 1 /12" or less 2.80	**2.88**	**2.97**	**3.06**	**3.15**	**3.24**	**3.34**	**3.44**	**3.54**	**3.65**	**3.76**
Constant Rate 2" or more 3.15	**3.24**	**3.34**	**3.44**	**3.55**	**3.65**	**3.76**	**3.87**	**3.99**	**4.11**	**4.23**
Annual Percentage Change: 1 1/2" or less	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Annual Percentage Change: 2" or more	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.24**	**60.57**	**62.99**	**65.51**	**68.13**	**70.86**	**73.69**	**76.64**	**79.71**	**82.89**
Minimum Monthly Charge: 2" or more	**63.00**	**65.52**	**68.14**	**70.87**	**73.70**	**76.65**	**79.72**	**82.90**	**86.22**	**89.67**	**93.26**
Annual Percentage Change: 1 1/2" or less		**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**
Annual Percentage Change: 2" or more		**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

Table WW-7
Township of Leeds and The Thousand Islands
Wastewater Services
Wastewater Rate Forecast - Increase Gap Between Fees by Meter Size

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	212,809	227,863	249,828	271,613	289,018	301,429	314,371	327,865	341,936	356,609
Consumptive Charge	13,042	13,821	15,012	16,152	16,995	17,554	18,114	18,681	19,299	19,917
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery	13,042	13,821	15,012	16,152	16,995	17,554	18,114	18,681	19,299	19,917
Consumption over 20 m^3 per Month:										
Consumption 1 1/2" or less	4,198	4,334	4,591	4,818	4,939	4,954	4,969	4,984	4,999	5,014
Consumption 2" or more	692	692	692	692	692	692	692	692	692	692
Total Consumption (m^3)	4,890	5,026	5,283	5,510	5,631	5,646	5,661	5,676	5,691	5,707
Constant Rate 1 /12" or less 2.80	**2.54**	**2.62**	**2.72**	**2.81**	**2.90**	**2.98**	**3.07**	**3.16**	**3.26**	**3.35**
Constant Rate 2" or more 3.15	**3.45**	**3.55**	**3.66**	**3.77**	**3.88**	**4.00**	**4.12**	**4.24**	**4.37**	**4.50**
Annual Percentage Change - Constant Rate: 1 1/2" or less	**-9.4%**	**3.3%**	**3.7%**	**3.4%**	**3.1%**	**3.0%**	**2.9%**	**2.8%**	**3.1%**	**2.9%**
Annual Percentage Change - Constant Rate: 2" or more	**9.5%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**58.24**	**60.57**	**62.99**	**65.51**	**68.13**	**70.86**	**73.69**	**76.64**	**79.71**	**82.89**
Minimum Monthly Charge: 2" or more	**63.00**	**70.72**	**73.55**	**76.49**	**79.55**	**82.73**	**86.04**	**89.48**	**93.06**	**96.79**	**100.66**
Annual Percentage Change: 1 1/2" or less		**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**
Annual Percentage Change: 2" or more		**12.3%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

Table WW-8
Township of Leeds and The Thousand Islands
Wastewater Services
Wastewater Rate Forecast - 100% Flat Rate Structure (i.e. No Consumptive Charge)

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge (minimum monthly charge)	225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Customers 1 1/2" or less		279	288	305	320	328	329	330	331	332	333
Customers 2" or more		21	21	21	21	21	21	21	21	21	21
Total Customers		300	309	326	341	349	350	351	352	353	354
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**62.19**	**64.63**	**67.16**	**69.79**	**72.52**	**75.38**	**78.35**	**81.43**	**84.65**	**87.98**
Minimum Monthly Charge: 2" or more	**63.00**	**69.97**	**72.71**	**75.55**	**78.51**	**81.59**	**84.81**	**88.15**	**91.61**	**95.23**	**98.98**
Annual Percentage Change - Flate Rate: 1 1/2" or less		**11.1%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**
Annual Percentage Change - Flate Rate: 2" or more		**11.1%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**

Table WW-9
Township of Leeds and The Thousand Islands
Wastewater Services
Wastewater Rate Forecast - 100% Consumptive Rate Structure (i.e. No Flate Rate)

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Consumptive Charge	225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery		225,851	241,684	264,840	287,766	306,013	318,984	332,485	346,547	361,235	376,525
Annual Consumption											
Consumption 1 1/2" or less		42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more		3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)		45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate: 1 1/2" or less	**2.80**	**4.95**	**5.14**	**5.34**	**5.55**	**5.77**	**5.99**	**6.23**	**6.47**	**6.73**	**7.00**
Constant Rate: 2" or more	**3.15**	**5.57**	**5.79**	**6.02**	**6.26**	**6.51**	**6.77**	**7.04**	**7.32**	**7.62**	**7.92**
Annual Percentage Change: 1 1/2" or less		**76.7%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**
Annual Percentage Change: 2" or more		**76.7%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

Table WW-10
Township of Leeds and The Thousand Islands
Wastewater Services
Wastewater Rate Forecast - Base Charge with Consumptive Rate (No Minimum Charge)

Description	Forecast									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Billing Revenue										
Base Charge	146,520	155,365	168,683	181,611	191,382	197,679	204,183	210,899	217,834	224,995
Consumptive Charge	79,331	86,319	96,157	106,154	114,632	121,304	128,302	135,648	143,401	151,530
Total Billing Revenue	*225,851*	*241,684*	*264,840*	*287,766*	*306,013*	*318,984*	*332,485*	*346,547*	*361,235*	*376,525*

Description	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Wastewater Billing Recovery	79,331	86,319	96,157	106,154	114,632	121,304	128,302	135,648	143,401	151,530
Annual Consumption										
Consumption 1 1/2" or less	42,112	43,471	46,037	48,301	49,508	49,659	49,810	49,961	50,112	50,263
Consumption 2" or more	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147	3,147
Total Consumption (m^3)	45,259	46,618	49,183	51,448	52,655	52,806	52,957	53,108	53,259	53,410
Constant Rate 1 /12" or less **2.80**	**1.74**	**1.83**	**1.94**	**2.05**	**2.16**	**2.28**	**2.40**	**2.53**	**2.67**	**2.81**
Constant Rate 2" or more **3.15**	**1.98**	**2.10**	**2.22**	**2.34**	**2.48**	**2.62**	**2.77**	**2.93**	**3.09**	**3.27**
Annual Percentage Change: 1 1/2" or less	**-38.0%**	**5.7%**	**5.6%**	**5.6%**	**5.5%**	**5.5%**	**5.5%**	**5.4%**	**5.4%**	**5.3%**
Annual Percentage Change: 2" or more	**-37.0%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**	**5.7%**

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Minimum Monthly Charge: 1 1/2" or less	**56.00**	**40.00**	**41.20**	**42.44**	**43.71**	**45.02**	**46.37**	**47.76**	**49.19**	**50.67**	**52.19**
Minimum Monthly Charge: 2" or more	**63.00**	**50.00**	**51.50**	**53.05**	**54.64**	**56.28**	**57.96**	**59.70**	**61.49**	**63.34**	**65.24**
Annual Percentage Change: 1 1/2" or less		**-28.6%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**
Annual Percentage Change: 2" or more		**-20.6%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**	**3.0%**