Water and Wastewater Rate Study

Township of Essa

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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
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
H.E.W.S.F.	Housing-Enabling Water Systems Fund
I.J.P.A.	Infrastructure for Jobs and Prosperity Act, 2015
I.O.	Infrastructure Ontario
M.O.E.	Ministry of Environment
O.C.I.F.	Ontario Community Infrastructure Fund
OLT	Ontario Land Tribunal
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 Township of Essa (Township) retained Watson & Associates Economists Ltd. (Watson) to undertake a water and wastewater rate study. This study aims to provide an analysis of current and future capital and operating costs, costing for lifecycle cost requirements, water and wastewater volumes and customer profiles. The results of this analysis provide the Township with updated water and wastewater base charges and volume rates. The rate analysis contained herein provides 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 the following:

- The Township currently serves 4,389 water customers and 4,394 wastewater customers. 1,358 new water and wastewater customers are assumed to be added over 2035 forecast period.
- The 2025 to 2035 capital spending program for water and wastewater is $40.63 million and $47.11 million (inflated), respectively.
- The forecasted operating expenditures (for water and wastewater) have been adjusted to recognize inflation:
    - For utilities, chemicals, and hydro – assumed 5% per year
    - For all other operating expenditures – assumed 3.5% per year
- The present rate structure of a quarterly base charge and volume rates are proposed to be continued.

To meet these expenditure requirements, the following water and wastewater rate increases are suggested:

- The quarterly base charges and volume rates for water are projected to increase by 4% annually over the forecast period.
- The wastewater quarterly base charges and volume rates to remain at 136.3% of the corresponding water bill over the forecast period.

Based on the above, the combined water/wastewater bill is anticipated to increase by an average of 4% annually over the 2025 to 2035 forecast period. This represents an average annual increase of $43.40 for residential customers on the combined water and wastewater bill (based on 199 cubic metres of usage and a ⅝" meter.)

Tables ES-1 and ES-2 summarizes the recommended water and wastewater rates and average annual bill, respectively, (assuming an annual volume of 199 cubic metres) based on the analysis provided herein over the forecast period.

Table ES-3 provides the combined water and wastewater bills.

Table ES-1
Township of Essa
Water Rate Summary
Based on a ⅝" Meter and Annual Volume of 199 cubic metres

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Quarterly Base Rate	$16.86	$17.53	$18.24	$18.97	$19.72	$20.51	$21.33	$22.19	$23.07	$24.00	$24.96
Constant Rate	$1.58	$1.64	$1.71	$1.78	$1.85	$1.92	$2.00	$2.08	$2.16	$2.25	$2.34
Annual Base Rate Bill	**$67.44**	**$70.14**	**$72.94**	**$75.86**	**$78.90**	**$82.05**	**$85.33**	**$88.75**	**$92.30**	**$95.99**	**$99.83**
Volume	199	199	199	199	199	199	199	199	199	199	199
Annual Volume Bill	**$314.53**	**$326.48**	**$340.41**	**$354.35**	**$368.28**	**$382.22**	**$398.14**	**$414.07**	**$429.99**	**$447.91**	**$465.83**
Total Annual Bill	**$381.97**	**$396.61**	**$413.35**	**$430.21**	**$447.18**	**$464.27**	**$483.48**	**$502.81**	**$522.29**	**$543.90**	**$565.65**
%Increase - Total Annual Bill		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

Table ES-2
Township of Essa
Wastewater Rate Summary
Based on a ⅝" Meter and Annual Volume of 199 cubic metres

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Quarterly Base Rate	$22.98	$23.90	$24.86	$25.85	$26.88	$27.96	$29.08	$30.24	$31.45	$32.71	$34.02
Constant Rate	$2.15	$2.24	$2.33	$2.43	$2.52	$2.62	$2.73	$2.84	$2.94	$3.07	$3.19
Annual Base Rate Bill	**$91.92**	**$95.60**	**$99.42**	**$103.40**	**$107.53**	**$111.84**	**$116.31**	**$120.96**	**$125.80**	**$130.83**	**$136.07**
Volume	199	199	199	199	199	199	199	199	199	199	199
Annual Volume Bill	**$428.71**	**$444.99**	**$463.98**	**$482.97**	**$501.97**	**$520.96**	**$542.67**	**$564.37**	**$586.08**	**$610.50**	**$634.92**
Total Annual Bill	**$520.63**	**$540.59**	**$563.40**	**$586.37**	**$609.50**	**$632.80**	**$658.98**	**$685.34**	**$711.88**	**$741.33**	**$770.99**
%Increase - Total Annual Bill		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

Table ES-3
Township of Essa
Water and Wastewater Rate Summary
Total Combined Customer Bill – Based on a ⅝" Meter and Annual Volume of 199 cubic metres

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Annual Water Bill	$381.97	$396.61	$413.35	$430.21	$447.18	$464.27	$483.48	$502.81	$522.29	$543.90	$565.65
Annual Wastewater Bill	$520.63	$540.59	$563.40	$586.37	$609.50	$632.80	$658.98	$685.34	$711.88	$741.33	$770.99
Total Annual Bill	**$902.60**	**$937.20**	**$976.76**	**$1,016.58**	**$1,056.68**	**$1,097.06**	**$1,142.45**	**$1,188.15**	**$1,234.17**	**$1,285.23**	**$1,336.64**
%Increase - Total Annual Bill		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

Report

Chapter 1
Introduction

1. Introduction

1.1 Background

The Township of Essa provides municipal water services to residents through the McGeorge, Mill St., Brownley, Baxter, and Thornton drinking water systems. Wastewater is collected and conveyed to the Angus treatment facility operated by the Township, where it is treated in accordance with provincial standards before being safely discharged to the environment.

Currently, there are 4,389 water customers and 4,394 wastewater customers within the Township. These users are billed a quarterly charge as well as a volume rate based on their water consumption. Revenues received from the charges directly fund the capital and operating budgets.

Table 1-1 provides the existing rates currently in effect.

Table 1-1
Township of Essa
Water and Wastewater Rates – 2025

2025 - Water Billing Rates	
Quarterly Base Charge	
5/8"	16.86
1"	23.68
1 ½"	30.45
2"	49.05
3"	186.05
Volume Charge	
$ 1.58	per m^3

2025 - Wastewater Billing Rates	
Quarterly Base Charge	
5/8"	22.98
1"	32.28
1 ½"	41.50
2"	66.86
3"	253.59
Volume Charge	
$ 2.15	per m^3

Since the Walkerton crisis, the Province has continued to make legislative changes for municipal water and wastewater systems. Noted below are the historical changes along with pending legislation anticipated to be implemented in the future. Watson & Associates Economists Ltd. (Watson) was retained by the Township to assist in addressing these changes in a proactive manner as they relate to the water and wastewater systems. The assessment provided herein addresses changes

recommended to the water and wastewater rates based on the most current information and forecasts the implications over the forecast period.

1.2 Study Process

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

- Identify all current and future water and wastewater 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 Council the findings to assist in gaining approval of the rates for 2026 and future years.

1.3 Regulatory Changes in Ontario

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 Township and the capital spending plan provided herein. The following sections describe these various resulting changes.

1.4 Sustainable Water and Sewage Systems Act

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

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

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:

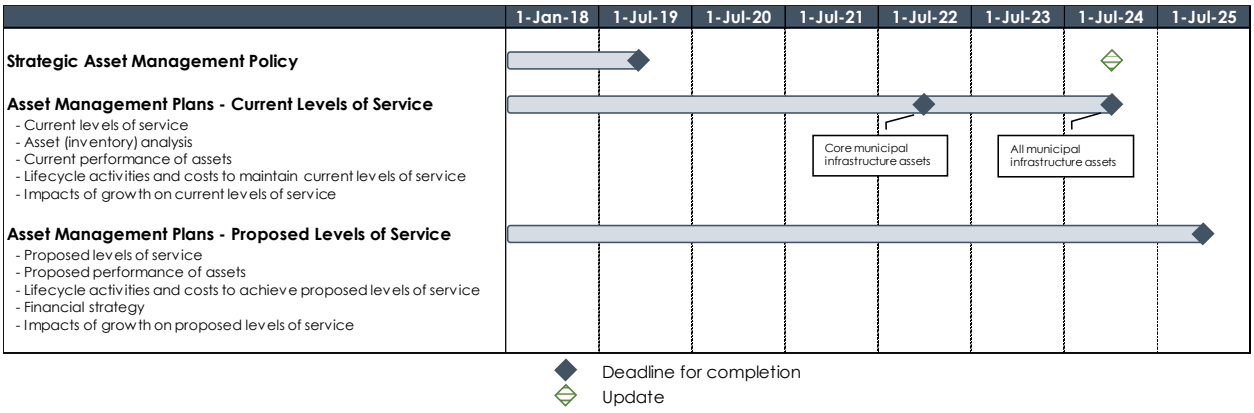
- Timing;
- Contents of the plans;
- Which identified portions of the plan will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

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:

Figure 1-1
Legislative Timelines set out by the Infrastructure for Jobs and Prosperity Act
Legislation related to Asset Management Plans



Note: on March 15, 2021, the Province filed Regulation 193/21 to extend all of the timelines of Regulation 588/17 by one year (reflected in the table above).

Every municipality in Ontario was to have prepared 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, 2022):
    - 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, 2024):
    - Same steps as Phase 1 but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2025):
    - 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 were to have an asset management plan that addresses the related infrastructure by July 1, 2022 (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.

1.8 Forecast Growth and Servicing Requirements

As described earlier in this chapter, the Township services 4,389 water customers and 4,394 wastewater customers. Information on the existing number of customers and existing billable volumes was obtained from the Township.

For future water and wastewater customers to be added to the systems, consideration has been given to the potential new developments identified in the Development Charges Background Study over the forecast period between 2025 to 2035

The forecast assumes the addition of 1,358 water and wastewater customers over the forecast period. For operating revenue purposes, it would be undesirable to forecast too high as it could produce a potential operating deficit should the growth in the water and wastewater systems not materialize.

Based on historical information, the Township's volumes per customer is 199 m^3 per year. For forecasting purposes, the assumed billable volumes per customer will be based on that figure.

Table 1-2 provides for the forecast of water users and volumes, while Table 1-3 provides the forecast of wastewater users and volumes.

Table 1-2
Township of Essa
Water System Forecast

Year	Total Users	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2025	141	71	141	141	141	141	141	141	141	141	141	141
2026	133		67	133	133	133	133	133	133	133	133	133
2027	118			59	118	118	118	118	118	118	118	118
2028	121				61	121	121	121	121	121	121	121
2029	123					62	123	123	123	123	123	123
2030	126						63	126	126	126	126	126
2031	129							65	129	129	129	129
2032	119								60	119	119	119
2033	137									69	137	137
2034	140										70	140
2035	142											71
Total	**1,429**	**71**	**208**	**333**	**453**	**575**	**699**	**827**	**951**	**1,079**	**1,217**	**1,358**
m^3/user	199	199	199	199	199	199	199	199	199	199	199	199
Annual Flow		**14,134**	**41,407**	**66,291**	**90,179**	**114,466**	**139,151**	**164,632**	**189,317**	**214,798**	**242,270**	**270,339**

Water Customer Forecast	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing-Angus	4,389	4,389	4,389	4,389	4,389	4,389	4,389	4,389	4,389	4,389	4,389
Existing-Baxter	55	55	55	55	55	55	55	55	55	55	55
Existing-Thornton	528	528	528	528	528	528	528	528	528	528	528
New - Growth	71	208	333	453	575	699	827	951	1,079	1,217	1,358
Total	**5,043**	**5,180**	**5,305**	**5,425**	**5,547**	**5,671**	**5,799**	**5,923**	**6,051**	**6,189**	**6,330**

Water Volume Forecast (m^3)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553	1,138,553
New	14,134	41,407	66,291	90,179	114,466	139,151	164,632	189,317	214,798	242,270	270,339
Total	**1,152,687**	**1,179,960**	**1,204,844**	**1,228,732**	**1,253,019**	**1,277,704**	**1,303,185**	**1,327,870**	**1,353,351**	**1,380,823**	**1,408,892**

Table 1-3
Township of Essa
Wastewater System Forecast

Year	Total Users	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2025	141	71	141	141	141	141	141	141	141	141	141	141
2026	133		67	133	133	133	133	133	133	133	133	133
2027	118			59	118	118	118	118	118	118	118	118
2028	121				61	121	121	121	121	121	121	121
2029	123					62	123	123	123	123	123	123
2030	126						63	126	126	126	126	126
2031	129							65	129	129	129	129
2032	119								60	119	119	119
2033	137									69	137	137
2034	140										70	140
2035	142											71
Total	**1,429**	**71**	**208**	**333**	**453**	**575**	**699**	**827**	**951**	**1,079**	**1,217**	**1,358**
m^3/user	199	199	199	199	199	199	199	199	199	199	199	199
Annual Flow		**14,134**	**41,407**	**66,291**	**90,179**	**114,466**	**139,151**	**164,632**	**189,317**	**214,798**	**242,270**	**270,339**

Wastewater Customer Forecast	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394
New - Growth	71	208	333	453	575	699	827	951	1,079	1,217	1,358
Total	**4,465**	**4,602**	**4,727**	**4,847**	**4,969**	**5,093**	**5,221**	**5,345**	**5,473**	**5,611**	**5,752**

Wastewater Flows Forecast (m^3)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343	1,132,343
New	14,134	41,407	66,291	90,179	114,466	139,151	164,632	189,317	214,798	242,270	270,339
Total	**1,146,477**	**1,173,750**	**1,198,634**	**1,222,522**	**1,246,809**	**1,271,494**	**1,296,975**	**1,321,660**	**1,347,141**	**1,374,613**	**1,402,682**

Chapter 2
Capital Infrastructure Needs

2. Capital Infrastructure Needs

2.1 Capital Forecast

Capital forecasts have been provided for the water and wastewater systems and are presented in Tables 2-1 and 2-2 (note: the costs are in inflated dollars). The basis for these forecasts include the Township's capital requirements, projects identified by the Ontario Clean Water Association (OCWA), projects identified in the development charges background study, as well as other lifecycle-related works. It is noted that the inflation assumption for the capital program is assumed to be 3.5% per year.

