



# Water Rate Study

Town of Erin

December 12, 2019

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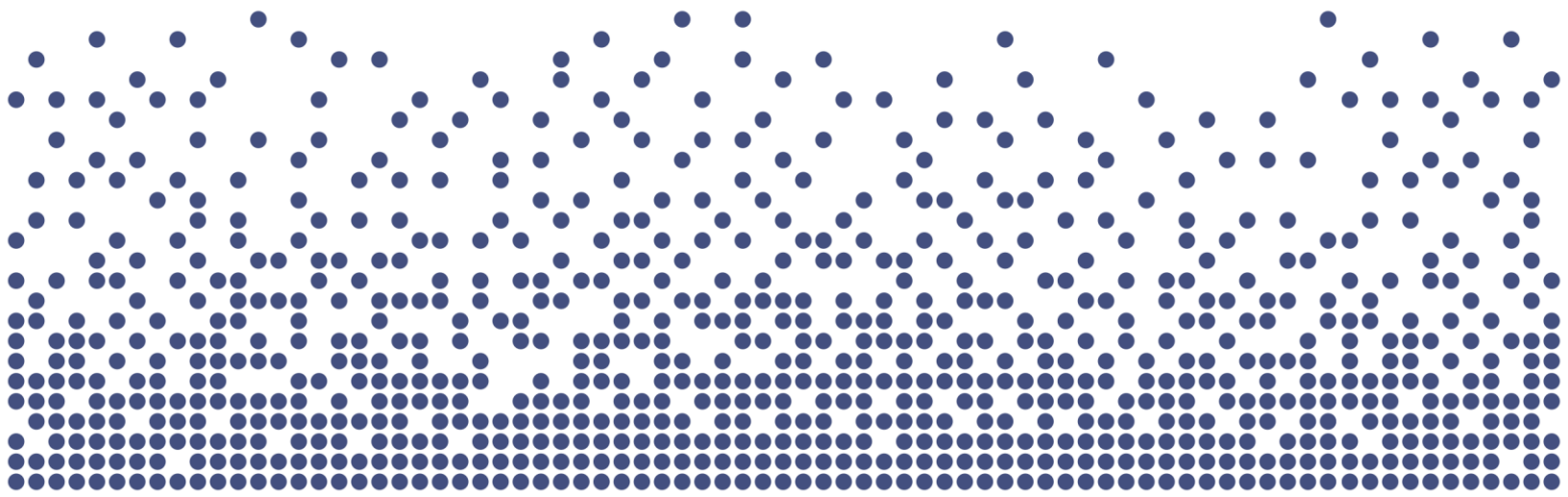
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## List of Acronyms and Abbreviations

<b>Acronym</b>	<b>Full Description of Acronym</b>
A.M.O.	Association of Municipalities of Ontario
C.W.W.F.	Clean Water and Wastewater Fund
D.C.A.	Development Charges Act, 1997
F.I.R.	Financial Information Return
I.J.P.A.	Infrastructure for Jobs and Prosperity Act, 2015
I.O.	Infrastructure Ontario
LPAT	Local Planning Appeal Tribunal
M.O.E.	Ministry of Environment
O.C.I.F.	Ontario Community Infrastructure Fund
O.M.B.	Ontario Municipal Board
O.Reg.	Ontario Regulation
O.S.I.F.A.	Ontario Strategic Infrastructure Financing Authority
P.S.A.B.	Public Sector Accounting Board
P.T.I.F.	Public Transit Infrastructure Fund
S.W.S.S.A.	Sustainable Water and Sewage Systems Act, 2002





# Executive Summary







# Executive Summary

The Town of Erin retained Watson & Associates Economists Ltd. (Watson) to undertake a water rate study. This study aims to update the analysis for current capital and operating forecasts, costing for lifecycle cost requirements, current volumes and customer profiles. The results of this analysis provide updated water base charges and volume rates for customers within the Town of Erin. The rate analysis contained herein continues to provide fiscally responsible practices that are in line with current provincial legislation at a level of rate increases that are reasonable.

The analysis presented herein provides for three (3) growth scenarios that the Town could potentially experience over the forecast study period (2020-2029). The scenarios consider low growth, medium growth, and high growth for the Town in order to assess the financial impacts of replacing existing infrastructure (e.g. watermains) given the varying levels of revenue.

Based on the analysis undertaken, the following observations have been noted:

- All growth scenarios:
  - Annual operating expenditures are assumed to increase by 2% per annum for most expenditures; expenditures related to utilities, fuels, chemicals and other materials have been increased at 5% per annum;
  - The present rate structure for both metered (base monthly charge and a constant volume rate) and non-metered (flat rates) customers is continued;
- Low Growth Scenario:
  - Assumed 5 new customers per year;
  - The Town's capital program from 2020 – 2029 is \$6.22 million (inflated \$), of which \$0.63 million is D.C. related and \$5.59 million is non-growth related;
- Medium Growth Scenario:
  - Utilizes the growth forecast assumed in the Development Charges (D.C.) Study, which assumes:
    - 15 new customers per year 2020-2024;
    - 48 new customers per year 2025-2026;
    - 95 new customers per year 2027-2029.



- The Town's capital program from 2020 – 2029 is \$11.02 million (inflated \$), of which \$5.04 million is D.C. related and \$5.97 million is non-growth related;
- High Growth Scenario:
  - Assumes a similar growth forecast to the medium growth scenario from 2020-2022;
    - increases to 300 new customers per year in 2023-2024;
    - 304 customers per year in 2025-2026;
    - 313 customers per year in 2027-2029;
  - Increased the operating costs by 20% in 2024 to recognize the added requirements to service the large increase in customers, with inflationary increases in subsequent years; and
  - The Town's capital program from 2020 – 2029 is \$31.24 million (inflated \$), of which \$23.64 million is D.C. related and \$7.59 million is non-growth related.

Based on the above information, the Erin water rates have been calculated with a 7% decrease to the 2020 water bill, with subsequent annual increases of 3% per year from 2021-2029.

Table ES-1 summarizes the recommended Erin system water rates and average annual bill (assuming an annual volume of 190 m<sup>3</sup>) based on the analysis provided herein over the forecast period.

With respect to the flat rates and flat rate customers, the annual bill has been calculated to decrease by 10% in 2020, and increase by 3% per year from 2021-2029. Table ES-2 summarizes the flat rate forecast.



Table ES-1  
Summary of an Annual Customer Water Bill – Based on 190m<sup>3</sup> of usage and ¾” meter

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Monthly Base Rate	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08
Constant Rate	\$3.99	\$3.60	\$3.71	\$3.82	\$3.93	\$4.05	\$4.17	\$4.30	\$4.43	\$4.56
<b>Annual Base Rate Bill</b>	<b>\$184.68</b>	<b>\$190.22</b>	<b>\$195.93</b>	<b>\$201.80</b>	<b>\$207.86</b>	<b>\$214.09</b>	<b>\$220.52</b>	<b>\$227.13</b>	<b>\$233.95</b>	<b>\$240.97</b>
Volume	190	190	190	190	190	190	190	190	190	190
<b>Annual Volume Bill</b>	<b>\$758.10</b>	<b>\$684.00</b>	<b>\$704.90</b>	<b>\$725.80</b>	<b>\$746.70</b>	<b>\$769.50</b>	<b>\$792.30</b>	<b>\$817.00</b>	<b>\$841.70</b>	<b>\$866.40</b>
<b>Total Annual Bill</b>	<b>\$942.78</b>	<b>\$874.22</b>	<b>\$900.83</b>	<b>\$927.60</b>	<b>\$954.56</b>	<b>\$983.59</b>	<b>\$1,012.82</b>	<b>\$1,044.13</b>	<b>\$1,075.65</b>	<b>\$1,107.37</b>
% Increase - Base Rate		3%	3%	3%	3%	3%	3%	3%	3%	3%
% Increase - Volume Rate		-10%	3%	3%	3%	3%	3%	3%	3%	3%
% Increase - Total Annual Bill		-7%	3%	3%	3%	3%	3%	3%	3%	3%

Table ES-2  
Summary of an Annual Flat Rate Customer Water Bill

Flat Rate	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Monthly Flat Rate	\$40.62	\$36.67	\$37.75	\$38.83	\$39.92	\$41.17	\$42.42	\$43.67	\$45.00	\$46.33	\$47.75
Annual Flat Rate	\$487.41	\$440.00	\$453.00	\$466.00	\$479.00	\$494.00	\$509.00	\$524.00	\$540.00	\$556.00	\$573.00





# Report





# Chapter 1

## Introduction







# 1. Introduction

## 1.1 Background

---

The Town of Erin currently provides water services to two main areas, the villages of Erin and Hillsburgh. Currently, there are 1,483 metered water customers and 5 non-metered water customers. The Town's water system is supplied from ground water and comes primarily from two wells. The distribution system has approximately 26 km of watermains and approximately 154 fire hydrants.

For the metered customers, the Town utilizes a rate structure with a monthly base charge as well as a volumetric charge per cubic metre of \$3.99 (2019 rate). The non-metered customers are subject to a flat monthly rate.

See Table 1-1 for existing rates.

Table 1-1  
Town of Erin,  
Water Rates – 2019

2019 - Water Billing Rates	
<b>Monthly Base Charge</b>	
¾"	15.39
1"	15.39
1 ½"	15.39
2"	30.77
4"	55.45
<b>Volume Charge</b>	
\$ 3.99	per m <sup>3</sup>
<b>Flat Rate/Month</b>	
\$ 40.618	per month

\*Note base charge for all multi-resident premises shall be charged as per the number of units on the premises.

As part of the study process, an examination of the different levels of investment towards lifecycle replacement was undertaken depending on the magnitude of growth the Town could experience over the forecast period (2020-2029). This does not affect the calculated charges as it relates to the base charge, volume rates, or flat rates, but it



does show the different levels of lifecycle reserves that the Town could generate in order to address the replacement of existing water infrastructure. The growth scenarios are further discussed in Section 1.8 and mentioned throughout the report.

With the legislative changes made in Ontario as a result of the Walkerton crisis, municipalities are conforming to the new statutes governing the management of water and wastewater systems. Watson & Associates Economists Ltd. (Watson) was retained by the Town of Erin to assist in addressing these matters in a proactive manner as they relate to the water system. The assessment provided herein addresses changes recommended to the water rates based on the most current information and forecasts the implications over the next ten-year period.

## 1.2 Study Process

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The objectives of the study and the steps involved in carrying out this assignment are summarized below:

- Identify all current and future water system capital needs to assess the immediate and longer-term implications;
- Identify potential methods of cost recovery from the capital needs listing. These recovery methods may include other statutory authorities (e.g. *Development Charges Act, 1997* (D.C.A.), *Municipal Act*, etc.) as an offset to recovery through the water and wastewater rates;
- Identify existing operating costs by component and estimate future operating costs over the next ten years. This assessment identifies fixed and variable costs in order to project those costs sensitive to changes to the existing infrastructure inventory, as well as costs which may increase commensurate with growth; and
- Provide staff and Committee/Council the findings to assist in gaining approval of the rates for future years.

## 1.3 Regulatory Changes in Ontario

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



the 93 recommendations made by the Walkerton Inquiry Part II report. Areas of recommendation include:

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

The legislation which would have most impacted municipal water and wastewater rates was the *Sustainable Water and Sewage Systems Act* (S.W.S.S.A.) which would have required municipalities to implement full cost pricing. The legislation was enacted in 2002, however, it had not been implemented pending the approval of its regulations. The Act was repealed as of January 1, 2013. It is expected that the provisions of the *Water Opportunities Act* will implement the fundamental requirements of S.W.S.S.A. Furthermore, on December 27, 2017, O.Reg. 588/17 was released under the *Infrastructure for Jobs and Prosperity Act, 2015* (I.J.P.A.), which outlines the requirements for asset management for municipalities. The results of the asset management review under this Act will need to be considered in light of the recent investments undertaken by the Municipality and the capital spending plan provided herein. The following sections describe these various resulting changes.

## 1.4 Sustainable Water and Sewage Systems Act

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As noted earlier, the S.W.S.S.A. was passed on December 13, 2002. The intent of the Act was to introduce the requirement for municipalities to undertake an assessment of the “full cost” of providing their water and wastewater services. It is noted, however, that this Act has been repealed. To provide broader context and understanding to other legislation discussed herein, a description of the Act is provided below.

Full costs for water service was defined in subsection 3(7) of the Act and included “...source protection costs, operating costs, financing costs, renewal and replacement costs and improvement costs associated with extracting, treating or distributing water to the public and such other costs which may be specified by regulation.” Similar



provisions were made for wastewater services in subsection 4(7) with respect to “...collecting, treating or discharging waste water.”

The Act would have required the preparation of two reports for submission to the Ministry of the Environment (or such other member of the Executive Council as may be assigned the administration of this Act under the *Executive Council Act*). The first report was on the “full cost of services” and the second was the “cost recovery plan.” Once these reports were reviewed and approved by the Ministry, the municipality would have been required to implement the plans within a specified time period.

In regard to the **full cost of services** report, the municipality (deemed a regulated entity under the Act) would prepare and approve a report concerning the provision of water and sewage services. This report was to include an inventory of the infrastructure, a management plan providing for the long-term integrity of the systems, and would address the full cost of providing the services (other matters may be specified by the regulations) along with the revenue obtained to provide them. A professional engineer would certify the inventory and management plan portion of the report. The municipality’s auditor would be required to provide a written opinion on the report. The report was to be approved by the municipality and then be forwarded to the Ministry along with the engineer’s certification and the auditor’s opinion. The regulations would stipulate the timing for this report.

The second report was referred to as a **cost recovery plan** and would address how the municipality intended to pay for the full costs of providing the service. The regulations were to specify limitations on what sources of revenue the municipality may use. The regulations may have also provided limits as to the level of increases any customer or class of customer may experience over any period of time. Provision was made for the municipality to implement increases above these limits; however, ministerial approval would be required first. Similar to the first report, the municipal auditor would provide a written opinion on the report prior to Council’s adoption, and this opinion must accompany the report when submitted to the Province.

The Act provided the Minister the power to approve or not approve the plans. If the Minister was not satisfied with the report or if a municipality did not submit a plan, the Minister may have a plan prepared. The cost to the Crown for preparing the plan would be recovered from the municipality. As well, the Minister may direct two or more regulated municipalities to prepare a joint plan. This joint plan may be directed at the



onset or be directed by the Minister after receiving the individual plans from the municipalities.

The Minister also had the power to order a municipality to generate revenue from a specific revenue source or in a specified manner. The Minister may have also ordered a regulated entity to do or refrain from doing such things as the Minister considered advisable to ensure that the entity pays the full cost of providing the services to the public.

Once the plans were approved and in place, the municipality would be required to submit progress reports. The timing of these reports and the information to be contained therein would be established by the regulations. A municipal auditor's opinion must be provided with the progress report. Municipalities would also revise the plans if they deem the estimate does not reflect the full cost of providing the services, as a result of a change in circumstances, regulatory or other changes that affect their plan, etc. The municipality would then revise its prior plan, provide an auditor's opinion, and submit the plan to the Minister.

## 1.5 Financial Plans Regulation

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On August 16, 2007, the M.O.E. passed O.Reg 453/07 which requires the preparation of financial plans for water (and wastewater) systems. The M.O.E. has also provided a Financial Plan Guidance Document to assist in 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 for the municipality to obtain its Drinking Water Licence;
- The financial plans shall be for a period of at least six years, but longer planning horizons are encouraged;
- As the regulation is under the *Safe Drinking Water Act, 2002*, the preparation of the plan is mandatory for water and encouraged for wastewater;
- The plan is considered a living document (i.e. will be updated as annual budgets are prepared) 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, providing detailed inventories, forecasting future users and volume usage and corresponding calculation of rates. In addition, P.S.A.B. 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 and net debt);

- The financial plans must be made available to the public (at no charge) upon request and be available on the municipality's website. The availability of this information must also be advertised; and
- The financial plans are to be approved by Resolution of the Council or governing body indicating that the drinking water system is financially viable.

In general, the financial principles of the draft regulations follow the intent of S.W.S.S.A. to move municipalities towards financial sustainability. Many of the prescriptive requirements, however, have been removed (e.g. preparation of two separate documents for provincial approval, auditor opinions, engineer certifications, etc.).

A Guideline ("Towards Financially Sustainable Drinking Shores – Water and Wastewater Systems") had been developed to assist municipalities in understanding the Province's direction and provided 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 stormwater 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.

## 1.6 Water Opportunities Act, 2010

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As noted earlier, since the passage of the *Safe Drinking Water Act, 2002*, continuing changes and refinements to the legislation have been introduced. Some of these Bills have found their way into law, while others have not been approved. Bill 72, the *Water Opportunities Act, 2010*, was introduced into legislation on May 18, 2010 and received Royal Assent on November 29, 2010.

The Act provides for the following elements:

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

With regard to the sustainability plans:

- The Act extends from the water financial plans and requires a more detailed review of the water financial plan and requires a full plan for wastewater and stormwater services; and



- Regulations will provide performance targets for each service – these targets may vary based on the jurisdiction of the regulated entity or the class of entity.

The financial plan shall include:

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

Performance indicators will be established by service, with the following considerations:

- May relate to the financing, operation or maintenance of a municipal service or to any other matter in respect of what 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;
- Which identified portions of the plan will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

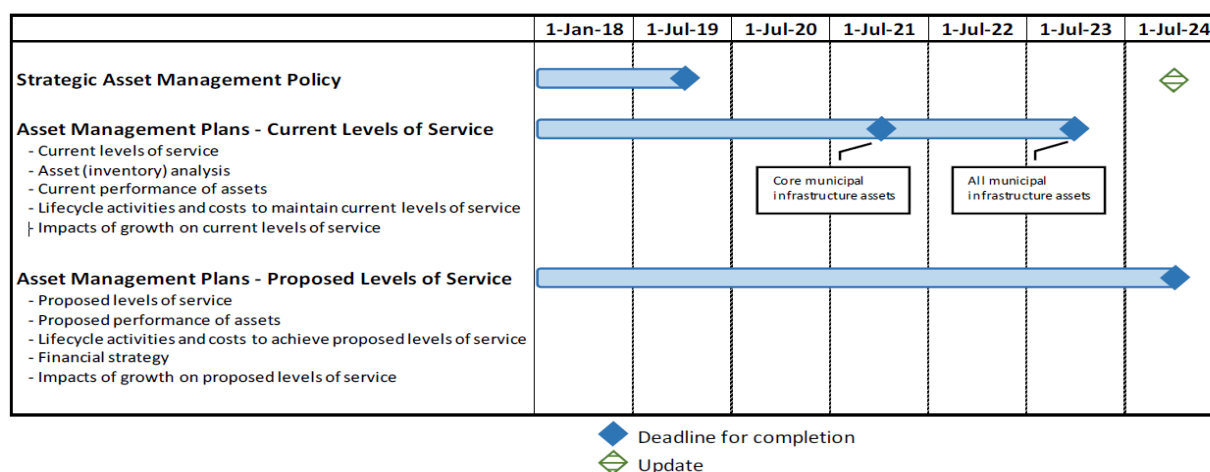
As noted earlier, it is expected that this Act will implement the principles of the S.W.S.S.A. once all regulations are put in place.





## 1.7 Infrastructure for Jobs and Prosperity Act, 2015 (I.J.P.A.)

On June 4, 2015, the Province of Ontario passed the I.J.P.A. which, over time, will require municipalities to undertake and implement asset management plans for all infrastructure they own. On December 27, 2017, the Province released Ontario Regulation 588/17 under the I.J.P.A. which has three phases that municipalities must meet:



Every municipality in Ontario will have to prepare a strategic asset management policy by July 1, 2019. Municipalities will be required to review their strategic asset management policies at least every five years and make updates as necessary. The subsequent phases are as follows:

- Phase 1 – Asset Management Plan (by July 1, 2021):
  - For core assets, municipalities must have the following:
    - Inventory of assets;
    - Current levels of service measured by standard metrics; and
    - Costs to maintain levels of service.
- Phase 2 – Asset Management Plan (by July 1, 2023):
  - Same steps as Phase 1 but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2024):
  - Builds on Phase 1 and 2 by adding:
    - Proposed levels of service; and
    - Lifecycle management and financial strategy.



In relation to water and wastewater (which is considered a core asset), municipalities will need to have an asset management plan that addresses the related infrastructure by July 1, 2021 (Phase 1). O.Reg. 588/17 specifies that the municipality's asset management plan must include the following for each asset category:

- The current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan;
- The current performance of each asset category, including:
  - a summary of the assets in the category;
  - the replacement cost of the assets in the category;
  - the average age of the assets in the category, determined by assessing the average age of the components of the assets;
  - the information available on the condition of the assets in the category;
  - a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate; and
- The lifecycle activities that would need to be undertaken to maintain the current levels of service.

Upon completion of the asset management plan for water services, the Town will need to consider the impacts on the capital plan provided herein.

## 1.8 Forecast Growth and Servicing Requirements

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Information on the existing number of customers and existing billable volumes was obtained from the Town. As of December 31, 2018, the Town of Erin serviced 1,480 metered water customers and 5 non-metered customers. Since that time, the Town added 3 additional metered water customers, bringing the total customer count for 2019 to 1,488.

For future water customers to be added to the system, consideration has been given to development potential within the serviced areas of the Town over the forecast period (2020 - 2029). The growth in customers is based on building activity. With building construction times varying over the course of the year, it is assumed that half of the forecasted users will be recognized as connecting to the water system in the year of



development, as other units constructed in the latter half of the year will connect in the following calendar year.

The analysis provided herein examines three (3) growth scenarios that the Town could potentially experience over the forecast period. The scenarios consider low growth, medium growth, and high growth for the Town in order to assess the financial impacts of replacing existing infrastructure (e.g. watermains) given the varying levels of revenue. The growth scenarios are as follows:

- Low Growth Scenario:
  - Assumed 5 new customers per year;
- Medium Growth Scenario:
  - Utilizes the growth forecast assumed in the Development Charges (D.C.) Study, which assumes:
    - 15 new customers per year 2020-2024;
    - 48 new customers per year 2025-2026;
    - 95 new customers per year 2027-2029.
- High Growth Scenario:
  - Assumes a similar growth forecast to the medium growth scenario from 2020-2022;
    - increases to 300 new customers per year in 2023-2024;
    - 304 customers per year in 2025-2026; and
    - 313 customers per year in 2027-2029.

Table 1-2 provides for the forecast of water users and volumes using the Low Growth Scenario.

Table 1-3 provides for the forecast of water users and volumes using the Medium Growth Scenario.

Table 1-4 provides for the forecast of water users and volumes using the High Growth Scenario.



Table 1-2  
Erin Water System Growth – Low Growth Scenario

**Water Users Forecast**

Year	Total Users	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2019	3	3	3	3	3	3	3	3	3	3	3	3
2020	5		3	5	5	5	5	5	5	5	5	5
2021	5			3	5	5	5	5	5	5	5	5
2022	5				3	5	5	5	5	5	5	5
2023	5					3	5	5	5	5	5	5
2024	5						3	5	5	5	5	5
2025	5							3	5	5	5	5
2026	5								3	5	5	5
2027	5									3	5	5
2028	5										3	5
2029	5											3
<b>Total</b>	<b>50</b>	<b>3</b>	<b>6</b>	<b>11</b>	<b>16</b>	<b>21</b>	<b>26</b>	<b>31</b>	<b>36</b>	<b>41</b>	<b>46</b>	<b>51</b>
m <sup>3</sup> /user	190	190	190	190	190	190	190	190	190	190	190	190
<b>Annual Flow</b>		<b>570</b>	<b>1,140</b>	<b>2,090</b>	<b>3,040</b>	<b>3,990</b>	<b>4,940</b>	<b>5,890</b>	<b>6,840</b>	<b>7,790</b>	<b>8,740</b>	<b>9,690</b>

Water Customer Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing Metered Customers	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
Existing Non-Metered Customers	5	5	5	5	5	5	5	5	5	5	5
New - Growth	3	6	11	16	21	26	31	36	41	46	51
<b>Total</b>	<b>1,488</b>	<b>1,491</b>	<b>1,496</b>	<b>1,501</b>	<b>1,506</b>	<b>1,511</b>	<b>1,516</b>	<b>1,521</b>	<b>1,526</b>	<b>1,531</b>	<b>1,536</b>



Table 1-3  
Erin Water System Growth – Medium Growth Scenario

**Water Users Forecast**

Year	Total Users	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2019	3	3	3	3	3	3	3	3	3	3	3	3
2020	15		8	15	15	15	15	15	15	15	15	15
2021	15			8	15	15	15	15	15	15	15	15
2022	15				8	15	15	15	15	15	15	15
2023	15					8	15	15	15	15	15	15
2024	15						8	15	15	15	15	15
2025	48							24	48	48	48	48
2026	48								24	48	48	48
2027	95									48	95	95
2028	95										48	95
2029	95											48
<b>Total</b>	<b>456</b>	<b>3</b>	<b>11</b>	<b>26</b>	<b>41</b>	<b>56</b>	<b>71</b>	<b>102</b>	<b>150</b>	<b>222</b>	<b>317</b>	<b>412</b>
m <sup>3</sup> /user	190	190	190	190	190	190	190	190	190	190	190	190
<b>Annual Flow</b>		<b>570</b>	<b>2,090</b>	<b>4,940</b>	<b>7,790</b>	<b>10,640</b>	<b>13,490</b>	<b>19,380</b>	<b>28,500</b>	<b>42,180</b>	<b>60,230</b>	<b>78,280</b>

Water Customer Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing Metered Customers	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
Existing Non-Metered Customers	5	5	5	5	5	5	5	5	5	5	5
New - Growth	3	11	26	41	56	71	102	150	222	317	412
<b>Total</b>	<b>1,488</b>	<b>1,496</b>	<b>1,511</b>	<b>1,526</b>	<b>1,541</b>	<b>1,556</b>	<b>1,587</b>	<b>1,635</b>	<b>1,707</b>	<b>1,802</b>	<b>1,897</b>



Table 1-4  
Erin Water System Growth – High Growth Scenario

**Water Users Forecast**

Year	Total Users	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2019	3	3	3	3	3	3	3	3	3	3	3	3
2020	15		8	15	15	15	15	15	15	15	15	15
2021	15			8	15	15	15	15	15	15	15	15
2022	15				8	15	15	15	15	15	15	15
2023	300					150	300	300	300	300	300	300
2024	300						150	300	300	300	300	300
2025	304							152	304	304	304	304
2026	304								152	304	304	304
2027	313									157	313	313
2028	313										157	313
2029	313											157
<b>Total</b>	<b>2,192</b>	<b>3</b>	<b>11</b>	<b>26</b>	<b>41</b>	<b>198</b>	<b>498</b>	<b>800</b>	<b>1,104</b>	<b>1,413</b>	<b>1,726</b>	<b>2,039</b>
m <sup>3</sup> /user	190	190	190	190	190	190	190	190	190	190	190	190
<b>Annual Flow</b>		<b>570</b>	<b>2,090</b>	<b>4,940</b>	<b>7,790</b>	<b>37,620</b>	<b>94,620</b>	<b>152,000</b>	<b>209,760</b>	<b>268,470</b>	<b>327,940</b>	<b>387,410</b>

Water Customer Forecast	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing Metered Customers	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
Existing Non-Metered Customers	5	5	5	5	5	5	5	5	5	5	5
New - Growth	3	11	26	41	198	498	800	1,104	1,413	1,726	2,039
<b>Total</b>	<b>1,488</b>	<b>1,496</b>	<b>1,511</b>	<b>1,526</b>	<b>1,683</b>	<b>1,983</b>	<b>2,285</b>	<b>2,589</b>	<b>2,898</b>	<b>3,211</b>	<b>3,524</b>

Water Volume Forecast (m <sup>3</sup> )	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	281,889	281,889	281,889	281,889	281,889	281,889	281,889	281,889	281,889	281,889	281,889
New	570	2,090	4,940	7,790	37,620	94,620	152,000	209,760	268,470	327,940	387,410
<b>Total</b>	<b>282,459</b>	<b>283,979</b>	<b>286,829</b>	<b>289,679</b>	<b>319,509</b>	<b>376,509</b>	<b>433,889</b>	<b>491,649</b>	<b>550,359</b>	<b>609,829</b>	<b>669,299</b>



# Chapter 2

## Capital Infrastructure Needs







## 2. Capital Infrastructure Needs

### 2.1 Capital Budget and Forecast

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Capital budget and forecasts have been provided for the water system with variations that use the three growth scenarios. The basis for these forecasts is the Town's capital budget. The only difference in the costing relates to the amount of growth-related works that need to be constructed in order to service the appropriate levels of growth.

