



Water and Wastewater Rate Study

Town of Essex

June 12, 2024

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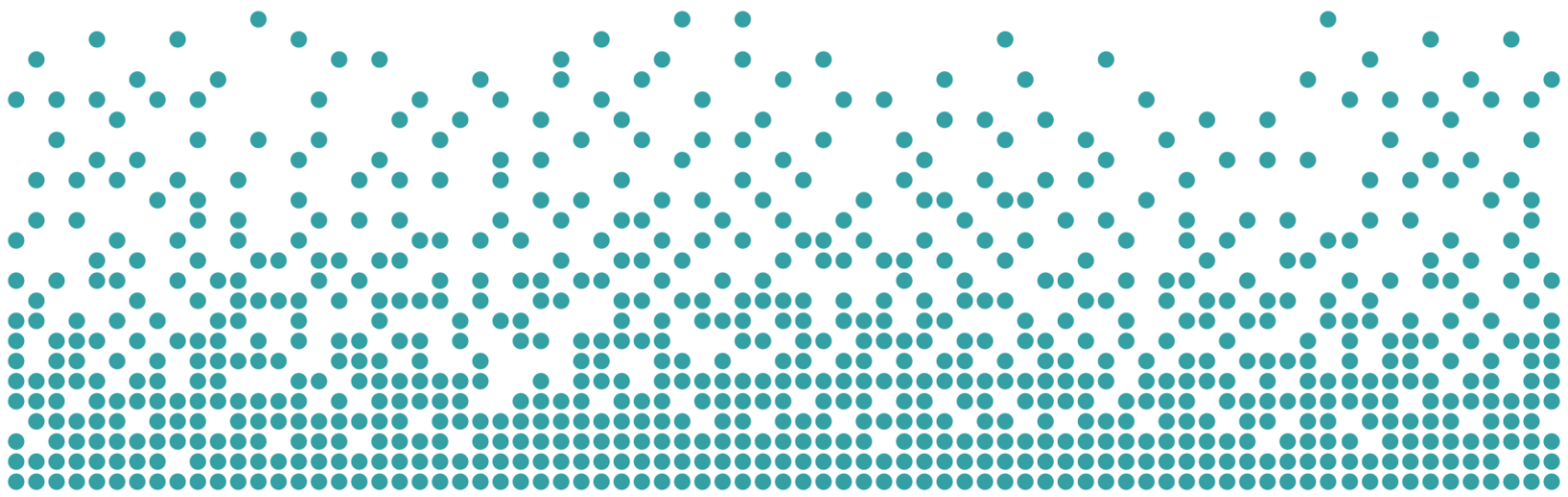
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List of Acronyms and Abbreviations

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
I.J.P.A.	Infrastructure for Jobs and Prosperity Act, 2015
I.O.	Infrastructure Ontario
LPAT	Local Planning Appeal Tribunal
M.O.E.	Ministry of Environment
O.C.I.F.	Ontario Community Infrastructure Fund
OLT	Ontario Land Tribunal
O.M.B.	Ontario Municipal Board
O. Reg.	Ontario Regulation
O.S.I.F.A.	Ontario Strategic Infrastructure Financing Authority
P.S.A.B.	Public Sector Accounting Board
P.T.I.F.	Public Transit Infrastructure Fund
S.W.S.S.A.	Sustainable Water and Sewage Systems Act, 2002



Executive Summary



Executive Summary

The Town of Essex retained Watson & Associates Economists Ltd. (Watson) to undertake a water and wastewater rate study. This study aims to prepare an analysis of the Town's water and wastewater rate forecast based on current capital and operating forecasts, costing for lifecycle replacement requirements, current volumes and customer profiles. The results of this analysis provide updated water and wastewater base charges and volume rates for customers within the Town of Essex. The rate analysis contained herein continues to provide fiscally responsible practices that are in line with current provincial legislation.

The analysis presented herein provides the following:

- The 2024 to 2033 capital spending program for water is approximately \$17.16 million for Wards 1 & 2 and \$22.97 million for Wards 3 & 4 (inflated).
- The 2024 to 2033 capital spending program for wastewater is approximately \$9.10 million for Ward 1, \$48.82 million for Ward 3, and \$6.21 million for Ward 4 (inflated).
- A significant portion of the water capital spending program for Wards 1 & 2 and Wards 3 & 4 is related to the asset management plan capital requirements
- A significant portion of the capital program for wastewater addresses the following areas:
 - a. Ward 1: Capital requirements outlined in the asset management plan.
 - b. Ward 3: Upgrades to the treatment facility and pump station.
 - c. Ward 4: Lifecycle capital requirements and a new sewage pump station.
- Annual operating expenditures are assumed to increase by 2% for most expenditures and expenditures related to utilities, fuels, chemicals and other materials have been increased at 5% per annum for 2024-2033 forecast period.
- Union Water rates related to purchased water for Wards 1 & 2 are no longer included in the rate study. As of 2024 Union Water Supply System Inc. (U.W.S.S.) will bill customers directly for water supply costs.
- The present rate structure (base monthly charge and a constant volume rate for each ward) is continued;



- Existing 2023 water customers total 7,625
 - Wards 1 & 2: 3,860 existing customers with growth anticipated to add 328 customers over the forecast period to 2033.
 - Wards 3 & 4: 3,448 existing customers with growth anticipated to add 324 customers over the forecast period to 2033.
- Existing wastewater customers total 5,163:
 - Ward 1: 3,236 existing customers, increasing by 199 customers over the forecast period.
 - Ward 3: 1,105 existing customers, increasing by 195 customers over the forecast period.
 - Ward 4: 1,241 existing customers, increasing by 198 customers over the forecast period.

Based on the above information, the following 10-year annual average dollar increases are anticipated to the base charges and volume rates over the forecast period:

Table ES-1
Town of Essex
Proposed Water Rate Forecast
10-Year Annual Average \$ Increase

Service Area	Base Charge	Volume Charge
Wards 1& 2	\$19.59	\$0.06
Wards 3 & 4	\$19.59	\$0.13



Table ES-2
Town of Essex
Proposed Wastewater Rate Forecast
10-Year Annual Average \$ Increase

Service Area	Base Charge	Volume Charge
Ward 1	\$22.18	\$0.13
Ward 3	\$42.55	\$0.37
Ward 4	\$25.02	\$0.20

Tables ES-1 and ES-2 summarize the forecasted water rates and average annual bill, based on the average volume usage by Ward as follows:

- Table ES-1: Wards 1 & 2 – average annual volume of 180 cu.m over the forecast period.
- Table ES-2: Wards 3 & 4 - average annual volume of 180 cu.m over the forecast period.

Tables ES-3, ES-4, and ES-5 summarize the recommended wastewater rates and average annual bill, based on average annual volumes by Ward, as follows:

- Table ES-3: Ward 1 - 180 cu.m over the forecast period.
- Table ES-4: Ward 3 - 180 cu.m over the forecast period.
- Table ES-5: Ward 4 - 180 cu.m over the forecast period.

Note that Ward 2 properties are generally serviced with wastewater servicing from the Town of Amherstberg.



Table ES-3
Town of Essex
Water Rate Summary – Wards 1 & 2
Annual Customer Water Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$21.31	\$22.59	\$23.94	\$25.38	\$26.90	\$28.52	\$30.23	\$32.04	\$33.96	\$36.00
Annual Base Rate Bill	\$255.72	\$271.06	\$287.33	\$304.57	\$322.84	\$342.21	\$362.74	\$384.51	\$407.58	\$432.03
Constant Rate	\$0.78	\$0.83	\$0.88	\$0.93	\$0.99	\$1.05	\$1.11	\$1.18	\$1.25	\$1.33
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$140.40	\$149.40	\$158.40	\$167.40	\$178.20	\$189.00	\$199.80	\$212.40	\$225.00	\$239.40
Total Annual Bill	\$396.12	\$420.46	\$445.73	\$471.97	\$501.04	\$531.21	\$562.54	\$596.91	\$632.58	\$671.43
\$ Increase - Total Annual Bill		\$24.34	\$25.26	\$26.24	\$29.07	\$30.17	\$31.33	\$34.36	\$35.67	\$38.85

Note: The above rates do not include the UWSS Inc. rate of \$0.7313 per cu.m. Based on 180 cu.m, this would add \$281.03 to an average bill in 2025

Table ES-4
Town of Essex
Water Rate Summary – Wards 3 & 4
Annual Customer Water Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$21.31	\$22.59	\$23.94	\$25.38	\$26.90	\$28.52	\$30.23	\$32.04	\$33.96	\$36.00
Annual Base Rate Bill	\$255.72	\$271.06	\$287.33	\$304.57	\$322.84	\$342.21	\$362.74	\$384.51	\$407.58	\$432.03
Constant Rate	\$1.71	\$1.81	\$1.92	\$2.04	\$2.16	\$2.29	\$2.43	\$2.58	\$2.73	\$2.89
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$307.80	\$325.80	\$345.60	\$367.20	\$388.80	\$412.20	\$437.40	\$464.40	\$491.40	\$520.20
Total Annual Bill	\$563.52	\$596.86	\$632.93	\$671.77	\$711.64	\$754.41	\$800.14	\$848.91	\$898.98	\$952.23
\$ Increase - Total Annual Bill		\$33.34	\$36.06	\$38.84	\$39.87	\$42.77	\$45.73	\$48.76	\$50.07	\$53.25



Table ES-5
Town of Essex
Wastewater Rate Summary – Ward 1
Annual Customer Wastewater Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$22.38	\$23.95	\$25.62	\$27.42	\$29.34	\$31.39	\$33.59	\$35.94	\$38.45	\$41.14
Annual Base Rate Bill	\$268.56	\$287.36	\$307.47	\$329.00	\$352.03	\$376.67	\$403.04	\$431.25	\$461.44	\$493.74
Constant Rate	\$1.56	\$1.72	\$1.89	\$2.08	\$2.29	\$2.52	\$2.57	\$2.62	\$2.67	\$2.72
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$280.80	\$309.60	\$340.20	\$374.40	\$412.20	\$453.60	\$462.60	\$471.60	\$480.60	\$489.60
Total Annual Bill	\$549.36	\$596.96	\$647.67	\$703.40	\$764.23	\$830.27	\$865.64	\$902.85	\$942.04	\$983.34
\$ Increase - Total Annual Bill		\$47.60	\$50.72	\$55.72	\$60.83	\$66.04	\$35.37	\$37.21	\$39.19	\$41.30

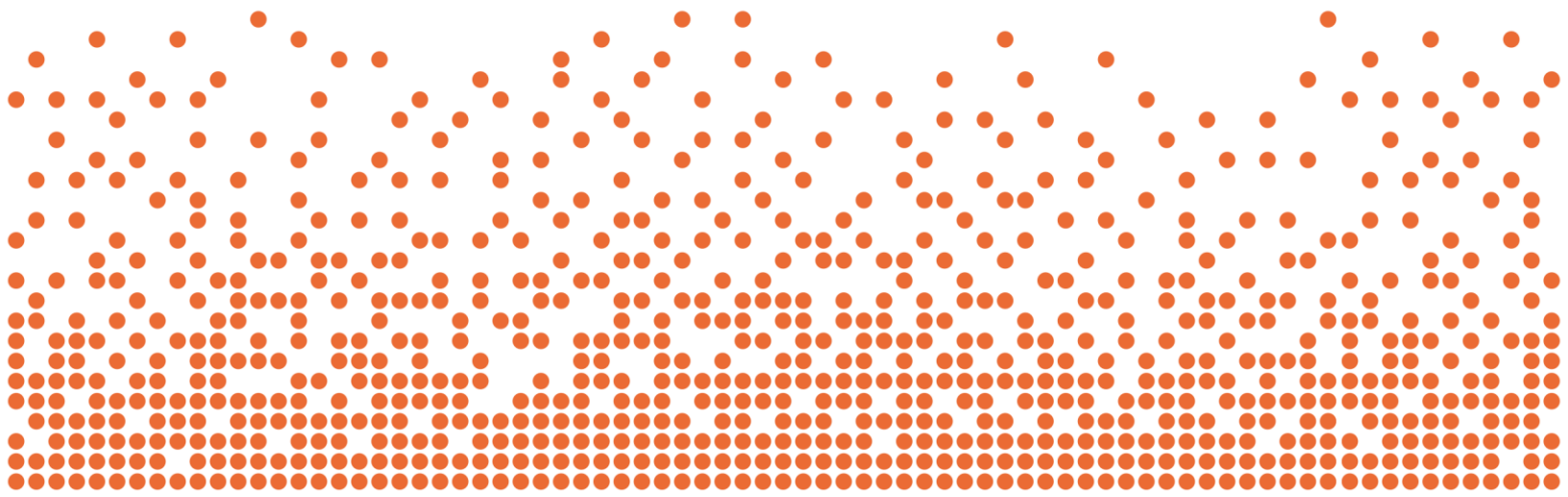
Table ES-6
Town of Essex
Wastewater Rate Summary – Ward 3
Annual Customer Wastewater Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$23.50	\$25.85	\$28.44	\$31.28	\$34.41	\$37.85	\$41.63	\$45.79	\$50.37	\$55.41
Annual Base Rate Bill	\$282.00	\$310.20	\$341.22	\$375.34	\$412.88	\$454.16	\$499.58	\$549.54	\$604.49	\$664.94
Constant Rate	\$2.48	\$2.73	\$3.00	\$3.30	\$3.63	\$3.99	\$4.39	\$4.83	\$5.32	\$5.85
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$446.40	\$491.04	\$540.14	\$594.16	\$653.57	\$718.93	\$790.82	\$869.91	\$956.90	\$1,052.59
Total Annual Bill	\$728.40	\$801.24	\$881.36	\$969.50	\$1,066.45	\$1,173.10	\$1,290.41	\$1,419.45	\$1,561.39	\$1,717.53
\$ Increase - Total Annual Bill		\$72.84	\$80.12	\$88.14	\$96.95	\$106.65	\$117.31	\$129.04	\$141.94	\$156.14



Table ES-7
Town of Essex
Wastewater Rate Summary – Ward 4
Annual Customer Wastewater Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$22.38	\$23.95	\$25.62	\$27.42	\$29.34	\$31.39	\$33.59	\$35.94	\$38.45	\$41.14
Annual Base Rate Bill	\$268.56	\$287.36	\$307.47	\$329.00	\$352.03	\$376.67	\$403.04	\$431.25	\$461.44	\$493.74
Constant Rate	\$2.17	\$2.32	\$2.48	\$2.65	\$2.84	\$3.04	\$3.25	\$3.48	\$3.72	\$3.98
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$390.60	\$417.60	\$446.40	\$477.00	\$511.20	\$547.20	\$585.00	\$626.40	\$669.60	\$716.40
Total Annual Bill	\$659.16	\$704.96	\$753.87	\$806.00	\$863.23	\$923.87	\$988.04	\$1,057.65	\$1,131.04	\$1,210.14
\$ Increase - Total Annual Bill		\$45.80	\$48.92	\$52.12	\$57.23	\$60.64	\$64.17	\$69.61	\$73.39	\$79.10



Chapter 1

Introduction



1. Introduction

1.1 Background

The Town of Essex provides water service via two systems, Wards 1 and 2 in the north representing the former Essex and Colchester North communities and Wards 3 and 4 in the south representing the former Colchester South and Harrow communities. Prior to 2024, The Union Water Management Board provided water supply for Wards 1 & 2, however this board has become a municipal service corporation under the name Union Water Supply Services Inc. (U.W.S.S.). As of January 1, 2024, U.W.S.S. continues to supply water to Wards 1 & 2, however, they will bill the customers directly, rather than sell water supply to the Town. The water supply for Wards 3 & 4 is an independent system with treatment and storage located within Harrow. In addition, customers in Wards 1, 3 & 4 are provided wastewater services via the Essex Pollution Control Plant and the Harrow and Colchester South Water Treatment Plant. Customers in Ward 2 are provided wastewater servicing through the Amherstburg wastewater system and are therefore not included in the rate analysis provided herein.