For water, the capital costs over the forecast period totals $40.63 million. For wastewater, the capital costs over the forecast period totals $47.11 million.

Table 2-1
Township of Essa
2025 to 2035 Water Capital Forecast Summary (Inflated $)

Description	Total 2025-2035	Years Undertaken
Capital Expenditures		
Rate Study	63,500	2025, 2030, 2035
Angus Mill Street DWS		
Diesel Generator Repairs and Load Testing	66,000	2025-2035
Annual TSSA Inspections of Diesel Fuel Tanks and Generators as Requested by MECP	26,000	2025-2035
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	59,500	2025-2035
PLC Upgrades Mill St, McGeorge, Brownley	220,000	2025
Mill Street Reservoir Cleaning	20,000	2025
Well#1 Downwell Inspection and Flow Test and Cleaning	27,000	2027
Angus Brownley DWS		
Diesel Generator Repairs and Load Testing	66,000	2025-2035
Annual TSSA Inspections of Diesel Fuel Tanks and Generators as Requested by MECP	26,000	2025-2035
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	59,500	2025-2035
Angus McGeorge DWS		
Diesel Generator Repairs and Load Testing	66,000	2025-2035
Annual TSSA Inspections of Diesel Fuel Tanks and Generators as Requested by MECP	26,000	2025-2035
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	59,500	2025-2035
New Generator	257,000	2025-2026
New Chlorine Tranfer Pump	5,500	
Well #1 & Well #2 Downwell Inspections, Flow Tests and Cleaning	27,000	2027
Baxter DWS		
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	59,500	2025-2035
Diesel Generator Repairs and Load Testing	66,000	2025-2035

Description	Total 2025-2035	Years Undertaken
Thornton DWS		
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	59,500	2025-2035
Flow Meter and Surronding Pipework Replacement	35,000	2025
Diesel Generator Repairs and Load Testing	66,000	2025-2035
Water Storage Tower Inspections (3rd Party recommended Greatario)	11,000	2028
Essa Water Distribution System		
Hydrant Painting	66,000	2025-2035
Swabbing(5 - 8 kms)	460,000	2025-2035
Fire Hydrant Replacements	526,000	2025-2035
Main Valve Repairs/Service Repairs/Hydrant Repairs	590,000	2025-2035
General		
Unplanned/Emergency Essa Water Distribution Repairs	345,000	2025-2035
Unplanned/Emergency Drinking Water System Repairs	330,000	2025-2035
Building Maintenance for Mill, McGeorge, Brownley, Baxter, and Thornton)(heaters, soffits, doors, locks etc.)	131,000	2025-2035
Permit to Take Water (PTTW) renewal Thornton	750	2025
DWQMS Audits (2025) Reaccreditation Year	29,500	2025-2035
Lifecycle:		
Water AMP lifecycle annual replacement	15,132,000	2025-2035
Growth Related:		
Increase PTTW and Existing Well Capacity	4,490,000	2027-2029
New Water Storage Tanks (3) (Southwest, Northwest, and Northeast)	11,224,000	2027-2029
Water Distribution Network Expansion (Linear Infrasructure)	5,613,000	2027-2029
Mill Street Wellfield Investigation	320,000	2025
Total Capital Expenditures	**40,628,750**	

Table 2-2
Township of Essa
2025 to 2035 Wastewater Capital Forecast Summary (Inflated $)

Description	Total 2025-2035	Years Undertaken
Capital Expenditures		
Rate Study	63,500	2025, 2030, 2035
Angus Wastewater Treatment Facility		
Diesel Generator Repairs, Inspections and Annual Load Testing (3 Generators)	106,000	2025-2035
General Building Maintenance(HVAC service, cleaning etc..)	262,000	2025-2035
Vac Truck for Clarifier Cleanings (3 to 4 times per year)	197,000	2025-2035
Snow Plowing and Grass Cutting	301,000	2025-2035
General Pump and Piping Replacement	394,000	2025-2035
Bio Solids Hauling	1,971,000	2025-2035
Disc Filter Cloths	92,000	2025-2035
Clarifier Brushes	45,000	2025
Rebuild Sludge Recirculating Pumps(Sludge Storage Tower pumps)	40,000	2025
Rebuild Reject Pumps	17,000	2028
Blower Rebuilds of Motors, Piping and Compressors	262,000	2025-2035
UV Ballasts Rebuilds	131,000	2025-2035
Egger Iris Valves Installation	100,000	2025
SCADA Upgrades	262,000	2025-2035
New Auto Sampler	9,000	2025
Rebuild Clarifier #1	40,000	2025
Aeration Tank #2 Rebuild	25,000	2025

Description	Total 2025-2035	Years Undertaken
Angus Wastewater Collection		
Pump Station Cleanings	460,000	2025-2035
Vac Trucks for Sewer Back Ups and Clogs	131,000	2025-2035
Sewer Flushing and CCTV (approximately 4k/km.)	460,000	2025-2035
Sewer Repairs	262,000	2025-2035
Storm Water Pump Station #4 Pump Rebuilds	9,000	2027
Pump Station #1 Upgrades & Bar Screen Upgrade	469,000	2026-2027
General		
Unplanned/Emergency Angus WWTP Repairs	460,000	2025-2035
Unplanned/Emergency Angus Wastewater Collection System Repairs	460,000	2025-2035
Seacan for Storage at Angus WWTP	5,000	2025
MDWL/DWWP Renewal Angus, Thornton, Baxter.	1,350	2025
Lifecycle:		
Wastewater AMP lifecycle annual replacement	21,250,000	2025-2035
Growth Related:		
Expand Existing Wastewater Treatment Plant	11,786,000	2027-2029
Area 1 Sanitary Collection Upgrades	2,245,000	2027-2029
Area 2 Sanitary Collection Upgrades	4,490,000	2027-2029
Angus Wastewater EA	300,000	2025
Total Capital Expenditures	**47,105,850**	

Chapter 3
Lifecycle Costing

3. Lifecycle Costing

3.1 Overview of Lifecycle Costing

3.1.1 Definition

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

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

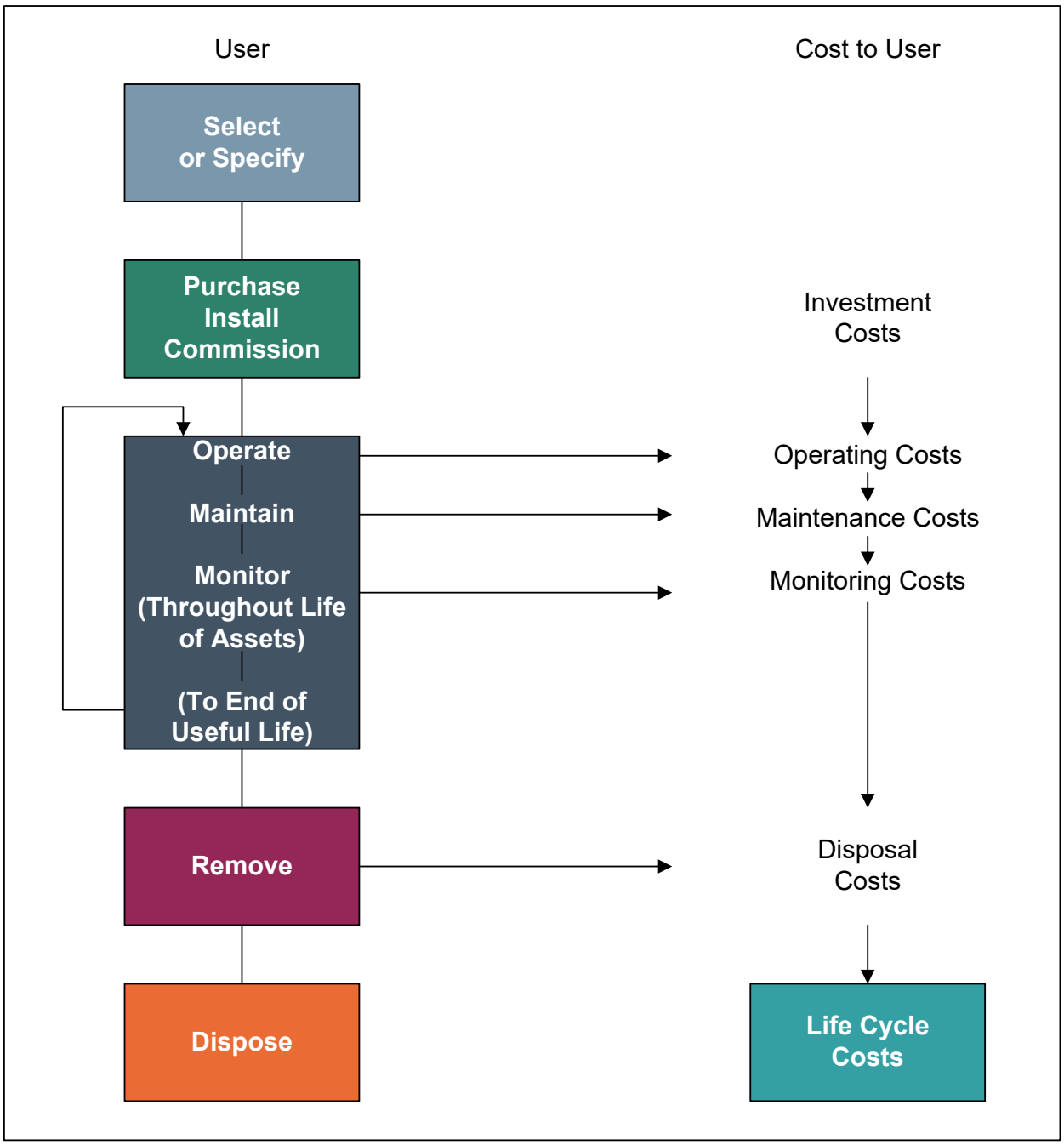
3.1.2 Financing Costs

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 Township. 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 Township 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.

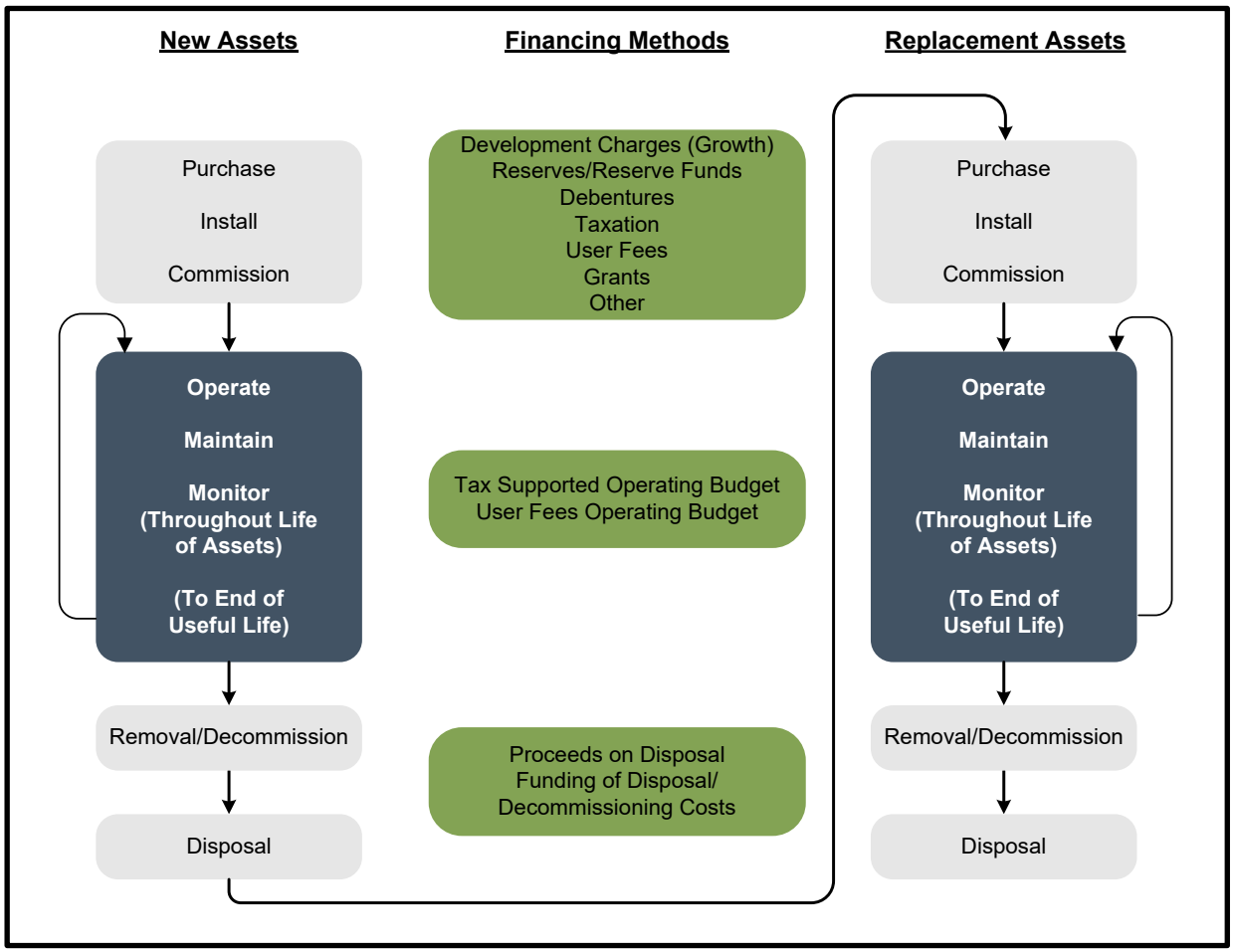
As referred to earlier, growth-related financing methods such as development charges and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of 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