However, since a portion of the growth-related works benefits the existing population (8% benefit to existing), the non-growth portion of those capital costs will also differ from each growth scenario. Tables 2-1, 2-2 and 2-3 (Note: the costs are in inflated dollars) summarize the capital forecast for low, medium, and high growth scenarios respectively.

A summary of the capital works is provided on the following tables.



Table 2-1  
Erin System Water Capital Budget and Forecast Summary (Inflated \$) – Low Growth Scenario

Description	Budget 2019-2029	Years Undertaken
<b>Capital Expenditures</b>		
Building and grounds minor repairs	15,000	2019
Energy Efficiency Upgrades	126,000	2020-2023
Other Capital Replacement	4,167,000	2023, 2026, 2029
<b>Erin Well # 7</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
upgraded chlorine gas scale	3,000	2020
new spare gas chlorinator	17,000	2022, 2025, 2028
gas chlorinator rebuilds	35,500	2019, 2021, 2023
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party	3,000	2022
well inspection / video well casing	12,000	2020, 2024, 2028
Gas alarm system tested . Portable meter tested - third party	20,000	2020-2029
upgrade SCBA, have operators fit tested	5,000	2020
Pull pump and check foot valve	5,000	2020
remove old booster pump and relabel MCC panel	2,000	2020
<b>Erin Well # 8</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
gas chlorinator rebuilds	35,500	2019, 2021, 2023
new spare gas chlorinator	17,000	2022, 2024, 2025
upgrade SCBA, have operators fit tested	5,000	2020
install new Cl2 analyzer with logger data back-up	5,000	2020
Gas alarm system tested .	10,000	2020-2029
install ladder on outside of reservoir	8,000	2020
Items from recommendations	3,000	2020-2022
Trolley/Crane - lifting device inspection - third party	10,000	2020-2029
<b>Water Tower</b>		
inspection of all lifting devices - third party	20,000	2020-2029
video tower internal inspection	24,000	2021, 2024, 2025
Altitude valve inspection - third party	10,000	2020-2029
<b>Booster Station</b>		
PRV rebuilds and replacements	30,000	2020-2029

Description	Budget 2019-2029	Years Undertaken
<b>Capital Expenditures</b>		
<b>Hillsburgh and Erin Distribution</b>		
Meter replacement program	346,000	2019-2029
Fire Hydrant rehabilitation/replacement program	207,000	2019-2029
Distribution Valve exercising program/ hydrant fire flow testing	71,000	2020-2029
Barbour St. Blow Off	2,000	2020
<b>Hillsburgh Height's</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
install new Cl2 analyzer with logger data back-up	5,000	2020-2028
new chemical Hypo metering pump	11,000	2021, 2024, 2027
new chemical Ferric metering pump	11,000	2021, 2024, 2027
rebuilds of chemical pumps/ injectors/lines	10,000	2020-2029
VFD's for high lift pumps	12,000	2020
inspection of pressure relief valve	3,000	2022, 2025, 2028
Lead Filter Replacement	84,000	2020-2029
Items from recommendations	12,000	2020-2022
<b>Glendevon</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
install new Cl2 analyzer with logger data back-up	5,000	2020
rebuilds of chemical pumps/ injectors/lines	10,000	2020-2029
VFD's for high lift pumps	12,000	2020
Milltonics level sensor for Reservoir/ SCADA hook up	10,000	2020
Items from recommendations	12,000	2020-2022
<b>Studies:</b>		
Water Rate Study	44,900	2019, 2023, 2027
<b>Growth Related:</b>		
New Water Supply (Erin and Hillsburgh)	686,000	2024-2029
Water Equipment	43,800	2019
Water Environmental Assessment	1,125,000	2019
<b>Total Capital Expenditures</b>	<b>7,470,700</b>	



Table 2-2  
Erin System Water Capital Budget and Forecast Summary (Inflated \$) – Medium Growth Scenario

Description	Budget 2019-2029	Years Undertaken
<b>Capital Expenditures</b>		
Building and grounds minor repairs	15,000	2019
Energy Efficiency Upgrades	126,000	2020-2023
Other Capital Replacement	4,167,000	2023, 2026, 2029
<b>Erin Well # 7</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
upgraded chlorine gas scale	3,000	2020
new spare gas chlorinator	17,000	2022, 2025, 2028
gas chlorinator rebuilds	35,500	2019, 2021, 2023
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party	3,000	2022
well inspection / video well casing	12,000	2020, 2024, 2028
Gas alarm system tested . Portable meter tested - third party	20,000	2020-2029
upgrade SCBA, have operators fit tested	5,000	2020
Pull pump and check foot valve	5,000	2020
remove old booster pump and relabel MCC panel	2,000	2020
<b>Erin Well # 8</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
gas chlorinator rebuilds	35,500	2019, 2021, 2023
new spare gas chlorinator	17,000	2022, 2024, 2025
upgrade SCBA, have operators fit tested	5,000	2020
install new Cl2 analyzer with logger data back-up	5,000	2020
Gas alarm system tested .	10,000	2020-2029
install ladder on outside of reservoir	8,000	2020
Items from recommendations	3,000	2020-2022
Trolley/Crane - lifting device inspection - third party	10,000	2020-2029
<b>Water Tower</b>		
inspection of all lifting devices - third party	20,000	2020-2029
video tower internal inspection	24,000	2021, 2024, 2025
Altitude valve inspection - third party	10,000	2020-2029
<b>Booster Station</b>		
PRV rebuilds and replacements	30,000	2020-2029

Description	Budget 2019-2029	Years Undertaken
<b>Capital Expenditures</b>		
<b>Hillsburgh and Erin Distribution</b>		
Meter replacement program	346,000	2019-2029
Fire Hydrant rehabilitation/replacement program	207,000	2019-2029
Distribution Valve exercising program/ hydrant fire flow testing	71,000	2020-2029
Barbour St. Blow Off	2,000	2020
<b>Hillsburgh Height's</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
install new Cl2 analyzer with logger data back-up	5,000	2020-2028
new chemical Hypo metering pump	11,000	2021, 2024, 2027
new chemical Ferric metering pump	11,000	2021, 2024, 2027
rebuilds of chemical pumps/ injectors/lines	10,000	2020-2029
VFD's for high lift pumps	12,000	2020
inspection of pressure relief valve	3,000	2022, 2025, 2028
Lead Filter Replacement	84,000	2020-2029
Items from recommendations	12,000	2020-2022
<b>Glendevon</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
install new Cl2 analyzer with logger data back-up	5,000	2020
rebuilds of chemical pumps/ injectors/lines	10,000	2020-2029
VFD's for high lift pumps	12,000	2020
Milltonics level sensor for Reservoir/ SCADA hook up	10,000	2020
Items from recommendations	12,000	2020-2022
<b>Studies:</b>		
Water Rate Study	44,900	2019, 2023, 2027
<b>Growth Related:</b>		
New Water Supply (Erin and Hillsburgh)	5,479,000	2020-2023
Water Equipment	43,800	2019
Water Environmental Assessment	1,125,000	2019
<b>Total Capital Expenditures</b>	<b>12,263,700</b>	



Table 2-3  
Erin System Water Capital Budget and Forecast Summary (Inflated \$) – High Growth Scenario

Description	Budget 2019-2029	Years Undertaken
<b>Capital Expenditures</b>		
Building and grounds minor repairs	15,000	2019
Energy Efficiency Upgrades	126,000	2020-2023
Other Capital Replacement	4,167,000	2023, 2026, 2029
<b>Erin Well # 7</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
upgraded chlorine gas scale	3,000	2020
new spare gas chlorinator	17,000	2022, 2025, 2028
gas chlorinator rebuilds	35,500	2019, 2021, 2023
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party	3,000	2022
well inspection / video well casing	12,000	2020, 2024, 2028
Gas alarm system tested . Portable meter tested - third party	20,000	2020-2029
upgrade SCBA, have operators fit tested	5,000	2020
Pull pump and check foot valve	5,000	2020
remove old booster pump and relabel MCC panel	2,000	2020
<b>Erin Well # 8</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
gas chlorinator rebuilds	35,500	2019, 2021, 2023
new spare gas chlorinator	17,000	2022, 2024, 2025
upgrade SCBA, have operators fit tested	5,000	2020
install new Cl2 analyzer with logger data back-up	5,000	2020
Gas alarm system tested .	10,000	2020-2029
install ladder on outside of reservoir	8,000	2020
Items from recommendations	3,000	2020-2022
Trolley/Crane - lifting device inspection - third party	10,000	2020-2029
<b>Water Tower</b>		
inspection of all lifting devices - third party	20,000	2020-2029
video tower internal inspection	24,000	2021, 2024, 2025
Altitude valve inspection - third party	10,000	2020-2029
<b>Booster Station</b>		
PRV rebuilds and replacements	30,000	2020-2029

Description	Budget 2019-2029	Years Undertaken
<b>Capital Expenditures</b>		
<b>Hillsburgh and Erin Distribution</b>		
Meter replacement program	346,000	2019-2029
Fire Hydrant rehabilitation/replacement program	207,000	2019-2029
Distribution Valve exercising program/ hydrant fire flow testing	71,000	2020-2029
Barbour St. Blow Off	2,000	2020
<b>Hillsburgh Height's</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
install new Cl2 analyzer with logger data back-up	5,000	2020-2028
new chemical Hypo metering pump	11,000	2021, 2024, 2027
new chemical Ferric metering pump	11,000	2021, 2024, 2027
rebuilds of chemical pumps/ injectors/lines	10,000	2020-2029
VFD's for high lift pumps	12,000	2020
inspection of pressure relief valve	3,000	2022, 2025, 2028
Lead Filter Replacement	84,000	2020-2029
Items from recommendations	12,000	2020-2022
<b>Glendevon</b>		
Clear well Video inspection & Cleaning	31,000	2020-2028
well inspection / video well casing	12,000	2020, 2022
install new Cl2 analyzer with logger data back-up	5,000	2020
rebuilds of chemical pumps/ injectors/lines	10,000	2020-2029
VFD's for high lift pumps	12,000	2020
Milltonics level sensor for Reservoir/ SCADA hook up	10,000	2020
Items from recommendations	12,000	2020-2022
<b>Studies:</b>		
Water Rate Study	44,900	2019, 2023, 2027
<b>Growth Related:</b>		
New Water Supply (Erin and Hillsburgh)	25,699,000	2020-2023
Water Equipment	43,800	2019
Water Environmental Assessment	1,125,000	2019
<b>Total Capital Expenditures</b>	<b>32,483,700</b>	



# Chapter 3

## Lifecycle Costing





## 3. Lifecycle Costing

### 3.1 Overview of Lifecycle Costing

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#### 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), install, commission, operate, maintain and disposal. Figure 3-1 depicts these stages in a schematic form.

#### 3.1.2 Financing Costs

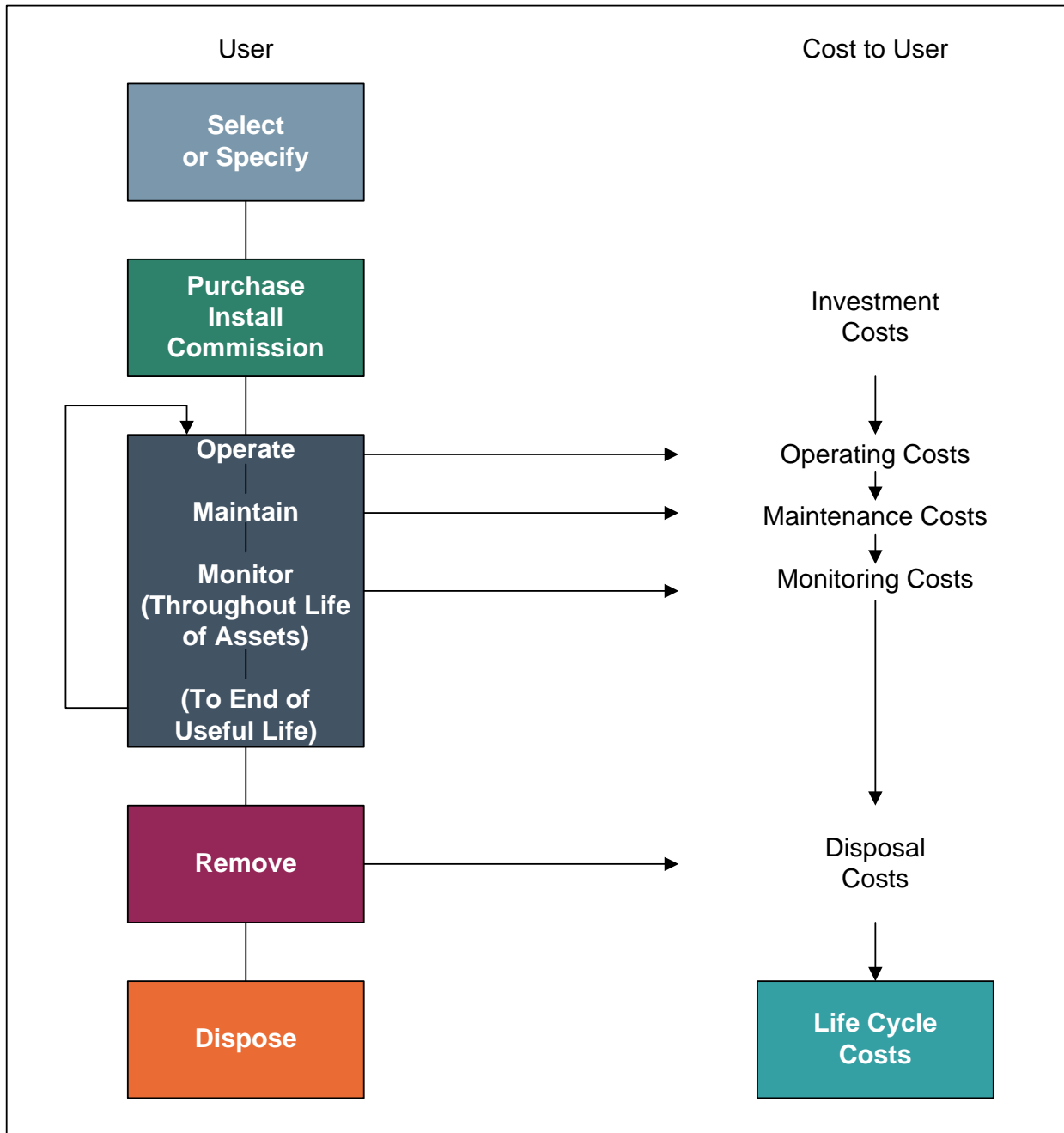
This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

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 Town. 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, with operating budget contributions, development charges, reserves, developer contributions and debentures, being the most common.



Figure 3-1  
Lifecycle Costing



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 Town to continue. As well, debentures could





be used to fund such works, with the debt charge carrying costs recouped from taxpayers in the future.

Capital construction to replace existing infrastructure, however, is largely not growth-related and will therefore not yield 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, such as 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.

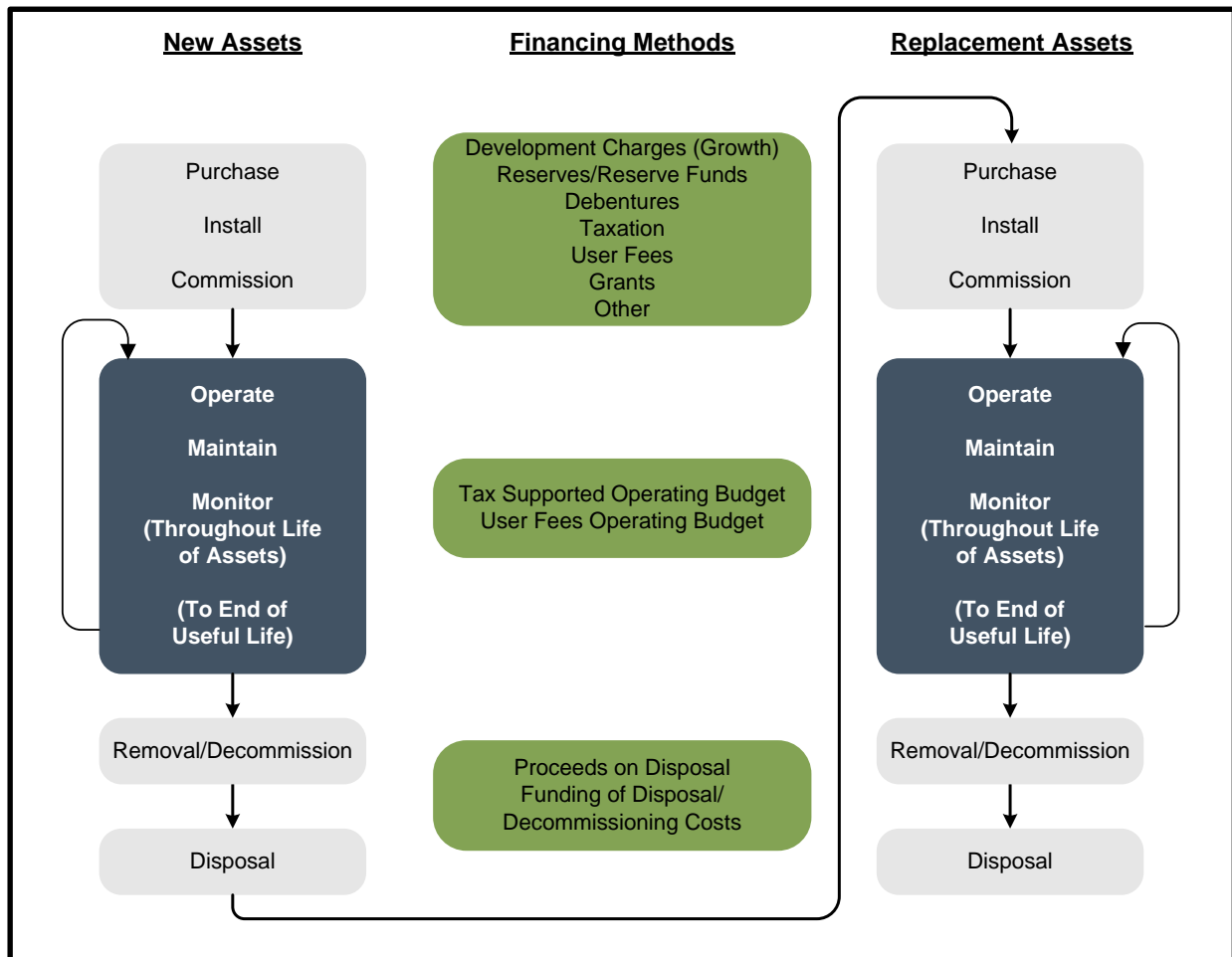
When the asset requires replacement, the sources of financing will be limited to reserves, debentures and contributions from the operating budget. At this point, the question is raised: "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset, 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.

Charging for the cost of using up an asset is the fundamental concept behind depreciation 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



depreciation. The same concept can be applied in a municipal setting to charge existing users for the asset's use and set those funds aside in a reserve to finance the cost of replacing the asset in the future.

Figure 3-2  
Financing Lifecycle Costs



### 3.1.3 Costing Methods

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 Depreciation 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 depreciation: the straight-line method and the reducing balance method (shown graphically in Figure 3-3).



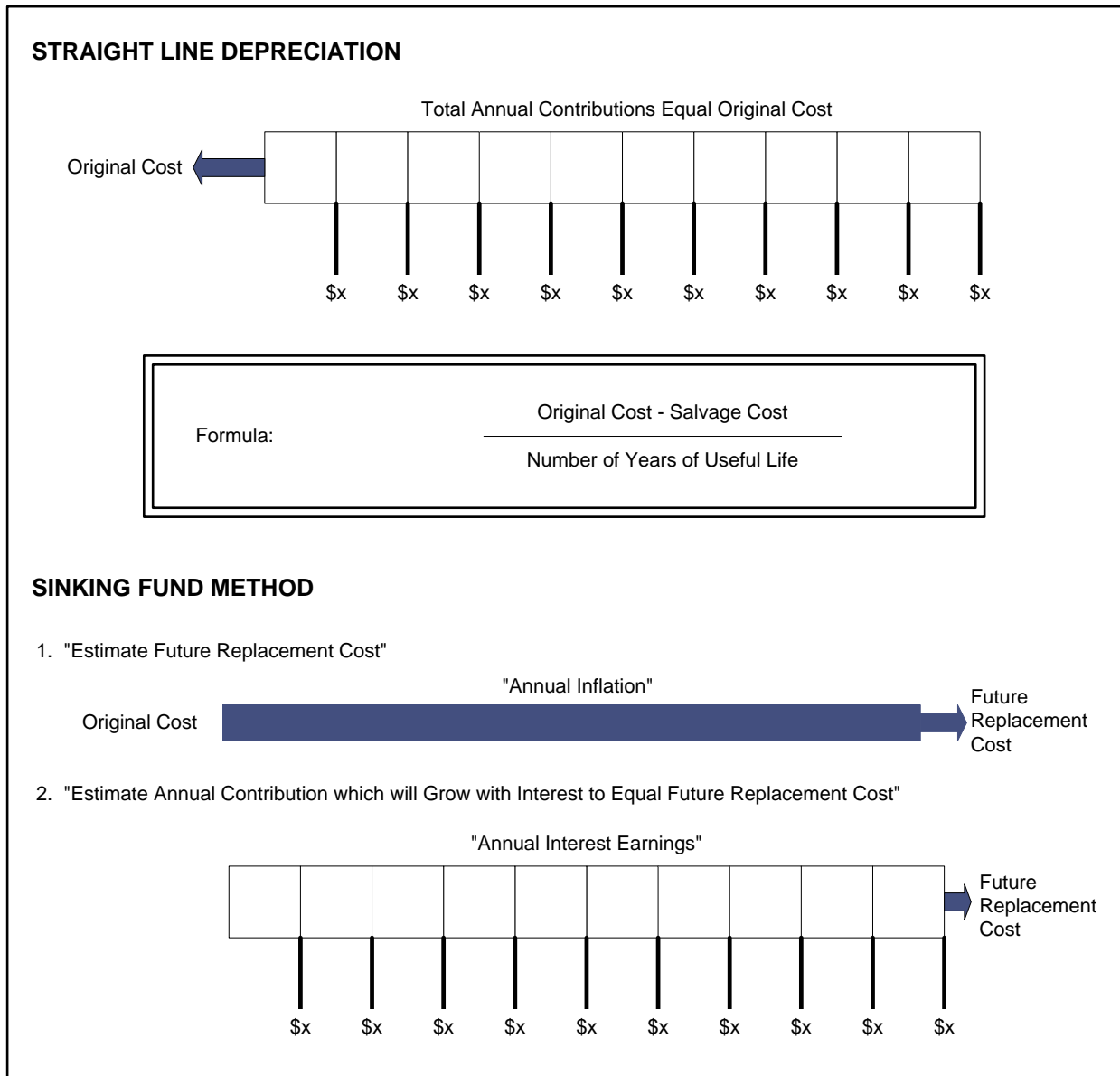
The straight-line method is calculated by taking the original cost of the asset, subtracting its estimated salvage value (estimated value of the asset at the time it is disposed of) and dividing this by the estimated number of years of useful life. The reducing balance method is calculated by utilizing 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 for forecasting purposes is the sinking fund method of lifecycle costing.