The Town of Essex currently services 7,625 metered water customers and 5,582 wastewater customers. The water and wastewater systems are metered and utilize rate structures with a monthly base charge as well as a volume charge on a per cubic metre basis. Table 1-1 provides the existing rates presently in effect.

Table 1-1
Town of Essex
Water and Wastewater Rates – 2024

2024 - Water Billing Rates		
Ward	Monthly Base Charge	Volume Charge per m ³
Ward 1 - Essex Service Area	\$ 21.31	\$ 1.49
Ward 2 - Colchester North Service Area	\$ 21.31	\$ 1.49
Ward 3 - Colchester South Service Area	\$ 21.31	\$ 1.71
Ward 4 - Harrow Service Area	\$ 21.31	\$ 1.71

2024 - Wastewater Billing Rates		
Ward	Monthly Base Charge	Volume Charge per m ³
Ward 1 - Essex Service Area	\$ 22.38	\$ 1.56
Ward 2 - Colchester North Service Area*	\$ -	\$ -
Ward 3 - Colchester South Service Area	\$ 23.50	\$ 2.48
Ward 4 - Harrow Service Area	\$ 22.38	\$ 2.17

* McGregor areas receives services via the Amherstburg system

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 Town of Essex 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 next 10-year period.

1.2 Study Process

- 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 10 years. This assessment identifies fixed and variable costs in order to project those costs sensitive to changes to the existing infrastructure inventory, as well as costs which may increase commensurate with growth; and
- Provide staff and Committee/Council the findings to assist in gaining approval of the rates for 2025 and future years.

1.3 Regulatory Changes in Ontario

As a result of the water crisis in Walkerton, significant regulatory changes have been made in Ontario. These changes arise as a result of the Walkerton Commission and the 93 recommendations made by the Walkerton Inquiry Part II report. Areas of recommendation include:

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



- lifecycle costing.

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

1.4 Sustainable Water and Sewage Systems Act

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.

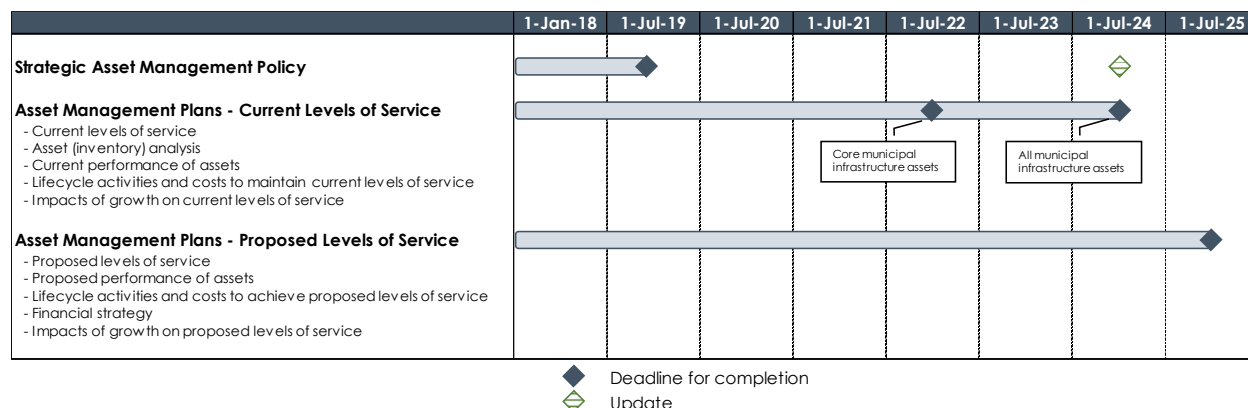
As noted earlier, it is expected that this Act will implement the principles of the S.W.S.S.A. once all regulations are put in place.

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

- Phase 1 – Asset Management Plan (by July 1, 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 will need 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

The Town of Essex services 3,860 metered water customers in Wards 1 & 2 and 3,765 metered water customers in Wards 3 & 4. The Town also services 3,236 wastewater customers in Ward 1, 1,105 customers in Ward 3 and 1,241 customers in Ward 4. Currently wastewater customers in Ward 2 are serviced through the Amherstburg system and billed directly. Information on the existing number of customers and existing billable volumes was obtained from the Town.

For forecasting future water and wastewater volumes, the average annual usage per customer for 2019 and 2022 (rounded down), was estimated to be 180 cu.m per customer. This has been utilized for all wards.

For future water and wastewater customers to be added to the systems, the growth identified for 2024-2033 is based on the Town's ongoing 2024 Development Charges (D.C.) background study.

Table 1-2 provides for the forecast of water users and volumes for all Wards 1 & 2 and Wards 3 & 4, while Table 1-3 provides the forecast of wastewater users and volumes separately for Wards 1, 3, and 4.



Table 1-2
Town of Essex
2024 to 2033 Water System Forecast

Water Users Forecast - Ward 1 & 2

Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2024	34	17	34	34	34	34	34	34	34	34	34
2025	33		17	33	33	33	33	33	33	33	33
2026	34			17	34	34	34	34	34	34	34
2027	33				17	33	33	33	33	33	33
2028	34					17	34	34	34	34	34
2029	32						16	32	32	32	32
2030	33							17	33	33	33
2031	32								16	32	32
2032	32									16	32
2033	31										16
Total	328	17	51	84	118	151	184	217	249	281	313
m ³ /user	180	180	180	180	180	180	180	180	180	180	180
Annual Flow		3,060	9,180	15,120	21,240	27,180	33,120	39,060	44,820	50,580	56,340

Water Users Forecast - Ward 3 & 4

Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2024	33	17	33	33	33	33	33	33	33	33	33
2025	33		17	33	33	33	33	33	33	33	33
2026	33			17	33	33	33	33	33	33	33
2027	33				17	33	33	33	33	33	33
2028	33					17	33	33	33	33	33
2029	32						16	32	32	32	32
2030	32							16	32	32	32
2031	32								16	32	32
2032	32									16	32
2033	31										16
Total	324	17	50	83	116	149	181	213	245	277	309
m ³ /user	180	180	180	180	180	180	180	180	180	180	180
Annual Flow		3,060	9,000	14,940	20,880	26,820	32,580	38,340	44,100	49,860	55,620



Table 1-2 (Cont'd)
Town of Essex
2024 to 2033 Water System Forecast

Water Customer Forecast	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ward 1 & 2										
Existing	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860
New - Growth	17	51	84	118	151	184	217	249	281	313
Subtotal Ward 1 & 2	3,877	3,911	3,944	3,978	4,011	4,044	4,077	4,109	4,141	4,173
Ward 3 & 4										
Existing	3,765	3,765	3,765	3,765	3,765	3,765	3,765	3,765	3,765	3,765
New	17	50	83	116	149	181	213	245	277	309
Subtotal Ward 3 & 4	3,782	3,815	3,848	3,881	3,914	3,946	3,978	4,010	4,042	4,074
Total	7,659	7,726	7,792	7,859	7,925	7,990	8,055	8,119	8,183	8,247

Water Volume Forecast (m³)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ward 1 & 2										
Existing	788,205	788,205	788,205	788,205	788,205	788,205	788,205	788,205	788,205	788,205
New	3,060	9,180	15,120	21,240	27,180	33,120	39,060	44,820	50,580	56,340
Subtotal Ward 1 & 2	791,265	797,385	803,325	809,445	815,385	821,325	827,265	833,025	838,785	844,545
Ward 3 & 4										
Existing	828,906	828,906	828,906	828,906	828,906	828,906	828,906	828,906	828,906	828,906
New	3,060	9,000	14,940	20,880	26,820	32,580	38,340	44,100	49,860	55,620
Subtotal Ward 3 & 4	831,966	837,906	843,846	849,786	855,726	861,486	867,246	873,006	878,766	884,526
Total	1,623,231	1,635,291	1,647,171	1,659,231	1,671,111	1,682,811	1,694,511	1,706,031	1,717,551	1,729,071



Table 1-3
Town of Essex
2024 to 2033 Wastewater System Forecast

Wastewater Users Forecast - Ward 1 Essex Service Area

Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2024	21	11	21	21	21	21	21	21	21	21	21
2025	20		10	20	20	20	20	20	20	20	20
2026	21			11	21	21	21	21	21	21	21
2027	20				10	20	20	20	20	20	20
2028	21					11	21	21	21	21	21
2029	19						10	19	19	19	19
2030	20							10	20	20	20
2031	19								10	19	19
2032	19									10	19
2033	19										10
Total	199	11	31	52	72	93	113	132	152	171	190
m ³ /user	180	180	180	180	180	180	180	180	180	180	180
Annual Flow		1,980	5,580	9,360	12,960	16,740	20,340	23,760	27,360	30,780	34,200

Wastewater Users Forecast - Ward 3 Colchester South Service Area

Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2024	20	10	20	20	20	20	20	20	20	20	20
2025	20		10	20	20	20	20	20	20	20	20
2026	20			10	20	20	20	20	20	20	20
2027	20				10	20	20	20	20	20	20
2028	20					10	20	20	20	20	20
2029	19						10	19	19	19	19
2030	19							10	19	19	19
2031	19								10	19	19
2032	19									10	19
2033	19										10
Total	195	10	30	50	70	90	110	129	148	167	186
m ³ /user	180	180	180	180	180	180	180	180	180	180	180
Annual Flow		1,800	5,400	9,000	12,600	16,200	19,800	23,220	26,640	30,060	33,480

Wastewater Users Forecast - Ward 4 Harrow Service Area

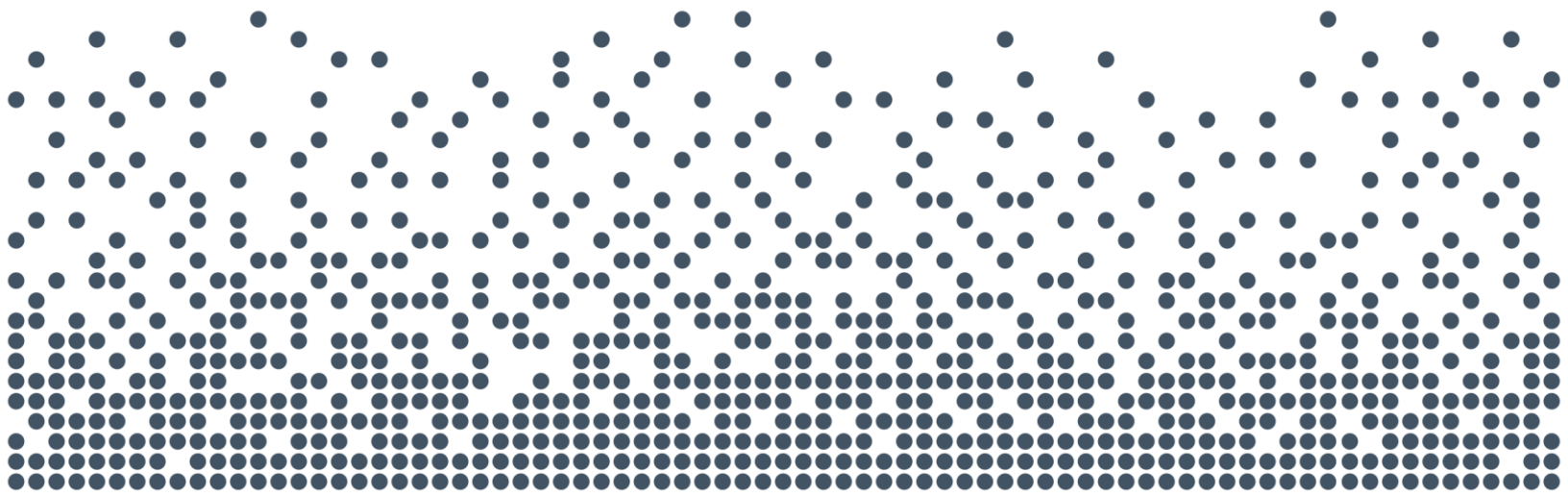
Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2024	20	10	20	20	20	20	20	20	20	20	20
2025	20		10	20	20	20	20	20	20	20	20
2026	20			10	20	20	20	20	20	20	20
2027	20				10	20	20	20	20	20	20
2028	20					10	20	20	20	20	20
2029	20						10	20	20	20	20
2030	20							10	20	20	20
2031	20								10	20	20
2032	20									10	20
2033	18										9
Total	198	10	30	50	70	90	110	130	150	170	189
m ³ /user	180	180	180	180	180	180	180	180	180	180	180
Annual Flow		1,800	5,400	9,000	12,600	16,200	19,800	23,400	27,000	30,600	34,020