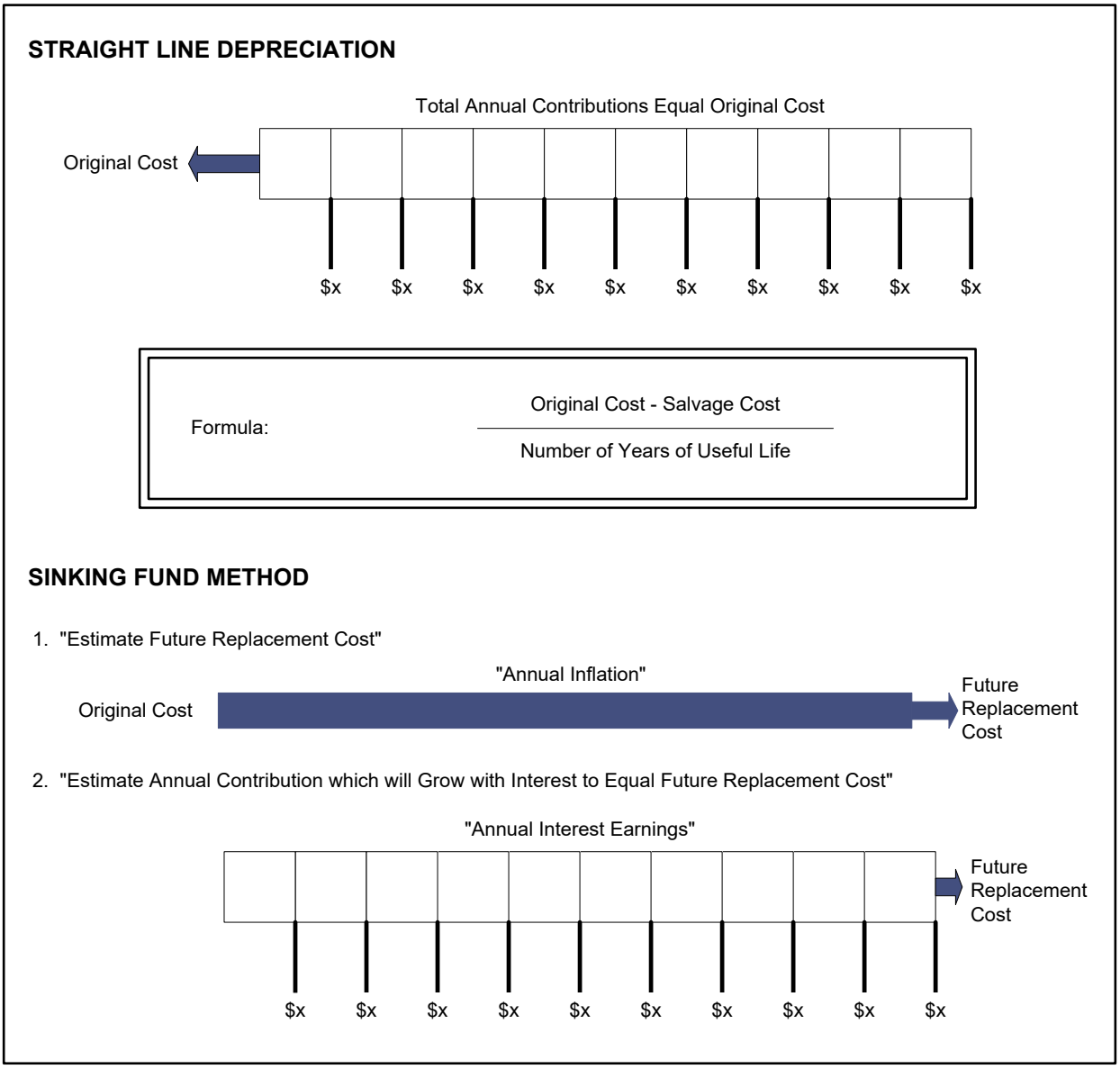
forms of depreciation: the straight-line method and the reducing balance method (shown graphically in Figure 3-3).

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

Based on the Township's review of its water and wastewater assets, an annual replacement program has been established to address the aging water and wastewater infrastructure. These amounts are identified through the Township's Asset Management Plan and are included in the capital costs identified in section 2.1.

Chapter 4
Capital Cost Financing Options

4. Capital Cost Financing Options

4.1 Summary of Capital Cost Financing Alternatives

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. along with recently proposed changes through Bill 23, *More Homes Built Faster Act*, 2022).

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	Section Reference
• *Development Charges Act, 1997*	4.2
• *Municipal Act*	4.3
○ Fees and Charges	
○ Sewer and Water Area Charges	
○ Connection Fees	

Recovery Methods	Section Reference
○ Local Improvements	
• Historical Grant Funding Availability	4.4
• Existing Reserves/Reserve Funds	4.5
• Debenture Financing	4.6
• Infrastructure Ontario	4.7

4.2 Development Charges Act, 1997

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 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.

Since 2019, a number of further amendments to the D.C.A. have occurred. With respect to water and wastewater, a few changes may impact D.C. revenue collections:

1. Timing of Collection:

    a. D.C. Rate Freeze - For developments proceeding through site plan or zoning by-law amendment, the D.C. rate is frozen at the time the application is submitted. The D.C. remains frozen for eighteen months after the application is approved. Should the D.C. study be updated to increase water and wastewater D.C. rates during this period, the Township would not be able to collect for this increase.

    b. D.C. Installment Payments - For rental housing and institutional development D.C.s are paid over five years. This provides a delay in receipt of D.C. revenues which will need to be cash-flowed by the Township.

2. Mandatory Exemptions:

    a. The ability to add additional units to new and existing homes without incurring D.C. payment.

    b. Developments of land intended for use by a university that receives operating funds from the Government.

c. Affordable/Attainable Housing based on the thresholds set by the Province.

d. Non-Profit housing.

e. Discounts for rental housing (which range from 15% to 25%) depending on the number of bedrooms.

Consideration for these exemptions and discounts should be made during the D.C. study process to ensure all capacity available to growth is allocated appropriately.

4.3 Municipal Act

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

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

Restrictions are provided to ensure that the form of the charge is not akin to a poll tax. Any charges not paid under this authority may be added to the tax roll and collected in a like manner. The fees and charges imposed under this part are not appealable to the Ontario Land Tribunal (OLT, formerly known as Local Planning Appeal Tribunal (LPAT)).

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
- OLT 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 OLT 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 OLT, 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 Grant Funding Availability

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. 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.

Housing-Enabling Water Systems Fund

In Ontario's 2023 Fall Economic Statement, the Province announced the Housing-Enabling Water Systems Fund (H.E.W.S.F.), which aims to invests a total of $200 million over three years towards the repair, rehabilitation, and expansion of core water, wastewater, and stormwater infrastructure to promote growth and enable new housing development. The H.E.W.S.F. is a competitive application-based funding program and the program guidelines were release on January 29, 2024.

Eligible Asset types include:

- Drinking water assets (e.g., treatment plants, reservoirs, local pipes including the distribution system watermain and the municipal portion of service lines, pump stations)
- Wastewater assets (e.g., lagoon systems, pump stations, lift station, linear assets, treatment plants, storage tanks and collection systems)
- Stormwater assets (e.g., management facilities, linear assets including conveyance piping/ditches/culverts)

The first round of funding initially started with $200 million and subsequently increased to $825 million, with an application deadline of April 19, 2024. Under the first intake, the Province announced that the H.E.W.S.F. was allocated to 54 infrastructure projects across 60 municipalities that will help enable the construction of more than 500,000 new homes across Ontario.

Given the high demand for this program, the Province announced a second round of funding with an additional $250 million. The application deadline for this round was November 1, 2024.

Grant Funding

For this study process, grant funding has not been identified. However, if the status of the grant funding changes, the rate study may need to be amended to reflect the appropriate funding sources.

4.5 Existing Reserves/Reserve Funds

The Township has established reserves and reserve funds for water and wastewater. The estimated balances to the end of December 31, 2024 are presented in Table 4-1:

Table 4-1
Water and Wastewater Reserves and Reserve Funds
Estimated as of December 31, 2024

Reserve	Dec. 31 2024
Water	
Capital Reserve	5,680,537
Development Charges Reserve Fund	2,641,502
Wastewater	
Capital Reserve	1,979,134
Development Charges Reserve Fund	6,781,411

4.6 Debenture Financing

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

The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act*. Ontario 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 Township of Essa's calculation on Debt Capacity is shown on Schedule 81 of the Township's most recent Financial Information Return (F.I.R.). This calculates to the Township's estimated annual repayment limit of approximately $5.05 million. Based upon 20-year financing at an assumed rate of 4.5%, the available debt for the Township is approximately $65.72 million. Based on the calculations provided herein, it is assumed that the Township will require approximately $23 million of growth-related debt to finance D.C. related capital projects over the forecast period.

4.7 Infrastructure Ontario

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.

4.8 Recommended Capital Financing Approach

Of the various funding alternatives provided in this section, the following are recommended for further consideration by the Township for the capital expenditures (inflated) provided in Chapter 2:

Table 4-2
Township of Essa
Capital Forecasting Financing Sources
Inflated $

Description	Water	Wastewater
Capital Financing		
Development Charges Transfer To Capital	6,035,000	11,000,000
Growth Related Debenture Requirements	15,612,000	7,821,000
Reserve Fund Transfer to Capital	18,981,750	28,284,850
Total Capital Financing	**40,628,750**	**47,105,850**

Tables 4-3 and 4-4 provide for the full capital expenditure and funding program by year for water and wastewater, respectively.

Table 4-3
Township of Essa
Capital Budget Forecast – Water (inflated $)

Description	Budget 2025	Total	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Capital Expenditures												
Rate Study	17,500	46,000	-	-	-	-	21,000	-	-	-	-	25,000
Angus Mill Street DWS			-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs and Load Testing	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Annual TSSA Inspections of Diesel Fuel Tanks and Generators as Requested by MECP	2,000	24,000	2,000	2,000	2,000	2,000	2,000	2,000	3,000	3,000	3,000	3,000
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	4,500	55,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000
PLC Upgrades Mill St, McGeorge, Brownley	220,000	-	-	-	-	-	-	-	-	-	-	-
Mill Street Reservoir Cleaning	20,000	-	-	-	-	-	-	-	-	-	-	-
Well#1 Downwell Inspection and Flow Test and Cleaning	-	27,000	-	27,000	-	-	-	-	-	-	-	-
Angus Brownley DWS			-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs and Load Testing	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Annual TSSA Inspections of Diesel Fuel Tanks and Generators as Requested by MECP	2,000	24,000	2,000	2,000	2,000	2,000	2,000	2,000	3,000	3,000	3,000	3,000
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	4,500	55,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000
Angus McGeorge DWS			-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs and Load Testing	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Annual TSSA Inspections of Diesel Fuel Tanks and Generators as Requested by MECP	2,000	24,000	2,000	2,000	2,000	2,000	2,000	2,000	3,000	3,000	3,000	3,000
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	4,500	55,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000
New Generator	50,000	207,000	207,000	-	-	-	-	-	-	-	-	-
New Chlorine Tranfer Pump	5,500	-	-	-	-	-	-	-	-	-	-	-
Well #1 & Well #2 Downwell Inspections, Flow Tests and Cleaning	-	27,000	-	27,000	-	-	-	-	-	-	-	-
Baxter DWS	-	-	-	-	-	-	-	-	-	-	-	-
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	4,500	55,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000
Diesel Generator Repairs and Load Testing	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000