Figure 3-3



## 3.2 Impact on Budgets

Detailed water inventory information was obtained from the Town. The age of the Town's water system dates back to the mid 1950's. The water system has been expanded throughout the years. The total value of existing water infrastructure is \$38.01 million.



The detailed water inventories are provided in Appendix A. As well, the lifecycle “sinking fund” contribution amounts for each piece of infrastructure have also been included. These calculations determine the level of investment the Town may wish to consider as part of its budgeting practices. This information is summarized in Figure 3-4.

Figure 3-4  
Town of Erin  
Summary of Water Infrastructure

Area	Total Replacement Value	Suggested amount to be included in 10-year forecast based on estimated life	Amount included in 10-year forecast (Excluding Studies)	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement
<b>Water</b>					
Water Facilities	10,949,650	5,005,890		5,943,760	508,860
Watermains	26,233,410	9,309,740	4,872,500	16,923,670	547,608
Water Vehicles	194,670	194,670		-	-
Water Machinery & Equipment	631,110	20,530		610,580	42,604
<b>Total Water</b>	<b>38,008,840</b>	<b>14,530,830</b>	<b>4,872,500</b>	<b>23,478,010</b>	<b>1,099,073</b>

Investment per customer is \$25,664 for water

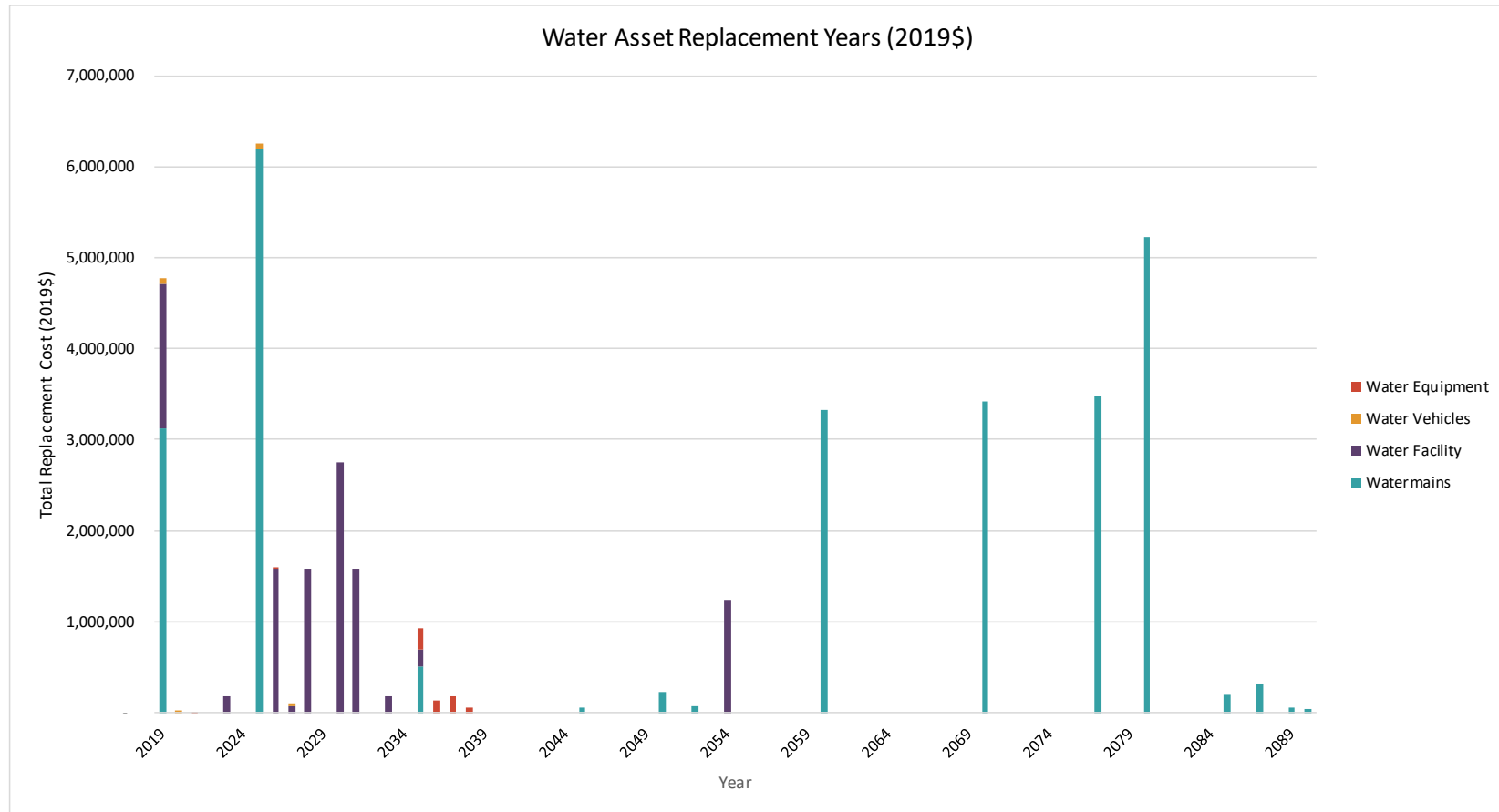
With respect to lifecycle costing contained in the Appendix, the following information was taken into consideration:

- approximate age;
- material type;
- main lengths;
- diameter of the mains;
- estimated useful life; and
- estimated replacement costs.

Summary of the water assets are shown on Figure 3-5. These figures show when the assets are coming due and the cost of replacement in 2019 dollars.



Figure 3-5  
Town of Erin  
Summary of Erin Water Infrastructure Replacement Years (2019 \$)





# Chapter 4

## Capital Cost Financing Options







## 4. Capital Cost Financing Options

### 4.1 Summary of Capital Cost Financing Alternatives

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Historically, the powers that municipalities had to raise alternative revenues to taxation to fund capital services have been restrictive. Over the past decade, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g. Bill 26 introduced in 1996 to provide for expanded powers for imposing fees and charges), while others appear to restrict them (Bill 98 in 1997 providing amendments to the D.C.A.).

The Province passed a new *Municipal Act* which came into force on January 1, 2003. Part XII of the Act and O.Reg. 584/06 govern a municipality's ability to impose fees and charges. In contrast to the previous *Municipal Act*, this Act provides municipalities with broadly defined powers and does not differentiate between fees for operating and capital purposes. It is anticipated that the powers to recover capital costs under the previous *Municipal Act* will continue within the new Statutes and Regulations, as indicated by s.9(2) and s.452 of the new *Municipal Act*.

Under s.484 of *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*. To this end, on December 20, 2002, O.Reg. 390/02 was filed, which allowed for the *Local Improvement Act* to be deemed to remain in force until April 1, 2003. O.Reg. 119/03 was enacted on April 19, 2003, which restored many of the previous *Local Improvement Act* provisions; however, the authority is now provided under the *Municipal Act*.

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



## Recovery Methods

- *Development Charges Act, 1997*
- *Municipal Act*
  - Fees and Charges
  - Sewer and Water Area Charges
  - Connection Fees
  - Local Improvements

## Section Reference

4.2  
4.3

## 4.2 Development Charges Act, 1997

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In November 1996, the Ontario Government introduced Bill 98, a new *Development Charges Act*. 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. Generally, the Act provided the following changes to the former Act:

- Replace those sections of the 1989 Act that govern municipal development charges;
- Limit services which can be financed from development charges, specifically excluding parkland acquisition, administration buildings, and cultural, entertainment, tourism, solid waste management and hospital facilities;
- Ensure that the level of service used in the calculation of capital costs will not exceed the average level of service over the previous decade. Level of service is to be measured from both a quality and quantity perspective;
- Provide that uncommitted excess capacity available in existing municipal facilities and benefits to existing residents are removed from the calculation of the charge;
- Ensure that the development charge revenues collected by municipalities are spent only on those capital costs identified in the calculation of the development charge;
- Require municipalities to contribute funds (e.g. taxes, user charges or other non-development charge revenues) to the financing of certain projects primarily



funded from development charges. The municipal contribution is 10 percent for services such as recreation, parkland development, libraries, etc.;

- Permit (but apparently not require) municipalities to grant developers credits for the direct provision of services identified in the development charge calculation and, when credits are granted, require the municipality to reimburse the developer for the costs the municipality would have incurred if the project had been financed from the development charge reserve fund;
- Set out provisions for front-end financing capital projects (limited to essential services) required to service new development; and
- Set out provisions for appeals and complaints.

In late 2015, the Province approved further amendments to the D.C.A. With respect to water and wastewater, the only changes are for the municipality to provide an asset management calculation for the growth-related works and for the Council to consider (but not necessarily approve) area-specific rates. In May of 2019, the Province introduced additional amendments to the D.C.A. through Bill 108, however, the amendments only affect water and wastewater services related to the time of determination of the charges and the timing for payment for certain types of developments.

### 4.3 Municipal Act

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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 Local Planning Appeal Tribunal (L.P.A.T., formerly known as the O.M.B.).



Section 221 of the previous *Municipal Act* permitted municipalities to impose charges, by by-law, on owners or occupants of land who would or might derive benefit from the construction of sewage (storm and sanitary) or water works being authorized (in a specific benefit area). For a by-law imposed under this section of the previous Act:

- A variety of different means could be used to establish the rate and recovery of the costs and 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 with respect to costs of major capital works, even though an immediate benefit was not enjoyed;
- Non-abutting owners could be charged;
- Recovery was authorized against existing works, where a new water or sewer main 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;
- Repayment was secured; and
- LPAT approval was not required.

While under the new *Municipal Act* no provisions are provided specific to the previous s.221, the intent to allow capital cost recovery through fees and charges is embraced within s.391. The new *Municipal Act* also maintains the ability of municipalities to impose capital charges for water and sewer services on landowners not receiving an immediate benefit from the works. Under s.391(2) of the Act, "a fee or charge imposed under subsection (1) for capital costs related to sewage or water services or activities may be imposed on persons not receiving an immediate benefit from the services or activities but who will receive a benefit at some later point in time." Also, capital charges imposed under s.391 are not appealable to the LPAT on the grounds that the charges are "unfair or unjust."

Section 222 of the previous *Municipal Act* permitted municipalities to pass a by-law requiring buildings to connect to the municipality's sewer and water systems, charging the owner for the cost of constructing services from the mains to the property line. Under the new *Municipal Act*, this power still exists under Part II, General Municipal Powers (s.9 (3) b of the *Municipal Act*). Enforcement and penalties for this use of power are contained in s.427 (1) of the *Municipal Act*.



Under the previous *Local Improvement Act*:

- A variety of different types of works could be undertaken, such as watermain, 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 LPAT, 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, O.Reg. 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 Historical Grant Funding Availability

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### Federal Infrastructure Funding

#### Phase 1 (April 1, 2016 to March 31, 2018)

Funding was provided by the Government of Canada to expressly help municipalities with repair and rehabilitation projects. Funding was mainly provided through the Clean Water and Wastewater Fund (C.W.W.F.) and Public Transit Infrastructure Fund (P.T.I.F.) in Federal Phase 1 projects. The C.W.W.F. was announced in Ontario on September 15, 2016. The Fund is \$1.1 billion for water, wastewater, and storm water systems in Ontario. The federal government provided \$569 million and Ontario and municipal governments provided \$275 million each.

Over 1,300 water, wastewater, and storm water projects have been approved in Ontario through the C.W.W.F. In Ontario, P.T.I.F. accounted for nearly \$1.5 billion of the national total of \$3.4 billion. The program was allocated by ridership numbers from the Canadian Urban Transit Association. The Association of Municipalities of Ontario (A.M.O.) understands that \$1 billion of Ontario's share has been approved.



## Phase 2: Next Steps

The federal government announced Phase 2 of its infrastructure funding plan with a total of \$180 billion spent over 11 years. In addition to the balance of funding for previous green, social, and public transit infrastructure funds (\$20 billion each, including Phase 1), the government has added \$10.1 billion for trade and transportation infrastructure and \$2 billion for rural and northern communities. This funding must be implemented by agreements with each Province and Territory.

In Phase 2, Ontario will be eligible for \$11.8 billion including \$8.3 billion for transit, \$2.8 billion for green infrastructure, \$407 million for community, culture and recreation and \$250 million for rural and northern communities.

## Federal Gas Tax

The federal Gas Tax is a permanent source of funding provided up front, twice-a-year, to Provinces and Territories, who in turn flow this funding to their municipalities to support local infrastructure priorities. Municipalities can pool, bank and borrow against this funding, providing significant financial flexibility. Every year, the federal Gas Tax provides over \$2 billion and supports approximately 2,500 projects in communities across Canada. Each municipality selects how best to direct the funds with the flexibility provided to make strategic investments across 18 different project categories, which include other water and wastewater servicing.

## Ontario Government

The Province has taken steps to increase municipal infrastructure funding. The Ontario Community Infrastructure Fund (O.C.I.F.) was increased in 2016 with formula-based support growing to \$200 million, and application funding growing to \$100 million annually by 2018/2019. As well, \$15 million annually will go to the new Connecting Links program to help pay for the construction and repair costs of municipal roads that connect communities to provincial highways. This is on top of the Building Ontario Up investment of \$130 billion in public infrastructure over 10 years starting in 2015.



## 4.5 Reserves/Reserve Funds

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The Town has established reserves and reserve funds for water costs. The following table summarizes the water reserves utilized in this analysis and their respective balances at December 31, 2018:

### Town of Erin Reserve Summary

Reserves and Reserve Funds	Dec. 31 2018
<b>Water</b>	
Capital Reserve Fund	125,746
Development Charges Reserve Fund	215,992
Lifecycle Reserve	2,482,927

The Town has indicated that the lifecycle reserves will be the primary source of funds to be used towards the capital forecast. Therefore, the capital reserve will be fully utilized in 2019 and not be used going forward.

Based on the low, medium, and high growth scenarios, the level of funds contributed to the lifecycle reserves vary. The following figures present the amount of investment towards the lifecycle reserve, as well as the amounts being transferred to the capital program (as presented in Table 2-1) and summarized later in section 4.8 of this report.



Figure 4-1  
Summary of Lifecycle Reserve Continuity – Low Growth Scenario

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	2,482,927	2,712,621	2,903,188	3,226,759	3,564,360	2,879,397	3,312,674	3,800,666	2,935,217	3,476,317	4,030,882
Transfer from Operating	567,748	443,567	475,571	509,601	543,037	569,997	596,872	626,591	656,300	686,006	718,440
Transfer to Capital	338,054	253,000	152,000	172,000	1,228,000	136,720	108,880	1,492,040	115,200	131,440	1,801,600
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>2,712,621</b>	<b>2,903,188</b>	<b>3,226,759</b>	<b>3,564,360</b>	<b>2,879,397</b>	<b>3,312,674</b>	<b>3,800,666</b>	<b>2,935,217</b>	<b>3,476,317</b>	<b>4,030,882</b>	<b>2,947,723</b>

Figure 4-2  
Summary of Lifecycle Reserve Continuity – Medium Growth Scenario

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	2,482,927	2,712,621	2,801,239	3,029,843	3,279,994	2,515,560	3,001,819	3,570,601	2,833,223	3,578,215	4,442,317
Transfer from Operating	567,748	447,938	489,084	532,791	576,447	614,258	668,782	745,622	850,992	986,102	1,130,412
Transfer to Capital	338,054	359,320	260,480	282,640	1,340,880	128,000	100,000	1,483,000	106,000	122,000	1,792,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>2,712,621</b>	<b>2,801,239</b>	<b>3,029,843</b>	<b>3,279,994</b>	<b>2,515,560</b>	<b>3,001,819</b>	<b>3,570,601</b>	<b>2,833,223</b>	<b>3,578,215</b>	<b>4,442,317</b>	<b>3,780,728</b>

Figure 4-3  
Summary of Lifecycle Reserve Continuity – High Growth Scenario

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	2,482,927	2,712,621	2,408,759	2,237,043	2,078,874	1,033,508	1,783,861	2,900,190	2,995,915	4,855,403	7,109,382
Transfer from Operating	567,748	447,938	489,084	532,791	711,994	878,353	1,216,329	1,578,725	1,965,488	2,375,980	2,812,935
Transfer to Capital	338,054	751,800	660,800	690,960	1,757,360	128,000	100,000	1,483,000	106,000	122,000	1,792,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>2,712,621</b>	<b>2,408,759</b>	<b>2,237,043</b>	<b>2,078,874</b>	<b>1,033,508</b>	<b>1,783,861</b>	<b>2,900,190</b>	<b>2,995,915</b>	<b>4,855,403</b>	<b>7,109,382</b>	<b>8,130,317</b>





## 4.6 Debenture Financing

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

The Ministry of Municipal Affairs and Housing regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act*. Ontario Regulation 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 Town of Erin's 2018 calculation on Debt Capacity is shown on Schedule 81 of the Municipality's 2018 recent Financial Information Return (F.I.R.). This calculates to the Town's estimated annual repayment limit of approximately \$2.5 million. Based on a 20-year term at 4% interest, the Town undertake debt financing in the amount of \$34.2 million.

## 4.7 Infrastructure Ontario

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Infrastructure Ontario (I.O.) is an arms-length crown corporation, which has been set up as a tool to offer low-cost and longer-term financing to assist municipalities in renewing their infrastructure (this corporation has merged the former O.S.I.F.A. into its operations). I.O. combines the infrastructure renewal needs of municipalities into an infrastructure investment "pool." I.O. will raise investment capital to finance loans to the public sector by selling a new investment product called Infrastructure Renewal Bonds to individual and institutional investors.

I.O. provides access to infrastructure capital that would not otherwise be available to smaller borrowers. Larger borrowers receive a longer term on their loans than they could obtain in the financial markets, and can also benefit from significant savings on transaction costs such as legal costs and underwriting commissions. Under the I.O. approach, all borrowers receive the same low interest rate. I.O. will enter into a financial agreement with each municipality subject to technical and credit reviews, for a loan up to the maximum amount of the loan request.



The first round of the former O.S.I.F.A.'s 2004/2005 infrastructure renewal program was focused on municipal priorities of clean water infrastructure, sewage treatment facilities, municipal roads and bridges, public transit and waste management infrastructure. The focus of the program was expanded in 2005/2006 somewhat to include:

- clean water infrastructure;
- sewage infrastructure;
- waste management infrastructure;
- municipal roads and bridges;
- public transit;
- municipal long-term care homes;
- renewal of municipal social housing and culture; and
- tourism and recreation infrastructure.

With the merging of O.S.I.F.A. and I.O., the program was broadened in late 2006 to also include municipal administrative buildings, local police and fire stations, emergency vehicles and equipment, ferries, docks and municipal airports.

To be eligible to receive these loans, municipalities must submit a formal application along with pertinent financial information. Allotments are prioritized and distributed based upon the Province's assessment of need.

The analysis provided herein assumes that the Town will not require debt financing for the capital projects identified.

## **4.8 Recommended Capital Financing Approach**

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As mentioned earlier, the capital program is being presented to show the variations should growth within the Town materialize in a different magnitude. The various funding alternatives provided in this section coincide with the low, medium, and high growth capital expenditure (inflated \$) scenarios provided in Chapter 2 and are recommended for further consideration by the Town of Erin.

The capital program related to D.C.s have been assumed to be funded from the D.C. reserve fund and do not affect the calculations provided herein.

The following shows a summary of the capital financing for each growth scenario:

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Description	Low Scenario 2019-2029	Medium Scenario 2019-2029	High Scenario 2019-2029
<b>Capital Financing</b>			
Provincial/Federal Grants	-	-	-
Development Charges Reserve Fund	1,416,020	5,825,580	24,427,980
Non-Growth Related Debenture Requirements	-	-	-
Growth Related Debenture Requirements	-	-	-
Operating Contributions	-	-	-
Lifecycle Reserve Fund	5,928,934	6,312,374	7,929,974
Water Reserve	125,746	125,746	125,746
<b>Total Capital Expenditures</b>	<b>7,470,700</b>	<b>12,263,700</b>	<b>32,483,700</b>

Tables 4-1, 4-2 and 4-3 provide for the full capital expenditure and funding program by year for the low, medium, and high growth scenarios, respectively.





Table 4-1  
Capital Budget Forecast (inflated \$) – Low Growth Scenario

Description	Budget 2019	Total	Forecast											
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029		
<b>Capital Expenditures</b>														
Building and grounds minor repairs	15,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Upgrades	-	126,000	31,000	31,000	32,000	32,000	-	-	-	-	-	-	-	-
Other Capital Replacement	-	4,167,000	-	-	-	1,082,000	-	-	-	1,378,000	-	-	-	1,707,000
<b>Erin Well # 7</b>														
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-
upgraded chlorine gas scale	-	3,000	3,000	-	-	-	-	-	-	-	-	-	-	-
new spare gas chlorinator	-	17,000	-	-	5,000	-	-	-	6,000	-	-	-	6,000	-
gas chlorinator rebuilds	11,500	24,000	-	12,000	-	12,000	-	-	-	-	-	-	-	-
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party	-	3,000	-	-	3,000	-	-	-	-	-	-	-	-	-
well inspection / video well casing	-	12,000	4,000	-	-	-	-	4,000	-	-	-	-	4,000	-
Gas alarm system tested . Portable meter tested - third party	-	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
upgrade SCBA, have operators fit tested	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-
Pull pump and check foot valve	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-
remove old booster pump and relabel MCC panel	-	2,000	2,000	-	-	-	-	-	-	-	-	-	-	-
<b>Erin Well # 8</b>														
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-	-
gas chlorinator rebuilds	11,500	24,000	-	12,000	-	12,000	-	-	-	-	-	-	-	-
new spare gas chlorinator	-	17,000	-	-	5,000	-	6,000	6,000	-	-	-	-	-	-
upgrade SCBA, have operators fit tested	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-
Gas alarm system tested .	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
install ladder on outside of reservoir	-	8,000	8,000	-	-	-	-	-	-	-	-	-	-	-
Items from recommendations	-	3,000	1,000	1,000	1,000	-	-	-	-	-	-	-	-	-
Trolley/Crane - lifting device inspection - third party	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Water Tower</b>														
inspection of all lifting devices - third party	-	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
video tower internal inspection	-	24,000	-	8,000	-	-	-	8,000	8,000	-	-	-	-	-
Altitude valve inspection - third party	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Booster Station</b>														
PRV rebuilds and replacements	-	30,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
<b>Hillsburgh and Erin Distribution</b>														
Meter replacement program	11,000	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	34,000	35,000	36,000	37,000	37,000
Fire Hydrant rehabilitation/replacement program	17,000	190,000	17,000	18,000	18,000	18,000	19,000	19,000	20,000	20,000	20,000	20,000	21,000	21,000
Distribution Valve exercising program/ hydrant fire flow testing	-	71,000	20,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Barbour St. Blow Off	-	2,000	2,000	-	-	-	-	-	-	-	-	-	-	-
<b>Hillsburgh Height's</b>														
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-
new chemical Hypo metering pump	-	11,000	-	3,000	-	-	4,000	-	-	-	4,000	-	-	-
new chemical Ferric metering pump	-	11,000	-	3,000	-	-	4,000	-	-	-	4,000	-	-	-
rebuilds of chemical pumps/injectors/lines	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
VFD's for high lift pumps	-	12,000	12,000	-	-	-	-	-	-	-	-	-	-	-
inspection of pressure relief valve	-	3,000	-	-	1,000	-	-	1,000	-	-	-	-	1,000	-
Lead Filter Replacement	-	84,000	8,000	8,000	8,000	8,000	8,000	8,000	9,000	9,000	9,000	9,000	9,000	9,000
Items from recommendations	-	12,000	4,000	4,000	4,000	-	-	-	-	-	-	-	-	-
<b>Glendevon</b>														
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-
rebuilds of chemical pumps/injectors/lines	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
VFD's for high lift pumps	-	12,000	12,000	-	-	-	-	-	-	-	-	-	-	-
Miltonics level sensor for Reservoir/ SCADA hook up	-	10,000	10,000	-	-	-	-	-	-	-	-	-	-	-
Items from recommendations	-	12,000	4,000	4,000	4,000	-	-	-	-	-	-	-	-	-
<b>Studies:</b>														
Water Rate Study	13,900	31,000	-	-	-	15,000	-	-	-	-	16,000	-	-	-
<b>Growth Related:</b>														
New Water Supply (Erin and Hillsburgh)	-	686,000	-	-	-	-	109,000	111,000	113,000	115,000	118,000	120,000	120,000	120,000
Water Equipment	43,800	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Environmental Assessment	1,125,000	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital Expenditures</b>	<b>1,248,700</b>	<b>6,222,000</b>	<b>253,000</b>	<b>152,000</b>	<b>172,000</b>	<b>1,228,000</b>	<b>237,000</b>	<b>211,000</b>	<b>1,596,000</b>	<b>221,000</b>	<b>240,000</b>	<b>1,912,000</b>	<b>1,912,000</b>	<b>1,912,000</b>
<b>Capital Financing</b>														
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	784,900	631,120	-	-	-	-	100,280	102,120	103,960	105,800	108,560	110,400	110,400	110,400
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	338,054	5,590,880	253,000	152,000	172,000	1,228,000	136,720	108,880	1,492,040	115,200	131,440	1,801,600	1,801,600	
Water Reserve	125,746	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital Financing</b>	<b>1,248,700</b>	<b>6,222,000</b>	<b>253,000</b>	<b>152,000</b>	<b>172,000</b>	<b>1,228,000</b>	<b>237,000</b>	<b>211,000</b>	<b>1,596,000</b>	<b>221,000</b>	<b>240,000</b>	<b>1,912,000</b>	<b>1,912,000</b>	<b>1,912,000</b>