Table 1-3 (Cont'd)
Town of Essex
2024 to 2033 Wastewater System Forecast

Wastewater Customer Forecast	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ward 1 - Essex										
Existing	3,236	3,236	3,236	3,236	3,236	3,236	3,236	3,236	3,236	3,236
New - Growth	11	31	52	72	93	113	132	152	171	190
Sub-Total Ward 1	3,247	3,267	3,288	3,308	3,329	3,349	3,368	3,388	3,407	3,426
Ward 3 - Colchester South										
Existing	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105
New - Growth	10	30	50	70	90	110	129	148	167	186
Sub-Total Ward 3	1,115	1,135	1,155	1,175	1,195	1,215	1,234	1,253	1,272	1,291
Ward 4 - Harrow										
Existing	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241
New - Growth	10	30	50	70	90	110	130	150	170	189
Sub-Total Ward 4	1,251	1,271	1,291	1,311	1,331	1,351	1,371	1,391	1,411	1,430
Total	5,613	5,673	5,734	5,794	5,855	5,915	5,973	6,032	6,090	6,147

Wastewater Flows Forecast (m³)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ward 1 - Essex										
Existing	645,742	645,742	645,742	645,742	645,742	645,742	645,742	645,742	645,742	645,742
New	1,980	5,580	9,360	12,960	16,740	20,340	23,760	27,360	30,780	34,200
Sub-Total Ward 1	647,722	651,322	655,102	658,702	662,482	666,082	669,502	673,102	676,522	679,942
Ward 3 - Colchester South										
Existing	156,935	156,935	156,935	156,935	156,935	156,935	156,935	156,935	156,935	156,935
New	1,800	5,400	9,000	12,600	16,200	19,800	23,220	26,640	30,060	33,480
Sub-Total Ward 3	158,735	162,335	165,935	169,535	173,135	176,735	180,155	183,575	186,995	190,415
Ward 4 - Harrow										
Existing	272,988	272,988	272,988	272,988	272,988	272,988	272,988	272,988	272,988	272,988
New	1,800	5,400	9,000	12,600	16,200	19,800	23,400	27,000	30,600	34,020
Sub-Total Ward 4	274,788	278,388	281,988	285,588	289,188	292,788	296,388	299,988	303,588	307,008
Total	1,081,245	1,092,045	1,103,025	1,113,825	1,124,805	1,135,605	1,146,045	1,156,665	1,167,105	1,177,365



Chapter 2

Capital Infrastructure Needs



2. Capital Infrastructure Needs

2.1 Capital Forecast

Capital forecasts have been provided for the water systems and are presented on Tables 2-1 and 2-2 while the capital forecasts for the wastewater systems are presented on Tables 2-3, 2-4 and 2-5 (note: costs are presented in uninflated dollars). The basis for these forecasts is the Town's Capital Forecasts. In addition, capital works identified as asset replacement needs, based on the inventory data within the Town's Asset Management Plan for the water and wastewater systems, have been included.

A summary of the capital works related to the water and wastewater services is provided on the following tables.

Table 2-1
Town of Essex
2024 to 2033 Water Capital Forecast Summary
Wards 1 & 2 (Uninflated \$)

Description	Total 2024 to 2033	Years Undertaken
Pickup Truck	14,450	2024
Pickup Truck	160,000	2025 to 2033
Engineering for Watermain Replacement	125,000	2024
Repairs to Shop Roof	10,000	2024
Replace Truck (Unit #613)	50,000	2024
Asset Management Plan Capital Plan Requirements	14,929,400	2024 to 2033
Total Capital Expenditures	15,288,850	



Table 2-2
Town of Essex
2024 to 2033 Water Capital Forecast Summary
Wards 3 & 4 (Uninflated \$)

Description	Total 2024 to 2033	Years Undertaken
OWCA Capital Recommendations	1,559,000	2024 to 2028
Pickup Truck	14,450	2024
Pickup Truck	160,000	2025 to 2033
Engineering for Watermain Replacement	125,000	2024
Repairs to Shop Roof	10,000	2024
Replace Truck (Unit #613)	50,000	2024
Asset Management Plan Capital Plan Requirements	14,879,400	2025 to 2033
Growth Related:	-	
Harrow-Colchester Reservoir Expansion	2,000,000	2028 to 2030
Trunk Main from Harrow-Colchester to Harrow Water Tower	1,800,000	2025 to 2027
Total Capital Expenditures	20,597,850	

Table 2-3
Town of Essex
2024 to 2033 Wastewater Capital Forecast Summary
Ward 1 (Uninflated \$)

Description	Total 2024 to 2033	Years Undertaken
Treatment - Ward 1 Contingency	450,000	2024 to 2028
OWCA Capital Recommendations - Ward 1	3,812,500	2024 to 2028
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	2,667	2024
Asset Management Plan Capital Requirements	4,000,200	2024 to 2033
Growth Related:		
Oversizing component of servicing extension into Industrial Park	100,000	2028
Total Capital Expenditures	8,365,367	

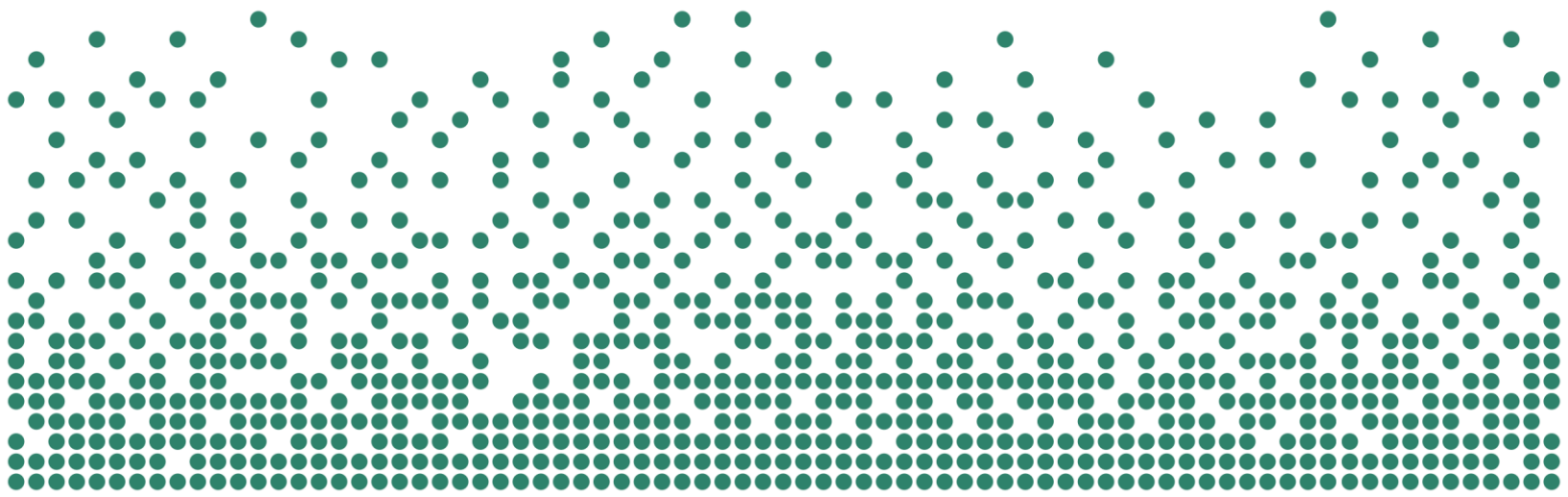


Table 2-4
Town of Essex
2024 to 2033 Wastewater Capital Forecast Summary
Ward 3 (Uninflated \$)

Description	Total 2024 to 2033	Years Undertaken
Treatment - Ward 3 Contingency	275,000	2024 to 2028
OWCA Capital Recommendations - Ward 3	488,500	2024 to 2028
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	2,667	2024
Collection and Conveyance - Ward 3	1,082,000	2024 to 2033
Growth Related:		
Treatment Alternative SBR (mechanism system)	36,500,000	2025 to 2027
Pumpstation No. 1 Upgrades	2,435,000	2025 to 2027
Pumpstation No. 2,3,5,6 & 7 Upgrades	4,560,000	2025 to 2027
Total Capital Expenditures	45,343,167	

Table 2-5
Town of Essex
2024 to 2033 Wastewater Capital Forecast Summary
Ward 4 (Uninflated \$)

Description	Total 2024 to 2033	Years Undertaken
OWCA Capital Recommendations - Ward 4	145,000	2024 to 2028
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	2,667	2024
Collections and Conveyance	230,000	2024 to 2028
Lifecycle Capital Requirements	3,770,200	2024 to 2033
Growth Related:		
Harrow Raw Sewage Pump Station	1,187,000	2024
Harrow Lagoon Environmental Assessment	300,000	2026
Total Capital Expenditures	5,634,867	



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

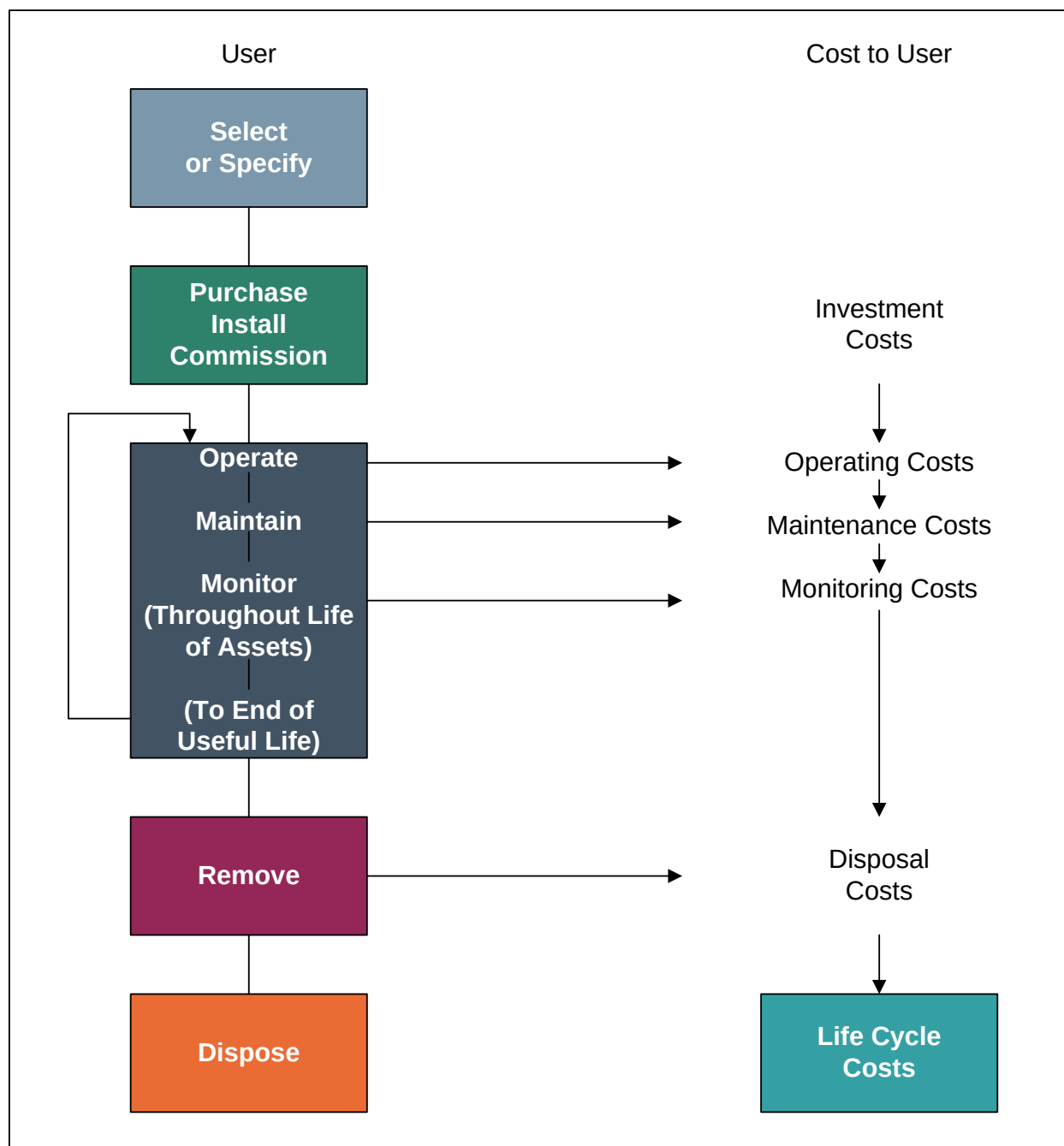
This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

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 Town. Over the past few decades, new financing techniques such as development charges have been employed based on the underlying principle of having tax/rate payers who benefit directly from the service paying for that service. Operating costs, which reflect the cost of the service for that year are charged directly to all existing tax/rate payers who have received the benefit. Operating costs are normally charged through the tax base or user rates.

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



Figure 3-1
Lifecycle Costing



New construction related to growth could produce development charges and developer contributions (e.g. works internal to a subdivision which are the responsibility of the developer to construct) to fund a significant portion of projects, where new assets are



being acquired to allow growth within the Municipality to continue. As well, debentures could be used to fund such works, with the debt charge carrying costs recouped from taxpayers in the future.