Table 4-3
Township of Essa
Capital Budget Forecast – Water (inflated $) Continued

Description	Budget 2025	Total	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Thornton DWS			-	-	-	-	-	-	-	-	-	-
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	4,500	55,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000
Flow Meter and Surronding Pipework Replacement	35,000	-	-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs and Load Testing	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Water Storage Tower Inspections (3rd Party recommended Greatario)	-	11,000	-	-	11,000	-	-	-	-	-	-	-
Essa Water Distribution System			-	-	-	-	-	-	-	-	-	-
Hydrant Painting	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Swabbing(5 - 8 kms)	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Fire Hydrant Replacements	40,000	486,000	41,000	43,000	44,000	46,000	48,000	49,000	51,000	53,000	55,000	56,000
Main Valve Repairs/Service Repairs/Hydrant Repairs	45,000	545,000	47,000	48,000	50,000	52,000	53,000	55,000	57,000	59,000	61,000	63,000
General			-	-	-	-	-	-	-	-	-	-
Unplanned/Emergency Essa Water Distribution Repairs	40,000	305,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000	33,000	34,000	35,000
Unplanned/Emergency Drinking Water System Repairs	25,000	305,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000	33,000	34,000	35,000
Building Maintenance for Mill, McGeorge, Brownley, Baxter, and Thornton)(heaters, soffits, doors, locks etc.)	10,000	121,000	10,000	11,000	11,000	11,000	12,000	12,000	13,000	13,000	14,000	14,000
Permit to Take Water (PTTW) renewal Thornton	750	-	-	-	-	-	-	-	-	-	-	-
DWQMS Audits (2025) Reaccreditation Year	3,500	26,000	2,000	2,000	4,000	2,000	2,000	2,000	3,000	3,000	3,000	3,000
Lifecycle:			-	-	-	-	-	-	-	-	-	-
Water AMP lifecycle annual replacement	-	15,132,000	1,290,000	1,335,000	1,382,000	1,430,000	1,480,000	1,532,000	1,586,000	1,641,000	1,698,000	1,758,000
Growth Related:			-	-	-	-	-	-	-	-	-	-
Increase PTTW and Existing Well Capacity	-	4,490,000	-	428,000	1,996,000	2,066,000	-	-	-	-	-	-
New Water Storage Tanks (3) (Southwest, Northwest, and Northeast)	-	11,224,000	-	1,071,000	4,989,000	5,164,000	-	-	-	-	-	-
Water Distribution Network Expansion (Linear Infrasructure)	-	5,613,000	-	536,000	2,495,000	2,582,000	-	-	-	-	-	-
Mill Street Wellfield Investigation	320,000	-	-	-	-	-	-	-	-	-	-	-
Total Capital Expenditures	**925,750**	**39,703,000**	**1,746,000**	**3,680,000**	**11,144,000**	**11,518,000**	**1,785,000**	**1,827,000**	**1,894,000**	**1,962,000**	**2,028,000**	**2,119,000**
Capital Financing												
Development Charges Reserve Fund	-	6,035,000	-	2,035,000	4,000,000	-	-	-	-	-	-	-
Growth Related Debenture Requirements	320,000	15,292,000	-	-	5,480,000	9,812,000	-	-	-	-	-	-
Water Reserve	605,750	18,376,000	1,746,000	1,645,000	1,664,000	1,706,000	1,785,000	1,827,000	1,894,000	1,962,000	2,028,000	2,119,000
Total Capital Financing	**925,750**	**39,703,000**	**1,746,000**	**3,680,000**	**11,144,000**	**11,518,000**	**1,785,000**	**1,827,000**	**1,894,000**	**1,962,000**	**2,028,000**	**2,119,000**

Table 4-4
Township of Essa
Capital Budget Forecast – Wastewater (inflated $)

Description	Budget 2025	Total	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Capital Expenditures												
Rate Study	17,500	46,000	-	-	-	-	21,000	-	-	-	-	25,000
Angus Wastewater Treatment Facility	-	-	-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs, Inspections and Annual Load Testing (3 Generators)	8,000	98,000	8,000	9,000	9,000	9,000	10,000	10,000	10,000	11,000	11,000	11,000
General Building Maintenance(HVAC service, cleaning etc..)	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
Vac Truck for Clarifier Cleanings (3 to 4 times per year)	15,000	182,000	16,000	16,000	17,000	17,000	18,000	18,000	19,000	20,000	20,000	21,000
Snow Plowing and Grass Cutting	23,000	278,000	24,000	25,000	26,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000
General Pump and Piping Replacement	30,000	364,000	31,000	32,000	33,000	34,000	36,000	37,000	38,000	40,000	41,000	42,000
Bio Solids Hauling	150,000	1,821,000	155,000	161,000	166,000	172,000	178,000	184,000	191,000	198,000	204,000	212,000
Disc Filter Cloths	7,000	85,000	7,000	7,000	8,000	8,000	8,000	9,000	9,000	9,000	10,000	10,000
Clarifier Brushes	45,000	-	-	-	-	-	-	-	-	-	-	-
Rebuild Sludge Recirculating Pumps(Sludge Storage Tower pumps)	40,000	-	-	-	-	-	-	-	-	-	-	-
Rebuild Reject Pumps	-	17,000	-	-	17,000	-	-	-	-	-	-	-
Blower Rebuilds of Motors, Piping and Compressors	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
UV Ballasts Rebuilds	10,000	121,000	10,000	11,000	11,000	11,000	12,000	12,000	13,000	13,000	14,000	14,000
Egger Iris Valves Installation	100,000	-	-	-	-	-	-	-	-	-	-	-
SCADA Upgrades	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
New Auto Sampler	9,000	-	-	-	-	-	-	-	-	-	-	-
Rebuild Clarifier #1	40,000	-	-	-	-	-	-	-	-	-	-	-
Aeration Tank #2 Rebuild	25,000	-	-	-	-	-	-	-	-	-	-	-
Angus Wastewater Collection	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station Cleanings	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Vac Trucks for Sewer Back Ups and Clogs	10,000	121,000	10,000	11,000	11,000	11,000	12,000	12,000	13,000	13,000	14,000	14,000
Sewer Flushing and CCTV (approximately 4k/km.)	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Sewer Repairs	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
Storm Water Pump Station #4 Pump Rebuilds	-	9,000	-	9,000	-	-	-	-	-	-	-	-
Pump Station #1 Upgrades & Bar Screen Upgrade	-	469,000	41,000	428,000	-	-	-	-	-	-	-	-
General	-	-	-	-	-	-	-	-	-	-	-	-
Unplanned/Emergency Angus WWTP Repairs	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Unplanned/Emergency Angus Wastewater Collection System Repairs	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Seacan for Storage at Angus WWTP	5,000	-	-	-	-	-	-	-	-	-	-	-
MDWL/DWWP Renewal Angus, Thornton, Baxter.	1,350	-	-	-	-	-	-	-	-	-	-	-
Lifecycle:		-	-	-	-	-	-	-	-	-	-	-
Wastewater AMP lifecycle annual replacement	-	21,250,000	1,811,000	1,875,000	1,940,000	2,008,000	2,079,000	2,151,000	2,227,000	2,305,000	2,385,000	2,469,000
Growth Related:		-	-	-	-	-	-	-	-	-	-	-
Expand Existing Wastewater Treatment Plant	-	11,786,000	-	1,125,000	5,239,000	5,422,000	-	-	-	-	-	-
Area 1 Sanitary Collection Upgrades	-	2,245,000	-	214,000	998,000	1,033,000	-	-	-	-	-	-
Area 2 Sanitary Collection Upgrades	-	4,490,000	-	428,000	1,996,000	2,066,000	-	-	-	-	-	-
Angus Wastewater EA	300,000	-	-	-	-	-	-	-	-	-	-	-
Total Capital Expenditures	**1,055,850**	**46,050,000**	**2,341,000**	**4,583,000**	**10,715,000**	**11,069,000**	**2,665,000**	**2,733,000**	**2,829,000**	**2,927,000**	**3,030,000**	**3,158,000**
Capital Financing												
Development Charges Reserve Fund	-	11,000,000	-	1,767,000	8,233,000	1,000,000	-	-	-	-	-	-
Growth Related Debenture Requirements	300,000	7,521,000	-	-	-	7,521,000	-	-	-	-	-	-
Wastewater Reserve	755,850	27,529,000	2,341,000	2,816,000	2,482,000	2,548,000	2,665,000	2,733,000	2,829,000	2,927,000	3,030,000	3,158,000
Total Capital Financing	**1,055,850**	**46,050,000**	**2,341,000**	**4,583,000**	**10,715,000**	**11,069,000**	**2,665,000**	**2,733,000**	**2,829,000**	**2,927,000**	**3,030,000**	**3,158,000**

Chapter 5
Overview of Expenditures and Revenues

5. Overview of Expenditures and Revenues

5.1 Water Operating Expenditures

In this report, the forecast water budget figures (2025 to 2035) are based on the 2025 operating budgets. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments. Utilities and chemicals are assumed to increase at 5% per year, while all other operating expenditures have been assumed to increase at 3.5% per year.

In addition, existing debenture payments and contributions to the water reserve funds have been included. The water reserve fund transfers are used to fund the water capital program identified in Chapter 2, as well as build-up the reserve balance for future lifecycle requirements.

5.2 Water Operating Revenues

The Township has base charges and miscellaneous revenue sources to help contribute towards operating expenditures. These miscellaneous revenues, include items such as service connections, permits, penalties, etc. Miscellaneous revenues have been assumed to remain constant.

The water base charges are further discussed in section 6.5 of this study.

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. Table 5-1 provides for the water operating budget for the Township.

Table 5-1
Township of Essa
Operating Budget Forecast – Water (inflated $)

Description	Budget 2025	Forecast 2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Expenditures											
Operating Costs											
Administration											
6000 - Salaries/Wages	127,981	132,500	137,100	141,900	146,900	152,000	157,300	162,800	168,500	174,400	180,500
6012 - Wages & Benefits Transfer	6,110	6,300	6,500	6,700	6,900	7,100	7,300	7,600	7,900	8,200	8,500
6020 - Employee Benefits Full Time	7,232	7,500	7,800	8,100	8,400	8,700	9,000	9,300	9,600	9,900	10,200
6026 - Extended Health Benefits	14,413	14,900	15,400	15,900	16,500	17,100	17,700	18,300	18,900	19,600	20,300
6030 - Employee Health Tax	2,339	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300
6031 - Employee Assistance Plan	76	100	100	100	100	100	100	100	100	100	100
6032 - OMERS	12,093	12,500	12,900	13,400	13,900	14,400	14,900	15,400	15,900	16,500	17,100
6033 - WSIB	3,272	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
6035 - Mileage	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
6050 - Office Supplies	10,200	10,600	11,000	11,400	11,800	12,200	12,600	13,000	13,500	14,000	14,500
6052 - Postage	16,993	17,600	18,200	18,800	19,500	20,200	20,900	21,600	22,400	23,200	24,000
6062 - Advertising	1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
6063 - Insurance	8,052	8,300	8,600	8,900	9,200	9,500	9,800	10,100	10,500	10,900	11,300
6275 - Snow Removal	5,671	5,900	6,100	6,300	6,500	6,700	6,900	7,100	7,300	7,600	7,900
6283 - OCWA Operating Budget	654,000	676,900	700,600	725,100	750,500	776,800	804,000	832,100	861,200	891,300	922,500
Operations											
6054 - Telephone Communications	7,344	7,600	7,900	8,200	8,500	8,800	9,100	9,400	9,700	10,000	10,400
6055 - Hydro	147,737	155,100	162,900	171,000	179,600	188,600	198,000	207,900	218,300	229,200	240,700
6072 - Software Maintenance	40,000	41,400	42,800	44,300	45,900	47,500	49,200	50,900	52,700	54,500	56,400
6081 - Other Write-offs	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,500	4,700
Misc Works - from Capital	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
6350 - Meter Reads	6,500	6,700	6,900	7,100	7,300	7,600	7,900	8,200	8,500	8,800	9,100
6355 - Pipeline Consumption	35,700	36,900	38,200	39,500	40,900	42,300	43,800	45,300	46,900	48,500	50,200
Sub Total Operating	**1,162,213**	**1,203,400**	**1,246,100**	**1,290,300**	**1,336,500**	**1,384,200**	**1,433,600**	**1,484,700**	**1,538,000**	**1,593,400**	**1,651,000**
Capital-Related											
New Growth Related Debt (Principal)		-	-	-	175,047	496,314	518,549	541,780	566,052	591,411	617,906
New Growth Related Debt (Interest)		-	-	-	245,504	677,239	655,005	631,774	607,502	582,143	555,648
Transfer to Capital Reserve	1,204,958	1,299,378	1,403,996	1,509,767	1,619,135	1,732,770	1,726,417	1,862,015	2,003,136	2,167,259	2,337,791
Sub Total Capital Related	**1,204,958**	**1,299,378**	**1,403,996**	**1,509,767**	**2,039,687**	**2,906,324**	**2,899,971**	**3,035,569**	**3,176,689**	**3,340,813**	**3,511,344**
Total Expenditures	**2,367,171**	**2,502,778**	**2,650,096**	**2,800,067**	**3,376,187**	**4,290,524**	**4,333,571**	**4,520,269**	**4,714,689**	**4,934,213**	**5,162,344**
Revenues											
Base Charge	346,028	369,478	393,375	418,213	444,567	472,524	502,348	533,446	566,598	602,508	640,684
4702 - Penalties & Interest	20,934	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
4707 - Miscellaneous Revenue	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
4862 - Water Permit	4,080	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100
4863 - Final Water Reading Certificat	1,020	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
4865 - Connection Fees	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Revenues from Planning for internal loan	148,564	146,866	145,138	143,410	141,683	139,955					
Contributions from Development Charges Reserve Fund		-	-	-	420,551	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554
Total Operating Revenue	**545,926**	**567,644**	**589,813**	**612,923**	**1,058,101**	**1,837,333**	**1,727,201**	**1,758,300**	**1,791,451**	**1,827,362**	**1,865,538**
Water Billing Recovery - Total	**1,821,246**	**1,935,134**	**2,060,283**	**2,187,143**	**2,318,085**	**2,453,191**	**2,606,370**	**2,761,969**	**2,923,238**	**3,106,851**	**3,296,807**

5.3 Wastewater Operating Expenditures

Similar to water expenditures, the wastewater operating expenditures have been adjusted over the forecast period to reflect the current inflationary pressures in Ontario. Utilities and chemicals are assumed to increase at 5% per year, while all other operating expenditures have been assumed to increase at 3.5% per year

In addition, existing debt payments and contributions to the wastewater reserve funds have been included. The wastewater reserve fund transfers are used to fund the wastewater capital program identified in Chapter 2, as well as build-up the reserve balance for future lifecycle requirements.