Table 4-2  
Capital Budget Forecast (inflated \$) – Medium Growth Scenario

Description	Budget 2019	Total	Forecast										
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
<b>Capital Expenditures</b>													
Building and grounds minor repairs	15,000	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Upgrades	-	126,000	31,000	31,000	32,000	32,000	-	-	-	-	-	-	-
Other Capital Replacement	-	4,167,000	-	-	-	1,082,000	-	-	1,378,000	-	-	-	1,707,000
<b>Erin Well # 7</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	-	7,000	-
upgraded chlorine gas scale	-	3,000	3,000	-	-	-	-	-	-	-	-	-	-
new spare gas chlorinator	-	17,000	-	-	5,000	-	-	6,000	-	-	-	6,000	-
gas chlorinator rebuilds	11,500	24,000	-	12,000	-	12,000	-	-	-	-	-	-	-
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party	-	3,000	-	-	3,000	-	-	-	-	-	-	-	-
well inspection / video well casing	-	12,000	4,000	-	-	-	4,000	-	-	-	-	4,000	-
Gas alarm system tested . Portable meter tested - third party	-	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
upgrade SCBA, have operators fit tested	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
Pull pump and check foot valve	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
remove old booster pump and relabel MCC panel	-	2,000	2,000	-	-	-	-	-	-	-	-	-	-
<b>Erin Well # 8</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	-	7,000	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-
gas chlorinator rebuilds	11,500	24,000	-	12,000	-	12,000	-	-	-	-	-	-	-
new spare gas chlorinator	-	17,000	-	-	5,000	-	6,000	6,000	-	-	-	-	-
upgrade SCBA, have operators fit tested	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
Gas alarm system tested .	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
install ladder on outside of reservoir	-	8,000	8,000	-	-	-	-	-	-	-	-	-	-
Items from recommendations	-	3,000	1,000	1,000	1,000	-	-	-	-	-	-	-	-
Trolley/Crane - lifting device inspection - third party	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Water Tower</b>													
inspection of all lifting devices - third party	-	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
video tower internal inspection	-	24,000	-	8,000	-	-	8,000	8,000	-	-	-	-	-
Altitude valve inspection - third party	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Booster Station</b>													
PRV rebuilds and replacements	-	30,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
<b>Hillsburgh and Erin Distribution</b>													
Meter replacement program	11,000	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	34,000	35,000	36,000	37,000
Fire Hydrant rehabilitation/replacement program	17,000	190,000	17,000	18,000	18,000	18,000	19,000	19,000	20,000	20,000	20,000	20,000	21,000
Distribution Valve exercising program/ hydrant fire flow testing	-	71,000	20,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Barbour St. Blow Off	-	2,000	2,000	-	-	-	-	-	-	-	-	-	-
<b>Hillsburgh Height's</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	-	7,000	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
new chemical Hypo metering pump	-	11,000	-	3,000	-	-	4,000	-	-	-	4,000	-	-
new chemical Ferric metering pump	-	11,000	-	3,000	-	-	4,000	-	-	-	4,000	-	-
rebuilds of chemical pumps/ injectors/lines	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
VFD's for high lift pumps	-	12,000	12,000	-	-	-	-	-	-	-	-	-	-
inspection of pressure relief valve	-	3,000	-	-	1,000	-	-	1,000	-	-	-	1,000	-
Lead Filter Replacement	-	84,000	8,000	8,000	8,000	8,000	8,000	8,000	9,000	9,000	9,000	9,000	9,000
Items from recommendations	-	12,000	4,000	4,000	4,000	-	-	-	-	-	-	-	-
<b>Glendevon</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	-	7,000	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
rebuilds of chemical pumps/ injectors/lines	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
VFD's for high lift pumps	-	12,000	12,000	-	-	-	-	-	-	-	-	-	-
Miltonics level sensor for Reservoir/ SCADA hook up	-	10,000	10,000	-	-	-	-	-	-	-	-	-	-
Items from recommendations	-	12,000	4,000	4,000	4,000	-	-	-	-	-	-	-	-
<b>Studies:</b>													
Water Rate Study	13,900	31,000	-	-	-	15,000	-	-	-	-	16,000	-	-
<b>Growth Related:</b>													
New Water Supply (Erin and Hillsburgh)	-	5,479,000	1,329,000	1,356,000	1,383,000	1,411,000	-	-	-	-	-	-	-
Water Equipment	43,800	-	-	-	-	-	-	-	-	-	-	-	-
Water Environmental Assessment	1,125,000	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital Expenditures</b>	<b>1,248,700</b>	<b>11,015,000</b>	<b>1,582,000</b>	<b>1,508,000</b>	<b>1,555,000</b>	<b>2,639,000</b>	<b>128,000</b>	<b>100,000</b>	<b>1,483,000</b>	<b>106,000</b>	<b>122,000</b>	<b>1,792,000</b>	
<b>Capital Financing</b>													
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	784,900	5,040,680	1,222,680	1,247,520	1,272,360	1,298,120	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	338,054	5,974,320	359,320	260,480	282,640	1,340,880	128,000	100,000	1,483,000	106,000	122,000	1,792,000	
Water Reserve	125,746	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital Financing</b>	<b>1,248,700</b>	<b>11,015,000</b>	<b>1,582,000</b>	<b>1,508,000</b>	<b>1,555,000</b>	<b>2,639,000</b>	<b>128,000</b>	<b>100,000</b>	<b>1,483,000</b>	<b>106,000</b>	<b>122,000</b>	<b>1,792,000</b>	







Table 4-3  
Capital Budget Forecast (inflated \$) – High Growth Scenario

Description	Budget 2019	Total	Forecast										
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
<b>Capital Expenditures</b>													
Building and grounds minor repairs	15,000	-	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Upgrades	-	126,000	31,000	31,000	32,000	32,000	-	-	-	-	-	-	-
Other Capital Replacement	-	4,167,000	-	-	-	1,082,000	-	-	1,378,000	-	-	-	1,707,000
<b>Erin Well # 7</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-	-
upgraded chlorine gas scale	-	3,000	3,000	-	-	-	-	-	-	-	-	-	-
new spare gas chlorinator	-	17,000	-	-	5,000	-	-	6,000	-	-	6,000	-	-
gas chlorinator rebuilds	11,500	24,000	-	12,000	-	12,000	-	-	-	-	-	-	-
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party	-	3,000	-	-	3,000	-	-	-	-	-	-	-	-
well inspection / video well casing	-	12,000	4,000	-	-	-	4,000	-	-	-	4,000	-	-
Gas alarm system tested - Portable meter tested - third party	-	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
upgrade SCBA, have operators fit tested	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
Pull pump and check foot valve	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
remove old booster pump and relabel MCC panel	-	2,000	2,000	-	-	-	-	-	-	-	-	-	-
<b>Erin Well # 8</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-
gas chlorinator rebuilds	11,500	24,000	-	12,000	-	12,000	-	-	-	-	-	-	-
new spare gas chlorinator	-	17,000	-	-	5,000	-	6,000	6,000	-	-	-	-	-
upgrade SCBA, have operators fit tested	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
Gas alarm system tested	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
install ladder on outside of reservoir	-	8,000	8,000	-	-	-	-	-	-	-	-	-	-
Items from recommendations	-	3,000	1,000	1,000	1,000	-	-	-	-	-	-	-	-
Trolley/Crane - lifting device inspection - third party	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Water Tower</b>													
inspection of all lifting devices - third party	-	20,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
video tower internal inspection	-	24,000	-	8,000	-	-	8,000	8,000	-	-	-	-	-
Altitude valve inspection - third party	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Booster Station</b>													
PRV rebuilds and replacements	-	30,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
<b>Hillsburgh and Erin Distribution</b>													
Meter replacement program	11,000	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	34,000	35,000	36,000	37,000
Fire Hydrant rehabilitation/replacement program	17,000	190,000	17,000	18,000	18,000	18,000	19,000	19,000	20,000	20,000	20,000	20,000	21,000
Distribution Valve exercising program/ hydrant fire flow testing	-	71,000	20,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Barbour St. Blow Off	-	2,000	2,000	-	-	-	-	-	-	-	-	-	-
<b>Hillsburgh Height's</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
new chemical Hypo metering pump	-	11,000	-	3,000	-	-	4,000	-	-	4,000	-	-	-
new chemical Ferric metering pump	-	11,000	-	3,000	-	-	4,000	-	-	4,000	-	-	-
rebuilds of chemical pumps/ injectors/lines	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
VFD's for high lift pumps	-	12,000	12,000	-	-	-	-	-	-	-	-	-	-
inspection of pressure relief valve	-	3,000	-	-	1,000	-	-	1,000	-	-	-	1,000	-
Lead Filter Replacement	-	84,000	8,000	8,000	8,000	8,000	8,000	8,000	9,000	9,000	9,000	9,000	9,000
Items from recommendations	-	12,000	4,000	4,000	4,000	-	-	-	-	-	-	-	-
<b>Glendevon</b>													
Clear well Video inspection & Cleaning	-	31,000	6,000	-	6,000	-	6,000	-	6,000	-	7,000	-	-
well inspection / video well casing	-	12,000	6,000	-	6,000	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up	-	5,000	5,000	-	-	-	-	-	-	-	-	-	-
rebuilds of chemical pumps/ injectors/lines	-	10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
VFD's for high lift pumps	-	12,000	12,000	-	-	-	-	-	-	-	-	-	-
Milltonics level sensor for Reservoir/ SCADA hook up	-	10,000	10,000	-	-	-	-	-	-	-	-	-	-
Items from recommendations	-	12,000	4,000	4,000	4,000	-	-	-	-	-	-	-	-
<b>Studies:</b>													
Water Rate Study	13,900	31,000	-	-	-	15,000	-	-	-	16,000	-	-	-
<b>Growth Related:</b>													
New Water Supply (Erin and Hillsburgh)	-	25,699,000	6,235,000	6,360,000	6,487,000	6,617,000	-	-	-	-	-	-	-
Water Equipment	43,800	-	-	-	-	-	-	-	-	-	-	-	-
Water Environmental Assessment	1,125,000	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital Expenditures</b>	<b>1,248,700</b>	<b>31,235,000</b>	<b>6,488,000</b>	<b>6,512,000</b>	<b>6,659,000</b>	<b>7,845,000</b>	<b>128,000</b>	<b>100,000</b>	<b>1,483,000</b>	<b>106,000</b>	<b>122,000</b>	<b>1,792,000</b>	
<b>Capital Financing</b>													
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	784,900	23,643,080	5,736,200	5,851,200	5,968,040	6,087,640	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	338,054	7,591,920	751,800	660,800	690,960	1,757,360	128,000	100,000	1,483,000	106,000	122,000	1,792,000	
Water Reserve	125,746	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Capital Financing</b>	<b>1,248,700</b>	<b>31,235,000</b>	<b>6,488,000</b>	<b>6,512,000</b>	<b>6,659,000</b>	<b>7,845,000</b>	<b>128,000</b>	<b>100,000</b>	<b>1,483,000</b>	<b>106,000</b>	<b>122,000</b>	<b>1,792,000</b>	





# Chapter 5

## Overview of Expenditures and Revenues





## 5. Overview of Expenditures and Revenues

### 5.1 Water Operating Expenditures

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In this report, the forecast water budget figures (2020 to 2029) are based on the 2019 operating budgets. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments. Most of the expenditures have been assumed to increase at a rate of 2.0% annually. Operating expenditures that involve utilities, fuels, chemicals and hydro have been inflated by 5.0% annually. With respect to the three growth scenarios, the operating expenditures only differs in the high growth scenario (low and medium growth have the same forecasted operating expenditures). For the high growth scenario, the operating costs are increased by 20% in 2024 to recognize the added requirements to service the large increase in customers, while maintaining inflationary increases in subsequent years.

In addition to the operating expenditures, contributions to the lifecycle reserves have been made to with varying levels depending on the growth scenario. The lifecycle reserves are used by the Town to fund its capital works. As mentioned earlier, the different growth scenarios are presented to assess the various levels of the lifecycle reserves in order to assess the financial affordability of the Town towards undertaking the replacement of existing infrastructure (e.g. watermains).

### 5.2 Water Operating Revenues

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The Town generates fixed operating revenues from base charges, flat rates, and other miscellaneous revenue to help contribute towards operating expenditures. The base charge revenues differ across the three growth scenarios as the number of forecasts customers vary. The miscellaneous revenues may include water connection charges and penalties, which have been assumed to be constant over the forecast period.

Note that the operating revenue presented herein represents the fixed component of the total operating revenue. The shortfall of the fixed revenue from the operating expenditures is what is used to calculate the recovery from the water volume rates, which is presented in Chapter 7. Tables 5-1, 5-2, and 5-3 provides for the operating budget for the Town using the low, medium, and high growth scenarios, respectively.



Table 5-1  
Water Operating Budget Forecast (inflated \$) – Low Growth Scenario

Description	Budget	Forecast										
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
<b>Expenditures</b>												
<u>Operating Costs</u>												
Labour Costs	15,300	51,100	51,100	51,100	52,100	53,100	54,200	55,300	56,400	57,500	58,700	
Supplies & Material	-	-	-	-	-	-	-	-	-	-	-	
Consulting	27,000	-	-	-	-	-	-	-	-	-	-	
Service Agreements	656,000	645,300	654,900	664,700	674,600	688,100	701,900	715,900	730,200	744,800	759,700	
General Maintenance	6,500	15,200	16,929	16,929	16,929	17,300	17,600	18,000	18,400	18,800	19,200	
Telephone & Mobile	2,700	700	700	700	700	700	700	700	700	700	700	
Hydro	115,600	115,600	115,600	115,600	115,600	121,400	127,500	133,900	140,600	147,600	155,000	
Natural Gas	-	-	-	-	-	-	-	-	-	-	-	
Equipment / Small Tools	-	-	-	-	-	-	-	-	-	-	-	
Vehicle Maintenance	-	-	-	-	-	-	-	-	-	-	-	
Other Expenses	-	4,500	4,500	4,500	4,500	4,600	4,700	4,800	4,900	5,000	5,100	
Insurance	-	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	
Debt Servicing	-	-	-	-	-	-	-	-	-	-	-	
Inter Dept Expenses	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	
<b>Sub Total Operating</b>	<b>828,100</b>	<b>851,900</b>	<b>863,229</b>	<b>873,029</b>	<b>883,929</b>	<b>904,700</b>	<b>926,100</b>	<b>948,100</b>	<b>970,700</b>	<b>993,900</b>	<b>1,017,900</b>	
<u>Capital-Related</u>												
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-	-	
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-	
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital Reserve	-	-	-	-	-	-	-	-	-	-	-	
Lifecycle Reserve Contribution (\$)	567,748	443,567	475,571	509,601	543,037	569,997	596,872	626,591	656,300	686,006	718,440	
<b>Sub Total Capital Related</b>	<b>567,748</b>	<b>443,567</b>	<b>475,571</b>	<b>509,601</b>	<b>543,037</b>	<b>569,997</b>	<b>596,872</b>	<b>626,591</b>	<b>656,300</b>	<b>686,006</b>	<b>718,440</b>	
<b>Total Expenditures</b>	<b>1,395,848</b>	<b>1,295,467</b>	<b>1,338,800</b>	<b>1,382,630</b>	<b>1,426,966</b>	<b>1,474,697</b>	<b>1,522,972</b>	<b>1,574,691</b>	<b>1,627,000</b>	<b>1,679,906</b>	<b>1,736,340</b>	
<b>Revenues</b>												
Base Charge	246,400	254,362	262,973	271,871	281,067	290,569	300,389	310,536	321,022	331,857	343,054	
Flat Rate	2,437	2,200	2,265	2,330	2,395	2,470	2,545	2,620	2,700	2,780	2,865	
Miscellaneous Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Operating Revenue</b>	<b>268,837</b>	<b>276,562</b>	<b>285,238</b>	<b>294,201</b>	<b>303,462</b>	<b>313,039</b>	<b>322,934</b>	<b>333,156</b>	<b>343,722</b>	<b>354,637</b>	<b>365,919</b>	
<b>Water Billing Recovery - To be Recovered from Volume Rates</b>	<b>1,127,011</b>	<b>1,018,904</b>	<b>1,053,562</b>	<b>1,088,429</b>	<b>1,123,504</b>	<b>1,161,657</b>	<b>1,200,038</b>	<b>1,241,535</b>	<b>1,283,278</b>	<b>1,325,268</b>	<b>1,370,421</b>	
<b>Total Revenues (Fixed + Volumes)</b>	<b>1,395,848</b>	<b>1,295,467</b>	<b>1,338,800</b>	<b>1,382,630</b>	<b>1,426,966</b>	<b>1,474,697</b>	<b>1,522,972</b>	<b>1,574,691</b>	<b>1,627,000</b>	<b>1,679,906</b>	<b>1,736,340</b>	



Table 5-2  
Water Operating Budget Forecast (inflated \$) – Medium Growth Scenario

Description	Budget	Forecast										
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
<b>Expenditures</b>												
<u>Operating Costs</u>												
Labour Costs	15,300	51,100	51,100	51,100	52,100	53,100	54,200	55,300	56,400	57,500	58,700	
Supplies & Material	-	-	-	-	-	-	-	-	-	-	-	
Consulting	27,000	-	-	-	-	-	-	-	-	-	-	
Service Agreements	656,000	645,300	654,900	664,700	674,600	688,100	701,900	715,900	730,200	744,800	759,700	
General Maintenance	6,500	15,200	16,929	16,929	16,929	17,300	17,600	18,000	18,400	18,800	19,200	
Telephone & Mobile	2,700	700	700	700	700	700	700	700	700	700	700	
Hydro	115,600	115,600	115,600	115,600	115,600	121,400	127,500	133,900	140,600	147,600	155,000	
Natural Gas	-	-	-	-	-	-	-	-	-	-	-	
Equipment / Small Tools	-	-	-	-	-	-	-	-	-	-	-	
Vehicle Maintenance	-	-	-	-	-	-	-	-	-	-	-	
Other Expenses	-	4,500	4,500	4,500	4,500	4,600	4,700	4,800	4,900	5,000	5,100	
Insurance	-	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	
Debt Servicing	-	-	-	-	-	-	-	-	-	-	-	
Inter Dept Expenses	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	
<b>Sub Total Operating</b>	<b>828,100</b>	<b>851,900</b>	<b>863,229</b>	<b>873,029</b>	<b>883,929</b>	<b>904,700</b>	<b>926,100</b>	<b>948,100</b>	<b>970,700</b>	<b>993,900</b>	<b>1,017,900</b>	
<u>Capital-Related</u>												
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-	-	
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-	
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital Reserve	-	-	-	-	-	-	-	-	-	-	-	
Lifecycle Reserve Contribution (\$)	567,748	447,938	489,084	532,791	576,447	614,258	668,782	745,622	850,992	986,102	1,130,412	
<b>Sub Total Capital Related</b>	<b>567,748</b>	<b>447,938</b>	<b>489,084</b>	<b>532,791</b>	<b>576,447</b>	<b>614,258</b>	<b>668,782</b>	<b>745,622</b>	<b>850,992</b>	<b>986,102</b>	<b>1,130,412</b>	
<b>Total Expenditures</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,460,376</b>	<b>1,518,958</b>	<b>1,594,882</b>	<b>1,693,722</b>	<b>1,821,692</b>	<b>1,980,002</b>	<b>2,148,312</b>	
<b>Revenues</b>												
Base Charge	246,400	255,314	265,912	276,916	288,342	300,203	316,046	336,429	363,366	397,159	432,652	
Flat Rate	2,437	2,200	2,265	2,330	2,395	2,470	2,545	2,620	2,700	2,780	2,865	
Miscellaneous Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Operating Revenue</b>	<b>268,837</b>	<b>277,514</b>	<b>288,177</b>	<b>299,246</b>	<b>310,737</b>	<b>322,673</b>	<b>338,591</b>	<b>359,049</b>	<b>386,066</b>	<b>419,939</b>	<b>455,517</b>	
<b>Water Billing Recovery - To be Recovered from Volume Rates</b>	<b>1,127,011</b>	<b>1,022,324</b>	<b>1,064,136</b>	<b>1,106,574</b>	<b>1,149,639</b>	<b>1,196,285</b>	<b>1,256,292</b>	<b>1,334,673</b>	<b>1,435,626</b>	<b>1,560,663</b>	<b>1,692,794</b>	
<b>Total Revenues (Fixed + Volumes)</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,460,376</b>	<b>1,518,958</b>	<b>1,594,882</b>	<b>1,693,722</b>	<b>1,821,692</b>	<b>1,980,002</b>	<b>2,148,312</b>	



Table 5-3  
Water Operating Budget Forecast (inflated \$) – High Growth Scenario

Description	Budget	Forecast										
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
<b>Expenditures</b>												
<b>Operating Costs</b>												
Labour Costs	15,300	51,100	51,100	51,100	52,100	62,500	63,800	65,100	66,400	67,700	69,100	
Supplies & Material	-	-	-	-	-	-	-	-	-	-	-	
Consulting	27,000	-	-	-	-	-	-	-	-	-	-	
Service Agreements	656,000	645,300	654,900	664,700	674,600	809,500	825,700	842,200	859,000	876,200	893,700	
General Maintenance	6,500	15,200	16,929	16,929	16,929	20,300	20,700	21,100	21,500	21,900	22,300	
Telephone & Mobile	2,700	700	700	700	700	800	800	800	800	800	800	
Hydro	115,600	115,600	115,600	115,600	115,600	138,700	145,600	152,900	160,500	168,500	176,900	
Natural Gas	-	-	-	-	-	-	-	-	-	-	-	
Equipment / Small Tools	-	-	-	-	-	-	-	-	-	-	-	
Vehicle Maintenance	-	-	-	-	-	-	-	-	-	-	-	
Other Expenses	-	4,500	4,500	4,500	4,500	5,400	5,500	5,600	5,700	5,800	5,900	
Insurance	-	14,500	14,500	14,500	14,500	17,400	17,400	17,400	17,400	17,400	17,400	
Debt Servicing	-	-	-	-	-	-	-	-	-	-	-	
Inter Dept Expenses	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000	
<b>Sub Total Operating</b>	<b>828,100</b>	<b>851,900</b>	<b>863,229</b>	<b>873,029</b>	<b>883,929</b>	<b>1,060,600</b>	<b>1,085,500</b>	<b>1,111,100</b>	<b>1,137,300</b>	<b>1,164,300</b>	<b>1,192,100</b>	
<b>Capital-Related</b>												
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-	-	
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-	
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-	
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital Reserve	-	-	-	-	-	-	-	-	-	-	-	
Lifecycle Reserve Contribution (\$)	567,748	447,938	489,084	532,791	711,994	878,353	1,216,329	1,578,725	1,965,488	2,375,980	2,812,935	
<b>Sub Total Capital Related</b>	<b>567,748</b>	<b>447,938</b>	<b>489,084</b>	<b>532,791</b>	<b>711,994</b>	<b>878,353</b>	<b>1,216,329</b>	<b>1,578,725</b>	<b>1,965,488</b>	<b>2,375,980</b>	<b>2,812,935</b>	
<b>Total Expenditures</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,595,923</b>	<b>1,938,953</b>	<b>2,301,829</b>	<b>2,689,825</b>	<b>3,102,788</b>	<b>3,540,280</b>	<b>4,005,035</b>	
<b>Revenues</b>												
Base Charge	246,400	255,314	265,912	276,916	317,858	391,622	469,967	553,114	641,997	736,679	836,465	
Fiat Rate	2,437	2,200	2,265	2,330	2,395	2,470	2,545	2,620	2,700	2,780	2,865	
Miscellaneous Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Operating Revenue</b>	<b>268,837</b>	<b>277,514</b>	<b>288,177</b>	<b>299,246</b>	<b>340,253</b>	<b>414,092</b>	<b>492,512</b>	<b>575,734</b>	<b>664,697</b>	<b>759,459</b>	<b>859,330</b>	
<b>Water Billing Recovery - To be Recovered from Volume Rates</b>	<b>1,127,011</b>	<b>1,022,324</b>	<b>1,064,136</b>	<b>1,106,574</b>	<b>1,255,670</b>	<b>1,524,861</b>	<b>1,809,317</b>	<b>2,114,091</b>	<b>2,438,090</b>	<b>2,780,820</b>	<b>3,145,705</b>	
<b>Total Revenues (Fixed + Volumes)</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,595,923</b>	<b>1,938,953</b>	<b>2,301,829</b>	<b>2,689,825</b>	<b>3,102,788</b>	<b>3,540,280</b>	<b>4,005,035</b>	





# Chapter 6

## Pricing Structures





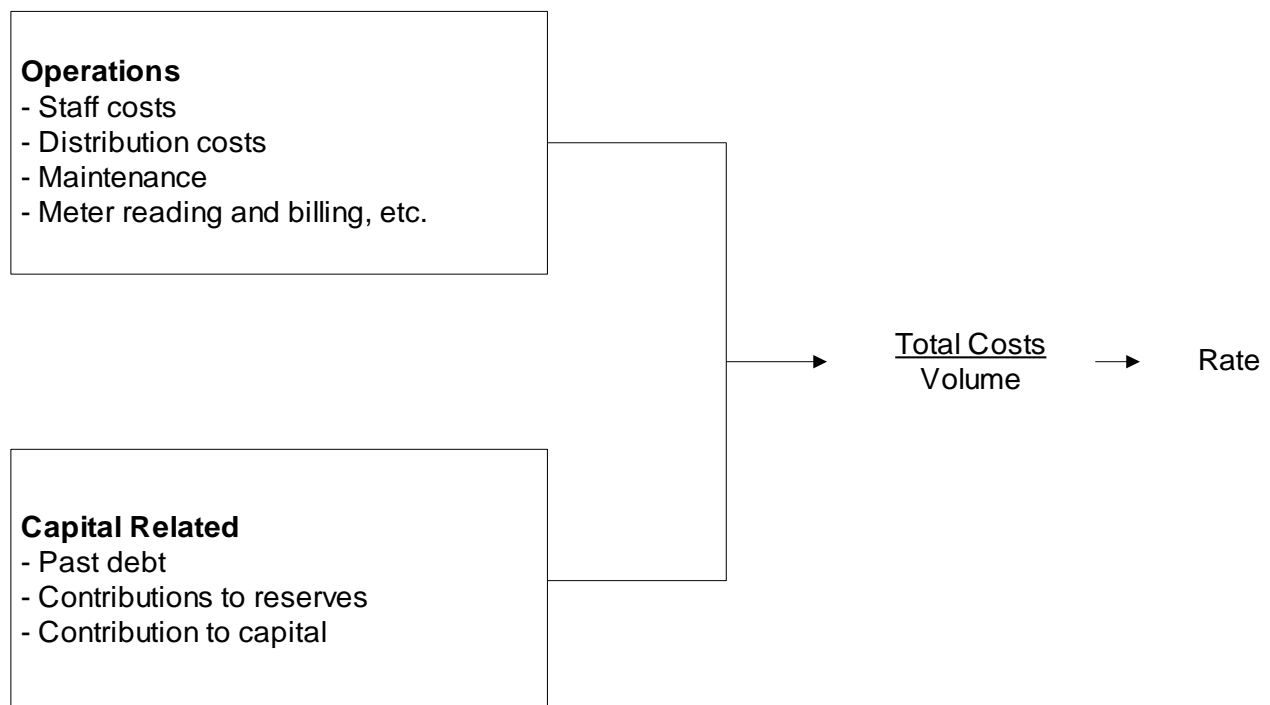
## 6. Pricing Structures

### 6.1 Introduction

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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 for water.