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

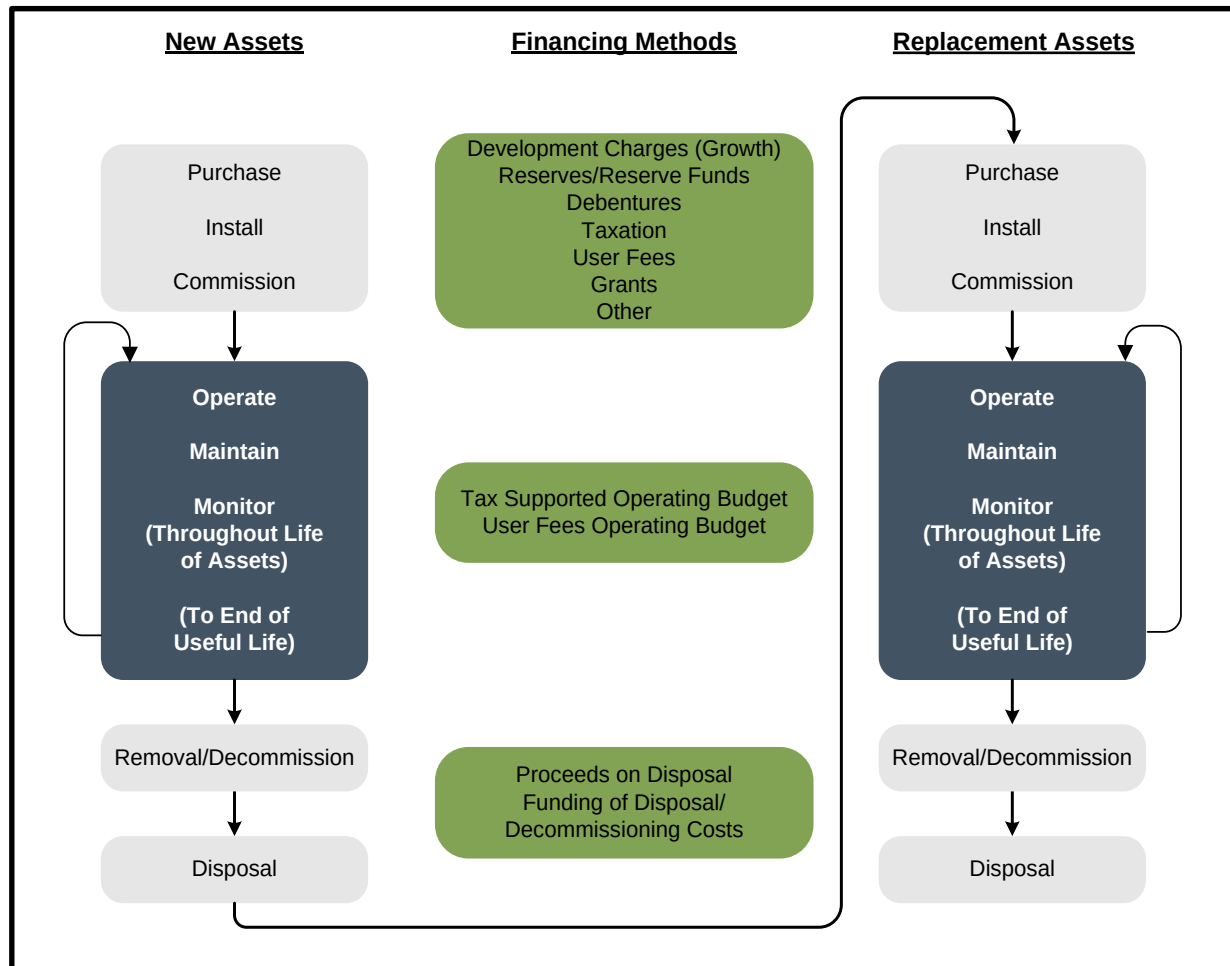
When the asset requires replacement, the sources of financing will be limited to reserves, debentures and contributions from the operating budget. At this point, the question is raised: "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset,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

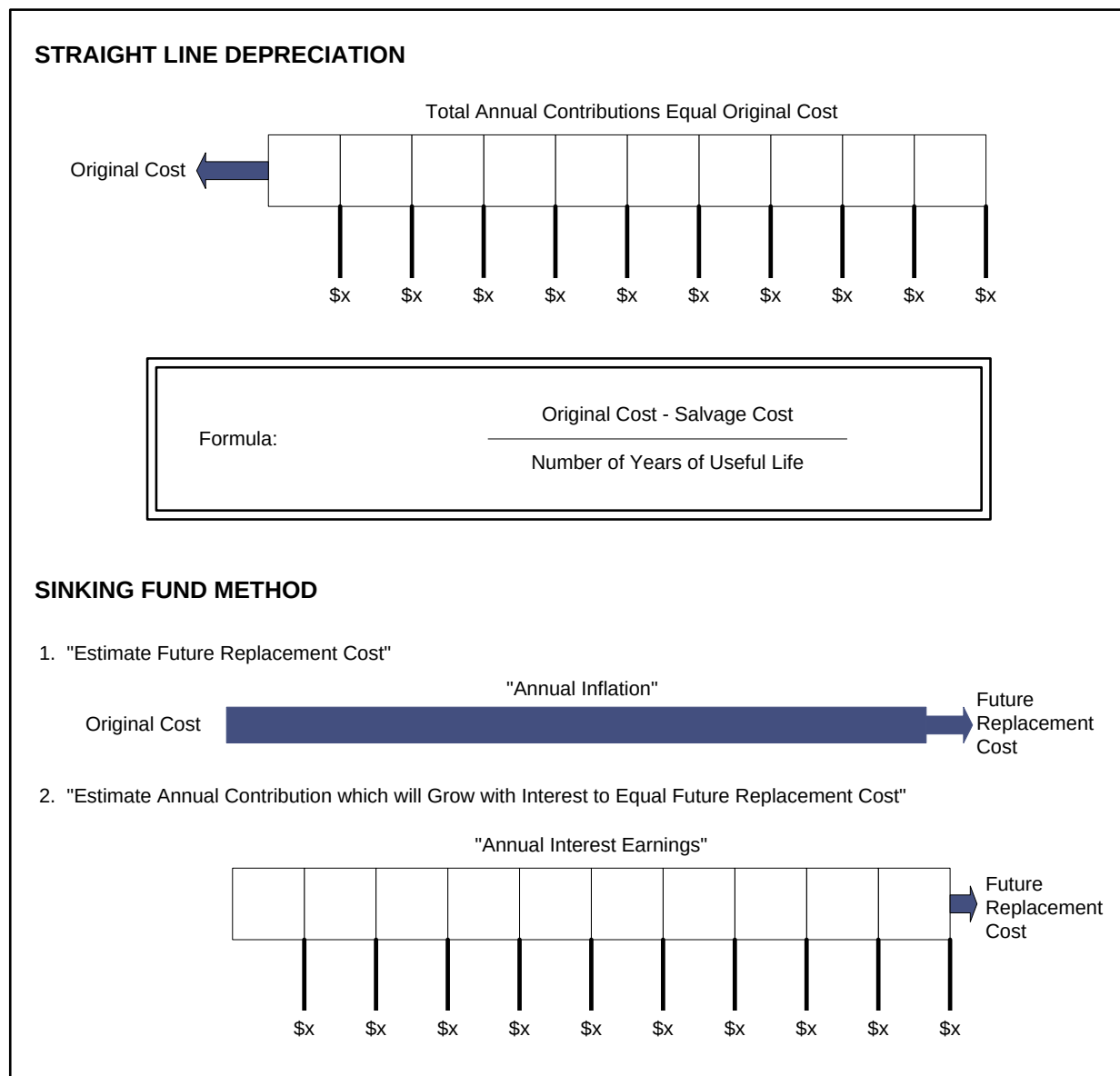
The straight-line method is calculated by taking the original cost of the asset, subtracting its estimated salvage value (estimated value of the asset at the time it is disposed of) and dividing this by the estimated number of years of useful life. The reducing balance method is calculated by utilizing 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 Impacts on Budgets

Detailed water and wastewater system inventory information was obtained from the Town's 2022 Asset Management Plan. The age of the water systems dates back to the 1950s and has continued to be expanded throughout the years. The wastewater systems date back to the early 1970s. The total value of existing water infrastructure is \$162.54 million, and the value of existing wastewater infrastructure is \$114.11 million.



As part of the Asset Management Plan, a capital replacement forecast was identified for water and wastewater. The following tables provide for the 2024 to 2033 capital replacement forecast for water and wastewater services:

Table 3-1
Town of Essex
Asset Management Plan Capital Replacement Forecast – Water Services

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mains	1,600,000	1,800,000	2,200,000	2,600,000	3,200,000	3,700,000	4,400,000	-	2,180,000	2,180,000
Treatment Plants	224,000	160,000	58,000	9,000	16,000	-	51,000	-	101,900	101,900
Valves and Meters	-	35,000	28,000	55,000	151,000	390,000	789,000	1,500,000	383,600	383,600
Hydrants	50,000	-	50,000	-	20,000	110,000	-	-	75,000	75,000
Machinery and Equipment	21,000	3,000	94,000	-	49,000	8,000	377,000	187,000	75,700	75,700
Vehicles	62,000	-	47,000	-	89,000	-	32,000	-	29,500	29,500
Sampling Stations	-	-	-	-	-	-	2,000	-	200	200
Total	1,957,000	1,998,000	2,477,000	2,664,000	3,525,000	4,208,000	5,651,000	1,687,000	2,845,900	2,845,900

Table 3-2
Town of Essex
Asset Management Plan Capital Replacement Forecast – Wastewater Services

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mains	374,000	1,500,000	375,000	344,000	349,000	358,000	364,000	-	469,700	469,700
Treatment Plants	112,000	797,000	107,000	85,000	87,000	88,000	325,000	-	203,300	203,300
Pumping Stations	52,000	375,000	50,000	40,000	41,000	42,000	2,700,000	-	350,300	350,300
Lagoons	15,000	106,000	14,000	11,000	11,000	12,000	12,000	-	23,800	23,800
Vehicles	201,000	1,000	193,000	154,000	156,000	160,000	43,000	-	126,200	126,200
Total	754,000	2,779,000	739,000	634,000	644,000	660,000	3,444,000	-	1,173,300	1,173,300

For the purposes of this rate study analysis, the above capital forecasts were utilized. As the costing was not specific to each individual Ward, the costs were allocated equally between Wards 1 & 2 vs. 3 & 4 for water and between Wards 1, 3, and 4 for wastewater. The capital forecast is discussed further in Chapter 4.



Chapter 4

Capital Costs Financing



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 (e.g. Bill 98 in 1997 and Bill 23 in 2022 providing amendments to the D.C.A.).

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

Under s.484 of *Municipal Act, 2001*, the *Local Improvement Act* was repealed with the in-force date of the *Municipal Act* (January 1, 2003). The municipal powers granted under the *Local Improvement Act* now fall under the jurisdiction of the *Municipal Act*. To this end, on December 20, 2002, O. Reg. 390/02 was filed, which allowed for the *Local Improvement Act* to be deemed to remain in force until April 1, 2003. O. Reg. 119/03 was enacted on April 19, 2003, which restored many of the previous *Local Improvement Act* provisions; however, the authority is now provided under the *Municipal Act*.

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

Recovery Methods	Section Reference
• <i>Development Charges Act, 1997</i>	4.2
• <i>Municipal Act</i> ○ Fees and Charges ○ Sewer and Water Area Charges ○ Connection Fees ○ Local Improvements	4.3



Recovery Methods	Section Reference
• 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

Development charges are a revenue tool used by municipalities to recover the capital costs associated with new development and redevelopment. These costs are in addition to what a developer/builder normally constructs as part of their subdivision (i.e. Local Services). Empowered by the *Development Charges Act, 1997*, municipalities may pass by-laws to impose charges to recover the capital costs associated with development and redevelopment.

The Town is currently undertaking a new Development Charges background study which will form the basis of the charges for the new by-law. Water and wastewater capital projects associated with new development will be included in the Town's background study. To the extent these projects are growth-related, this rate study has identified Development Charges as the funding source. The *Development Charges Act* includes a number of mandatory exemptions from the charges and as such, some level of funding from the water and wastewater rates will be required for growth-related capital projects.

Since the inception of the revised *Development Charges Act*, in 1997, the province has expanded the number of mandatory exemptions and discounts required for new development. Should the mandatory exemptions and discounts continue to change with new legislation, the Town may need to reexamine timing of capital projects to ensure adequate funding is available.

Note the Town does not currently impose Development Charges for Water services, however, is proposing to implement a charge through the current background study process.



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 Local Planning Appeal Tribunal (LPAT), formerly O.M.B.).

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

- A variety of different means could be used to establish the rate and recovery of the costs and could be imposed by a number of methods at the discretion of Council (i.e. lot size, frontage, number of benefiting properties, etc.);
- Rates could be imposed with respect to costs of major capital works, even though an immediate benefit was not enjoyed;
- Non-abutting owners could be charged;
- Recovery was authorized against existing works, where a new water or sewer main was added to such works, “notwithstanding that the capital costs of existing works has in whole or in part been paid;”
- Charges on individual parcels could be deferred;
- Exemptions could be established;
- Repayment was secured; and
- 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 Historical 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 was \$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 added \$10.1 billion for trade and transportation infrastructure and \$2 billion for rural and northern communities.

In Phase 2, Ontario was 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.

Canada Community-Building Fund

The Canada Community-Building Fund 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



Canada Community-Building Fund provides over \$2 billion and supports approximately 2,500 projects in communities across Canada. Each municipality selects how best to direct the funds with the flexibility provided to make strategic investments across 18 different project categories, which include other water and wastewater servicing.

Ontario Government

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

Recently the Province announced funding through a new Ontario Infrastructure Bank. This new, arms-length, board-governed agency will assist investors and institutions to further participate in large-scale infrastructure projects. Ontario is providing \$825 million over three years towards the Housing-Enabling Water Systems Fund, which will help municipalities repair, rehabilitate and expand drinking water, wastewater and stormwater infrastructure needed to build more homes.

4.5 Existing Reserves/Reserve Funds

The Town has established reserves and reserve funds for water and wastewater costs. The following table summarizes the water and wastewater reserves utilized in this analysis and their respective balances at December 31, 2023:

Reserve	Dec. 31 2023	
Water	Ward 1/2	Ward 3/4
Capital Reserve	3,865,852	3,155,091
Lifecycle Reserve Fund	7,027,431	10,328,521

Reserve	Dec. 31 2023			
Wastewater	Ward 1	Ward 2	Ward 3	Ward 4
Capital Reserve	589,685	(16,219)	1,949,568	363,351
Development Charges Reserve Fund	(2,063,938)	28,255	525,347	(506,283)
Lifecycle Reserve Fund	1,739,164	-	1,649,114	1,352,319



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 Town of Essex's 2024 calculation on Debt Capacity is shown on the 2024 Annual Repayment Limit the Town's most recent Financial Information Return (F.I.R.). This calculates to the Town's estimated annual repayment limit of approximately \$6.21 million. Based upon 20-year financing at an assumed rate of 5.0%, the available debt for the Town is approximately \$77.40 million.

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.

The analysis provided herein assumes that the Town will require growth-related debt financing of \$17.25 million for the wastewater treatment plant in Ward 3. The anticipated expenditures and associated debt issuances in 2025 to 2027 are contingent upon securing a grant (assumed to be awarded in the analysis); if the grant is not obtained, the expenditures would not occur until post 2033. No other debt is anticipated for the water systems or the wastewater systems in Wards 1 or 3.