5.4 Wastewater Operating Revenues

The Township's fixed revenue sources are generated primarily from base charges and miscellaneous sources, which includes connection fees, permits, and penalties. Similar to water, miscellaneous revenues have been assumed to remain constant over the forecast period.

The wastewater base charges are further discussed in section 6.5 of this study.

As noted in the section above, 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 wastewater volume rates, which is presented in Chapter 7. Table 5-2 provides for the wastewater operating budget for the Township.

Table 5-2
Township of Essa
Operating Budget Forecast – Wastewater (inflated $)

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Expenditures											
Operating Costs											
Adminstration											
6000 - Salaries/Wages	40,362	41,800	43,300	44,800	46,400	48,000	49,700	51,400	53,200	55,100	57,000
6002 - Salaries/Wages Part Time	15,300	15,800	16,400	17,000	17,600	18,200	18,800	19,500	20,200	20,900	21,600
6012 - Wages & Benefits Transfer	6,109	6,300	6,500	6,700	6,900	7,100	7,300	7,600	7,900	8,200	8,500
6020 - Employee Benefits Full Time	2,149	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100
6026 - Extended Health Benefits	4,492	4,600	4,800	5,000	5,200	5,400	5,600	5,800	6,000	6,200	6,400
6030 - Employee Health Tax	738	800	800	800	800	800	800	800	800	800	800
6031 - Employee Assistance Plan	24	-	-	-	-	-	-	-	-	-	-
6032 - OMERS	3,940	4,100	4,200	4,300	4,500	4,700	4,900	5,100	5,300	5,500	5,700
6033 - WSIB	923	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
6283 - OCWA Operating Budget	578,500	598,700	619,700	641,400	663,800	687,000	711,000	735,900	761,700	788,400	816,000
Operations	166,464	172,300	178,300	184,500	191,000	197,700	204,600	211,800	219,200	226,900	234,800
6056 - Heat	6,000	6,300	6,600	6,900	7,200	7,600	8,000	8,400	8,800	9,200	9,700
6072 - Software Maintenance	40,000	40,800	41,600	42,400	43,200	44,100	45,000	45,900	46,800	47,700	48,700
6081 - Other Write-offs	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,500	4,700
Sub Total Operating	**868,501**	**898,300**	**929,200**	**961,000**	**994,000**	**1,028,200**	**1,063,500**	**1,100,200**	**1,138,100**	**1,177,400**	**1,218,000**
Capital-Related											
New Growth Related Debt (Principal)		-	-	-	-	240,243	251,006	262,251	274,000	286,275	299,100
New Growth Related Debt (Interest)		-	-	-	-	336,941	326,178	314,933	303,184	290,909	278,084
Existing Debt (Principal) - Non-Growth Related	258,240	270,731	283,827	297,556	311,949	327,039	169,405	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	88,667	76,175	63,080	49,351	34,957	19,868	8,003	-	-	-	-
Transfer to Capital Reserve	1,734,630	1,889,303	2,058,692	2,230,706	2,409,055	2,593,966	2,974,267	3,366,007	3,589,556	3,845,720	4,112,198
Sub Total Capital Related	**2,081,536**	**2,236,209**	**2,405,598**	**2,577,613**	**2,755,961**	**3,518,057**	**3,728,859**	**3,943,191**	**4,166,740**	**4,422,904**	**4,689,382**
Total Expenditures	**2,950,037**	**3,134,509**	**3,334,798**	**3,538,613**	**3,749,961**	**4,546,257**	**4,792,359**	**5,043,391**	**5,304,840**	**5,600,304**	**5,907,382**
Revenues											
Base Charge	417,121	446,903	477,207	508,703	542,170	577,724	615,721	655,349	697,665	743,627	792,557
Other Revenue											
4702 - Penalties & Interest	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000
4861 - Sewer Permit	5,620	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600
4865 - Connection Fees	36,312	36,300	36,300	36,300	36,300	36,300	36,300	36,300	36,300	36,300	36,300
Contributions from Development Charges Reserve Fund	-	-	-	-	-	577,184	577,184	577,184	577,184	577,184	577,184
Total Operating Revenue	**481,053**	**510,803**	**541,107**	**572,603**	**606,070**	**1,218,808**	**1,256,805**	**1,296,433**	**1,338,749**	**1,384,711**	**1,433,641**
Wastewater Billing Recovery - Total	**2,468,984**	**2,623,706**	**2,793,692**	**2,966,010**	**3,143,891**	**3,327,448**	**3,535,554**	**3,746,958**	**3,966,091**	**4,215,594**	**4,473,741**

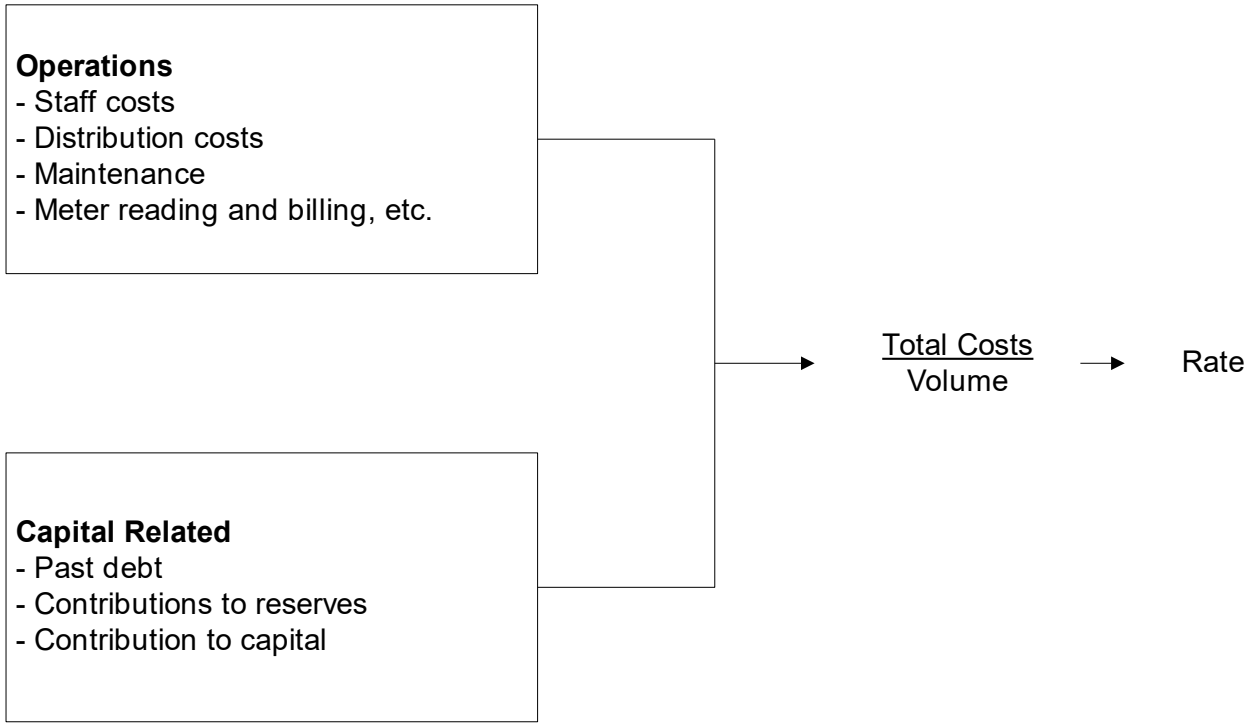
Chapter 6
Pricing Structures

6. Pricing Structures

6.1 Introduction

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

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

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

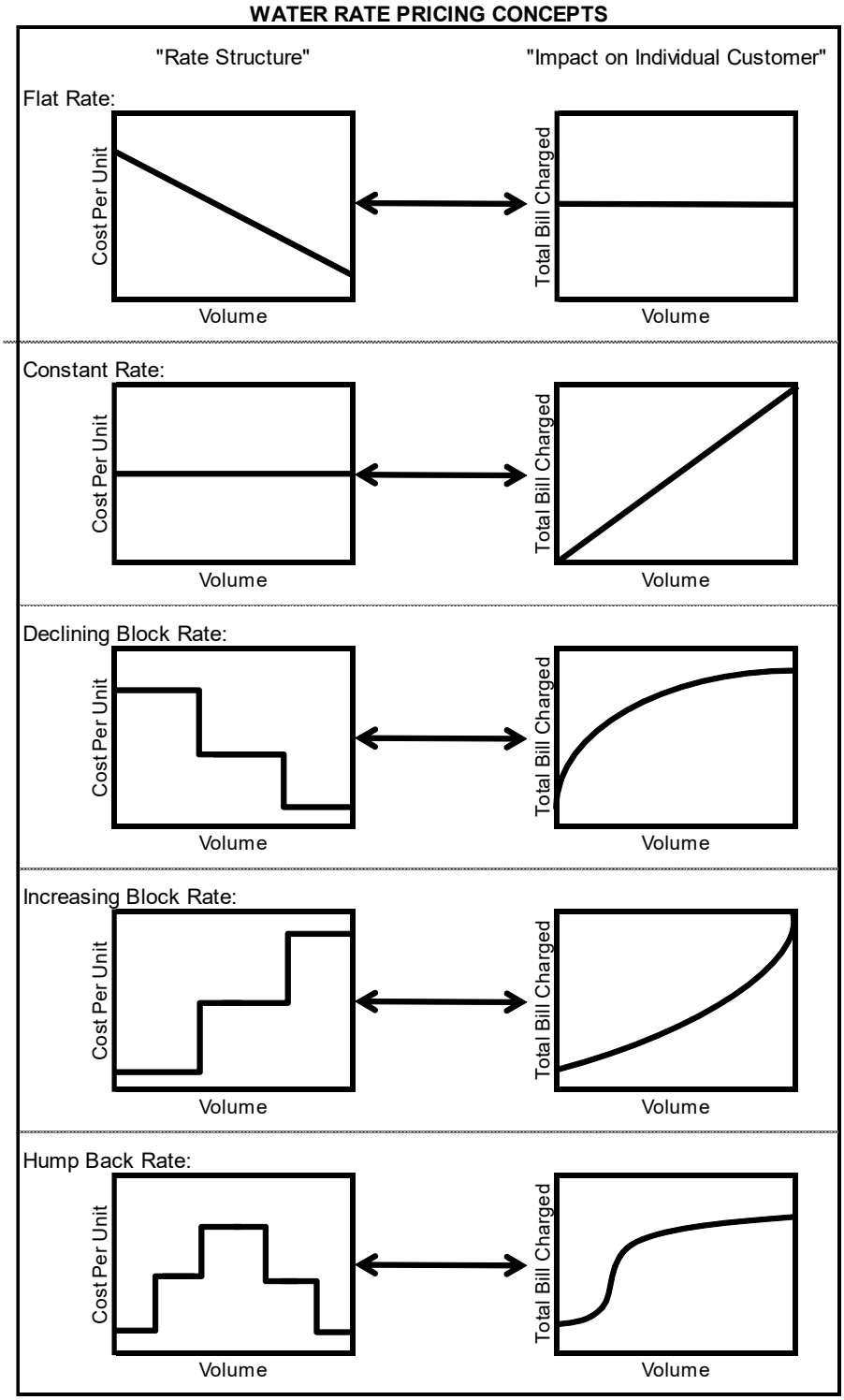

WATER RATE PRICING CONCEPTS
"Rate Structure"
"Impact on Individual Customer"
Flat Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Constant Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Declining Block Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Increasing Block Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Hump Back Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume

Figure 6-2
Summary of Various Rate Structures and their Impact on Customer Bills as Volume Usage Increases

Rate Structure	Cost Per Unit As Volume Increases	Impact On Customer Bill As Volume Increases
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 increase
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 consumption	Bill increases at a faster rate at the lower consumption amounts and then slows as volumes increase

6.4 Rate Structures in Ontario

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 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 and Base Charges

The Township currently utilizes a base charge and volume rate for its water and wastewater customers. It is recommended that the same rate structures be continued in the future.