#### “Annual Costs”



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

#### Operations

- Inflation;
- Increased maintenance as system ages; and



- Changes to provincial legislation.

### Capital Related

- New capital will be built as areas expand;
- Replacement capital needed as system ages; and
- Financing of capital costs are 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

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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, 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. Within the rate methods, there are five basic rate structures employed along with other variations:

- Flat Rate (non-metered customers);
- Constant Rate;
- Declining Block Rate;
- Increasing (or Inverted) Block Rate;
- Hump Back Block Rate; and
- Base Charges.

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

**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 necessary 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.

**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 define users into different classes of similar consumption patterns, that is, a commercial user, residential user and industrial user, 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.

**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.

**Declining Block Rates:** 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 normally are 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.

**Increasing or Inverted Block Rates:** 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.

**The 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 block rate.

### 6.3 Assessment of Alternative Pricing Structures

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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 weighting 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 and 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, but the revenue base remains static (since it was determined at the beginning of the year), thus potentially providing 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 dramatic 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.

The benefit derived from the installation of meters is that information on consumption patterns becomes available. This information provides benefit to administration in calculating rates which will ensure revenue recovery. Additionally, when planning what services are to be constructed in future years, the municipality or utility has documented



consumption patterns distinctive to its own situation, which can be used to project sizing of growth-related works.

### 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 no matter 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 increasingly being more highly 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 the customer wants to get his money's worth and hence adopts 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





pricing range. Similarly, those whose consumption level is at the top end of a block have less incentive to reduce consumption.

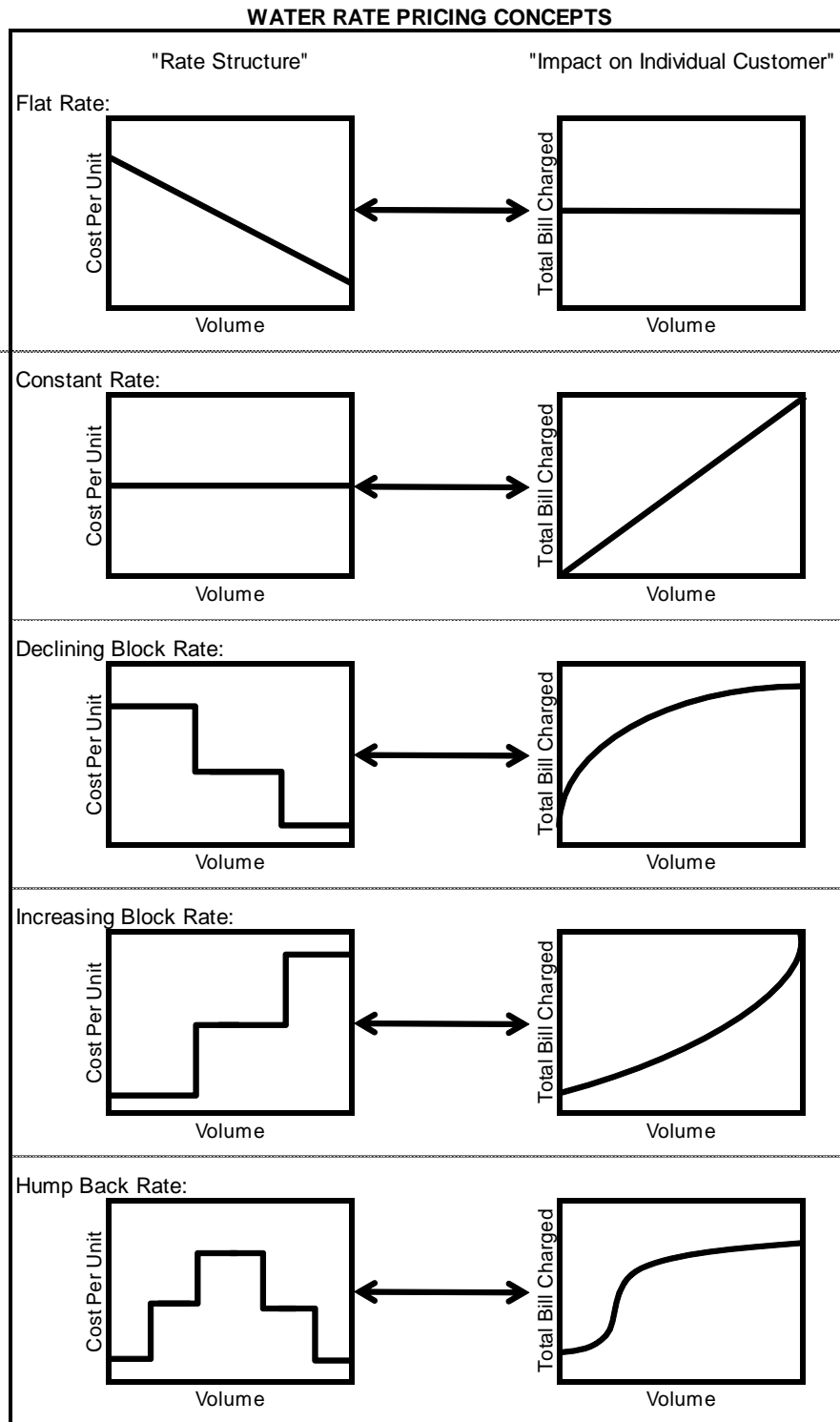
The Constant Rate structure presents the customer with a linear relationship between consumption and the cost thereof. As the consumer pays a fixed cost per unit, his bill will vary directly with the amount consumed. This method presents tangible incentive for consumers to conserve water. As metering provides direct feedback as to 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 total volumes consumed grow. The consumer becomes aware of consumption through metering with the charges increasing dramatically with usage. Hence, there normally is awareness that exercising control over usage can produce significant savings. This method not only encourages conservation methods, but may also penalize legitimate high-volume users if not properly structured.

Figure 6-1 provides a schematic representation of the various rate structures (note property tax as a basis for revenue recovery has not been presented for comparison, as the proportion of taxes paid varies in direct proportion to the market value of the property). The graphs on the left-hand side of the figure present the cost per unit for each additional amount of water consumed. The right-hand side of the figure presents the impact on the customer's bill as the volume of water increases. Following the schematic is a table summarizing each rate structure.



Figure 6-1





<b>RATE STRUCTURE</b>	<b>COST PER UNIT AS VOLUME CONSUMPTION INCREASES</b>	<b>IMPACT ON CUSTOMER BILL AS VOLUME CONSUMPTION INCREASES</b>
Flat Rate	Cost per unit decreases as more volume consumed	Bill remains the same no matter how much volume is consumed
Constant Rate	Cost per unit remains the same	Bill increases in direct proportion to consumption
Declining Block	Cost per unit decreases as threshold targets are achieved	Bill increases at a slower rate as volumes increases
Increasing Block	Cost per unit increases as threshold targets are achieved	Bill increases at a faster rate as volumes increase
Hump Back Rate	Combination of an increasing block at the lower consumption volumes and then converts to a declining block for the high	Bill increases at a faster rate at the lower consumption amounts and then slows as volumes increase

## 6.4 Rate Structures in Ontario

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In a past survey of over 170 municipalities (approximately half of the municipalities who provide water and/or sewer), all forms of rate structures are in use by Ontario municipalities. The most common rate structure is the constant rate (for metered municipalities). Most municipalities (approximately 92%) who have volume rate structures also impose a base monthly charge.

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. Selection of the quantum of the base charge is a matter of policy selected by individual municipalities.



## 6.5 Recommended Rate Structures

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Based on the foregoing, it is recommended that the same rate structures be continued for the Erin water system (base charge and volume rate).

In all three growth scenarios, the base charges are calculated to increase by 3% per year over the forecast period. The volume rates (as calculated in Chapter 7) are anticipated to decrease by 10% in 2020 and increase at 3% per year for the remainder of the forecast from 2021 to 2029.

With the base charge increases being the same across the three growth scenarios, the amount base charge revenue differs with the varying amounts of forecasted customers. Therefore, the forecasted base charges and associated revenues are presented in Tables 6-1, 6-2, and 6-3 for the low, medium, and high growth scenario, respectively.

Similar to the base charges, the flat rates will be the same across all three growth scenarios. There is no assumed growth in the flat rate customers and the flat rates have been calculated to provide a 10% decrease to the annual water bill in 2020, with subsequent increases of 3% per year thereafter. Table 6-4 presents the forecasted flat rates over the study period.



Table 6-1  
Base Charge Forecast – Low Growth Scenario

Water	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
New	3	6	11	16	21	26	31	36	41	46	51
<b>Total Customers</b>	<b>1,483</b>	<b>1,486</b>	<b>1,491</b>	<b>1,496</b>	<b>1,501</b>	<b>1,506</b>	<b>1,511</b>	<b>1,516</b>	<b>1,521</b>	<b>1,526</b>	<b>1,531</b>
<b>Total Annual Revenue</b>	<b>\$246,400</b>	<b>\$254,362</b>	<b>\$262,973</b>	<b>\$271,871</b>	<b>\$281,067</b>	<b>\$290,569</b>	<b>\$300,389</b>	<b>\$310,536</b>	<b>\$321,022</b>	<b>\$331,857</b>	<b>\$343,054</b>

¾" & 1" & 1 ½" Meter Sizes	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302
New	3	6	11	16	21	26	31	36	41	46	51
<b>Subtotal Customers</b>	<b>1,305</b>	<b>1,308</b>	<b>1,313</b>	<b>1,318</b>	<b>1,323</b>	<b>1,328</b>	<b>1,333</b>	<b>1,338</b>	<b>1,343</b>	<b>1,348</b>	<b>1,353</b>
Monthly Base Charge	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08	\$20.68
Annual Base Charge	\$184.68	\$190.22	\$195.93	\$201.80	\$207.86	\$214.09	\$220.52	\$227.13	\$233.95	\$240.97	\$248.19
<b>Total Annual Revenue</b>	<b>\$241,007</b>	<b>\$248,808</b>	<b>\$257,252</b>	<b>\$265,979</b>	<b>\$274,997</b>	<b>\$284,318</b>	<b>\$293,950</b>	<b>\$303,904</b>	<b>\$314,191</b>	<b>\$324,822</b>	<b>\$335,807</b>

2" Meter Size	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	11	11	11	11	11	11	11	11	11	11	11
New											
<b>Subtotal Customers</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
Monthly Base Charge	\$30.77	\$31.69	\$32.64	\$33.62	\$34.63	\$35.67	\$36.74	\$37.84	\$38.98	\$40.15	\$41.35
Annual Base Charge	\$369.24	\$380.32	\$391.73	\$403.48	\$415.58	\$428.05	\$440.89	\$454.12	\$467.74	\$481.77	\$496.23
<b>Total Annual Revenue</b>	<b>\$4,062</b>	<b>\$4,183</b>	<b>\$4,309</b>	<b>\$4,438</b>	<b>\$4,571</b>	<b>\$4,709</b>	<b>\$4,850</b>	<b>\$4,995</b>	<b>\$5,145</b>	<b>\$5,300</b>	<b>\$5,459</b>

4" Meter Size	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
<b>Subtotal Customers</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
Monthly Base Charge	\$55.45	\$57.11	\$58.83	\$60.59	\$62.41	\$64.28	\$66.21	\$68.20	\$70.24	\$72.35	\$74.52
Annual Base Charge	\$665.40	\$685.36	\$705.92	\$727.10	\$748.91	\$771.38	\$794.52	\$818.36	\$842.91	\$868.20	\$894.24
<b>Total Annual Revenue</b>	<b>\$1,331</b>	<b>\$1,371</b>	<b>\$1,412</b>	<b>\$1,454</b>	<b>\$1,498</b>	<b>\$1,543</b>	<b>\$1,589</b>	<b>\$1,637</b>	<b>\$1,686</b>	<b>\$1,736</b>	<b>\$1,788</b>

Multi Res Per Unit	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	165	165	165	165	165	165	165	165	165	165	165
New											
<b>Subtotal Customers</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>
Monthly Base Charge	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08	\$20.68
Annual Base Charge	\$184.68	\$190.22	\$195.93	\$201.80	\$207.86	\$214.09	\$220.52	\$227.13	\$233.95	\$240.97	\$248.19
<b>Total Annual Revenue</b>	<b>\$30,472</b>	<b>\$31,386</b>	<b>\$32,328</b>	<b>\$33,298</b>	<b>\$34,297</b>	<b>\$35,326</b>	<b>\$36,385</b>	<b>\$37,477</b>	<b>\$38,601</b>	<b>\$39,759</b>	<b>\$40,952</b>



Table 6-2  
Base Charge Forecast – Medium Growth Scenario

Water	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
New	3	11	26	41	56	71	102	150	222	317	412
<b>Total Customers</b>	<b>1,483</b>	<b>1,491</b>	<b>1,506</b>	<b>1,521</b>	<b>1,536</b>	<b>1,551</b>	<b>1,582</b>	<b>1,630</b>	<b>1,702</b>	<b>1,797</b>	<b>1,892</b>
<b>Total Annual Revenue</b>	<b>\$246,400</b>	<b>\$255,314</b>	<b>\$265,912</b>	<b>\$276,916</b>	<b>\$288,342</b>	<b>\$300,203</b>	<b>\$316,046</b>	<b>\$336,429</b>	<b>\$363,366</b>	<b>\$397,159</b>	<b>\$432,652</b>

¾" & 1" & 1 ½" Meter Sizes	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302
New	3	11	26	41	56	71	102	150	222	317	412
<b>Subtotal Customers</b>	<b>1,305</b>	<b>1,313</b>	<b>1,328</b>	<b>1,343</b>	<b>1,358</b>	<b>1,373</b>	<b>1,404</b>	<b>1,452</b>	<b>1,524</b>	<b>1,619</b>	<b>1,714</b>
Monthly Base Charge	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08	\$20.68
Annual Base Charge	\$184.68	\$190.22	\$195.93	\$201.80	\$207.86	\$214.09	\$220.52	\$227.13	\$233.95	\$240.97	\$248.19
<b>Total Annual Revenue</b>	<b>\$241,007</b>	<b>\$249,759</b>	<b>\$260,191</b>	<b>\$271,024</b>	<b>\$282,272</b>	<b>\$293,952</b>	<b>\$309,607</b>	<b>\$329,797</b>	<b>\$356,535</b>	<b>\$390,123</b>	<b>\$425,405</b>

2" Meter Size	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	11	11	11	11	11	11	11	11	11	11	11
New											
<b>Subtotal Customers</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
Monthly Base Charge	\$30.77	\$31.69	\$32.64	\$33.62	\$34.63	\$35.67	\$36.74	\$37.84	\$38.98	\$40.15	\$41.35
Annual Base Charge	\$369.24	\$380.32	\$391.73	\$403.48	\$415.58	\$428.05	\$440.89	\$454.12	\$467.74	\$481.77	\$496.23
<b>Total Annual Revenue</b>	<b>\$4,062</b>	<b>\$4,183</b>	<b>\$4,309</b>	<b>\$4,438</b>	<b>\$4,571</b>	<b>\$4,709</b>	<b>\$4,850</b>	<b>\$4,995</b>	<b>\$5,145</b>	<b>\$5,300</b>	<b>\$5,459</b>

4" Meter Size	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
<b>Subtotal Customers</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
Monthly Base Charge	\$55.45	\$57.11	\$58.83	\$60.59	\$62.41	\$64.28	\$66.21	\$68.20	\$70.24	\$72.35	\$74.52
Annual Base Charge	\$665.40	\$685.36	\$705.92	\$727.10	\$748.91	\$771.38	\$794.52	\$818.36	\$842.91	\$868.20	\$894.24
<b>Total Annual Revenue</b>	<b>\$1,331</b>	<b>\$1,371</b>	<b>\$1,412</b>	<b>\$1,454</b>	<b>\$1,498</b>	<b>\$1,543</b>	<b>\$1,589</b>	<b>\$1,637</b>	<b>\$1,686</b>	<b>\$1,736</b>	<b>\$1,788</b>

Multi Res Per Unit	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	165	165	165	165	165	165	165	165	165	165	165
New											
<b>Subtotal Customers</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>
Monthly Base Charge	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08	\$20.68
Annual Base Charge	\$184.68	\$190.22	\$195.93	\$201.80	\$207.86	\$214.09	\$220.52	\$227.13	\$233.95	\$240.97	\$248.19
<b>Total Annual Revenue</b>	<b>\$30,472</b>	<b>\$31,386</b>	<b>\$32,328</b>	<b>\$33,298</b>	<b>\$34,297</b>	<b>\$35,326</b>	<b>\$36,385</b>	<b>\$37,477</b>	<b>\$38,601</b>	<b>\$39,759</b>	<b>\$40,952</b>



Table 6-3  
Base Charge Forecast – High Growth Scenario

Water	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
New	3	11	26	41	198	498	800	1,104	1,413	1,726	2,039
<b>Total Customers</b>	<b>1,483</b>	<b>1,491</b>	<b>1,506</b>	<b>1,521</b>	<b>1,678</b>	<b>1,978</b>	<b>2,280</b>	<b>2,584</b>	<b>2,893</b>	<b>3,206</b>	<b>3,519</b>
<b>Total Annual Revenue</b>	<b>\$246,400</b>	<b>\$255,314</b>	<b>\$265,912</b>	<b>\$276,916</b>	<b>\$317,858</b>	<b>\$391,622</b>	<b>\$469,967</b>	<b>\$553,114</b>	<b>\$641,997</b>	<b>\$736,679</b>	<b>\$836,465</b>

¾" & 1" & 1 ½" Meter Sizes	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302
New	3	11	26	41	198	498	800	1,104	1,413	1,726	2,039
<b>Subtotal Customers</b>	<b>1,305</b>	<b>1,313</b>	<b>1,328</b>	<b>1,343</b>	<b>1,500</b>	<b>1,800</b>	<b>2,102</b>	<b>2,406</b>	<b>2,715</b>	<b>3,028</b>	<b>3,341</b>
Monthly Base Charge	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08	\$20.68
Annual Base Charge	\$184.68	\$190.22	\$195.93	\$201.80	\$207.86	\$214.09	\$220.52	\$227.13	\$233.95	\$240.97	\$248.19
<b>Total Annual Revenue</b>	<b>\$241,007</b>	<b>\$249,759</b>	<b>\$260,191</b>	<b>\$271,024</b>	<b>\$311,788</b>	<b>\$385,371</b>	<b>\$463,528</b>	<b>\$546,482</b>	<b>\$635,166</b>	<b>\$729,644</b>	<b>\$829,218</b>

2" Meter Size	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	11	11	11	11	11	11	11	11	11	11	11
New											
<b>Subtotal Customers</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
Monthly Base Charge	\$30.77	\$31.69	\$32.64	\$33.62	\$34.63	\$35.67	\$36.74	\$37.84	\$38.98	\$40.15	\$41.35
Annual Base Charge	\$369.24	\$380.32	\$391.73	\$403.48	\$415.58	\$428.05	\$440.89	\$454.12	\$467.74	\$481.77	\$496.23
<b>Total Annual Revenue</b>	<b>\$4,062</b>	<b>\$4,183</b>	<b>\$4,309</b>	<b>\$4,438</b>	<b>\$4,571</b>	<b>\$4,709</b>	<b>\$4,850</b>	<b>\$4,995</b>	<b>\$5,145</b>	<b>\$5,300</b>	<b>\$5,459</b>

4" Meter Size	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
<b>Subtotal Customers</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
Monthly Base Charge	\$55.45	\$57.11	\$58.83	\$60.59	\$62.41	\$64.28	\$66.21	\$68.20	\$70.24	\$72.35	\$74.52
Annual Base Charge	\$665.40	\$685.36	\$705.92	\$727.10	\$748.91	\$771.38	\$794.52	\$818.36	\$842.91	\$868.20	\$894.24
<b>Total Annual Revenue</b>	<b>\$1,331</b>	<b>\$1,371</b>	<b>\$1,412</b>	<b>\$1,454</b>	<b>\$1,498</b>	<b>\$1,543</b>	<b>\$1,589</b>	<b>\$1,637</b>	<b>\$1,686</b>	<b>\$1,736</b>	<b>\$1,788</b>

Multi Res Per Unit	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	165	165	165	165	165	165	165	165	165	165	165
New											
<b>Subtotal Customers</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>
Monthly Base Charge	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08	\$20.68
Annual Base Charge	\$184.68	\$190.22	\$195.93	\$201.80	\$207.86	\$214.09	\$220.52	\$227.13	\$233.95	\$240.97	\$248.19
<b>Total Annual Revenue</b>	<b>\$30,472</b>	<b>\$31,386</b>	<b>\$32,328</b>	<b>\$33,298</b>	<b>\$34,297</b>	<b>\$35,326</b>	<b>\$36,385</b>	<b>\$37,477</b>	<b>\$38,601</b>	<b>\$39,759</b>	<b>\$40,952</b>



Table 6-4  
Flat Rate Forecast – All Growth Scenarios

Water	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	5	5	5	5	5	5	5	5	5	5	5
New	-	-	-	-	-	-	-	-	-	-	-
<b>Total Customers</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Total Annual Revenue</b>	<b>\$2,437</b>	<b>\$2,200</b>	<b>\$2,265</b>	<b>\$2,330</b>	<b>\$2,395</b>	<b>\$2,470</b>	<b>\$2,545</b>	<b>\$2,620</b>	<b>\$2,700</b>	<b>\$2,780</b>	<b>\$2,865</b>

Flat Rate	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing	5	5	5	5	5	5	5	5	5	5	5
New											
<b>Subtotal Customers</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
Monthly Base Charge	\$40.62	\$36.67	\$37.75	\$38.83	\$39.92	\$41.17	\$42.42	\$43.67	\$45.00	\$46.33	\$47.75
Annual Base Charge	\$487.41	\$440.00	\$453.00	\$466.00	\$479.00	\$494.00	\$509.00	\$524.00	\$540.00	\$556.00	\$573.00
<b>Total Annual Revenue</b>	<b>\$2,437</b>	<b>\$2,200</b>	<b>\$2,265</b>	<b>\$2,330</b>	<b>\$2,395</b>	<b>\$2,470</b>	<b>\$2,545</b>	<b>\$2,620</b>	<b>\$2,700</b>	<b>\$2,780</b>	<b>\$2,865</b>





# Chapter 7

## Analysis of Water and Wastewater Rates and Policy Matters





## 7. Analysis of Water and Wastewater Rates and Policy Matters

### 7.1 Introduction

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To summarize the analysis undertaken thus far, Chapter 2 reviewed capital-related issues and responds to the provincial directives to maintain and upgrade infrastructure to required levels. Chapter 4 provided a review of capital financing options to which water lifecycle reserve contributions will be the predominant basis for financing future capital replacement. Chapter 5 established the 10-year operating forecast of expenditures including an annual capital lifecycle reserve contribution. The base charge revenues (including the flat rates identified in Chapter 6) are to ensure that fixed costs are recovered regardless of the amount of volume used by customers. This chapter will provide for the calculation of the volume rates over the forecast period. These calculations will be based on the net operating expenditures (the variable costs) provided in Chapter 5, divided by the water volume forecast provided in section 1.8 for all three growth scenarios.

### 7.2 Water Volume Rates

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Based on the discussion of rate structures provided in section 6.5 and the recommendation to continue with the present structures, the rates are calculated by taking the net recoverable amounts from Tables 5-1, 5-2, and 5-3 (the product of total expenditures plus lifecycle costs less non-rate revenues and deduct the base charge amounts provided in section 6.5) and completes the calculation by dividing them by the volumes resulting in the forecasted rates for each growth scenario. These results in a volume rate that is calculated to decrease by 10% in 2020 and increases by 3% per year in subsequent years. This calculate is similar across all three growth scenarios.

Detailed calculations of the volume rates are provided in Appendix B for the low growth scenario, Appendix C for the medium growth scenario, and Appendix D for the high growth scenario. A summary of the recommended base charge and volume rates for each growth scenario, along with the total annual bill for an average metered residential user who consumes 190 m<sup>3</sup> per year are presented in Table 7-1.