4.8 Recommended Capital Financing Approach

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



Water Services Capital Financing

Capital Financing	Wards 1 & 2 2024-2033	Wards 3 & 4 2024-2033
Development Charges Reserve Fund	-	-
Non-Growth Related Debenture Requirements	-	-
Growth Related Debenture Requirements	-	-
Operating Contributions	-	-
Lifecycle Reserve Fund	11,593,000	9,202,000
Water Reserve	5,570,000	13,772,000
Total Capital Financing	17,163,000	22,974,000

Wastewater Services Capital Financing

Capital Financing	Ward 1 2024-2033	Ward 3 2024-2033	Ward 4 2024-2033
Provincial/Federal Grants	-	29,552,590	-
Development Charges Reserve Fund	110,000	-	923,500
Non-Growth Related Debenture Requirements	-	-	-
Growth Related Debenture Requirements	-	17,251,410	-
Operating Contributions	-	-	-
Lifecycle Reserve Fund	4,253,000	-	3,459,000
Wastewater Reserve	4,733,000	2,017,000	1,825,500
Total Capital Financing	9,096,000	48,821,000	6,208,000

Tables 4-1 and 4-2 provide for the full capital expenditure and funding program by year for water while Tables 4-3, 4-4 and 4-5 provide for wastewater.



Table 4-1
Town of Essex
Capital Budget Forecast – Water – Wards 1 & 2
(inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Pickup Truck	15,000	15,000	-	-	-	-	-	-	-	-	-
Pickup Truck	181,000	-	42,000	42,000	-	-	-	-	-	48,000	49,000
Engineering for Watermain Replacement	128,000	128,000	-	-	-	-	-	-	-	-	-
Repairs to Shop Roof	10,000	10,000	-	-	-	-	-	-	-	-	-
Replace Truck (Unit #613)	51,000	51,000	-	-	-	-	-	-	-	-	-
Asset Management Plan Capital Plan Requirements	16,778,000	998,000	1,039,000	1,314,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,701,000	1,735,000
Total Capital Expenditures	17,163,000	1,202,000	1,081,000	1,356,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,749,000	1,784,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	11,593,000	988,000	509,000	772,000	890,000	1,383,000	1,795,000	2,661,000	390,000	1,091,000	1,114,000
Water Reserve	5,570,000	214,000	572,000	584,000	552,000	563,000	574,000	585,000	598,000	658,000	670,000
Total Capital Financing	17,163,000	1,202,000	1,081,000	1,356,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,749,000	1,784,000



Table 4-2
Town of Essex
Capital Budget Forecast – Water – Wards 3 & 4
(inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
OWCA Capital Recommendations	1,630,000	465,000	572,000	356,000	149,000	88,000	-	-	-	-	-
Pickup Truck	15,000	15,000	-	-	-	-	-	-	-	-	-
Pickup Truck	181,000	-	42,000	42,000	-	-	-	-	-	48,000	49,000
Engineering for Watermain Replacement	128,000	128,000	-	-	-	-	-	-	-	-	-
Repairs to Shop Roof	10,000	10,000	-	-	-	-	-	-	-	-	-
Replace Truck (Unit #613)	51,000	51,000	-	-	-	-	-	-	-	-	-
Asset Management Plan Capital Plan Requirements	16,727,000	947,000	1,039,000	1,314,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,701,000	1,735,000
Growth Related:											
Harrow-Colchester Reservoir Expansion	2,288,000	-	-	-	-	166,000	169,000	1,953,000	-	-	-
Trunk Main from Harrow-Colchester to Harrow Water Tower	1,944,000	-	94,000	96,000	1,754,000	-	-	-	-	-	-
Total Capital Expenditures	22,974,000	1,616,000	1,747,000	1,808,000	3,345,000	2,200,000	2,538,000	5,199,000	988,000	1,749,000	1,784,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	9,202,000	677,000	296,000	554,000	668,000	1,157,000	1,564,000	2,426,000	150,000	846,000	864,000
Water Reserve	13,772,000	939,000	1,451,000	1,254,000	2,677,000	1,043,000	974,000	2,773,000	838,000	903,000	920,000
Total Capital Financing	22,974,000	1,616,000	1,747,000	1,808,000	3,345,000	2,200,000	2,538,000	5,199,000	988,000	1,749,000	1,784,000



Table 4-3
Town of Essex
Capital Budget Forecast – Wastewater – Ward 1 (inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Treatment - Ward 1 Contingency	478,000	92,000	94,000	96,000	97,000	99,000	-	-	-	-	-
OWCA Capital Recommendations - Ward 1	4,047,000	745,000	758,000	179,000	2,319,000	46,000	-	-	-	-	-
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	3,000	3,000	-	-	-	-	-	-	-	-	-
Asset Management Plan Capital Requirements	4,458,000	256,000	964,000	261,000	229,000	237,000	248,000	1,319,000	-	467,000	477,000
Growth Related:											
Oversizing component of servicing extension into Industrial Park	110,000	-	-	-	-	110,000	-	-	-	-	-
Total Capital Expenditures	9,096,000	1,096,000	1,816,000	536,000	2,645,000	492,000	248,000	1,319,000	-	467,000	477,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	110,000	-	-	-	-	110,000	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	4,253,000	195,000	964,000	261,000	229,000	237,000	248,000	1,319,000	-	396,000	404,000
Wastewater Reserve	4,733,000	901,000	852,000	275,000	2,416,000	145,000	-	-	-	71,000	73,000
Total Capital Financing	9,096,000	1,096,000	1,816,000	536,000	2,645,000	492,000	248,000	1,319,000	-	467,000	477,000



Table 4-4
Town of Essex
Capital Budget Forecast – Wastewater – Ward 3
(inflated \$)

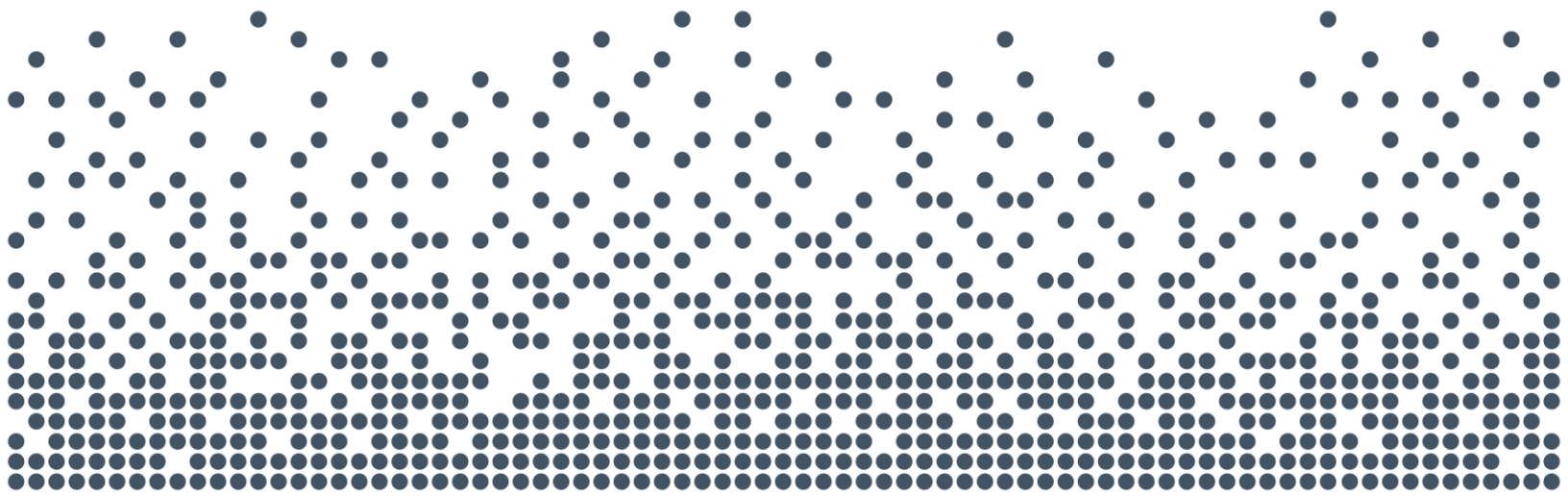
Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Treatment - Ward 3 Contingency	292,000	56,000	57,000	58,000	60,000	61,000	-	-	-	-	-
OWCA Capital Recommendations - Ward 3	519,000	78,000	108,000	137,000	97,000	99,000	-	-	-	-	-
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	3,000	3,000	-	-	-	-	-	-	-	-	-
Collection and Conveyance - Ward 3	1,203,000	64,000	65,000	66,000	68,000	574,000	70,000	72,000	73,000	75,000	76,000
Growth Related:											
Treatment Alternative SBR (mechanism system)	39,277,000	-	3,797,000	3,873,000	31,607,000	-	-	-	-	-	-
Pumpstation No. 1 Upgrades	2,620,000	-	253,000	258,000	2,109,000	-	-	-	-	-	-
Pumpstation No. 2,3,5,6 & 7 Upgrades	4,907,000	-	474,000	484,000	3,949,000	-	-	-	-	-	-
Total Capital Expenditures	48,821,000	201,000	4,754,000	4,876,000	37,890,000	734,000	70,000	72,000	73,000	75,000	76,000
Capital Financing											
Provincial/Federal Grants	29,552,590		2,955,259	2,955,259	23,642,072						
Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	17,251,410	-	1,568,741	1,659,741	14,022,928	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Wastewater Reserve	2,017,000	201,000	230,000	261,000	225,000	734,000	70,000	72,000	73,000	75,000	76,000
Total Capital Financing	48,821,000	201,000	4,754,000	4,876,000	37,890,000	734,000	70,000	72,000	73,000	75,000	76,000

Note: The above analysis assumes grant funding is received to allow the Treatment Plant and Pump Station projects to be constructed in 2027. Should grant funding not be received than the project would occur outside of the 10-year forecast.



Table 4-5
Town of Essex
Capital Budget Forecast – Wastewater – Ward 4
(inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
OWCA Capital Recommendations - Ward 4	152,000	92,000	-	-	27,000	33,000	-	-	-	-	-
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	3,000	3,000	-	-	-	-	-	-	-	-	-
Collections and Conveyance	310,000	59,000	-	61,000	62,000	63,000	65,000	-	-	-	-
Lifecycle Capital Requirements	4,214,000	198,000	964,000	200,000	167,000	174,000	248,000	1,319,000	-	467,000	477,000
Growth Related:											
Harrow Raw Sewage Pump Station	1,211,000	1,211,000	-	-	-	-	-	-	-	-	-
Harrow Lagoon Environmental Assessment	318,000	-	-	318,000	-	-	-	-	-	-	-
Total Capital Expenditures	6,208,000	1,563,000	964,000	579,000	256,000	270,000	313,000	1,319,000	-	467,000	477,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	923,500	605,500	-	318,000	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	3,459,000	142,000	907,000	142,000	107,000	113,000	186,000	1,190,000	-	332,000	340,000
Wastewater Reserve	1,825,500	815,500	57,000	119,000	149,000	157,000	127,000	129,000	-	135,000	137,000
Total Capital Financing	6,208,000	1,563,000	964,000	579,000	256,000	270,000	313,000	1,319,000	-	467,000	477,000



Chapter 5

Overview of Expenditures and Revenues



5. Water Operating Expenditures

5.1 Water Operating Expenditures

In this report, the operating budget for 2023 was provided by staff. The forecast water budget figures (2024 to 2033) are inflated from the 2023 operating budgets. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments. For the forecast period (2024-2033), the expenditures are assumed to increase at 2.0% annually. Operating expenditures that involve utilities, fuels, chemicals and materials & supplies have been inflated by 5.0% annually. Note that annual contributions have been provided to the capital reserves in order to minimize the need for additional debt to finance the capital program. Also included are any existing debenture expenditures and contributions to reserve funds.

As of 2024, U.W.S.S. charges the customers directly for water supply services. Therefore, beginning in 2024, no water purchases are included in the Town's operating budget/forecast.

5.2 Water Operating Revenues

The Town has base charges and miscellaneous revenue sources to help contribute towards operating expenditures. These miscellaneous revenues, including building leases, water meter sales, hook up charges, inspections fees and buy-in fees, have been assumed to remain constant each year over the forecast period. Tables 5-2 and 5-3 provide for the water systems revenues in Wards 1 & 2 and Wards 3 & 4, respectively.