In order to provide for the Township's capital expenditures, future asset replacement needs, and the day-to-day operating expenditures, the water base charges are proposed to increase by 4% annually.

With respect to wastewater, the base charges are calculated to remain at 136.3% of the corresponding water charges.

The above increases in the base charges are recommended to ensure that the Township can fund the capital and operating costs without the use of new non-growth related debentures (not recovered from development charges).

The forecasted base charges and corresponding revenues are provided in Tables 6-1 and 6-2.

Table 6-1
Township of Essa
Base Charge Forecast – Water

Water	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	4,972	4,972	4,972	4,972	4,972	4,972	4,972	4,972	4,972	4,972	4,972
New	71	208	333	453	575	699	827	951	1,079	1,217	1,358
Total Customers	**5,043**	**5,180**	**5,305**	**5,425**	**5,547**	**5,671**	**5,799**	**5,923**	**6,051**	**6,189**	**6,330**
Total Annual Revenue	**$346,028**	**$369,478**	**$393,375**	**$418,213**	**$444,567**	**$472,524**	**$502,348**	**$533,446**	**$566,598**	**$602,508**	**$640,684**

5/8" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	4,903	4,903	4,903	4,903	4,903	4,903	4,903	4,903	4,903	4,903	4,903
New	71	208	333	453	575	699	827	951	1,079	1,217	1,358
Subtotal Customers	**4,974**	**5,111**	**5,236**	**5,356**	**5,478**	**5,602**	**5,730**	**5,854**	**5,982**	**6,120**	**6,261**
Quarterly Base Charge	$16.86	$17.53	$18.24	$18.97	$19.72	$20.51	$21.33	$22.19	$23.07	$24.00	$24.96
Annual Base Charge	$67.44	$70.14	$72.94	$75.86	$78.90	$82.05	$85.33	$88.75	$92.30	$95.99	$99.83
Total Annual Revenue	**$335,447**	**$358,473**	**$381,930**	**$406,311**	**$432,188**	**$459,650**	**$488,959**	**$519,522**	**$552,116**	**$587,447**	**$625,021**

1" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	26	26	26	26	26	26	26	26	26	26	26
New											
Subtotal Customers	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Quarterly Base Charge	$23.68	$24.63	$25.61	$26.64	$27.70	$28.81	$29.96	$31.16	$32.41	$33.70	$35.05
Annual Base Charge	$94.72	$98.51	$102.45	$106.55	$110.81	$115.24	$119.85	$124.65	$129.63	$134.82	$140.21
Total Annual Revenue	**$2,463**	**$2,561**	**$2,664**	**$2,770**	**$2,881**	**$2,996**	**$3,116**	**$3,241**	**$3,370**	**$3,505**	**$3,645**

1 ½" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	19	19	19	19	19	19	19	19	19	19	19
New											
Subtotal Customers	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
Quarterly Base Charge	$30.45	$31.66	$32.93	$34.25	$35.62	$37.04	$38.52	$40.06	$41.67	$43.33	$45.07
Annual Base Charge	$121.78	$126.65	$131.72	$136.99	$142.47	$148.16	$154.09	$160.25	$166.66	$173.33	$180.26
Total Annual Revenue	**$2,314**	**$2,406**	**$2,503**	**$2,603**	**$2,707**	**$2,815**	**$2,928**	**$3,045**	**$3,167**	**$3,293**	**$3,425**

2" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	22	22	22	22	22	22	22	22	22	22	22
New											
Subtotal Customers	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**
Quarterly Base Charge	$49.05	$51.01	$53.05	$55.17	$57.38	$59.68	$62.06	$64.55	$67.13	$69.81	$72.61
Annual Base Charge	$196.20	$204.05	$212.21	$220.70	$229.53	$238.71	$248.26	$258.19	$268.51	$279.25	$290.42
Total Annual Revenue	**$4,316**	**$4,489**	**$4,669**	**$4,855**	**$5,050**	**$5,252**	**$5,462**	**$5,680**	**$5,907**	**$6,144**	**$6,389**

3" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
Subtotal Customers	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Quarterly Base Charge	$186.05	$193.49	$201.23	$209.28	$217.66	$226.36	$235.42	$244.83	$254.63	$264.81	$275.40
Annual Base Charge	$744.21	$773.98	$804.94	$837.14	$870.62	$905.45	$941.66	$979.33	$1,018.50	$1,059.24	$1,101.61
Total Annual Revenue	**$1,488**	**$1,548**	**$1,610**	**$1,674**	**$1,741**	**$1,811**	**$1,883**	**$1,959**	**$2,037**	**$2,118**	**$2,203**

Table 6-2
Township of Essa
Base Charge Forecast – Wastewater

Wastewater	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394	4,394
New	71	208	333	453	575	699	827	951	1,079	1,217	1,358
Subtotal Customers	**4,465**	**4,602**	**4,727**	**4,847**	**4,969**	**5,093**	**5,221**	**5,345**	**5,473**	**5,611**	**5,752**
Total Annual Revenue	**$417,121**	**$446,903**	**$477,207**	**$508,703**	**$542,170**	**$577,724**	**$615,721**	**$655,349**	**$697,665**	**$743,627**	**$792,557**

5/8" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	4,330	4,330	4,330	4,330	4,330	4,330	4,330	4,330	4,330	4,330	4,330
New	71	208	333	453	575	699	827	951	1,079	1,217	1,358
Subtotal Customers	**4,401**	**4,538**	**4,663**	**4,783**	**4,905**	**5,029**	**5,157**	**5,281**	**5,409**	**5,547**	**5,688**
Quarterly Base Charge	$22.98	$23.90	$24.86	$25.85	$26.88	$27.96	$29.08	$30.24	$31.45	$32.71	$34.02
Annual Base Charge	$91.92	$95.60	$99.42	$103.40	$107.53	$111.84	$116.31	$120.96	$125.80	$130.83	$136.07
Total Annual Revenue	**$404,543**	**$433,822**	**$463,602**	**$494,554**	**$527,455**	**$562,421**	**$599,806**	**$638,797**	**$680,451**	**$725,724**	**$773,938**

1" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	25	25	25	25	25	25	25	25	25	25	25
New											
Subtotal Customers	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Quarterly Base Charge	$32.28	$33.57	$34.91	$36.31	$37.76	$39.27	$40.84	$42.47	$44.17	$45.94	$47.78
Annual Base Charge	$129.10	$134.27	$139.64	$145.22	$151.03	$157.07	$163.36	$169.89	$176.69	$183.75	$191.10
Total Annual Revenue	**$3,228**	**$3,357**	**$3,491**	**$3,631**	**$3,776**	**$3,927**	**$4,084**	**$4,247**	**$4,417**	**$4,594**	**$4,778**

1 ½" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	18	18	18	18	18	18	18	18	18	18	18
New											
Subtotal Customers	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**
Quarterly Base Charge	$41.50	$43.16	$44.88	$46.68	$48.55	$50.49	$52.51	$54.61	$56.79	$59.06	$61.43
Annual Base Charge	$165.99	$172.63	$179.53	$186.71	$194.18	$201.95	$210.03	$218.43	$227.16	$236.25	$245.70
Total Annual Revenue	**$2,988**	**$3,107**	**$3,232**	**$3,361**	**$3,495**	**$3,635**	**$3,780**	**$3,932**	**$4,089**	**$4,253**	**$4,423**

2" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	20	20	20	20	20	20	20	20	20	20	20
New											
Subtotal Customers	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Quarterly Base Charge	$66.86	$69.53	$72.31	$75.20	$78.21	$81.34	$84.59	$87.98	$91.50	$95.16	$98.96
Annual Base Charge	$267.42	$278.12	$289.24	$300.81	$312.84	$325.36	$338.37	$351.91	$365.98	$380.62	$395.85
Total Annual Revenue	**$5,348**	**$5,562**	**$5,785**	**$6,016**	**$6,257**	**$6,507**	**$6,767**	**$7,038**	**$7,320**	**$7,612**	**$7,917**

3" Meter Size	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Existing	1	1	1	1	1	1	1	1	1	1	1
New											
Subtotal Customers	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Quarterly Base Charge	$253.59	$263.73	$274.28	$285.25	$296.66	$308.53	$320.87	$333.71	$347.05	$360.94	$375.37
Annual Base Charge	$1,014.36	$1,054.93	$1,097.13	$1,141.02	$1,186.66	$1,234.12	$1,283.49	$1,334.83	$1,388.22	$1,443.75	$1,501.50
Total Annual Revenue	**$1,014**	**$1,055**	**$1,097**	**$1,141**	**$1,187**	**$1,234**	**$1,283**	**$1,335**	**$1,388**	**$1,444**	**$1,501**

Chapter 7
Analysis of Water and Wastewater Rates and Policy Matters

7. Analysis of Water and Wastewater Rates and Policy Matters

7.1 Introduction

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 and wastewater 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 reserve contribution. The base charge revenues 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 and wastewater volume forecast provided in section 1.8.

7.2 Water Rates

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 Table 5-1 (the product of total expenditures 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. This results in a water volume rate increase of 4%.

These increases are required in order to fund the operating and capital expenditure forecast, while providing reserve fund transfers to prepare for the future lifecycle requirements. Detailed calculations of the volume rates are provided in Appendix A. A summary of the recommended quarterly base charge and volume rates, along with the total annual bill for an average residential user who consumes 199 cubic meters per year, is presented in Table 7-1.

Table 7-1
Annual Customer Water Bill
Based on 199 cubic metres of usage and ⅝" Meter

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Quarterly Base Rate	$16.86	$17.53	$18.24	$18.97	$19.72	$20.51	$21.33	$22.19	$23.07	$24.00	$24.96
Constant Rate	$1.58	$1.64	$1.71	$1.78	$1.85	$1.92	$2.00	$2.08	$2.16	$2.25	$2.34
Annual Base Rate Bill	**$67.44**	**$70.14**	**$72.94**	**$75.86**	**$78.90**	**$82.05**	**$85.33**	**$88.75**	**$92.30**	**$95.99**	**$99.83**
Volume	199	199	199	199	199	199	199	199	199	199	199
Annual Volume Bill	**$314.53**	**$326.48**	**$340.41**	**$354.35**	**$368.28**	**$382.22**	**$398.14**	**$414.07**	**$429.99**	**$447.91**	**$465.83**
Total Annual Bill	**$381.97**	**$396.61**	**$413.35**	**$430.21**	**$447.18**	**$464.27**	**$483.48**	**$502.81**	**$522.29**	**$543.90**	**$565.65**
%Increase - Total Annual Bill		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

7.3 Wastewater Rates

Similar to water, the calculation of the wastewater rates takes the net recoverable amounts from Table 5-2 and completes the calculation by dividing them by the volumes, resulting in the forecast rates. Detailed calculations are provided in Appendix B.

Based on the capital and operating needs over the forecast period, the wastewater volume rates are calculated to remain at 136.3% of the corresponding water charge.

Table 7-2 summarizes the recommended rates for wastewater and provides the average annual bill for a residential customer who uses 199 cubic meters per year:

Table 7-2
Annual Customer Wastewater Bill
Based on 199 cubic metres of usage and ⅝" Meter

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Quarterly Base Rate	$22.98	$23.90	$24.86	$25.85	$26.88	$27.96	$29.08	$30.24	$31.45	$32.71	$34.02
Constant Rate	$2.15	$2.24	$2.33	$2.43	$2.52	$2.62	$2.73	$2.84	$2.94	$3.07	$3.19
Annual Base Rate Bill	**$91.92**	**$95.60**	**$99.42**	**$103.40**	**$107.53**	**$111.84**	**$116.31**	**$120.96**	**$125.80**	**$130.83**	**$136.07**
Volume	199	199	199	199	199	199	199	199	199	199	199
Annual Volume Bill	**$428.71**	**$444.99**	**$463.98**	**$482.97**	**$501.97**	**$520.96**	**$542.67**	**$564.37**	**$586.08**	**$610.50**	**$634.92**
Total Annual Bill	**$520.63**	**$540.59**	**$563.40**	**$586.37**	**$609.50**	**$632.80**	**$658.98**	**$685.34**	**$711.88**	**$741.33**	**$770.99**
%Increase - Total Annual Bill		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

Chapter 8
Recommendations

8. Recommendations

As presented within this report, capital and operating expenditures have been identified and forecast over a ten-year period for water and wastewater services.