Table 7-1  
Annual Metered Customer Water Bill Forecast – Based on 190 m<sup>3</sup> of usage for <2” meter

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Monthly Base Rate	\$15.39	\$15.85	\$16.33	\$16.82	\$17.32	\$17.84	\$18.38	\$18.93	\$19.50	\$20.08
Constant Rate	\$3.99	\$3.60	\$3.71	\$3.82	\$3.93	\$4.05	\$4.17	\$4.30	\$4.43	\$4.56
<b>Annual Base Rate Bill</b>	<b>\$184.68</b>	<b>\$190.22</b>	<b>\$195.93</b>	<b>\$201.80</b>	<b>\$207.86</b>	<b>\$214.09</b>	<b>\$220.52</b>	<b>\$227.13</b>	<b>\$233.95</b>	<b>\$240.97</b>
Volume	190	190	190	190	190	190	190	190	190	190
<b>Annual Volume Bill</b>	<b>\$758.10</b>	<b>\$684.00</b>	<b>\$704.90</b>	<b>\$725.80</b>	<b>\$746.70</b>	<b>\$769.50</b>	<b>\$792.30</b>	<b>\$817.00</b>	<b>\$841.70</b>	<b>\$866.40</b>
<b>Total Annual Bill</b>	<b>\$942.78</b>	<b>\$874.22</b>	<b>\$900.83</b>	<b>\$927.60</b>	<b>\$954.56</b>	<b>\$983.59</b>	<b>\$1,012.82</b>	<b>\$1,044.13</b>	<b>\$1,075.65</b>	<b>\$1,107.37</b>
<b>% Increase - Base Rate</b>		3%	3%	3%	3%	3%	3%	3%	3%	3%
<b>% Increase - Volume Rate</b>		-10%	3%	3%	3%	3%	3%	3%	3%	3%
<b>% Increase - Total Annual Bill</b>		-7%	3%	3%	3%	3%	3%	3%	3%	3%



# Chapter 8

## Recommendations





## 8. Recommendations

As presented within this report, capital and operating expenditures have been identified and forecast the 2020 -2029 period for the Erin water services.

Based upon the foregoing, the following recommendations are identified for consideration by Town Council:

1. That Council provide for the recovery of all water costs through full cost recovery rates.
2. That Council consider the Capital Plan for water as provided in Tables 2-1, 2-2, and 2-3 and the associated Capital Financing Plan as set out in Tables 4-1, 4-2 and 4-3.
3. That Council consider the base charges provided in Tables 6-1, 6-2, and 6-3 for metered water users and the flat rates in Table 6-4 for non-metered users.
4. That Council consider the volume rates for water as provided in Table 7-1.







# Appendices





# Appendix A

## Water System Inventory Data





**Table A-1  
Town of Erin  
Water Facilities**

Item	Location	ID	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
Water Tower	Water Tower, 3 William St, Erin	WATER-BUILDG-D040-000-000-115	1990	40	2030	1,668,630	11	170,497	-
Erin Well E5	Well House #5, 2 Erinville Drive, Erin	WATER-BUILDG-D040-000-000-116	1983	40	2023	185,400		suggested for 10 year capital forecast	185,400
Erin Well E7	Well House #7, 9555 17 Sideroad, Erin	WATER-BUILDG-D040-000-000-117	1986	40	2026	1,582,110		suggested for 10 year capital forecast	1,582,110
Erin Well E8	Well House #8, 5555 8th Line, Erin	WATER-BUILDG-D040-000-000-118	1991	40	2031	1,582,110	12	149,604	-
Hillsburgh Well H2	Well House #2, 5929 Trafalgar Rd, Hillsburgh	WATER-BUILDG-D040-000-000-119	1988	40	2028	1,582,110		suggested for 10 year capital forecast	1,582,110
Hillsburgh Well H3	Victoria Park, 10 Mill St, Hillsburgh	WATER-BUILDG-D040-000-000-120	1969	40	2019	1,582,110		suggested for 10 year capital forecast	1,582,110
BelErin Well	BelErin Well, 5403 Wellington Rd 52, Erin	WATER-BUILDG-D040-000-000-121	1995	40	2035	185,400	16	13,655	-
Water Shop, aka Hydro Building	Water Shop, 1 Shamrock Rd, Erin	WATER-BUILDG-D040-000-000-122	1990	40	2030	1,074,870	11	109,828	-
Delerin Pressure Building	Delerin Pressure Building, Delerin Crescent, Erin	WATER-BUILDG-D040-000-000-123	1987	40	2027	74,160		suggested for 10 year capital forecast	74,160
Frank Smedley Booster Pumping Station	Victoria Park, 10 Mill St, Hillsburgh	WATER-BUILDG-D040-000-000-124	2014	40	2054	1,245,810	35	49,835	-
Glendevon High Lift Pump Replacement	Corner of Mill St & Covert Lane, Hillsburgh	WATER-BUILDG-D020-000-000-125	2013	20	2033	186,940	14	15,442	-
<b>Total</b>						<b>10,949,650</b>		<b>508,860</b>	<b>5,005,890</b>



**Table A-2  
Town of Erin  
Watermains**

Asset ID	Location	Diameter (mm)	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
WATER-MAINSW-D075-000-000-171	Hillsburgh - Barker St	tba	1995	75	2070	128,700	51	4,049	-
WATER-MAINSW-D075-000-000-172	Hillsburgh - Orangeville St.	tba	1995	75	2070	76,760	51	2,415	-
WATER-MAINSW-D050-000-000-173	Hillsburgh - Mill St.	tba	1975	50	2025	309,870	6	suggested for 10 year capital forecast	309,870
WATER-MAINSW-D050-000-000-174	Hillsburgh - Ellan Cr.	tba	1975	50	2025	390,890	6	suggested for 10 year capital forecast	390,890
WATER-MAINSW-D050-000-000-175	Hillsburgh - Alice Gate	tba	1975	50	2025	51,880	6	suggested for 10 year capital forecast	51,880
WATER-MAINSW-D075-000-000-176	Hillsburgh - Church St.	tba	2005	75	2080	113,990	61	3,251	-
WATER-MAINSW-D075-000-000-177	Hillsburgh - Church St.	tba	2005	75	2080	29,420	61	839	-
WATER-MAINSW-D050-000-000-178	Hillsburgh - Church St.	tba	1975	50	2025	151,380	6	suggested for 10 year capital forecast	151,380
WATER-MAINSW-D050-000-000-179	Hillsburgh - Spruce St.	tba	1975	50	2025	200,420	6	suggested for 10 year capital forecast	200,420
WATER-MAINSW-D050-000-000-180	Hillsburgh - Mill St.	tba	1975	50	2025	58,280	6	suggested for 10 year capital forecast	58,280
WATER-MAINSW-D075-000-000-181	Hillsburgh - Upper Canada Dr.	tba	2005	75	2080	536,590	61	15,305	-
WATER-MAINSW-D075-000-000-182	Hillsburgh - Leader Court	tba	2005	75	2080	277,180	61	7,906	-
WATER-MAINSW-D075-000-000-183	Hillsburgh - McMurphy Lane	tba	2005	75	2080	63,960	61	1,824	-
WATER-MAINSW-D050-000-000-184	Hillsburgh - Douglas Cr.	tba	1975	50	2025	817,320	6	suggested for 10 year capital forecast	817,320
WATER-MAINSW-D050-000-000-185	Hillsburgh - Curry Rd.	tba	1975	50	2025	81,730	6	suggested for 10 year capital forecast	81,730
WATER-MAINSW-D050-000-000-186	Hillsburgh - Water St.	tba	1975	50	2025	44,130	6	suggested for 10 year capital forecast	44,130
WATER-MAINSW-D050-000-000-187	Hillsburgh - Water St.	tba	1995	50	2045	44,130	26	2,193	-
WATER-MAINSW-D075-000-000-188	Hillsburgh - Barbour Dr.	tba	1995	75	2070	73,540	51	2,313	-
WATER-MAINSW-D075-000-000-189	Hillsburgh - Barbour Dr.	tba	1995	75	2070	483,290	51	15,204	-
WATER-MAINSW-D075-000-000-190	Hillsburgh - Wallace Ave.	tba	1995	75	2070	131,480	51	4,136	-
WATER-MAINSW-D075-000-000-191	Hillsburgh - Hill St.	tba	1995	75	2070	90,480	51	2,846	-
WATER-MAINSW-D075-000-000-192	Hillsburgh - Hill St.	tba	1995	75	2070	246,370	51	7,750	-
WATER-MAINSW-D075-000-000-193	Hillsburgh - Howe St.	tba	1995	75	2070	213,210	51	6,707	-
WATER-MAINSW-D075-000-000-194	Hillsburgh - Barbour Walkway	tba	1995	75	2070	80,900	51	2,545	-
WATER-MAINSW-D075-000-000-195	Erin - 17th Sideroad (Shamrock)	tba	1995	75	2070	767,170	51	24,134	-
WATER-MAINSW-D075-000-000-196	Erin - 17th Sideroad (Shamrock)	tba	1995	75	2070	572,270	51	18,003	-
WATER-MAINSW-D050-000-000-197	Erin - Dundas St. E.	tba	1965	50	2019	71,430	0	suggested for 10 year capital forecast	71,430
WATER-MAINSW-D075-000-000-198	Erin - Dundas St. (Eighth Line)	tba	1985	75	2060	145,250	41	5,225	-
WATER-MAINSW-D075-000-000-199	Erin - Dundas St. (Eighth Line)	tba	1985	75	2060	194,890	41	7,011	-
WATER-MAINSW-D075-000-000-200	Erin - Dundas St. (Eighth Line)	tba	1985	75	2060	165,470	41	5,952	-
WATER-MAINSW-D075-000-000-201	Erin - Dianne Rd.	tba	2005	75	2080	218,900	61	6,244	-
WATER-MAINSW-D075-000-000-202	Erin - Dianne Rd.	tba	2005	75	2080	9,240	61	264	-
WATER-MAINSW-D075-000-000-203	Erin - Delambro Dr.	tba	2005	75	2080	455,780	61	13,000	-
WATER-MAINSW-D075-000-000-204	Erin - Delambro Dr.	tba	2005	75	2080	317,690	61	9,061	-
WATER-MAINSW-D075-000-000-205	Erin - Forest Ridge Rd.	tba	2005	75	2080	98,180	61	2,800	-
WATER-MAINSW-D075-000-000-206	Erin - Kenneth Ave	tba	2005	75	2080	210,730	61	6,011	-
WATER-MAINSW-D075-000-000-207	Erin - Armstrong St.	tba	2005	75	2080	633,720	61	18,075	-
WATER-MAINSW-D075-000-000-208	Erin - Treelong Cres.	tba	2005	75	2080	325,150	61	9,274	-
WATER-MAINSW-D075-000-000-209	Erin - Leenders Lane	tba	2005	75	2080	393,020	61	11,210	-
WATER-MAINSW-D075-000-000-210	Erin - McCullogh Dr.	tba	2005	75	2080	423,590	61	12,082	-
WATER-MAINSW-D075-000-000-211	Erin - McCullogh Dr.	tba	2005	75	2080	6,400	61	183	-
WATER-MAINSW-D075-000-000-212	Erin - Aspen Crt.	tba	2005	75	2080	154,220	61	4,399	-
WATER-MAINSW-D075-000-000-213	Erin - Aspen Crt.	tba	2005	75	2080	99,140	61	2,828	-
WATER-MAINSW-D050-000-000-214	Erin - Charles St.	tba	1985	50	2035	100,210	16	7,380	-



**Table A-2  
Town of Erin  
Watermains**

Asset ID	Location	Diameter (mm)	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
WATER-MAINSW-D050-000-000-215	Erin - Church St. W	tba	1965	50	2019	111,940	0	suggested for 10 year capital forecast	111,940
WATER-MAINSW-D050-000-000-216	Erin - Church Blvd.	tba	1965	50	2019	73,560	0	suggested for 10 year capital forecast	73,560
WATER-MAINSW-D050-000-000-217	Erin - Church Blvd.	tba	1965	50	2019	76,760	0	suggested for 10 year capital forecast	76,760
WATER-MAINSW-D050-000-000-218	Erin - Centre St.	tba	1965	50	2019	156,000	0	suggested for 10 year capital forecast	156,000
WATER-MAINSW-D075-000-000-219	Erin - Carberry St.	tba	1985	75	2060	171,280	41	6,161	-
WATER-MAINSW-D050-000-000-220	Erin - Carberry St.	tba	1985	50	2035	37,310	16	2,748	-
WATER-MAINSW-D050-000-000-221	Erin - Sunnyside Dr.	tba	1965	50	2019	191,180	0	suggested for 10 year capital forecast	191,180
WATER-MAINSW-D075-000-000-222	Erin - Carberry St.	tba	1985	75	2060	24,160	41	869	-
WATER-MAINSW-D050-000-000-223	Erin - Erin Heights Dr.	tba	1975	50	2025	237,020	6	suggested for 10 year capital forecast	237,020
WATER-MAINSW-D050-000-000-224	Erin - Erin Heights Dr.	tba	1975	50	2025	376,540	6	suggested for 10 year capital forecast	376,540
WATER-MAINSW-D050-000-000-225	Erin - Wesley Cresc.	tba	1975	50	2025	223,570	6	suggested for 10 year capital forecast	223,570
WATER-MAINSW-D050-000-000-226	Erin - William Rex Cresc.	tba	1975	50	2025	312,000	6	suggested for 10 year capital forecast	312,000
WATER-MAINSW-D050-000-000-227	Erin - Delerin Cresc.	tba	1975	50	2025	313,420	6	suggested for 10 year capital forecast	313,420
WATER-MAINSW-D050-000-000-228	Erin - Hill St.	tba	2002	50	2052	69,650	33	2,903	-
WATER-MAINSW-D050-000-000-229	Erin - Hill St.	tba	1985	50	2035	158,130	16	11,646	-
WATER-MAINSW-D050-000-000-230	Erin - Water St.	tba	1965	50	2019	111,580	0	suggested for 10 year capital forecast	111,580
WATER-MAINSW-D075-000-000-231	Erin - Millwood Rd.	tba	2005	75	2080	286,060	61	8,159	-
WATER-MAINSW-D050-000-000-232	Erin - Waterford Dr.	tba	1965	50	2019	196,510	0	suggested for 10 year capital forecast	196,510
WATER-MAINSW-D050-000-000-233	Erin - Waterford Dr.	tba	1965	50	2019	103,760	0	suggested for 10 year capital forecast	103,760
WATER-MAINSW-D075-000-000-234	Erin - Waterford Dr.	tba	1995	75	2070	178,390	51	5,612	-
WATER-MAINSW-D050-000-000-235	Erin - Water St./Waterford Dr.	tba	1965	50	2019	242,350	0	suggested for 10 year capital forecast	242,350
WATER-MAINSW-D075-000-000-236	Erin - Church St. E..	tba	1985	75	2060	83,510	41	3,004	-
WATER-MAINSW-D050-000-000-237	Erin - Spring St.	tba	1955	50	2019	82,370	0	suggested for 10 year capital forecast	82,370
WATER-MAINSW-D075-000-000-238	Erin - Scotch St.	tba	1985	75	2060	89,910	41	3,234	-
WATER-MAINSW-D050-000-000-239	Erin - Scotch St.	tba	1975	50	2025	83,860	6	suggested for 10 year capital forecast	83,860
WATER-MAINSW-D050-000-000-240	Erin - Scotch St.	tba	1975	50	2025	219,970	6	suggested for 10 year capital forecast	219,970
WATER-MAINSW-D050-000-000-241	Erin - Scotch St./Erinlea Cresc	tba	1975	50	2025	58,280	6	suggested for 10 year capital forecast	58,280
WATER-MAINSW-D050-000-000-242	Erin - English St.	tba	1965	50	2019	84,930	0	suggested for 10 year capital forecast	84,930
WATER-MAINSW-D050-000-000-243	Erin - Erindale Dr.	tba	1975	50	2025	72,490	6	suggested for 10 year capital forecast	72,490
WATER-MAINSW-D075-000-000-244	Erin - Wheelock St	tba	1985	75	2060	85,290	41	3,068	-
WATER-MAINSW-D050-000-000-245	Erin - Erindale Dr.	tba	1975	50	2025	168,440	6	suggested for 10 year capital forecast	168,440
WATER-MAINSW-D050-000-000-246	Erin - Erindale Dr.	tba	1975	50	2025	158,840	6	suggested for 10 year capital forecast	158,840
WATER-MAINSW-D050-000-000-247	Erin - Cross St.	tba	1975	50	2025	67,160	6	suggested for 10 year capital forecast	67,160
WATER-MAINSW-D050-000-000-248	Erin - Erinlea Cresc.	tba	1975	50	2025	117,270	6	suggested for 10 year capital forecast	117,270
WATER-MAINSW-D050-000-000-249	Erin - Erinlea Cresc.	tba	1975	50	2025	271,490	6	suggested for 10 year capital forecast	271,490
WATER-MAINSW-D050-000-000-250	Erin - Tomwell Cresc.	tba	1975	50	2025	194,740	6	suggested for 10 year capital forecast	194,740



**Table A-2  
Town of Erin  
Watermains**

Asset ID	Location	Diameter (mm)	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
WATER-MAINSW-D050-000-000-251	Erin - Pine St.	tba	1965	50	2019	86,000	0	suggested for 10 year capital forecast	86,000
WATER-MAINSW-D050-000-000-252	Erin - Pine St.	tba	1985	50	2035	78,180	16	5,758	-
WATER-MAINSW-D050-000-000-253	Erin - Ross St.	tba	1965	50	2019	123,660	0	suggested for 10 year capital forecast	123,660
WATER-MAINSW-D050-000-000-254	Erin - May St.	tba	1985	50	2035	73,910	16	5,443	-
WATER-MAINSW-D050-000-000-255	Erin - Boland Dr.	tba	1975	50	2025	115,140	6	suggested for 10 year capital forecast	115,140
WATER-MAINSW-D075-000-000-256	Erin - Erinville Dr.	tba	1985	75	2060	142,670	41	5,132	-
WATER-MAINSW-D075-000-000-257	Erin - Erinville Dr.	tba	1985	75	2060	301,530	41	10,847	-
WATER-MAINSW-D075-000-000-258	Erin - Thompson Cresc.	tba	1985	75	2060	538,340	41	19,365	-
WATER-MAINSW-D075-000-000-259	Erin - Erin Park Dr.	tba	1985	75	2060	112,650	41	4,052	-
WATER-MAINSW-D075-000-000-260	Erin - Erin Park Dr.	tba	1985	75	2060	260,710	41	9,378	-
WATER-MAINSW-D050-000-000-261	Erin - Dundas St. W.	tba	1975	50	2025	323,220	6	suggested for 10 year capital forecast	323,220
WATER-MAINSW-D075-000-000-262	Erin - Dundas St. W.	tba	1985	75	2060	239,010	41	8,598	-
WATER-MAINSW-D050-000-000-263	Erin - Dundas St. E.	tba	1975	50	2025	88,620	6	suggested for 10 year capital forecast	88,620
WATER-MAINSW-D050-000-000-264	Erin - Dundas St. E.	tba	1965	50	2019	280,380	0	suggested for 10 year capital forecast	280,380
WATER-MAINSW-D050-000-000-265	Erin - Dundas St. E.	tba	1965	50	2019	47,440	0	suggested for 10 year capital forecast	47,440
WATER-MAINSW-D050-000-000-266	Erin - Daniel St.	tba	1965	50	2019	86,710	0	suggested for 10 year capital forecast	86,710
WATER-MAINSW-D050-000-000-267	Erin - Daniel St.	tba	1965	50	2019	208,240	0	suggested for 10 year capital forecast	208,240
WATER-MAINSW-D050-000-000-268	Erin - Daniel St.	tba	1965	50	2019	179,080	0	suggested for 10 year capital forecast	179,080
WATER-MAINSW-D050-000-000-269	Erin - Daniel St.	tba	1965	50	2019	89,190	0	suggested for 10 year capital forecast	89,190
WATER-MAINSW-D075-000-000-270	Erin - Daniel St./Wheelock East	tba	1985	75	2060	147,120	41	5,292	-
WATER-MAINSW-D050-000-000-271	Erin - Daniel St.	tba	1965	50	2019	177,610	0	suggested for 10 year capital forecast	177,610
WATER-MAINSW-D075-000-000-272	Erin - Church Blvd./Centre St.	tba	1985	75	2060	63,960	41	2,301	-
WATER-MAINSW-D075-000-000-273	Erin - Main St.	tba	2002	75	2077	2,492,260	58	72,990	-
WATER-MAINSW-D075-000-000-274	Erin - Guelph Rd.	tba	2002	75	2077	626,220	58	18,340	-
WATER-MAINSW-D075-000-000-275	Erin - Lorne St.	tba	1985	75	2060	94,880	41	3,413	-
WATER-MAINSW-D075-000-000-276	Erin - Main St.	tba	1975	75	2050	208,590	31	9,094	-
WATER-MAINSW-D075-000-000-277	Erin - Trailer Park Service	tba	1995	75	2070	12,790	51	402	-
WATER-MAINSW-D075-000-000-278	Erin - Hill St.	tba	1985	75	2060	101,790	41	3,662	-
WATER-MAINSW-D075-000-000-279	Hillsburgh - Mill St - Main St	tba	2010	75	2085	43,610	66	1,196	-
WATER-MAINSW-D075-000-000-280	Erin - Pioneer Drive	tba	2010	75	2085	148,210	66	4,064	-
WATER-MAINSW-D075-000-000-281	Hillsburgh - Orangeville St.	tba	2012	75	2087	114,550	68	3,096	-
WATER-MAINSW-D075-000-000-282	Hillsburgh - 97 to 115 Trafalgar	tba	2012	75	2087	158,250	68	4,278	-
WATER-MAINSW-D075-000-000-283	Hillsburgh - 14, 16, 18 Spruce	tba	2014	75	2089	45,100	70	1,203	-
WATER-SERVIC-D075-000-000-284	Hillsburgh - Barker St	tba	1995	75	2070	15,270	51	480	-
WATER-SERVIC-D075-000-000-285	Hillsburgh - Orangville St.	tba	1995	75	2070	9,420	51	296	-
WATER-SERVIC-D050-000-000-286	Hillsburgh - Mill St.	tba	1975	50	2025	38,040	6	suggested for 10 year capital forecast	38,040





**Table A-2  
Town of Erin  
Watermains**

Asset ID	Location	Diameter (mm)	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
WATER-SERVIC-D050-000-000-287	Hillsburgh - Ellan Cr.	tba	1975	50	2025	47,990	6	suggested for 10 year capital forecast	47,990
WATER-SERVIC-D050-000-000-288	Hillsburgh - Alice Gate	tba	1975	50	2025	6,370	6	suggested for 10 year capital forecast	6,370
WATER-SERVIC-D075-000-000-289	Hillsburgh - Church St.	tba	2005	75	2080	13,520	61	386	-
WATER-SERVIC-D075-000-000-290	Hillsburgh - Church St.	tba	2005	75	2080	3,490	61	100	-
WATER-SERVIC-D050-000-000-291	Hillsburgh - Church St.	tba	1975	50	2025	18,580	6	suggested for 10 year capital forecast	18,580
WATER-SERVIC-D050-000-000-292	Hillsburgh - Spruce St.	tba	1975	50	2025	24,600	6	suggested for 10 year capital forecast	24,600
WATER-SERVIC-D050-000-000-293	Hillsburgh - Mill St.	tba	1975	50	2025	7,150	6	suggested for 10 year capital forecast	7,150
WATER-SERVIC-D075-000-000-294	Hillsburgh - Upper Canada Dr.	tba	2005	75	2080	65,870	61	1,879	-
WATER-SERVIC-D075-000-000-295	Hillsburgh - Leader Court	tba	2005	75	2080	34,030	61	971	-
WATER-SERVIC-D075-000-000-296	Hillsburgh - McMurphy Lane	tba	2005	75	2080	7,850	61	224	-
WATER-SERVIC-D050-000-000-297	Hillsburgh - Douglas Cr.	tba	1975	50	2025	100,340	6	suggested for 10 year capital forecast	100,340
WATER-SERVIC-D050-000-000-298	Hillsburgh - Curry Rd.	tba	1975	50	2025	10,030	6	suggested for 10 year capital forecast	10,030
WATER-SERVIC-D050-000-000-299	Hillsburgh - Water St.	tba	1975	50	2025	5,230	6	suggested for 10 year capital forecast	5,230
WATER-SERVIC-D050-000-000-300	Hillsburgh - Water St.	tba	1995	50	2045	5,230	26	260	-
WATER-SERVIC-D075-000-000-301	Hillsburgh - Barbour Dr.	tba	1995	75	2070	8,720	51	274	-
WATER-SERVIC-D075-000-000-302	Hillsburgh - Barbour Dr.	tba	1995	75	2070	59,330	51	1,866	-
WATER-SERVIC-D075-000-000-303	Hillsburgh - Wallace Ave.	tba	1995	75	2070	16,140	51	508	-
WATER-SERVIC-D075-000-000-304	Hillsburgh - Hill St.	tba	1995	75	2070	10,470	51	329	-
WATER-SERVIC-D075-000-000-305	Hillsburgh - Hill St.	tba	1995	75	2070	29,230	51	920	-
WATER-SERVIC-D075-000-000-306	Hillsburgh - Howe St.	tba	1995	75	2070	26,170	51	823	-
WATER-SERVIC-D075-000-000-307	Hillsburgh - Barbour Walkway	tba	1995	75	2070	9,600	51	302	-
WATER-SERVIC-D075-000-000-308	Erin - 17th Sideroad (Shamrock)	tba	1995	75	2070	89,950	51	2,830	-
WATER-SERVIC-D075-000-000-309	Erin - 17th Sideroad (Shamrock)	tba	1995	75	2070	67,100	51	2,111	-
WATER-SERVIC-D050-000-000-310	Erin - Dundas St. E.	tba	1965	50	2019	8,880	0	suggested for 10 year capital forecast	8,880
WATER-SERVIC-D075-000-000-311	Erin - Dundas St. (Eigth Line)	tba	1985	75	2060	17,460	41	628	-
WATER-SERVIC-D075-000-000-312	Erin - Dundas St. (Eigth Line)	tba	1985	75	2060	23,430	41	843	-
WATER-SERVIC-D075-000-000-313	Erin - Dundas St. (Eigth Line)	tba	1985	75	2060	19,890	41	715	-
WATER-SERVIC-D075-000-000-314	Erin - Dianne Rd.	tba	2005	75	2080	27,230	61	777	-
WATER-SERVIC-D075-000-000-315	Erin - Dianne Rd.	tba	2005	75	2080	1,150	61	33	-
WATER-SERVIC-D075-000-000-316	Erin - Delambro Dr.	tba	2005	75	2080	53,440	61	1,524	-
WATER-SERVIC-D075-000-000-317	Erin - Delambro Dr.	tba	2005	75	2080	39,520	61	1,127	-
WATER-SERVIC-D075-000-000-318	Erin - Forest Ridge Rd.	tba	2005	75	2080	11,800	61	337	-
WATER-SERVIC-D075-000-000-319	Erin - Kenneth Ave	tba	2005	75	2080	26,210	61	748	-
WATER-SERVIC-D075-000-000-320	Erin - Armstrong St.	tba	2005	75	2080	74,300	61	2,119	-
WATER-SERVIC-D075-000-000-321	Erin - Treelong Cres.	tba	2005	75	2080	40,440	61	1,153	-
WATER-SERVIC-D075-000-000-322	Erin - Leenders Lane	tba	2005	75	2080	48,890	61	1,394	-
WATER-SERVIC-D075-000-000-323	Erin - McCullogh Dr.	tba	2005	75	2080	52,690	61	1,503	-
WATER-SERVIC-D075-000-000-324	Erin - McCullogh Dr.	tba	2005	75	2080	800	61	23	-
WATER-SERVIC-D075-000-000-325	Erin - Aspen Crt.	tba	2005	75	2080	19,180	61	547	-
WATER-SERVIC-D075-000-000-326	Erin - Aspen Crt.	tba	2005	75	2080	12,330	61	352	-