Table 5-1
Town of Essex
Operating Budget Forecast – Water – Wards 1 & 2
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
Operating Costs											
Distribution /Transmission											
Contracted Services											
55100 - ELK Energy Incorporated - Billing and Collection Charges	102,966	-	-	-	-	-	-	-	-	-	-
55265 - Ontario Clean Water Agency - Drinking Water Quality Management System	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
55460 - Contractors - Backflow Program	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
51900 - Administration Charges - Town of Essex	21,391	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	45,782	204,004	208,100	212,300	216,500	220,800	225,200	229,700	234,300	239,000	243,800
51100 - Office Supplies	100	100	100	100	100	100	100	100	100	100	100
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
51150 - Vehicles - Fuel	14,000	14,300	14,600	14,900	15,200	15,500	15,800	16,100	16,400	16,700	17,000
51190 - Materials and Supplies - Other	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
51600 - Materials and Supplies - Water Meters	45,000	45,900	46,800	47,700	48,700	49,700	50,700	51,700	52,700	53,800	54,900
51840 - Small Tools	500	500	500	500	500	500	500	500	500	500	500
53605 - System Access Fee - Automatic Vehicle Locator	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
53140 - Professional Fees - Engineering	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800	24,300
53190 - Professional Fees - Other	10,000	10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800	12,000
56700 - Leases - Office Equipment and Computers	70	100	100	100	100	100	100	100	100	100	100
52200 - Repairs & Mtce - Bldgs & Misc Structures	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
52300 - Repairs & Mtce - Vehicles (Labour)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
52305 - Repairs & Mtce - Vehicles (Parts)	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
52350 - Repairs & Mtce - Equipment (Labour)	150	200	200	200	200	200	200	200	200	200	200
52355 - Repairs & Mtce - Equipment (Parts)	300	300	300	300	300	300	300	300	300	300	300
52600 - Repairs & Mtce - Watermains	35,000	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
52620 - Repairs & Mtce - Hydrants	10,000	10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800	12,000
52640 - Repairs & Mtce - Valves	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
52660 - Repairs & Mtce - Water Meters	22,000	22,400	22,800	23,300	23,800	24,300	24,800	25,300	25,800	26,300	26,800
52690 - Repairs & Mtce - Private Water Serv	35,000	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600



Table 5-1 (Cont'd)
Town of Essex
Operating Budget Forecast – Water – Wards 1 & 2
(Inflated \$)

Description	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
50100 - Salaries & Wages - Full-Time	209,999	227,533	232,100	236,700	241,400	246,200	251,100	256,100	261,200	266,400	271,700
50150 - Salaries & Wages - Overtime	6,000	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900	7,000
50500 - Cda Pension Plan - Employer Contrib	-	7,456	7,600	7,800	8,000	8,200	8,400	8,600	8,800	9,000	9,200
50510 - Employment Insce - Employer Contrib	-	2,504	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50520 - Employer Health Insurance	-	3,136	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
50530 - Workplace Safety & Insce Bd Premiums	-	5,094	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
50540 - OMERS - Employer Contribution	-	16,145	16,500	16,800	17,100	17,400	17,700	18,100	18,500	18,900	19,300
50550 - Health Insurance Premiums	-	12,011	12,300	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600
50560 - Life Insurance Premiums	-	4,336	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
Additional Staff Benefits		3,333	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
50700 - Clothing & Uniforms	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
50720 - Training & Tuition Refund	500	500	500	500	500	500	500	500	500	500	500
54100 - Utilities - Hydro	5,673	6,000	6,300	6,600	6,900	7,200	7,600	8,000	8,400	8,800	9,200
54120 - Utilities - Gas	3,044	3,200	3,400	3,600	3,800	4,000	4,200	4,400	4,600	4,800	5,000
54140 - Utilities - Water	462	500	500	500	500	500	500	500	500	500	500
54200 - Communications - Telephone	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500	3,600
54300 - Insurance - Buildings	602	600	600	600	600	600	600	600	600	600	600
54310 - Insurance - Vehicles	4,082	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100
54320 - Insurance - General	1,011	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
54400 - Payments-in-Lieu of Taxes	5,163	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000	6,100	6,200
55300 - Union Water - Water Supply	600,000										
54300 - Insurance - Buildings	352	400	400	400	400	400	400	400	400	400	400
54310 - Insurance - Vehicles	1,087	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
54320 - Insurance - General	250	300	300	300	300	300	300	300	300	300	300
Sub Total Operating	1,226,583	737,354	752,300	767,500	783,000	798,900	815,100	831,600	848,400	865,500	882,800

Note: The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.



Table 5-1 (Cont'd)
Town of Essex
Operating Budget Forecast – Water – Wards 1 & 2
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital-Related											
Existing Debt (Principal) - Non-Growth Related	560	287	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	23	5	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	63,323	934,668	489,184	335,370	382,044	436,206	490,313	435,628	379,528	322,128	363,243
Sub Total Capital Related	63,905	934,960	489,184	335,370	382,044	436,206	490,313	435,628	379,528	322,128	363,243
Total Expenditures	1,290,488	1,672,313	1,241,484	1,102,870	1,165,044	1,235,106	1,305,413	1,267,228	1,227,928	1,187,628	1,246,043
Revenues											
Base Charge	987,079	991,426	1,060,128	1,133,218	1,211,566	1,294,914	1,383,901	1,478,906	1,579,945	1,687,784	1,802,876
Distribution /Transmission											
47800 - Miscellaneous Revenue	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
46415 - Water - Miscellaneous	500	500	500	500	500	500	500	500	500	500	500
46420 - Water Meter Sales & Inspection	30,000	30,600	31,200	31,800	32,400	33,000	33,700	34,400	35,100	35,800	36,500
46430 - Water Hook-Up Charges	16,000	16,300	16,600	16,900	17,200	17,500	17,900	18,300	18,700	19,100	19,500
46450 - Watermain Buy-Ins	15,000	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Treatment											
49900 - Revenue Contributions from Reserve Funds	59,095										
Total Operating Revenue	1,108,674	1,055,126	1,125,028	1,199,318	1,278,866	1,363,414	1,453,801	1,550,206	1,652,645	1,761,884	1,878,476
Water Billing Recovery - Operating	181,814	617,187	116,455	(96,447)	(113,822)	(128,308)	(148,389)	(282,978)	(424,717)	(574,256)	(632,433)
Lifecycle Reserve Contribution (\$)	992,611		547,263	805,262	868,495	937,428	1,012,669	1,203,131	1,409,575	1,624,626	1,757,567
Water Billing Recovery - Total	1,174,425	617,187	663,718	708,815	754,673	809,120	864,280	920,153	984,858	1,050,370	1,125,134



Table 5-2
Town of Essex
Operating Budget Forecast – Water – Wards 3 & 4
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
<u>Operating Costs</u>											
55100 - ELK Energy Incorporated - Billing and Collection Charges	107,085	-	-	-	-	-	-	-	-	-	-
55265 - Ontario Clean Water Agency- Drinking Water Quality Management System	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
55460 - Contractors - Backflow Program	5,000	12,000	12,200	12,400	12,600	12,900	13,200	13,500	13,800	14,100	14,400
51900 - Administration Charges - Town of Essex	22,793	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	45,782	204,004	208,100	212,300	216,500	220,800	225,200	229,700	234,300	239,000	243,800
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
51150 - Vehicles - Fuel	14,000	11,000	11,200	11,400	11,600	11,800	12,000	12,200	12,400	12,600	12,900
51190 - Materials and Supplies - Other	1,300	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
51600 - Materials and Supplies - Water Meters	45,000	65,000	66,300	67,600	69,000	70,400	71,800	73,200	74,700	76,200	77,700
51840 - Small Tools	500	500	500	500	500	500	500	500	500	500	500
53605 - System Access Fee - Automatic Vehicle Locator	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
53900 - Miscellaneous Services	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
53140 - Professional Fees - Engineering	20,000	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
53190 - Professional Fees - Other	10,000	10,000	10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800
56700 - Leases - Office Equipment and Computers	70	70	100	100	100	100	100	100	100	100	100
52200 - Repairs & Mntce - Bldgs & Misc Structures	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
52300 - Repairs & Mntce - Vehicles (Labour)	1,000	1,250	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
52305 - Repairs & Mntce - Vehicles (Parts)	1,000	1,250	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
52350 - Repairs & Mntce - Equipment (Labour)	150	150	200	200	200	200	200	200	200	200	200
52355 - Repairs & Mntce - Equipment (Parts)	150	150	200	200	200	200	200	200	200	200	200
52600 - Repairs & Mntce - Watermains	20,000	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
52620 - Repairs & Mntce - Hydrants	12,000	12,000	12,200	12,400	12,600	12,900	13,200	13,500	13,800	14,100	14,400
52640 - Repairs & Mntce - Valves	5,000	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
52660 - Repairs & Mntce - Water Meters	25,000	25,000	25,500	26,000	26,500	27,000	27,500	28,100	28,700	29,300	29,900
52690 - Repairs & Mntce - Private Water Serv	50,000	50,000	51,000	52,000	53,000	54,100	55,200	56,300	57,400	58,500	59,700



Table 5-2 (Cont'd)
Town of Essex
Operating Budget Forecast – Water – Wards 3 & 4
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
50100 - Salaries & Wages - Full-Time	209,999	211,990	216,200	220,500	224,900	229,400	234,000	238,700	243,500	248,400	253,400
50500 - Cda Pension Plan - Employer Contrib	-	7,456	7,600	7,800	8,000	8,200	8,400	8,600	8,800	9,000	9,200
50510 - Employment Insce - Employer Contrib	-	2,504	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50520 - Employer Health Insurance	-	3,136	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
50530 - Workplace Safety & Insce Bd Premiums	-	5,094	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
50540 - OMERS - Employer Contribution	-	16,145	16,500	16,800	17,100	17,400	17,700	18,100	18,500	18,900	19,300
50550 - Health Insurance Premiums	-	12,011	12,300	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600
50560 - Life Insurance Premiums	-	4,336	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
Benefits for additional staff		3,333	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
50700 - Clothing & Uniforms	1,200	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
50720 - Training & Tuition Refund	300	450	500	500	500	500	500	500	500	500	500
54100 - Utilities - Hydro	4,239	4,389	4,600	4,800	5,000	5,300	5,600	5,900	6,200	6,500	6,800
54120 - Utilities - Gas	3,044	2,827	3,000	3,200	3,400	3,600	3,800	4,000	4,200	4,400	4,600
54140 - Utilities - Water	462	548	600	600	600	600	600	600	600	600	600
54200 - Communications - Telephone	2,600	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
54300 - Insurance - Buildings	602	6,653	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,600
54310 - Insurance - Vehicles	4,164	1,821	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
54320 - Insurance - General	937	1,473	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
54400 - Payments-in-Lieu of Taxes	3,334	3,334	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
55200 - Ontario Clean Water Agency - Annual Operating Costs	454,911	523,270	558,700	569,900	581,300	592,900	604,800	616,900	629,200	641,800	654,600
55250 - Ontario Clean Water Agency - Other Operating Costs	80,000	84,072	85,800	87,500	89,300	91,100	92,900	94,800	96,700	98,600	100,600
55450 - Contractors	15,000	15,000	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700
53650 - Weed Control Services	10,000	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600	14,900	15,200
54100 - Utilities - Hydro	111,461	90,615	95,100	99,900	104,900	110,100	115,600	121,400	127,500	133,900	140,600
54120 - Utilities - Gas	10,334	10,179	10,700	11,200	11,800	12,400	13,000	13,700	14,400	15,100	15,900
54300 - Insurance - Buildings	41,425	6,550	6,700	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500
54310 - Insurance - Vehicles	1,087	1,821	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
54320 - Insurance - General	250	393	400	400	400	400	400	400	400	400	400
54400 - Payments-in-Lieu of Taxes	24,707	24,707	25,200	25,700	26,200	26,700	27,200	27,700	28,300	28,900	29,500
Sub Total Operating	1,372,885	1,506,880	1,565,500	1,599,800	1,635,000	1,671,200	1,708,200	1,746,300	1,785,300	1,825,300	1,866,500
Capital-Related											
Existing Debt (Principal) - Non-Growth Related	2,774	1,420	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	113	23	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	54,754	-	768,616	650,119	1,362,386	1,524,266	1,700,168	1,891,002	1,946,534	1,465,465	1,678,885
Sub Total Capital Related	57,641	1,443	768,616	650,119	1,362,386	1,524,266	1,700,168	1,891,002	1,946,534	1,465,465	1,678,885
Total Expenditures	1,430,525	1,508,323	2,334,116	2,249,919	2,997,386	3,195,466	3,408,368	3,637,302	3,731,834	3,290,765	3,545,385

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table 5-2 (Cont'd)
Town of Essex
Operating Budget Forecast – Water – Wards 3 & 4
(Inflated \$)

Description	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenues											
Base Charge	962,786	967,133	1,034,106	1,105,634	1,182,023	1,263,598	1,350,365	1,442,994	1,541,878	1,647,434	1,760,105
Other Revenue											
Distribution/Transmission											
47800 - Miscellaneous Revenue	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
46415 - Water - Miscellaneous	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
46420 - Water Meter Sales & Inspection	18,000	18,400	18,800	19,200	19,600	20,000	20,400	20,800	21,200	21,600	22,000
46430 - Water Hook-Up Charges	22,000	22,400	22,800	23,300	23,800	24,300	24,800	25,300	25,800	26,300	26,800
46450 - Watermain Buy-Ins	18,500	18,900	19,300	19,700	20,100	20,500	20,900	21,300	21,700	22,100	22,500
46945 - Building Leases & Rentals	9,300	9,500	9,700	9,900	10,100	10,300	10,500	10,700	10,900	11,100	11,300
Treatment/Disposal											
49900 - Revenue Contributions from Reserve Funds	-	-	-	-	-	-	-	-	-	-	-
46945 - Building Leases & Rentals	6,000										
Contributions from Reserves / Reserve Funds	-	39,728	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,043,986	1,083,661	1,112,506	1,185,734	1,263,823	1,347,098	1,435,565	1,529,894	1,630,478	1,737,734	1,852,105
Water Billing Recovery - Operating	386,539	424,662	1,221,610	1,064,184	1,733,563	1,848,368	1,972,803	2,107,408	2,101,355	1,553,031	1,693,280
Lifecycle Reserve Contribution (\$)	995,788	998,000	295,000	556,000	-	-	-	-	151,000	846,000	863,000
Water Billing Recovery - Total	1,382,327	1,422,662	1,516,610	1,620,184	1,733,563	1,848,368	1,972,803	2,107,408	2,252,355	2,399,031	2,556,280



5.3 Wastewater Operating Expenditures

Similar to water, the wastewater operating expenditures for 2023 and 2024 are based on operating budget information. The forecasted expenditures have been adjusted over the forecast period by an annual inflationary factor of 2.0% for 2024-2033. Operating expenditures that involve utilities, fuels, chemicals and hydro have been inflated by 5.0% annually for 2024-2033. Also included are contributions to the capital reserves. For Ward 3, existing and future annual debt payments have also been included.

5.4 Wastewater Operating Revenues

The operating revenue for the wastewater program comes mainly from base charges along with volumetric revenue from customers. A small amount of revenue is also generated from sewer frontage charges and rental revenue. These revenues are assumed to remain constant over the forecast period. Tables 5-4, 5-5, and 5-6 outline the operating budget the Essex wastewater systems for Wards 1, 3, and 4.