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

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

Appendices

Appendix A
Detailed Water Rate Calculations

Appendix A: Detailed Water Rate Calculations

Table A-1
Township of Essa
Water Service
Capital Budget Forecast
Inflated $

Description	Budget 2025	Total	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Thornton DWS			-	-	-	-	-	-	-	-	-	-
Chemical System Rebuild Kits (Silicate Pumps, Chlorine Pumps, Analzyer Probes and Membrane Caps)	4,500	55,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000
Flow Meter and Surronding Pipework Replacement	35,000	-	-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs and Load Testing	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Water Storage Tower Inspections (3rd Party recommended Greatario)	-	11,000	-	-	11,000	-	-	-	-	-	-	-
Essa Water Distribution System			-	-	-	-	-	-	-	-	-	-
Hydrant Painting	5,000	61,000	5,000	5,000	6,000	6,000	6,000	6,000	6,000	7,000	7,000	7,000
Swabbing(5 - 8 kms)	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Fire Hydrant Replacements	40,000	486,000	41,000	43,000	44,000	46,000	48,000	49,000	51,000	53,000	55,000	56,000
Main Valve Repairs/Service Repairs/Hydrant Repairs	45,000	545,000	47,000	48,000	50,000	52,000	53,000	55,000	57,000	59,000	61,000	63,000
General			-	-	-	-	-	-	-	-	-	-
Unplanned/Emergency Essa Water Distribution Repairs	40,000	305,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000	33,000	34,000	35,000
Unplanned/Emergency Drinking Water System Repairs	25,000	305,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000	33,000	34,000	35,000
Building Maintenance for Mill, McGeorge, Brownley, Baxter, and Thornton)(heaters, soffits, doors, locks etc.)	10,000	121,000	10,000	11,000	11,000	11,000	12,000	12,000	13,000	13,000	14,000	14,000
Permit to Take Water (PTTW) renewal Thornton	750	-	-	-	-	-	-	-	-	-	-	-
DWQMS Audits (2025) Reaccreditation Year	3,500	26,000	2,000	2,000	4,000	2,000	2,000	2,000	3,000	3,000	3,000	3,000
Lifecycle:			-	-	-	-	-	-	-	-	-	-
Water AMP lifecycle annual replacement	-	15,132,000	1,290,000	1,335,000	1,382,000	1,430,000	1,480,000	1,532,000	1,586,000	1,641,000	1,698,000	1,758,000
Growth Related:		-	-	-	-	-	-	-	-	-	-	-
Increase PTTW and Existing Well Capacity	-	4,490,000	-	428,000	1,996,000	2,066,000	-	-	-	-	-	-
New Water Storage Tanks (3) (Southwest, Northwest, and Northeast)	-	11,224,000	-	1,071,000	4,989,000	5,164,000	-	-	-	-	-	-
Water Distribution Network Expansion (Linear Infrasructure)	-	5,613,000	-	536,000	2,495,000	2,582,000	-	-	-	-	-	-
Mill Street Wellfield Investigation	320,000	-	-	-	-	-	-	-	-	-	-	-
Total Capital Expenditures	**925,750**	**39,703,000**	**1,746,000**	**3,680,000**	**11,144,000**	**11,518,000**	**1,785,000**	**1,827,000**	**1,894,000**	**1,962,000**	**2,028,000**	**2,119,000**
Capital Financing												
Development Charges Reserve Fund	-	6,035,000	-	2,035,000	4,000,000	-	-	-	-	-	-	-
Growth Related Debenture Requirements	320,000	15,292,000	-	-	5,480,000	9,812,000	-	-	-	-	-	-
Water Reserve	605,750	18,376,000	1,746,000	1,645,000	1,664,000	1,706,000	1,785,000	1,827,000	1,894,000	1,962,000	2,028,000	2,119,000
Total Capital Financing	**925,750**	**39,703,000**	**1,746,000**	**3,680,000**	**11,144,000**	**11,518,000**	**1,785,000**	**1,827,000**	**1,894,000**	**1,962,000**	**2,028,000**	**2,119,000**

Table A-2
Township of Essa
Water Service
Water Non-Growth Related Debenture Repayments
Inflated $

Debenture Year	2024	Principal (Inflated)	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
2025		-		-	-	-	-	-	-	-	-	-
2026		-			-	-	-	-	-	-	-	-
2027		-				-	-	-	-	-	-	-
2028		-					-	-	-	-	-	-
2029		-						-	-	-	-	-
2030		-							-	-	-	-
2031		-								-	-	-
2032		-									-	-
2033		-										-
2034		-										
Total Annual Debt Charges	-	-	-	-	-	-	-	-	-	-	-	-

Table A-3
Township of Essa
Water Service
Water Growth Related Debenture Repayments
Inflated $

Debenture Year	2025	Principal (Inflated)	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2026		-		-	-	-	-	-	-	-	-	-
2027		-			-	-	-	-	-	-	-	-
2028		5,480,000				420,551	420,551	420,551	420,551	420,551	420,551	420,551
2029		9,812,000					753,002	753,002	753,002	753,002	753,002	753,002
2030		-						-	-	-	-	-
2031		-							-	-	-	-
2032		-								-	-	-
2033		-									-	-
2034		-										-
2035		-										
Total Annual Debt Charges	-	**15,292,000**	-	-	-	420,551	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554

Table A-4
Township of Essa
Water Service
Water Capital Reserve Continuity
Inflated $

Description	2025		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Opening Balance	5,680,537		6,436,739	6,139,870	6,046,337	6,039,407	6,101,355	6,200,353	6,252,265	6,375,787	6,577,346	6,884,520
Transfer from Operating	1,204,958		1,299,378	1,403,996	1,509,767	1,619,135	1,732,770	1,726,417	1,862,015	2,003,136	2,167,259	2,337,791
Transfer to Capital	605,750		1,746,000	1,645,000	1,664,000	1,706,000	1,785,000	1,827,000	1,894,000	1,962,000	2,028,000	2,119,000
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**6,279,745**		**5,990,117**	**5,898,866**	**5,892,104**	**5,952,542**	**6,049,125**	**6,099,771**	**6,220,280**	**6,416,923**	**6,716,605**	**7,103,311**
Interest	156,994		149,753	147,472	147,303	148,814	151,228	152,494	155,507	160,423	167,915	177,583

Table A-5
Township of Essa
Water Service
Water Development Charges Reserve Fund Continuity
Inflated $

Description	2025		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Opening Balance	2,641,502		3,572,338	4,579,013	3,459,944	358,710	909,055	770,008	692,455	680,722	761,231	943,749
Development Charge Proceeds	843,705		894,992	831,542	890,017	948,725	1,015,725	1,079,111	1,145,218	1,235,496	1,333,053	1,401,223
Transfer to Capital	-		-	2,035,000	4,000,000	-	-	-	-	-	-	-
Transfer to Operating	-		-	-	-	420,551	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554
Closing Balance	**3,485,208**		**4,467,330**	**3,375,555**	**349,961**	**886,883**	**751,227**	**675,566**	**664,119**	**742,664**	**920,730**	**1,171,418**
Interest	87,130		111,683	84,389	8,749	22,172	18,781	16,889	16,603	18,567	23,018	29,285
Required from Development Charges	320,000		-	2,035,000	9,480,000	9,812,000	-	-	-	-	-	-

Table A-6
Township of Essa
Water Service
Operating Budget Forecast
Inflated $

Description	Budget 2025		Forecast 2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Expenditures												
Operating Costs												
Administration												
6000 - Salaries/Wages	127,981		132,500	137,100	141,900	146,900	152,000	157,300	162,800	168,500	174,400	180,500
6012 - Wages & Benefits Transfer	6,110		6,300	6,500	6,700	6,900	7,100	7,300	7,600	7,900	8,200	8,500
6020 - Employee Benefits Full Time	7,232		7,500	7,800	8,100	8,400	8,700	9,000	9,300	9,600	9,900	10,200
6026 - Extended Health Benefits	14,413		14,900	15,400	15,900	16,500	17,100	17,700	18,300	18,900	19,600	20,300
6030 - Employee Health Tax	2,339		2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300
6031 - Employee Assistance Plan	76		100	100	100	100	100	100	100	100	100	100
6032 - OMERS	12,093		12,500	12,900	13,400	13,900	14,400	14,900	15,400	15,900	16,500	17,100
6033 - WSIB	3,272		3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
6035 - Mileage	1,500		1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
6050 - Office Supplies	10,200		10,600	11,000	11,400	11,800	12,200	12,600	13,000	13,500	14,000	14,500
6052 - Postage	16,993		17,600	18,200	18,800	19,500	20,200	20,900	21,600	22,400	23,200	24,000
6062 - Advertising	1,500		1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500
6063 - Insurance	8,052		8,300	8,600	8,900	9,200	9,500	9,800	10,100	10,500	10,900	11,300
6275 - Snow Removal	5,671		5,900	6,100	6,300	6,500	6,700	6,900	7,100	7,300	7,600	7,900
6283 - OCWA Operating Budget	654,000		676,900	700,600	725,100	750,500	776,800	804,000	832,100	861,200	891,300	922,500
Operations												
6054 - Telephone Communications	7,344		7,600	7,900	8,200	8,500	8,800	9,100	9,400	9,700	10,000	10,400
6055 - Hydro	147,737		155,100	162,900	171,000	179,600	188,600	198,000	207,900	218,300	229,200	240,700
6072 - Software Maintenance	40,000		41,400	42,800	44,300	45,900	47,500	49,200	50,900	52,700	54,500	56,400
6081 - Other Write-offs	3,500		3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,500	4,700
Misc Works - from Capital	50,000		50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
6350 - Meter Reads	6,500		6,700	6,900	7,100	7,300	7,600	7,900	8,200	8,500	8,800	9,100
6355 - Pipeline Consumption	35,700		36,900	38,200	39,500	40,900	42,300	43,800	45,300	46,900	48,500	50,200
Sub Total Operating	**1,162,213**		**1,203,400**	**1,246,100**	**1,290,300**	**1,336,500**	**1,384,200**	**1,433,600**	**1,484,700**	**1,538,000**	**1,593,400**	**1,651,000**
Capital-Related												
New Growth Related Debt (Principal)			-	-	-	175,047	496,314	518,549	541,780	566,052	591,411	617,906
New Growth Related Debt (Interest)			-	-	-	245,504	677,239	655,005	631,774	607,502	582,143	555,648
Transfer to Capital Reserve	1,204,958		1,299,378	1,403,996	1,509,767	1,619,135	1,732,770	1,726,417	1,862,015	2,003,136	2,167,259	2,337,791
Sub Total Capital Related	**1,204,958**		**1,299,378**	**1,403,996**	**1,509,767**	**2,039,687**	**2,906,324**	**2,899,971**	**3,035,569**	**3,176,689**	**3,340,813**	**3,511,344**
Total Expenditures	**2,367,171**		**2,502,778**	**2,650,096**	**2,800,067**	**3,376,187**	**4,290,524**	**4,333,571**	**4,520,269**	**4,714,689**	**4,934,213**	**5,162,344**
Revenues												
Base Charge	346,028		369,478	393,375	418,213	444,567	472,524	502,348	533,446	566,598	602,508	640,684
4702 - Penalties & Interest	20,934		20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900	20,900
4707 - Miscellaneous Revenue	15,300		15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
4862 - Water Permit	4,080		4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100
4863 - Final Water Reading Certificat	1,020		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
4865 - Connection Fees	10,000		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Revenues from Planning for internal loan	148,564		146,866	145,138	143,410	141,683	139,955					
Contributions from Development Charges Reserve Fund			-	-	-	420,551	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554	1,173,554
Total Operating Revenue	**545,926**		**567,644**	**589,813**	**612,923**	**1,058,101**	**1,837,333**	**1,727,201**	**1,758,300**	**1,791,451**	**1,827,362**	**1,865,538**
Water Billing Recovery - Total	**1,821,246**		**1,935,134**	**2,060,283**	**2,187,143**	**2,318,085**	**2,453,191**	**2,606,370**	**2,761,969**	**2,923,238**	**3,106,851**	**3,296,807**

Table A-5
Township of Essa
Water Rate Forecast
Inflated $

Description	2025		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Water Billing Recovery	1,821,246		1,935,134	2,060,283	2,187,143	2,318,085	2,453,191	2,606,370	2,761,969	2,923,238	3,106,851	3,296,807
Total Volume (m^3)	1,152,687		1,179,960	1,204,844	1,228,732	1,253,019	1,277,704	1,303,185	1,327,870	1,353,351	1,380,823	1,408,892
Constant Rate	**1.58**		**1.64**	**1.71**	**1.78**	**1.85**	**1.92**	**2.00**	**2.08**	**2.16**	**2.25**	**2.34**
Annual Percentage Change			**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**