**Table A-2  
Town of Erin  
Watermains**

Asset ID	Location	Diameter (mm)	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
WATER-SERVIC-D050-000-000-327	Erin - Charles St.	tba	1985	50	2035	12,460	16	918	-
WATER-SERVIC-D050-000-000-328	Erin - Church St. W	tba	1965	50	2019	13,920	0	suggested for 10 year capital forecast	13,920
WATER-SERVIC-D050-000-000-329	Erin - Church Blvd.	tba	1965	50	2019	9,150	0	suggested for 10 year capital forecast	9,150
WATER-SERVIC-D050-000-000-330	Erin - Church Blvd.	tba	1965	50	2019	9,550	0	suggested for 10 year capital forecast	9,550
WATER-SERVIC-D050-000-000-331	Erin - Centre St.	tba	1965	50	2019	19,400	0	suggested for 10 year capital forecast	19,400
WATER-SERVIC-D075-000-000-332	Erin - Carberry St.	tba	1985	75	2060	21,310	41	767	-
WATER-SERVIC-D050-000-000-333	Erin - Carberry St.	tba	1985	50	2035	4,640	16	342	-
WATER-SERVIC-D050-000-000-334	Erin - Sunnyside Dr.	tba	1965	50	2019	23,780	0	suggested for 10 year capital forecast	23,780
WATER-SERVIC-D075-000-000-335	Erin - Carberry St.	tba	1985	75	2060	3,010	41	108	-
WATER-SERVIC-D050-000-000-336	Erin - Erin Heights Dr.	tba	1975	50	2025	29,480	6	suggested for 10 year capital forecast	29,480
WATER-SERVIC-D050-000-000-337	Erin - Erin Heights Dr.	tba	1975	50	2025	45,260	6	suggested for 10 year capital forecast	45,260
WATER-SERVIC-D050-000-000-338	Erin - Wesley Cresc.	tba	1975	50	2025	26,870	6	suggested for 10 year capital forecast	26,870
WATER-SERVIC-D050-000-000-339	Erin - William Rex Cresc.	tba	1975	50	2025	38,810	6	suggested for 10 year capital forecast	38,810
WATER-SERVIC-D050-000-000-340	Erin - Delerin Cresc.	tba	1975	50	2025	38,990	6	suggested for 10 year capital forecast	38,990
WATER-SERVIC-D050-000-000-341	Erin - Hill St.	tba	2002	50	2052	8,660	33	361	-
WATER-SERVIC-D050-000-000-342	Erin - Hill St.	tba	1985	50	2035	19,670	16	1,449	-
WATER-SERVIC-D050-000-000-343	Erin - Water St.	tba	1965	50	2019	13,880	0	suggested for 10 year capital forecast	13,880
WATER-SERVIC-D075-000-000-344	Erin - Millwood Rd.	tba	2005	75	2080	35,580	61	1,015	-
WATER-SERVIC-D050-000-000-345	Erin - Waterford Dr.	tba	1965	50	2019	24,440	0	suggested for 10 year capital forecast	24,440
WATER-SERVIC-D050-000-000-346	Erin - Waterford Dr.	tba	1965	50	2019	12,910	0	suggested for 10 year capital forecast	12,910
WATER-SERVIC-D075-000-000-347	Erin - Waterford Dr.	tba	1995	75	2070	22,190	51	698	-
WATER-SERVIC-D050-000-000-348	Erin - Water St./Waterford Dr.	tba	1965	50	2019	30,150	0	suggested for 10 year capital forecast	30,150
WATER-SERVIC-D075-000-000-349	Erin - Church St. E..	tba	1985	75	2060	10,390	41	374	-
WATER-SERVIC-D050-000-000-350	Erin - Spring St.	tba	1955	50	2019	9,900	0	suggested for 10 year capital forecast	9,900
WATER-SERVIC-D075-000-000-351	Erin - Scotch St.	tba	1985	75	2060	11,180	41	402	-
WATER-SERVIC-D050-000-000-352	Erin - Scotch St.	tba	1975	50	2025	10,430	6	suggested for 10 year capital forecast	10,430
WATER-SERVIC-D050-000-000-353	Erin - Scotch St.	tba	1975	50	2025	27,360	6	suggested for 10 year capital forecast	27,360
WATER-SERVIC-D050-000-000-354	Erin - Scotch St./Erinlea Cresc	tba	1975	50	2025	7,250	6	suggested for 10 year capital forecast	7,250
WATER-SERVIC-D050-000-000-355	Erin - English St.	tba	1965	50	2019	10,560	0	suggested for 10 year capital forecast	10,560
WATER-SERVIC-D050-000-000-356	Erin - Erindale Dr.	tba	1975	50	2025	9,020	6	suggested for 10 year capital forecast	9,020
WATER-SERVIC-D075-000-000-357	Erin - Wheelock St	tba	1985	75	2060	10,610	41	382	-
WATER-SERVIC-D050-000-000-358	Erin - Erindale Dr.	tba	1975	50	2025	20,950	6	suggested for 10 year capital forecast	20,950
WATER-SERVIC-D050-000-000-359	Erin - Erindale Dr.	tba	1975	50	2025	19,760	6	suggested for 10 year capital forecast	19,760
WATER-SERVIC-D050-000-000-360	Erin - Cross St.	tba	1975	50	2025	8,350	6	suggested for 10 year capital forecast	8,350
WATER-SERVIC-D050-000-000-361	Erin - Erinlea Cresc.	tba	1975	50	2025	14,590	6	suggested for 10 year capital forecast	14,590
WATER-SERVIC-D050-000-000-362	Erin - Erinlea Cresc.	tba	1975	50	2025	33,770	6	suggested for 10 year capital forecast	33,770



**Table A-2  
Town of Erin  
Watermains**

Asset ID	Location	Diameter (mm)	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
WATER-SERVIC-D050-000-000-363	Erin - Tomwell Cresc.	tba	1975	50	2025	24,220	6	suggested for 10 year capital forecast	24,220
WATER-SERVIC-D050-000-000-364	Erin - Pine St.	tba	1965	50	2019	10,700	0	suggested for 10 year capital forecast	10,700
WATER-SERVIC-D050-000-000-365	Erin - Pine St.	tba	1985	50	2035	9,720	16	716	-
WATER-SERVIC-D050-000-000-366	Erin - Ross St.	tba	1965	50	2019	15,380	0	suggested for 10 year capital forecast	15,380
WATER-SERVIC-D050-000-000-367	Erin - May St.	tba	1985	50	2035	9,190	16	677	-
WATER-SERVIC-D050-000-000-368	Erin - Boland Dr.	tba	1975	50	2025	14,320	6	suggested for 10 year capital forecast	14,320
WATER-SERVIC-D075-000-000-369	Erin - Erinville Dr.	tba	1985	75	2060	17,150	41	617	-
WATER-SERVIC-D075-000-000-370	Erin - Erinville Dr.	tba	1985	75	2060	36,250	41	1,304	-
WATER-SERVIC-D075-000-000-371	Erin - Thompson Cresc.	tba	1985	75	2060	64,710	41	2,328	-
WATER-SERVIC-D075-000-000-372	Erin - Erin Park Dr.	tba	1985	75	2060	14,010	41	504	-
WATER-SERVIC-D075-000-000-373	Erin - Erin Park Dr.	tba	1985	75	2060	31,340	41	1,127	-
WATER-SERVIC-D050-000-000-374	Erin - Dundas St. W.	tba	1975	50	2025	38,850	6	suggested for 10 year capital forecast	38,850
WATER-SERVIC-D075-000-000-375	Erin - Dundas St. W.	tba	1985	75	2060	28,020	41	1,008	-
WATER-SERVIC-D050-000-000-376	Erin - Dundas St. E.	tba	1975	50	2025	10,650	6	suggested for 10 year capital forecast	10,650
WATER-SERVIC-D050-000-000-377	Erin - Dundas St. E.	tba	1965	50	2019	34,870	0	suggested for 10 year capital forecast	34,870
WATER-SERVIC-D050-000-000-378	Erin - Dundas St. E.	tba	1965	50	2019	5,700	0	suggested for 10 year capital forecast	5,700
WATER-SERVIC-D050-000-000-379	Erin - Daniel St.	tba	1965	50	2019	10,790	0	suggested for 10 year capital forecast	10,790
WATER-SERVIC-D050-000-000-380	Erin - Daniel St.	tba	1965	50	2019	25,900	0	suggested for 10 year capital forecast	25,900
WATER-SERVIC-D050-000-000-381	Erin - Daniel St.	tba	1965	50	2019	21,530	0	suggested for 10 year capital forecast	21,530
WATER-SERVIC-D050-000-000-382	Erin - Daniel St.	tba	1965	50	2019	11,090	0	suggested for 10 year capital forecast	11,090
WATER-SERVIC-D075-000-000-383	Erin - Daniel St./Wheelock East	tba	1985	75	2060	18,300	41	658	-
WATER-SERVIC-D050-000-000-384	Erin - Daniel St.	tba	1965	50	2019	21,350	0	suggested for 10 year capital forecast	21,350
WATER-SERVIC-D075-000-000-385	Erin - Church Blvd./Centre St.	tba	1985	75	2060	7,960	41	286	-
WATER-SERVIC-D075-000-000-386	Erin - Main St.	tba	2002	75	2077	292,220	58	8,558	-
WATER-SERVIC-D075-000-000-387	Erin - Guelph Rd.	tba	2002	75	2077	75,280	58	2,205	-
WATER-SERVIC-D075-000-000-388	Erin - Lorne St.	tba	1985	75	2060	11,800	41	424	-
WATER-SERVIC-D075-000-000-389	Erin - Main St.	tba	1975	75	2050	25,950	31	1,131	-
WATER-SERVIC-D075-000-000-390	Erin - Trailer Park Service	tba	1995	75	2070	1,590	51	50	-
WATER-SERVIC-D075-000-000-391	Erin - Hill St.	tba	1985	75	2060	11,930	41	429	-
WATER-SERVIC-D075-000-000-392	Hillsburgh - Orangville St.	tba	2012	75	2087	19,320	68	522	-
WATER-SERVIC-D075-000-000-393	Hillsburgh - 97 to 115 Trafalgar	tba	2012	75	2087	27,570	68	745	-
WATER-SERVIC-D075-000-000-394	Hillsburgh - 14, 16, 18 Spruce	tba	2014	75	2089	13,250	70	353	-
WATER-SERVIC-D075-000-000-395	Hillsburgh - 111 Trafalgar Rd	tba	2015	75	2090	6,170	71	163	-
WATER-SERVIC-D075-000-000-396	Erin - 18 Waterford Drive	tba	2015	75	2090	7,590	71	201	-
WATER-SERVIC-D075-000-000-397	Erin - 280 Main St	tba	2015	75	2090	3,960	71	105	-
WATER-SERVIC-D075-000-000-398	Erin - 4 Shamrock Rd	tba	2015	75	2090	3,960	71	105	-
WATER-SERVIC-D075-000-000-399	Hillsburgh - 2 Church St	tba	2015	75	2090	6,890	71	183	-
WATER-SERVIC-D075-000-000-400	Hillsburgh - 133 Trafalgar Rd	tba	2015	75	2090	10,650	71	282	-
<b>Total</b>						<b>26,233,410</b>		<b>547,608</b>	<b>9,309,740</b>



**Table A-3  
Town of Erin  
Water Vehicles**

Item	Location	ID	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
Chevrolet Express Cube Van 2007, Plate:2684TL	Water Shop, 1 Shamrock Rd, Erin	WATER-VEHLIC-D010-000-000-045	2006	10	2019	61,620		suggested for 10 year capital forecast	61,620
Ford E250 Van 2009, Plate:7696ZC	Water Shop, 1 Shamrock Rd, Erin	WATER-VEHLIC-D010-000-000-046	2010	10	2020	25,550		suggested for 10 year capital forecast	25,550
GMC Siera Pickup 2015, Plate:AL62085	Water Shop, 1 Shamrock Rd, Erin	WATER-VEHLIC-D010-000-000-047	2015	10	2025	58,750		suggested for 10 year capital forecast	58,750
2017 GMC Savana Cargo Van RWD 2500 135"	Water Shop, 1 Shamrock Rd, Erin	WATER-VEHLIC-D010-000-000-048	2017	10	2027	32,550		suggested for 10 year capital forecast	32,550
JC Trailer Model DBW 1990	Water Shop, 1 Shamrock Rd, Erin	WATER-TRAILR-D015-000-000-017	1990	15	2019	7,940		suggested for 10 year capital forecast	7,940
Carmate Model CCHD 2011	Water Shop, 1 Shamrock Rd, Erin	WATER-TRAILR-D015-000-000-018	2010	15	2025	8,260		suggested for 10 year capital forecast	8,260
<b>Total</b>						<b>194,670</b>		<b>0</b>	<b>194,670</b>

**Table A-4  
Town of Erin  
Water Vehicles**

Item	Location	ID	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
Radio Meter Reading Device	Municipal Office, 5684 Trafalgar Rd, Hillsburgh	WATER-EQUIPM-D005-000-000-106	2016	5	2021	9,560		suggested for 10 year capital forecast	9,560
Scada System - Hillsburgh sites	Municipal Office, 5684 Trafalgar Rd, Hillsburgh	WATER-EQUIPM-D000-000-000-873	2017	20	2037	178,640	18	11,916	-
Snow Plough blade	Water Shop, 1 Shamrock Rd, Erin	WATER-EQUIPM-D010-000-000-107	2016	10	2026	10,970		suggested for 10 year capital forecast	10,970
Water Meters x 30	Water Dept - Customer Premises	WATER-EQUIPM-D020-000-000-108	2015	20	2035	10,480	16	772	-
Scada System - 3 Erin Village sites	Municipal Office, 5684 Trafalgar Rd, Hillsburgh	WATER-EQUIPM-D020-000-000-109	2015	20	2035	178,270	16	13,130	-
Data Loggers - 4 sites	Municipal Office, 5684 Trafalgar Rd, Hillsburgh	WATER-EQUIPM-D020-000-000-110	2015	20	2035	46,330	16	3,412	-
Generator 100kw Diesel Perkins Silent - Mobile Trailer	Water Shop, 1 Shamrock Rd, Erin	WATER-EQUIPM-D020-000-000-111	2016	20	2036	53,350	17	3,733	-
Generator 100kw Diesel Perkins Silent	Well House #7, 9555 17 Sideroad, Erin	WATER-EQUIPM-D020-000-000-112	2016	20	2036	43,220	17	3,024	-
Fire Hydrants x 2	Water Dept - Linear Infrastructure	WATER-EQUIPM-D020-000-000-113	2016	20	2036	21,270	17	1,488	-
Water Meters x 36	Water Dept - Customer Premises	WATER-EQUIPM-D020-000-000-114	2016	20	2036	13,640	17	954	-
Well #2 Retrofit Control Panel	Well House #2, 5929 Trafalgar Rd, Hillsburgh	WATER-EQUIPM-D020-000-000-115	2017	20	2037	1,820	18	121	-
Generator Upgrade Well #8	Well House #8, 5555 8th Line, Erin	WATER-EQUIPM-D020-000-000-116	2018	20	2038	30,570	19	1,950	-
Generator Upgrade Hillsburgh Heights	Hillsburgh Heights	WATER-EQUIPM-D020-000-000-117	2018	20	2038	28,120	19	1,794	-
Security Cameras at all water facilities	All Water Facilities	WATER-EQUIPM-D020-000-000-118	2018	20	2038	4,870	19	311	-
<b>Total</b>						<b>631,110</b>		<b>42,604</b>	<b>20,530</b>



# Appendix B

## Detailed Water Rate Calculations – Low Growth Scenario





**Table B-1  
Town of Erin  
Water Service  
Capital Budget Forecast  
Uninflated \$**

Description	Budget 2019	Total	Forecast									
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Capital Expenditures</b>												
Building and grounds minor repairs	15,000	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Upgrades		120,000	30,000	30,000	30,000	30,000	-	-	-	-	-	-
Other Capital Replacement		3,600,000				1,000,000			1,200,000			1,400,000
<b>Erin Well # 7</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
upgraded chlorine gas scale		2,500	2,500	-	-	-	-	-	-	-	-	-
new spare gas chlorinator		15,000	-	-	5,000	-	-	5,000	-	-	5,000	-
gas chlorinator rebuilds	11,500	23,000	-	11,500	-	11,500	-	-	-	-	-	-
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party		3,000	-	-	3,000	-	-	-	-	-	-	-
well inspection / video well casing		10,500	3,500	-	-	-	3,500	-	-	-	3,500	-
Gas alarm system tested . Portable meter tested - third party		15,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
upgrade SCBA, have operators fit tested		5,000	5,000	-	-	-	-	-	-	-	-	-
Pull pump and check foot valve		5,000	5,000	-	-	-	-	-	-	-	-	-
remove old booster pump and relabel MCC panel		2,000	2,000	-	-	-	-	-	-	-	-	-
<b>Erin Well # 8</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
gas chlorinator rebuilds	11,500	23,000	-	11,500	-	11,500	-	-	-	-	-	-
new spare gas chlorinator		15,000	-	-	5,000	-	5,000	5,000	-	-	-	-
upgrade SCBA, have operators fit tested		5,000	5,000	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
Gas alarm system tested .		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
install ladder on outside of reservoir		8,000	8,000	-	-	-	-	-	-	-	-	-
Items from recommendations		1,500	500	500	500	-	-	-	-	-	-	-
Trolley/Crane - lifting device inspection - third party		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Water Tower</b>												
inspection of all lifting devices - third party		15,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
video tower internal inspection		22,500	-	7,500	-	-	7,500	7,500	-	-	-	-
Altitude valve inspection - third party		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Booster Station</b>												
PRV rebuilds and replacements		25,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
<b>Hillsburgh and Erin Distribution</b>												
Meter replacement program	11,000	300,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Fire Hydrant rehabilitation/replacement program	17,000	170,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000
Distribution Valve exercising program/ hydrant fire flow testing		65,000	20,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Barbour St. Blow Off		1,500	1,500	-	-	-	-	-	-	-	-	-
<b>Hillsburgh Height's</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
new chemical Hypo metering pump		10,000	-	3,000	-	-	3,500	-	-	3,500	-	-
new chemical Ferric metering pump		10,000	-	3,000	-	-	3,500	-	-	3,500	-	-
rebuilds of chemical pumps/ injectors/lines		5,000	500	500	500	500	500	500	500	500	500	500
VFD's for high lift pumps		12,000	12,000	-	-	-	-	-	-	-	-	-
inspection of pressure relief valve		3,000	-	-	1,000	-	-	1,000	-	-	1,000	-
Lead Filter Replacement		75,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Items from recommendations		10,500	3,500	3,500	3,500	-	-	-	-	-	-	-
<b>Glendevon</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
rebuilds of chemical pumps/ injectors/lines		5,000	500	500	500	500	500	500	500	500	500	500
VFD's for high lift pumps		12,000	12,000	-	-	-	-	-	-	-	-	-
Milltonics level sensor for Reservoir/ SCADA hook up		10,000	10,000	-	-	-	-	-	-	-	-	-
Items from recommendations		10,500	3,500	3,500	3,500	-	-	-	-	-	-	-
<b>Studies:</b>												
Water Rate Study	13,900	27,800				13,900				13,900		
<b>Growth Related:</b>												
New Water Supply (Erin and Hillsburgh)		590,200	-	-	-	-	98,367	98,367	98,367	98,367	98,367	98,367
Water Equipment	43,800	-										
Water Environmental Assessment	1,125,000	-										
<b>Total Capital Expenditures</b>	<b>1,248,700</b>	<b>5,424,500</b>	<b>243,000</b>	<b>143,000</b>	<b>160,500</b>	<b>1,135,900</b>	<b>212,367</b>	<b>185,867</b>	<b>1,389,367</b>	<b>188,267</b>	<b>198,867</b>	<b>1,567,367</b>







**Table B-5**  
**Town of Erin**  
**Water Service**  
**Water Reserve Funds Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	125,746	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	125,746	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	-	-	-	-	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-	-	-	-	-

**Table B-6**  
**Town of Erin**  
**Water Service**  
**Water Development Charges Reserve Fund Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	215,992	(526,414)	(471,532)	(414,243)	(354,470)	(292,140)	(329,460)	(367,986)	(407,717)	(448,643)	(491,699)
Development Charge Proceeds	52,816	64,127	65,412	66,723	68,059	69,420	70,809	72,224	73,671	75,145	96,550
Transfer to Capital	784,900	-	-	-	-	100,280	102,120	103,960	105,800	108,560	110,400
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>(516,287)</b>	<b>(462,287)</b>	<b>(406,120)</b>	<b>(347,520)</b>	<b>(286,412)</b>	<b>(323,000)</b>	<b>(360,771)</b>	<b>(399,723)</b>	<b>(439,846)</b>	<b>(482,058)</b>	<b>(505,549)</b>
Interest	(10,322)	(9,246)	(8,122)	(6,950)	(5,728)	(6,460)	(7,215)	(7,994)	(8,797)	(9,641)	(10,111)
Required from Development Charges	784,900	-	-	-	-	100,280	102,120	103,960	105,800	108,560	110,400

**Table B-7**  
**Town of Erin**  
**Water Service**  
**Water Lifecycle Reserve Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	2,482,927	2,712,621	2,903,188	3,226,759	3,564,360	2,879,397	3,312,674	3,800,666	2,935,217	3,476,317	4,030,882
Transfer from Operating	567,748	443,567	475,571	509,601	543,037	569,997	596,872	626,591	656,300	686,006	718,440
Transfer to Capital	338,054	253,000	152,000	172,000	1,228,000	136,720	108,880	1,492,040	115,200	131,440	1,801,600
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>2,712,621</b>	<b>2,903,188</b>	<b>3,226,759</b>	<b>3,564,360</b>	<b>2,879,397</b>	<b>3,312,674</b>	<b>3,800,666</b>	<b>2,935,217</b>	<b>3,476,317</b>	<b>4,030,882</b>	<b>2,947,723</b>