Table 5-3
Town of Essex
Operating Budget Forecast – Wastewater – Ward 1
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
Operating Costs											
Collection Conveyance											
55100 - ELK Energy Incorporated - Billing and Collection Charges	84,598	-	-	-	-	-	-	-	-	-	-
55900 - Donations, Grants	5,000	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
51900 - Administration Charges - Town of Essex	17,962	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	30,522	63,562	64,800	66,100	67,400	68,700	70,100	71,500	72,900	74,400	75,900
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	300	300	300	300	300	300	300	300	300	300	300
51150 - Vehicles - Fuel	3,000	2,250	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
51190 - Materials and Supplies - Other	2,000	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
51840 - Small Tools	100	100	100	100	100	100	100	100	100	100	100
53605 - System Access Fee - Automatic Vehicle Locator	260	260	300	300	300	300	300	300	300	300	300
53650 - Weed Control Services	2,000	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
53140 - Professional Fees - Engineering	20,000	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
56700 - Leases - Office Equipment and Computers	14	14	-	-	-	-	-	-	-	-	-
52200 - Repairs & Mntce - Bldgs & Misc Structures	200	200	200	200	200	200	200	200	200	200	200
52300 - Repairs & Mntce - Vehicles (Labour)	500	600	600	600	600	600	600	600	600	600	600
52305 - Repairs & Mntce - Vehicles (Parts)	600	700	700	700	700	700	700	700	700	700	700
52350 - Repairs & Mntce - Equipment (Labour)	50	50	100	100	100	100	100	100	100	100	100
52355 - Repairs & Mntce - Equipment (Parts)	50	50	100	100	100	100	100	100	100	100	100
52900 - Repairs & Mntce - Other	50,000	50,000	51,000	52,000	53,000	54,100	55,200	56,300	57,400	58,500	59,700
50100 - Salaries & Wages - Full-Time	44,210	41,822	42,700	43,600	44,500	45,400	46,300	47,200	48,100	49,100	50,100
50500 - Cda Pension Plan - Employer Contrib	-	1,570	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
50510 - Employment Inscce - Employer Contrib	-	527	500	500	500	500	500	500	500	500	500
50520 - Employer Health Insurance	-	660	700	700	700	700	700	700	700	700	700
50530 - Workplace Safety & Inscce Bd Premiums	-	1,072	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
50540 - OMERS - Employer Contribution	-	3,399	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
50550 - Health Insurance Premiums	-	2,529	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50560 - Life Insurance Premiums	-	913	900	900	900	900	900	900	900	900	900
50700 - Clothing & Uniforms	250	300	300	300	300	300	300	300	300	300	300
50720 - Training & Tuition Refund	100	200	200	200	200	200	200	200	200	200	200
54800 - Uncollectible A/R - Other	5,000	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	124,228	118,102	124,000	130,200	136,700	143,500	150,700	158,200	166,100	174,400	183,100
54140 - Utilities - Water	599	539	600	600	600	600	600	600	600	600	600
54200 - Communications - Telephone	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
54310 - Insurance - Vehicles	818	383	400	400	400	400	400	400	400	400	400
54400 - Payments-in-Lieu of Taxes	2,765	2,765	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500	3,600



Table 5-3 (Cont'd)
Town of Essex
Operating Budget Forecast – Wastewater – Ward 1
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Treatment											
55200 - Ontario Clean Water Agency - Annual Operating Costs	303,540	390,691	423,500	432,000	440,600	449,400	458,400	467,600	477,000	486,500	496,200
55250 - Ontario Clean Water Agency - Other Operating Costs	330,000	334,204	340,900	347,700	354,700	361,800	369,000	376,400	383,900	391,600	399,400
55310 - Garbage Collection Fees - Ward 1	100	100	100	100	100	100	100	100	100	100	100
55400 - Garbage Disposal (Tipping Fees)	18,000	18,000	18,400	18,800	19,200	19,600	20,000	20,400	20,800	21,200	21,600
55900 - Donations, Grants	5,000	-	-	-	-	-	-	-	-	-	-
51190 - Materials and Supplies - Other	5,000	5,175	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000	6,100
53650 - Weed Control Services	12,000	13,500	13,800	14,100	14,400	14,700	15,000	15,300	15,600	15,900	16,200
52900 - Repairs & Mntce - Other	20,000	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
54100 - Utilities - Hydro	100,315	84,300	88,500	92,900	97,500	102,400	107,500	112,900	118,500	124,400	130,600
54120 - Utilities - Gas	6,850	7,943	8,300	8,700	9,100	9,600	10,100	10,600	11,100	11,700	12,300
54140 - Utilities - Water	6,206	6,890	7,200	7,600	8,000	8,400	8,800	9,200	9,700	10,200	10,700
54200 - Communications - Telephone	4,300	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
54300 - Insurance - Buildings	114,037	176,361	179,900	183,500	187,200	190,900	194,700	198,600	202,600	206,700	210,800
54310 - Insurance - Vehicles	273	383	400	400	400	400	400	400	400	400	400
54320 - Insurance - General	14	18	-	-	-	-	-	-	-	-	-
54400 - Payments-in-Lieu of Taxes	98,061	98,061	100,000	102,000	104,000	106,100	108,200	110,400	112,600	114,900	117,200
Sub Total Operating	1,421,620	1,490,195	1,551,600	1,589,400	1,628,100	1,668,000	1,709,000	1,751,200	1,794,500	1,839,500	1,885,600
Capital-Related											
Existing Debt (Principal) - Non-Growth Related	562,551	577,930	593,729	609,960	346,957	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	69,435	54,056	38,257	22,026	7,198	-	-	-	-	-	-
Transfer to Capital Reserve	-	-	-	108,117	382,167	966,876	1,221,831	979,377	1,018,001	1,164,200	1,201,800
Sub Total Capital Related	631,986	631,986	631,986	740,103	736,323	966,876	1,221,831	979,377	1,018,001	1,164,200	1,201,800
Total Expenditures	2,053,605	2,122,181	2,183,586	2,329,503	2,364,423	2,634,876	2,930,831	2,730,577	2,812,501	3,003,700	3,087,400

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table 5-3 (Cont'd)
Town of Essex
Operating Budget Forecast – Wastewater – Ward 1
(Inflated \$)

Description	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenues											
Base Charge	869,060	872,014	965,124	1,068,461	1,182,456	1,308,958	1,448,505	1,485,857	1,524,574	1,563,786	1,603,957
Collection Conveyance											
43220 - Sewer Frontage and Connection Charges	15,000	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Treatment/Disposal											
46970 - Land Leases & Rentals	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Contributions from Reserves / Reserve Funds	191,258	217,420	75,588	-	-	-	-	-	-	-	-
Total Operating Revenue	1,082,318	1,111,735	1,063,312	1,091,361	1,205,656	1,332,458	1,472,305	1,509,957	1,548,974	1,588,486	1,629,057
Wastewater Billing Recovery - Operating	971,287	1,010,446	1,120,274	1,238,143	1,158,767	1,302,417	1,458,527	1,220,620	1,263,527	1,415,214	1,458,342
Lifecycle Reserve Contribution (\$)	-	-	-	-	211,333	214,667	220,000	500,000	500,000	391,100	391,100
Wastewater Billing Recovery - Total	971,287	1,010,446	1,120,274	1,238,143	1,370,100	1,517,084	1,678,527	1,720,620	1,763,527	1,806,314	1,849,442



Table 5-4
Town of Essex
Operating Budget Forecast – Wastewater – Ward 3
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
<u>Operating Costs</u>											
55100 - ELK Energy Incorporated - Billing and Collection Charges	28,474	-	-	-	-	-	-	-	-	-	-
55900 - Donations, Grants	3,000	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900
51900 - Administration Charges - Town of Essex	6,105	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	30,522	63,562	64,800	66,100	67,400	68,700	70,100	71,500	72,900	74,400	75,900
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	300	300	300	300	300	300	300	300	300	300	300
51150 - Vehicles - Fuel	3,000	2,250	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
51190 - Materials and Supplies - Other	500	520	500	500	500	500	500	500	500	500	500
51840 - Small Tools	100	100	100	100	100	100	100	100	100	100	100
53605 - System Access Fee - Automatic Vehicle Locator	250	250	300	300	300	300	300	300	300	300	300
53650 - Weed Control Services	5,000	6,000	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900
53140 - Professional Fees - Engineering	20,000	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
56700 - Leases - Office Equipment and Computers	14	14	20	20	20	20	20	20	20	20	20
52200 - Repairs & Mntce - Bldgs & Misc Structures	500	500	500	500	500	500	500	500	500	500	500
52300 - Repairs & Mntce - Vehicles (Labour)	500	500	500	500	500	500	500	500	500	500	500
52305 - Repairs & Mntce - Vehicles (Parts)	600	600	600	600	600	600	600	600	600	600	600
52350 - Repairs & Mntce - Equipment (Labour)	50	50	100	100	100	100	100	100	100	100	100
52355 - Repairs & Mntce - Equipment (Parts)	50	50	100	100	100	100	100	100	100	100	100
52900 - Repairs & Mntce - Other	35,000	35,000	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800
50100 - Salaries & Wages - Full-Time	44,210	41,822	42,700	43,600	44,500	45,400	46,300	47,200	48,100	49,100	50,100
50500 - Cda Pension Plan - Employer Contrib	-	1,570	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
50510 - Employment Insce - Employer Contrib	-	527	500	500	500	500	500	500	500	500	500
50520 - Employer Health Insurance	-	660	700	700	700	700	700	700	700	700	700
50530 - Workplace Safety & Insce Bd Premiums	-	1,072	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
50540 - OMERS - Employer Contribution	-	3,399	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
50550 - Health Insurance Premiums	-	2,529	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50560 - Life Insurance Premiums	-	913	900	900	900	900	900	900	900	900	900
50700 - Clothing & Uniforms	250	315	300	300	300	300	300	300	300	300	300
50720 - Training & Tuition Refund	100	125	100	100	100	100	100	100	100	100	100
54800 - Uncollectible A/R - Other	5,000	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	6,840	6,665	7,000	7,400	7,800	8,200	8,600	9,000	9,500	10,000	10,500
54200 - Communications - Telephone	2,600	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500



Table 5-4 (Cont'd)
Town of Essex
Operating Budget Forecast – Wastewater – Ward 3
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
54310 - Insurance - Vehicles	738	383	400	400	400	400	400	400	400	400	400
54320 - Insurance - General	38	50	100	100	100	100	100	100	100	100	100
55200 - Ontario Clean Water Agency - Annual Operating Costs	132,454	150,743	178,800	182,400	372,000	379,400	387,000	394,700	402,600	410,700	418,900
55250 - Ontario Clean Water Agency - Other Operating Costs	85,000	86,834	88,600	90,400	184,400	188,100	191,900	195,700	199,600	203,600	207,700
55900 - Donations, Grants	3,000	-	-	-	-	-	-	-	-	-	-
51190 - Materials and Supplies - Other	500	675	700	700	700	700	700	700	700	700	700
53650 - Weed Control Services	10,000	11,000	11,200	11,400	11,600	11,800	12,000	12,200	12,400	12,600	12,900
52900 - Repairs & Mntce - Other	3,500	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
54100 - Utilities - Hydro	88,031	79,798	83,800	88,000	92,400	97,000	101,900	107,000	112,400	118,000	123,900
54300 - Insurance - Buildings	30,591	31,609	32,200	32,800	33,500	34,200	34,900	35,600	36,300	37,000	37,700
54310 - Insurance - Vehicles	273	383	400	400	400	400	400	400	400	400	400
54320 - Insurance - General	13	17	20	20	20	20	20	20	20	20	20
54400 - Payments-in-Lieu of Taxes	3,848	3,848	3,900	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700
Sub Total Operating	551,449	569,234	608,440	623,340	916,740	937,840	959,740	981,940	1,004,840	1,028,540	1,052,840
Capital-Related											
New Growth Related Debt (Principal)		-	-	51,062	107,282	568,336	592,775	618,264	644,849	672,578	701,499
New Growth Related Debt (Interest)		-	-	67,456	136,629	735,002	710,563	685,074	658,489	630,760	601,839
Transfer to Capital Reserve	4,890	139,058	186,687	268,907	84,102	324,324	349,635	426,248	571,116	734,658	919,291
Sub Total Capital Related	4,890	139,058	186,687	387,425	328,012	1,627,662	1,652,973	1,729,586	1,874,454	2,037,996	2,222,629
Total Expenditures	556,339	708,293	795,127	1,010,765	1,244,752	2,565,502	2,612,713	2,711,526	2,879,294	3,066,536	3,275,469
Revenues											
Base Charge	311,610	314,430	352,077	394,109	441,027	493,387	551,809	616,482	688,571	768,914	858,439
46970 - Land Leases & Rentals	200	200	200	200	200	200	200	200	200	200	200
Contributions from Development Charges Reserve Fund	-	-	-	118,518	243,911	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338
Contributions from Reserves / Reserve Funds	48,400	-	-	-	-	139,929	51,475	-	-	-	-
Total Operating Revenue	360,210	314,630	352,277	512,827	685,138	1,936,854	1,906,822	1,920,020	1,992,109	2,072,452	2,161,977
Wastewater Billing Recovery - Operating	196,129	393,663	442,850	497,938	559,615	628,648	705,891	791,506	887,185	994,084	1,113,492
Lifecycle Reserve Contribution (\$)	193,070	-	-	-	-	-	-	-	-	-	-
Wastewater Billing Recovery - Total	389,199	393,663	442,850	497,938	559,615	628,648	705,891	791,506	887,185	994,084	1,113,492