Appendix B
Detailed Wastewater Rate Calculations

Appendix B: Detailed Wastewater Rate Calculations

Table B-1
Township of Essa
Wastewater Service
Capital Budget Forecast
Inflated $

Description	Budget 2025	Total	Forecast 2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Capital Expenditures												
Rate Study	17,500	46,000	-	-	-	-	21,000	-	-	-	-	25,000
Angus Wastewater Treatment Facility	-	-	-	-	-	-	-	-	-	-	-	-
Diesel Generator Repairs, Inspections and Annual Load Testing (3 Generators)	8,000	98,000	8,000	9,000	9,000	9,000	10,000	10,000	10,000	11,000	11,000	11,000
General Building Maintenance(HVAC service, cleaning etc..)	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
Vac Truck for Clarifier Cleanings (3 to 4 times per year)	15,000	182,000	16,000	16,000	17,000	17,000	18,000	18,000	19,000	20,000	20,000	21,000
Snow Plowing and Grass Cutting	23,000	278,000	24,000	25,000	26,000	26,000	27,000	28,000	29,000	30,000	31,000	32,000
General Pump and Piping Replacement	30,000	364,000	31,000	32,000	33,000	34,000	36,000	37,000	38,000	40,000	41,000	42,000
Bio Solids Hauling	150,000	1,821,000	155,000	161,000	166,000	172,000	178,000	184,000	191,000	198,000	204,000	212,000
Disc Filter Cloths	7,000	85,000	7,000	7,000	8,000	8,000	8,000	9,000	9,000	9,000	10,000	10,000
Clarifier Brushes	45,000	-	-	-	-	-	-	-	-	-	-	-
Rebuild Sludge Recirculating Pumps(Sludge Storage Tower pumps)	40,000	-	-	-	-	-	-	-	-	-	-	-
Rebuild Reject Pumps	-	17,000	-	-	17,000	-	-	-	-	-	-	-
Blower Rebuilds of Motors, Piping and Compressors	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
UV Ballasts Rebuilds	10,000	121,000	10,000	11,000	11,000	11,000	12,000	12,000	13,000	13,000	14,000	14,000
Egger Iris Valves Installation	100,000	-	-	-	-	-	-	-	-	-	-	-
SCADA Upgrades	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
New Auto Sampler	9,000	-	-	-	-	-	-	-	-	-	-	-
Rebuild Clarifier #1	40,000	-	-	-	-	-	-	-	-	-	-	-
Aeration Tank #2 Rebuild	25,000	-	-	-	-	-	-	-	-	-	-	-
Angus Wastewater Collection	-	-	-	-	-	-	-	-	-	-	-	-
Pump Station Cleanings	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Vac Trucks for Sewer Back Ups and Clogs	10,000	121,000	10,000	11,000	11,000	11,000	12,000	12,000	13,000	13,000	14,000	14,000
Sewer Flushing and CCTV (approximately 4k/km.)	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Sewer Repairs	20,000	242,000	21,000	21,000	22,000	23,000	24,000	25,000	25,000	26,000	27,000	28,000
Storm Water Pump Station #4 Pump Rebuilds	-	9,000	-	9,000	-	-	-	-	-	-	-	-
Pump Station #1 Upgrades & Bar Screen Upgrade	-	469,000	41,000	428,000	-	-	-	-	-	-	-	-
General	-	-	-	-	-	-	-	-	-	-	-	-
Unplanned/Emergency Angus WWTP Repairs	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Unplanned/Emergency Angus Wastewater Collection System Repairs	35,000	425,000	36,000	37,000	39,000	40,000	42,000	43,000	45,000	46,000	48,000	49,000
Seacan for Storage at Angus WWTP	5,000	-	-	-	-	-	-	-	-	-	-	-
MDWL/DWWP Renewal Angus, Thornton, Baxter.	1,350	-	-	-	-	-	-	-	-	-	-	-
Lifecycle:		-	-	-	-	-	-	-	-	-	-	-
Wastewater AMP lifecycle annual replacement	-	21,250,000	1,811,000	1,875,000	1,940,000	2,008,000	2,079,000	2,151,000	2,227,000	2,305,000	2,385,000	2,469,000
Growth Related:		-	-	-	-	-	-	-	-	-	-	-
Expand Existing Wastewater Treatment Plant	-	11,786,000	-	1,125,000	5,239,000	5,422,000	-	-	-	-	-	-
Area 1 Sanitary Collection Upgrades	-	2,245,000	-	214,000	998,000	1,033,000	-	-	-	-	-	-
Area 2 Sanitary Collection Upgrades	-	4,490,000	-	428,000	1,996,000	2,066,000	-	-	-	-	-	-
Angus Wastewater EA	300,000	-	-	-	-	-	-	-	-	-	-	-
Total Capital Expenditures	**1,055,850**	**46,050,000**	**2,341,000**	**4,583,000**	**10,715,000**	**11,069,000**	**2,665,000**	**2,733,000**	**2,829,000**	**2,927,000**	**3,030,000**	**3,158,000**
Capital Financing												
Development Charges Reserve Fund	-	11,000,000	-	1,767,000	8,233,000	1,000,000	-	-	-	-	-	-
Growth Related Debenture Requirements	300,000	7,521,000	-	-	-	7,521,000	-	-	-	-	-	-
Wastewater Reserve	755,850	27,529,000	2,341,000	2,816,000	2,482,000	2,548,000	2,665,000	2,733,000	2,829,000	2,927,000	3,030,000	3,158,000
Total Capital Financing	**1,055,850**	**46,050,000**	**2,341,000**	**4,583,000**	**10,715,000**	**11,069,000**	**2,665,000**	**2,733,000**	**2,829,000**	**2,927,000**	**3,030,000**	**3,158,000**

Table B-2
Township of Essa
Wastewater Service
Wastewater Non-Growth Related Debenture Repayments
Inflated $

Debenture Year	2025	Principal (Inflated)	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2026		-		-	-	-	-	-	-	-	-	-
2027		-			-	-	-	-	-	-	-	-
2028		-				-	-	-	-	-	-	-
2029		-					-	-	-	-	-	-
2030		-						-	-	-	-	-
2031		-							-	-	-	-
2032		-								-	-	-
2033		-									-	-
2034		-										-
2035		-										
Total Annual Debt Charges	-	-	-	-	-	-	-	-	-	-	-	-

Table B-3
Township of Essa
Wastewater Service
Wastewater Growth Related Debenture Repayments
Inflated $

Debenture Year	2025	Principal (Inflated)	Forecast									
			2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2026		-		-	-	-	-	-	-	-	-	-
2027		-			-	-	-	-	-	-	-	-
2028		-				-	-	-	-	-	-	-
2029		7,521,000					577,184	577,184	577,184	577,184	577,184	577,184
2030		-						-	-	-	-	-
2031		-							-	-	-	-
2032		-								-	-	-
2033		-									-	-
2034		-										-
2035		-										
Total Annual Debt Charges	-	**7,521,000**	-	-	-	-	577,184	577,184	577,184	577,184	577,184	577,184

Table B-4
Township of Essa
Wastewater Service
Wastewater Capital Reserve Continuity
Inflated $

Description	2025		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Opening Balance	1,979,134		3,031,862	2,644,669	1,934,544	1,725,332	1,626,046	1,593,888	1,881,033	2,478,492	3,219,574	4,136,177
Transfer from Operating	1,734,630		1,889,303	2,058,692	2,230,706	2,409,055	2,593,966	2,974,267	3,366,007	3,589,556	3,845,720	4,112,198
Transfer to Capital	755,850		2,341,000	2,816,000	2,482,000	2,548,000	2,665,000	2,733,000	2,829,000	2,927,000	3,030,000	3,158,000
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**2,957,914**		**2,580,165**	**1,887,360**	**1,683,251**	**1,586,387**	**1,555,013**	**1,835,155**	**2,418,041**	**3,141,048**	**4,035,294**	**5,090,375**
Interest	73,948		64,504	47,184	42,081	39,660	38,875	45,879	60,451	78,526	100,882	127,259

Table B-5
Township of Essa
Wastewater Service
Wastewater Development Charges Reserve Fund Continuity
Inflated $

Description	2025		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Opening Balance	6,781,411		7,669,871	8,612,184	7,800,084	374,371	212,582	517,415	869,004	1,297,089	1,742,303	2,248,563
Development Charge Proceeds	701,390		732,260	764,654	798,155	833,026	869,397	907,577	973,633	979,903	1,028,600	1,066,450
Transfer to Capital	-		-	1,767,000	8,233,000	1,000,000	-	-	-	-	-	-
Transfer to Operating	-		-	-	-	-	577,184	577,184	577,184	577,184	577,184	577,184
Closing Balance	**7,482,801**		**8,402,131**	**7,609,838**	**365,240**	**207,397**	**504,795**	**847,808**	**1,265,453**	**1,699,808**	**2,193,720**	**2,737,829**
Interest	187,070		210,053	190,246	9,131	5,185	12,620	21,195	31,636	42,495	54,843	68,446
Required from Development Charges	300,000		-	1,767,000	8,233,000	8,521,000	-	-	-	-	-	-

Table B-6
Township of Essa
Wastewater Service
Operating Budget Forecast
Inflated $

Description	Budget 2025		Forecast 2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Expenditures												
Operating Costs												
Adminstration												
6000 - Salaries/Wages	40,362		41,800	43,300	44,800	46,400	48,000	49,700	51,400	53,200	55,100	57,000
6002 - Salaries/Wages Part Time	15,300		15,800	16,400	17,000	17,600	18,200	18,800	19,500	20,200	20,900	21,600
6012 - Wages & Benefits Transfer	6,109		6,300	6,500	6,700	6,900	7,100	7,300	7,600	7,900	8,200	8,500
6020 - Employee Benefits Full Time	2,149		2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100
6026 - Extended Health Benefits	4,492		4,600	4,800	5,000	5,200	5,400	5,600	5,800	6,000	6,200	6,400
6030 - Employee Health Tax	738		800	800	800	800	800	800	800	800	800	800
6031 - Employee Assistance Plan	24		-	-	-	-	-	-	-	-	-	-
6032 - OMERS	3,940		4,100	4,200	4,300	4,500	4,700	4,900	5,100	5,300	5,500	5,700
6033 - WSIB	923		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
6283 - OCWA Operating Budget	578,500		598,700	619,700	641,400	663,800	687,000	711,000	735,900	761,700	788,400	816,000
Operations	166,464		172,300	178,300	184,500	191,000	197,700	204,600	211,800	219,200	226,900	234,800
6056 - Heat	6,000		6,300	6,600	6,900	7,200	7,600	8,000	8,400	8,800	9,200	9,700
6072 - Software Maintenance	40,000		40,800	41,600	42,400	43,200	44,100	45,000	45,900	46,800	47,700	48,700
6081 - Other Write-offs	3,500		3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,500	4,700
Sub Total Operating	**868,501**		**898,300**	**929,200**	**961,000**	**994,000**	**1,028,200**	**1,063,500**	**1,100,200**	**1,138,100**	**1,177,400**	**1,218,000**
Capital-Related												
New Growth Related Debt (Principal)			-	-	-	-	240,243	251,006	262,251	274,000	286,275	299,100
New Growth Related Debt (Interest)			-	-	-	-	336,941	326,178	314,933	303,184	290,909	278,084
Existing Debt (Principal) - Non-Growth Related	258,240		270,731	283,827	297,556	311,949	327,039	169,405	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	88,667		76,175	63,080	49,351	34,957	19,868	8,003	-	-	-	-
Transfer to Capital Reserve	1,734,630		1,889,303	2,058,692	2,230,706	2,409,055	2,593,966	2,974,267	3,366,007	3,589,556	3,845,720	4,112,198
Sub Total Capital Related	**2,081,536**		**2,236,209**	**2,405,598**	**2,577,613**	**2,755,961**	**3,518,057**	**3,728,859**	**3,943,191**	**4,166,740**	**4,422,904**	**4,689,382**
Total Expenditures	**2,950,037**		**3,134,509**	**3,334,798**	**3,538,613**	**3,749,961**	**4,546,257**	**4,792,359**	**5,043,391**	**5,304,840**	**5,600,304**	**5,907,382**
Revenues												
Base Charge	417,121		446,903	477,207	508,703	542,170	577,724	615,721	655,349	697,665	743,627	792,557
Other Revenue												
4702 - Penalties & Interest	22,000		22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000
4861 - Sewer Permit	5,620		5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600
4865 - Connection Fees	36,312		36,300	36,300	36,300	36,300	36,300	36,300	36,300	36,300	36,300	36,300
Contributions from Development Charges Reserve Fund	-		-	-	-	-	577,184	577,184	577,184	577,184	577,184	577,184
Total Operating Revenue	**481,053**		**510,803**	**541,107**	**572,603**	**606,070**	**1,218,808**	**1,256,805**	**1,296,433**	**1,338,749**	**1,384,711**	**1,433,641**
Wastewater Billing Recovery - Total	**2,468,984**		**2,623,706**	**2,793,692**	**2,966,010**	**3,143,891**	**3,327,448**	**3,535,554**	**3,746,958**	**3,966,091**	**4,215,594**	**4,473,741**

Table B-7
Township of Essa
Wastewater Rate Forecast
Inflated $

Description	2025		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Wastewater Billing Recovery	2,468,984		2,623,706	2,793,692	2,966,010	3,143,891	3,327,448	3,535,554	3,746,958	3,966,091	4,215,594	4,473,741
Total Volume (m^3)	1,146,477		1,173,750	1,198,634	1,222,522	1,246,809	1,271,494	1,296,975	1,321,660	1,347,141	1,374,613	1,402,682
Constant Rate	**2.15**		**2.24**	**2.33**	**2.43**	**2.52**	**2.62**	**2.73**	**2.84**	**2.94**	**3.07**	**3.19**
Annual Percentage Change			**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**