**Table B-8**  
**Town of Erin**  
**Water Services**  
**Operating Budget Forecast**  
Inflated \$

Description	Budget 2019	Forecast									
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Expenditures</b>											
<b>Operating Costs</b>											
Labour Costs	15,300	51,100	51,100	51,100	52,100	53,100	54,200	55,300	56,400	57,500	58,700
Supplies & Material	-	-	-	-	-	-	-	-	-	-	-
Consulting	27,000	-	-	-	-	-	-	-	-	-	-
Service Agreements	656,000	645,300	654,900	664,700	674,600	688,100	701,900	715,900	730,200	744,800	759,700
General Maintenance	6,500	15,200	16,929	16,929	16,929	17,300	17,600	18,000	18,400	18,800	19,200
Telephone & Mobile	2,700	700	700	700	700	700	700	700	700	700	700
Hydro	115,600	115,600	115,600	115,600	115,600	121,400	127,500	133,900	140,600	147,600	155,000
Natural Gas	-	-	-	-	-	-	-	-	-	-	-
Equipment / Small Tools	-	-	-	-	-	-	-	-	-	-	-
Vehicle Maintenance	-	-	-	-	-	-	-	-	-	-	-
Other Expenses	-	4,500	4,500	4,500	4,500	4,600	4,700	4,800	4,900	5,000	5,100
Insurance	-	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500
Debt Servicing	-	-	-	-	-	-	-	-	-	-	-
Inter Dept Expenses	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
<b>Sub Total Operating</b>	<b>828,100</b>	<b>851,900</b>	<b>863,229</b>	<b>873,029</b>	<b>883,929</b>	<b>904,700</b>	<b>926,100</b>	<b>948,100</b>	<b>970,700</b>	<b>993,900</b>	<b>1,017,900</b>
<b>Capital-Related</b>											
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Contribution (\$)	567,748	443,567	475,571	509,601	543,037	569,997	596,872	626,591	656,300	686,006	718,440
<b>Sub Total Capital Related</b>	<b>567,748</b>	<b>443,567</b>	<b>475,571</b>	<b>509,601</b>	<b>543,037</b>	<b>569,997</b>	<b>596,872</b>	<b>626,591</b>	<b>656,300</b>	<b>686,006</b>	<b>718,440</b>
<b>Total Expenditures</b>	<b>1,395,848</b>	<b>1,295,467</b>	<b>1,338,800</b>	<b>1,382,630</b>	<b>1,426,966</b>	<b>1,474,697</b>	<b>1,522,972</b>	<b>1,574,691</b>	<b>1,627,000</b>	<b>1,679,906</b>	<b>1,736,340</b>
<b>Revenues</b>											
Base Charge	246,400	254,362	262,973	271,871	281,067	290,569	300,389	310,536	321,022	331,857	343,054
Flat Rate	2,437	2,200	2,265	2,330	2,395	2,470	2,545	2,620	2,700	2,780	2,865
Miscellaneous Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-	-
<b>Total Operating Revenue</b>	<b>268,837</b>	<b>276,562</b>	<b>285,238</b>	<b>294,201</b>	<b>303,462</b>	<b>313,039</b>	<b>322,934</b>	<b>333,156</b>	<b>343,722</b>	<b>354,637</b>	<b>365,919</b>
<b>Water Billing Recovery - To be Recovered from Volume Rates</b>	<b>1,127,011</b>	<b>1,018,904</b>	<b>1,053,562</b>	<b>1,088,429</b>	<b>1,123,504</b>	<b>1,161,657</b>	<b>1,200,038</b>	<b>1,241,535</b>	<b>1,283,278</b>	<b>1,325,268</b>	<b>1,370,421</b>
<b>Total Revenues (Fixed + Volumes)</b>	<b>1,395,848</b>	<b>1,295,467</b>	<b>1,338,800</b>	<b>1,382,630</b>	<b>1,426,966</b>	<b>1,474,697</b>	<b>1,522,972</b>	<b>1,574,691</b>	<b>1,627,000</b>	<b>1,679,906</b>	<b>1,736,340</b>

**Table B-9**  
**Town of Erin**  
**Water Services**  
**Water Rate Forecast**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Total Water Billing Recovery	1,127,011	1,018,904	1,053,562	1,088,429	1,123,504	1,161,657	1,200,038	1,241,535	1,283,278	1,325,268	1,370,421
Total Volume (m <sup>3</sup> )	282,459	283,029	283,979	284,929	285,879	286,829	287,779	288,729	289,679	290,629	291,579
<b>Constant Rate</b>	<b>3.99</b>	<b>3.60</b>	<b>3.71</b>	<b>3.82</b>	<b>3.93</b>	<b>4.05</b>	<b>4.17</b>	<b>4.30</b>	<b>4.43</b>	<b>4.56</b>	<b>4.70</b>
<b>Annual Percentage Change</b>		<b>-10%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>





# Appendix C

## Detailed Water Rate Calculations – Medium Growth Scenario





**Table C-1  
Town of Erin  
Water Service  
Capital Budget Forecast  
Uninflated \$**

Description	Budget 2019	Total	Forecast									
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Capital Expenditures</b>												
Building and grounds minor repairs	15,000	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Upgrades		120,000	30,000	30,000	30,000	30,000	-	-	-	-	-	-
Other Capital Replacement		3,600,000				1,000,000			1,200,000			1,400,000
<b>Erin Well # 7</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
upgraded chlorine gas scale		2,500	2,500	-	-	-	-	-	-	-	-	-
new spare gas chlorinator		15,000	-	-	5,000	-	-	5,000	-	-	5,000	-
gas chlorinator rebuilds	11,500	23,000	-	11,500	-	11,500	-	-	-	-	-	-
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party		3,000	-	-	3,000	-	-	-	-	-	-	-
well inspection / video well casing		10,500	3,500	-	-	-	3,500	-	-	-	3,500	-
Gas alarm system tested . Portable meter tested - third party		15,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
upgrade SCBA, have operators fit tested		5,000	5,000	-	-	-	-	-	-	-	-	-
Pull pump and check foot valve		5,000	5,000	-	-	-	-	-	-	-	-	-
remove old booster pump and relabel MCC panel		2,000	2,000	-	-	-	-	-	-	-	-	-
<b>Erin Well # 8</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
gas chlorinator rebuilds	11,500	23,000	-	11,500	-	11,500	-	-	-	-	-	-
new spare gas chlorinator		15,000	-	-	5,000	-	5,000	5,000	-	-	-	-
upgrade SCBA, have operators fit tested		5,000	5,000	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
Gas alarm system tested .		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
install ladder on outside of reservoir		8,000	8,000	-	-	-	-	-	-	-	-	-
Items from recommendations		1,500	500	500	500	-	-	-	-	-	-	-
Trolley/Crane - lifting device inspection - third party		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Water Tower</b>												
inspection of all lifting devices - third party		15,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
video tower internal inspection		22,500	-	7,500	-	-	7,500	7,500	-	-	-	-
Altitude valve inspection - third party		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Booster Station</b>												
PRV rebuilds and replacements		25,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
<b>Hillsburgh and Erin Distribution</b>												
Meter replacement program	11,000	300,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Fire Hydrant rehabilitation/replacement program	17,000	170,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000
Distribution Valve exercising program/ hydrant fire flow testing		65,000	20,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Barbour St. Blow Off		1,500	1,500	-	-	-	-	-	-	-	-	-
<b>Hillsburgh Height's</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
new chemical Hypo metering pump		10,000	-	3,000	-	-	3,500	-	-	3,500	-	-
new chemical Ferric metering pump		10,000	-	3,000	-	-	3,500	-	-	3,500	-	-
rebuilds of chemical pumps/ injectors/lines		5,000	500	500	500	500	500	500	500	500	500	500
VFD's for high lift pumps		12,000	12,000	-	-	-	-	-	-	-	-	-
inspection of pressure relief valve		3,000	-	-	1,000	-	-	1,000	-	-	1,000	-
Lead Filter Replacement		75,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Items from recommendations		10,500	3,500	3,500	3,500	-	-	-	-	-	-	-
<b>Glendevon</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
rebuilds of chemical pumps/ injectors/lines		5,000	500	500	500	500	500	500	500	500	500	500
VFD's for high lift pumps		12,000	12,000	-	-	-	-	-	-	-	-	-
Milltonics level sensor for Reservoir/ SCADA hook up		10,000	10,000	-	-	-	-	-	-	-	-	-
Items from recommendations		10,500	3,500	3,500	3,500	-	-	-	-	-	-	-
<b>Studies:</b>												
Water Rate Study	13,900	27,800				13,900				13,900		
<b>Growth Related:</b>												
New Water Supply (Erin and Hillsburgh)		5,213,700	1,303,425	1,303,425	1,303,425	1,303,425						
Water Equipment	43,800	-										
Water Environmental Assessment	1,125,000	-										
<b>Total Capital Expenditures</b>	<b>1,248,700</b>	<b>10,048,000</b>	<b>1,546,425</b>	<b>1,446,425</b>	<b>1,463,925</b>	<b>2,439,325</b>	<b>114,000</b>	<b>87,500</b>	<b>1,291,000</b>	<b>89,900</b>	<b>100,500</b>	<b>1,469,000</b>





**Table C-5**  
**Town of Erin**  
**Water Service**  
**Water Reserve Funds Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	125,746	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	125,746	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	-	-	-	-	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-	-	-	-	-

**Table C-6**  
**Town of Erin**  
**Water Service**  
**Water Development Charges Reserve Fund Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	215,992	(526,414)	(1,666,371)	(2,852,102)	(4,084,477)	(5,365,321)	(5,345,198)	(5,139,169)	(4,922,771)	(4,428,131)	(3,911,726)
Development Charge Proceeds	52,816	115,397	117,712	120,073	122,479	124,930	306,798	312,923	581,466	593,106	624,856
Transfer to Capital	784,900	1,222,680	1,247,520	1,272,360	1,298,120	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>(516,092)</b>	<b>(1,633,697)</b>	<b>(2,796,178)</b>	<b>(4,004,389)</b>	<b>(5,260,119)</b>	<b>(5,240,391)</b>	<b>(5,038,401)</b>	<b>(4,826,246)</b>	<b>(4,341,305)</b>	<b>(3,835,025)</b>	<b>(3,286,870)</b>
Interest	(10,322)	(32,674)	(55,924)	(80,088)	(105,202)	(104,808)	(100,768)	(96,525)	(86,826)	(76,701)	(65,737)
Required from Development Charges	784,900	1,222,680	1,247,520	1,272,360	1,298,120	-	-	-	-	-	-

**Table C-7**  
**Town of Erin**  
**Water Service**  
**Water Lifecycle Reserve Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	2,482,927	2,712,621	2,801,239	3,029,843	3,279,994	2,515,560	3,001,819	3,570,601	2,833,223	3,578,215	4,442,317
Transfer from Operating	567,748	447,938	489,084	532,791	576,447	614,258	668,782	745,622	850,992	986,102	1,130,412
Transfer to Capital	338,054	359,320	260,480	282,640	1,340,880	128,000	100,000	1,483,000	106,000	122,000	1,792,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>2,712,621</b>	<b>2,801,239</b>	<b>3,029,843</b>	<b>3,279,994</b>	<b>2,515,560</b>	<b>3,001,819</b>	<b>3,570,601</b>	<b>2,833,223</b>	<b>3,578,215</b>	<b>4,442,317</b>	<b>3,780,728</b>

**Table C-8**  
**Town of Erin**  
**Water Services**  
**Operating Budget Forecast**  
Inflated \$

Description	Budget 2019	Forecast									
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Expenditures</b>											
<b>Operating Costs</b>											
Labour Costs	15,300	51,100	51,100	51,100	52,100	53,100	54,200	55,300	56,400	57,500	58,700
Supplies & Material	-	-	-	-	-	-	-	-	-	-	-
Consulting	27,000	-	-	-	-	-	-	-	-	-	-
Service Agreements	656,000	645,300	654,900	664,700	674,600	688,100	701,900	715,900	730,200	744,800	759,700
General Maintenance	6,500	15,200	16,929	16,929	16,929	17,300	17,600	18,000	18,400	18,800	19,200
Telephone & Mobile	2,700	700	700	700	700	700	700	700	700	700	700
Hydro	115,600	115,600	115,600	115,600	115,600	121,400	127,500	133,900	140,600	147,600	155,000
Natural Gas	-	-	-	-	-	-	-	-	-	-	-
Equipment / Small Tools	-	-	-	-	-	-	-	-	-	-	-
Vehicle Maintenance	-	-	-	-	-	-	-	-	-	-	-
Other Expenses	-	4,500	4,500	4,500	4,500	4,600	4,700	4,800	4,900	5,000	5,100
Insurance	-	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500	14,500
Debt Servicing	-	-	-	-	-	-	-	-	-	-	-
Inter Dept Expenses	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
<b>Sub Total Operating</b>	<b>828,100</b>	<b>851,900</b>	<b>863,229</b>	<b>873,029</b>	<b>883,929</b>	<b>904,700</b>	<b>926,100</b>	<b>948,100</b>	<b>970,700</b>	<b>993,900</b>	<b>1,017,900</b>
<b>Capital-Related</b>											
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Contribution (\$)	567,748	447,938	489,084	532,791	576,447	614,258	668,782	745,622	850,992	986,102	1,130,412
<b>Sub Total Capital Related</b>	<b>567,748</b>	<b>447,938</b>	<b>489,084</b>	<b>532,791</b>	<b>576,447</b>	<b>614,258</b>	<b>668,782</b>	<b>745,622</b>	<b>850,992</b>	<b>986,102</b>	<b>1,130,412</b>
<b>Total Expenditures</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,460,376</b>	<b>1,518,958</b>	<b>1,594,882</b>	<b>1,693,722</b>	<b>1,821,692</b>	<b>1,980,002</b>	<b>2,148,312</b>
<b>Revenues</b>											
Base Charge	246,400	255,314	265,912	276,916	288,342	300,203	316,046	336,429	363,366	397,159	432,652
Fiat Rate	2,437	2,200	2,265	2,330	2,395	2,470	2,545	2,620	2,700	2,780	2,865
Miscellaneous Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-	-
<b>Total Operating Revenue</b>	<b>268,837</b>	<b>277,514</b>	<b>288,177</b>	<b>299,246</b>	<b>310,737</b>	<b>322,673</b>	<b>338,591</b>	<b>359,049</b>	<b>386,066</b>	<b>419,939</b>	<b>455,517</b>
<b>Water Billing Recovery - To be Recovered from Volume Rates</b>	<b>1,127,011</b>	<b>1,022,324</b>	<b>1,064,136</b>	<b>1,106,574</b>	<b>1,149,639</b>	<b>1,196,285</b>	<b>1,256,292</b>	<b>1,334,673</b>	<b>1,435,626</b>	<b>1,560,063</b>	<b>1,692,794</b>
<b>Total Revenues (Fixed + Volumes)</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,460,376</b>	<b>1,518,958</b>	<b>1,594,882</b>	<b>1,693,722</b>	<b>1,821,692</b>	<b>1,980,002</b>	<b>2,148,312</b>

**Table C-9**  
**Town of Erin**  
**Water Services**  
**Water Rate Forecast**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Total Water Billing Recovery	1,127,011	1,022,324	1,064,136	1,106,574	1,149,639	1,196,285	1,256,292	1,334,673	1,435,626	1,560,063	1,692,794
Total Volume (m <sup>3</sup> )	282,459	283,979	286,829	289,679	292,529	295,379	301,269	310,389	324,069	342,119	360,169
<b>Constant Rate</b>	<b>3.99</b>	<b>3.60</b>	<b>3.71</b>	<b>3.82</b>	<b>3.93</b>	<b>4.05</b>	<b>4.17</b>	<b>4.30</b>	<b>4.43</b>	<b>4.56</b>	<b>4.70</b>
<b>Annual Percentage Change</b>		<b>-10%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>







# Appendix D

## Detailed Water Rate Calculations – High Growth Scenario





**Table D-1  
Town of Erin  
Water Service  
Capital Budget Forecast  
Uninflated \$**

Description	Budget 2019	Total	Forecast									
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Capital Expenditures</b>												
Building and grounds minor repairs	15,000	-	-	-	-	-	-	-	-	-	-	-
Energy Efficiency Upgrades		120,000	30,000	30,000	30,000	30,000	-	-	-	-	-	-
Other Capital Replacement		3,600,000				1,000,000			1,200,000			1,400,000
<b>Erin Well # 7</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
upgraded chlorine gas scale		2,500	2,500	-	-	-	-	-	-	-	-	-
new spare gas chlorinator		15,000	-	-	5,000	-	-	5,000	-	-	5,000	-
gas chlorinator rebuilds	11,500	23,000	-	11,500	-	11,500	-	-	-	-	-	-
DWQMS external 3rd Party Audit for Erin and Hillsburgh. - third party		3,000	-	-	3,000	-	-	-	-	-	-	-
well inspection / video well casing		10,500	3,500	-	-	-	3,500	-	-	-	3,500	-
Gas alarm system tested . Portable meter tested - third party		15,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
upgrade SCBA, have operators fit tested		5,000	5,000	-	-	-	-	-	-	-	-	-
Pull pump and check foot valve		5,000	5,000	-	-	-	-	-	-	-	-	-
remove old booster pump and relabel MCC panel		2,000	2,000	-	-	-	-	-	-	-	-	-
<b>Erin Well # 8</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
gas chlorinator rebuilds	11,500	23,000	-	11,500	-	11,500	-	-	-	-	-	-
new spare gas chlorinator		15,000	-	-	5,000	-	5,000	5,000	-	-	-	-
upgrade SCBA, have operators fit tested		5,000	5,000	-	-	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
Gas alarm system tested .		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
install ladder on outside of reservoir		8,000	8,000	-	-	-	-	-	-	-	-	-
Items from recommendations		1,500	500	500	500	-	-	-	-	-	-	-
Trolley/Crane - lifting device inspection - third party		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Water Tower</b>												
inspection of all lifting devices - third party		15,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
video tower internal inspection		22,500	-	7,500	-	-	7,500	7,500	-	-	-	-
Altitude valve inspection - third party		10,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Booster Station</b>												
PRV rebuilds and replacements		25,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
<b>Hillsburgh and Erin Distribution</b>												
Meter replacement program	11,000	300,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Fire Hydrant rehabilitation/replacement program	17,000	170,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000
Distribution Valve exercising program/ hydrant fire flow testing		65,000	20,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Barbour St. Blow Off		1,500	1,500	-	-	-	-	-	-	-	-	-
<b>Hillsburgh Height's</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
new chemical Hypo metering pump		10,000	-	3,000	-	-	3,500	-	-	3,500	-	-
new chemical Ferric metering pump		10,000	-	3,000	-	-	3,500	-	-	3,500	-	-
rebuilds of chemical pumps/ injectors/lines		5,000	500	500	500	500	500	500	500	500	500	500
VFD's for high lift pumps		12,000	12,000	-	-	-	-	-	-	-	-	-
inspection of pressure relief valve		3,000	-	-	1,000	-	-	1,000	-	-	1,000	-
Lead Filter Replacement		75,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Items from recommendations		10,500	3,500	3,500	3,500	-	-	-	-	-	-	-
<b>Glendevon</b>												
Clear well Video inspection & Cleaning		27,500	5,500	-	5,500	-	5,500	-	5,500	-	5,500	-
well inspection / video well casing		12,000	6,000	-	6,000	-	-	-	-	-	-	-
install new Cl2 analyzer with logger data back-up		5,000	5,000	-	-	-	-	-	-	-	-	-
rebuilds of chemical pumps/ injectors/lines		5,000	500	500	500	500	500	500	500	500	500	500
VFD's for high lift pumps		12,000	12,000	-	-	-	-	-	-	-	-	-
Miltronics level sensor for Reservoir/ SCADA hook up		10,000	10,000	-	-	-	-	-	-	-	-	-
Items from recommendations		10,500	3,500	3,500	3,500	-	-	-	-	-	-	-
<b>Studies:</b>												
Water Rate Study	13,900	27,800				13,900				13,900		
<b>Growth Related:</b>												
New Water Supply (Erin and Hillsburgh)		24,452,600	6,113,150	6,113,150	6,113,150	6,113,150						
Water Equipment	43,800	-										
Water Environmental Assessment	1,125,000	-										
<b>Total Capital Expenditures</b>	<b>1,248,700</b>	<b>29,286,900</b>	<b>6,356,150</b>	<b>6,256,150</b>	<b>6,273,650</b>	<b>7,249,050</b>	<b>114,000</b>	<b>87,500</b>	<b>1,291,000</b>	<b>89,900</b>	<b>100,500</b>	<b>1,469,000</b>





**Table D-5  
Town of Erin  
Water Service  
Water Reserve Funds Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	125,746	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	125,746	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	-	-	-	-	-	-	-	-	-	-	-
Interest	-	-	-	-	-	-	-	-	-	-	-

**Table D-6  
Town of Erin  
Water Service  
Water Development Charges Reserve Fund Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	215,992	(526,414)	(6,270,161)	(12,243,722)	(18,453,523)	(23,325,069)	(22,050,465)	(20,700,079)	(19,286,932)	(17,769,653)	(16,183,916)
Development Charge Proceeds	52,816	115,397	117,712	120,073	1,673,449	1,706,965	1,756,270	1,791,323	1,865,704	1,903,068	1,960,978
Transfer to Capital	784,900	5,736,200	5,851,200	5,968,040	6,087,640	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>(516,092)</b>	<b>(6,147,217)</b>	<b>(12,003,649)</b>	<b>(18,091,689)</b>	<b>(22,867,714)</b>	<b>(21,618,103)</b>	<b>(20,294,196)</b>	<b>(18,908,757)</b>	<b>(17,421,228)</b>	<b>(15,866,585)</b>	<b>(14,222,938)</b>
Interest	(10,322)	(122,944)	(240,073)	(361,834)	(457,354)	(432,362)	(405,884)	(378,175)	(348,425)	(317,332)	(284,459)
Required from Development Charges	784,900	5,736,200	5,851,200	5,968,040	6,087,640	-	-	-	-	-	-

**Table D-7  
Town of Erin  
Water Service  
Water Lifecycle Reserve Continuity**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Opening Balance	2,482,927	2,712,621	2,408,759	2,237,043	2,078,874	1,033,508	1,783,861	2,900,190	2,995,915	4,855,403	7,109,382
Transfer from Operating	567,748	447,938	489,084	532,791	711,994	878,353	1,216,329	1,578,725	1,965,488	2,375,980	2,812,935
Transfer to Capital	338,054	751,800	660,800	690,960	1,757,360	128,000	100,000	1,483,000	106,000	122,000	1,792,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
<b>Closing Balance</b>	<b>2,712,621</b>	<b>2,408,759</b>	<b>2,237,043</b>	<b>2,078,874</b>	<b>1,033,508</b>	<b>1,783,861</b>	<b>2,900,190</b>	<b>2,995,915</b>	<b>4,855,403</b>	<b>7,109,382</b>	<b>8,130,317</b>

**Table D-8  
Town of Erin  
Water Services  
Operating Budget Forecast**  
Inflated \$

Description	Budget 2019	Forecast									
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<b>Expenditures</b>											
<b>Operating Costs</b>											
Labour Costs	15,300	51,100	51,100	51,100	52,100	62,500	63,800	65,100	66,400	67,700	69,100
Supplies & Material	-	-	-	-	-	-	-	-	-	-	-
Consulting	27,000	-	-	-	-	-	-	-	-	-	-
Service Agreements	656,000	645,300	654,900	664,700	674,600	809,500	825,700	842,200	859,000	876,200	893,700
General Maintenance	6,500	15,200	16,929	16,929	16,929	20,300	20,700	21,100	21,500	21,900	22,300
Telephone & Mobile	2,700	700	700	700	700	800	800	800	800	800	800
Hydro	115,600	115,600	115,600	115,600	115,600	138,700	145,600	152,900	160,500	168,500	176,900
Natural Gas	-	-	-	-	-	-	-	-	-	-	-
Equipment / Small Tools	-	-	-	-	-	-	-	-	-	-	-
Vehicle Maintenance	-	-	-	-	-	-	-	-	-	-	-
Other Expenses	-	4,500	4,500	4,500	4,500	5,400	5,500	5,600	5,700	5,800	5,900
Insurance	-	14,500	14,500	14,500	14,500	17,400	17,400	17,400	17,400	17,400	17,400
Debt Servicing	-	-	-	-	-	-	-	-	-	-	-
Inter Dept Expenses	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	6,000
<b>Sub Total Operating</b>	<b>828,100</b>	<b>851,900</b>	<b>863,229</b>	<b>873,029</b>	<b>883,929</b>	<b>1,060,600</b>	<b>1,085,500</b>	<b>1,111,100</b>	<b>1,137,300</b>	<b>1,164,300</b>	<b>1,192,100</b>
<b>Capital-Related</b>											
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Contribution (\$)	567,748	447,938	489,084	532,791	711,994	878,353	1,216,329	1,578,725	1,965,488	2,375,980	2,812,935
<b>Sub Total Capital Related</b>	<b>567,748</b>	<b>447,938</b>	<b>489,084</b>	<b>532,791</b>	<b>711,994</b>	<b>878,353</b>	<b>1,216,329</b>	<b>1,578,725</b>	<b>1,965,488</b>	<b>2,375,980</b>	<b>2,812,935</b>
<b>Total Expenditures</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,595,923</b>	<b>1,938,953</b>	<b>2,301,829</b>	<b>2,689,825</b>	<b>3,102,788</b>	<b>3,540,280</b>	<b>4,005,035</b>
<b>Revenues</b>											
Base Charge	246,400	255,314	265,912	276,916	317,858	391,622	469,967	553,114	641,997	736,679	836,465
Flat Rate	2,437	2,200	2,265	2,300	2,395	2,470	2,545	2,620	2,700	2,780	2,865
Miscellaneous Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-	-
<b>Total Operating Revenue</b>	<b>268,837</b>	<b>277,514</b>	<b>288,177</b>	<b>299,246</b>	<b>340,253</b>	<b>414,092</b>	<b>492,512</b>	<b>575,734</b>	<b>664,697</b>	<b>759,459</b>	<b>859,330</b>
<b>Water Billing Recovery - To be Recovered from Volume Rates</b>	<b>1,127,011</b>	<b>1,022,324</b>	<b>1,064,136</b>	<b>1,106,574</b>	<b>1,255,670</b>	<b>1,524,861</b>	<b>1,809,317</b>	<b>2,114,091</b>	<b>2,438,090</b>	<b>2,780,820</b>	<b>3,145,705</b>
<b>Total Revenues (Fixed + Volumes)</b>	<b>1,395,848</b>	<b>1,299,838</b>	<b>1,352,313</b>	<b>1,405,820</b>	<b>1,595,923</b>	<b>1,938,953</b>	<b>2,301,829</b>	<b>2,689,825</b>	<b>3,102,788</b>	<b>3,540,280</b>	<b>4,005,035</b>

**Table D-9  
Town of Erin  
Water Services  
Water Rate Forecast**  
Inflated \$

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Total Water Billing Recovery	1,127,011	1,022,324	1,064,136	1,106,574	1,255,670	1,524,861	1,809,317	2,114,091	2,438,090	2,780,820	3,145,705
Total Volume (m <sup>3</sup> )	282,459	283,979	286,829	289,679	319,509	376,509	433,889	491,649	550,359	609,829	669,299
<b>Constant Rate</b>	<b>3.99</b>	<b>3.60</b>	<b>3.71</b>	<b>3.82</b>	<b>3.93</b>	<b>4.05</b>	<b>4.17</b>	<b>4.30</b>	<b>4.43</b>	<b>4.56</b>	<b>4.70</b>
<b>Annual Percentage Change</b>		<b>-10%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>3%</b>