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table 5-5
Town of Essex
Operating Budget Forecast – Wastewater – Ward 4
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
<u>Operating Costs</u>											
Collection/Conveyance		-	-	-	-	-	-	-	-	-	-
55100 - ELK Energy Incorporated - Billing and Collection Charges	40,736	-	-	-	-	-	-	-	-	-	-
55900 - Donations, Grants	-	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900
51900 - Administration Charges - Town of Essex	8,635	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	30,522	63,562	64,800	66,100	67,400	68,700	70,100	71,500	72,900	74,400	75,900
51105 - Computer Hardware and Software	250	250	300	300	300	300	300	300	300	300	300
51115 - Memberships	260	260	300	300	300	300	300	300	300	300	300
51150 - Vehicles - Fuel	2,600	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
51190 - Materials and Supplies - Other	1,000	1,035	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
51840 - Small Tools	100	100	100	100	100	100	100	100	100	100	100
53605 - System Access Fee - Automatic Vehicle Locator	250	250	300	300	300	300	300	300	300	300	300
53140 - Professional Fees - Engineering	20,000	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
56700 - Leases - Office Equipment and Computers	14	14	-	-	-	-	-	-	-	-	-
52200 - Repairs & Mntce - Bldgs & Misc Structures	250	250	300	300	300	300	300	300	300	300	300
52300 - Repairs & Mntce - Vehicles (Labour)	400	400	400	400	400	400	400	400	400	400	400
52305 - Repairs & Mntce - Vehicles (Parts)	650	650	700	700	700	700	700	700	700	700	700
52350 - Repairs & Mntce - Equipment (Labour)	50	50	100	100	100	100	100	100	100	100	100
52355 - Repairs & Mntce - Equipment (Parts)	50	50	100	100	100	100	100	100	100	100	100
52900 - Repairs & Mntce - Other	17,000	17,000	17,300	17,600	18,000	18,400	18,800	19,200	19,600	20,000	20,400
50100 - Salaries & Wages - Full-Time	44,210	41,822	43,900	46,100	48,400	50,800	53,300	56,000	58,800	61,700	64,800
50500 - Cda Pension Plan - Employer Contrib	-	1,570	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
50510 - Employment Insce - Employer Contrib	-	527	500	500	500	500	500	500	500	500	500
50520 - Employer Health Insurance	-	660	700	700	700	700	700	700	700	700	700
50530 - Workplace Safety & Insce Bd Premiums	-	1,072	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
50540 - OMERS - Employer Contribution	-	3,399	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
50550 - Health Insurance Premiums	-	2,529	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50560 - Life Insurance Premiums	-	913	900	900	900	900	900	900	900	900	900
50700 - Clothing & Uniforms	250	315	300	300	300	300	300	300	300	300	300
50720 - Training & Tuition Refund	100	125	100	100	100	100	100	100	100	100	100
54800 - Uncollectible A/R - Other	5,000	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	9,513	9,356	9,800	10,300	10,800	11,300	11,900	12,500	13,100	13,800	14,500
54140 - Utilities - Water	353	288	300	300	300	300	300	300	300	300	300
54200 - Communications - Telephone	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
54310 - Insurance - Vehicles	818	767	800	800	800	800	800	800	800	800	800
54320 - Insurance - General	39	52	100	100	100	100	100	100	100	100	100
54400 - Payments-in-Lieu of Taxes	22,127	22,127	22,600	23,100	23,600	24,100	24,600	25,100	25,600	26,100	26,600



Table 5-5 (Cont'd)
Town of Essex
Operating Budget Forecast – Wastewater – Ward 4
(Inflated \$)

Description	Budget 2023	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Treatment/Disposal											
55200 - Ontario Clean Water Agency - Annual Operating Costs	115,897	134,927	162,600	165,900	169,200	172,600	176,100	179,600	183,200	186,900	190,600
55250 - Ontario Clean Water Agency - Other Operating Costs	80,000	81,605	83,200	84,900	86,600	88,300	90,100	91,900	93,700	95,600	97,500
55340 - Garbage Collection Fees - Ward 4	250	250	300	300	300	300	300	300	300	300	300
51190 - Materials and Supplies - Other	500	520	500	500	500	500	500	500	500	500	500
53650 - Weed Control Services	7,000	8,000	8,200	8,400	8,600	8,800	9,000	9,200	9,400	9,600	9,800
52900 - Repairs & Mntce - Other	5,000	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	81,787	90,692	95,200	100,000	105,000	110,300	115,800	121,600	127,700	134,100	140,800
54200 - Communications - Telephone	200	200	200	200	200	200	200	200	200	200	200
54300 - Insurance - Buildings	9,066	9,389	9,600	9,800	10,000	10,200	10,400	10,600	10,800	11,000	11,200
54320 - Insurance - General	13	17	-	-	-	-	-	-	-	-	-
54400 - Payments-in-Lieu of Taxes	50,798	50,798	51,800	52,800	53,900	55,000	56,100	57,200	58,300	59,500	60,700
Sub Total Operating	556,788	581,892	623,000	639,900	657,300	675,200	693,800	712,900	732,500	753,100	774,200
Capital-Related											
Existing Debt (Principal) - Non-Growth Related	292,907	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	18,351	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	85,968	260,566	441,394	368,780	479,324	558,242	641,956	861,924	271,525	-	-
Sub Total Capital Related	397,226	260,566	441,394	368,780	479,324	558,242	641,956	861,924	271,525	-	-
Total Expenditures	954,014	842,459	1,064,394	1,008,680	1,136,624	1,233,442	1,335,756	1,574,824	1,004,025	753,100	774,200
Revenues											
Base Charge	333,283	335,969	365,234	396,949	431,316	468,548	508,880	552,563	599,867	651,086	706,043
Collection/Conveyance											
43220 - Sewer Frontage and Connection Charges	48,130	49,100	50,100	51,100	52,100	53,100	54,200	55,300	56,400	57,500	58,700
Treatment Disposal											
46945 - Building Leases & Rentals	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
Total Operating Revenue	384,413	388,169	418,534	451,349	486,816	525,148	566,680	611,563	660,067	712,486	768,743
Wastewater Billing Recovery - Operating	569,601	454,290	645,860	557,330	649,808	708,294	769,076	963,261	343,958	40,614	5,457
Lifecycle Reserve Contribution (\$)	22,783	142,000		142,000	107,000	113,000	121,000		700,000	1,088,733	1,216,435
Wastewater Billing Recovery - Total	592,384	596,290	645,860	699,330	756,808	821,294	890,076	963,261	1,043,958	1,129,347	1,221,891

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Chapter 6

Pricing Structures

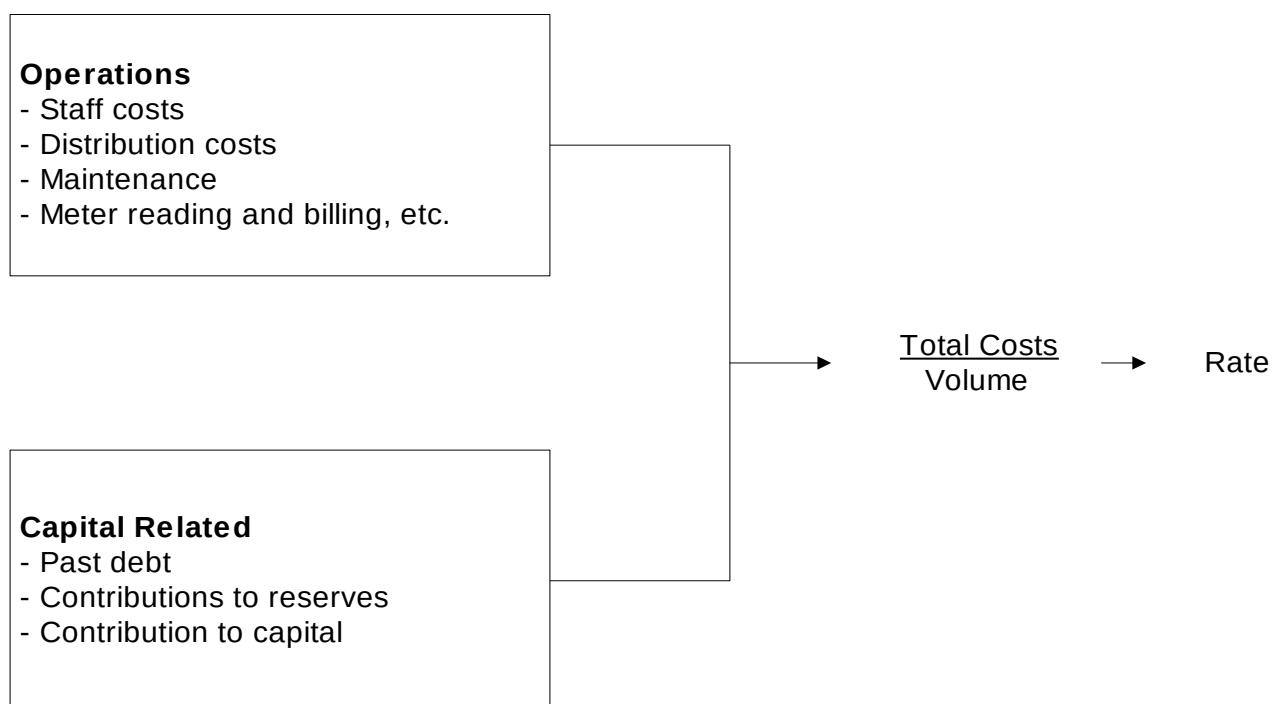


6. Pricing Structures

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

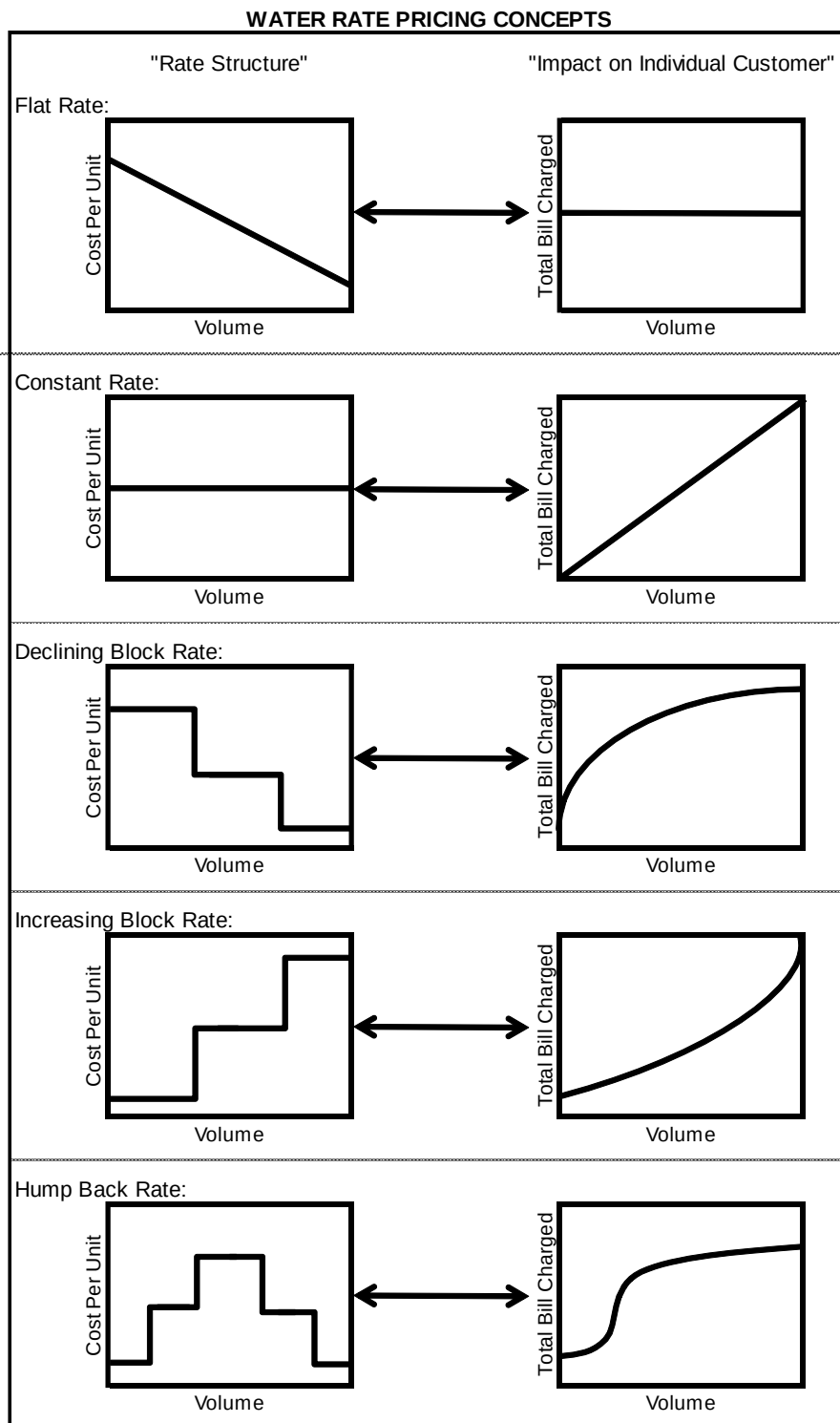




Figure 6-2
Summary of Various Rate Structures and their Impact on Customer Bills as Volume Usage Increases

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 also impose a base monthly charge.

Historically, the development of a base charge often reflected either the recovery of meter reading/billing/collection costs, plus administration or those costs plus certain fixed costs (such as capital contributions or reserve contributions). More recently, many municipalities have started to establish base charges based on ensuring a secure



portion of the revenue stream which does not vary with volume consumption. Selection of the quantum of the base charge is a matter of policy selected by individual municipalities.

6.5 Recommended Rate Structures

Based on the analysis, the water and wastewater systems require investment over the forecast period. Additional operating expenditures and the requirement for lifecycle capital expenditures will put pressure on the financial sustainability of these systems. Therefore, the 10-year annual average base charge increases have been proposed as follows:

- Water
 - Wards 1 & 2 – \$19.59
 - Wards 3 & 4 – \$19.59
- Wastewater
 - Ward 1 – \$22.18
 - Ward 3 – \$42.55
 - Ward 4 – \$25.02

Despite the significant needs for both systems, the water capital and lifecycle reserve fund holds a balance of approximately \$10.89 million for Wards 1 & 2 and \$13.48 million for Wards 3 & 4 as of December 31, 2023. These reserves can help fund capital works over the forecast period without the requirement to issue debentures for non-growth-related projects. To meet the needs for water, it is recommended that both the base charge and volume rates for both Wards 1 & 2 and Wards 3 & 4 increase at the same rate over the forecast period. The forecast base charges are presented in Table 6-1, and the volume rates are detailed in section 7.2.

For wastewater, the capital and lifecycle reserve fund holds a balance of \$2.33 million for Ward 1, \$3.60 million for Ward 3, and \$1.72 million for Ward 4 as of December 31, 2023 (note, this excludes balances in the D.C. reserve funds). The Town has numerous planned capital expenditures over the forecast period which includes a wastewater treatment plant construction/expansion for Ward 3. These reserves can assist in funding these capital works without needing to issue debentures for non-growth-related projects.



The forecast base charges are presented in Table 6-2, and the volume rates are detailed in section 7.3.

The above increases are recommended to ensure that the Town can fund the capital and operating costs while keeping the overall reserve fund balance in a positive position.



Table 6-1
Town of Essex
Base Charge Forecast – Water

Water	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	7,625	7,625	7,625	7,625	7,625	7,625	7,625	7,625	7,625	7,625
New	34	101	167	234	300	365	430	494	558	622
Total Customers	7,659	7,726	7,792	7,859	7,925	7,990	8,055	8,119	8,183	8,247
Total Annual Revenue	\$1,958,559	\$2,094,234	\$2,238,852	\$2,393,589	\$2,558,512	\$2,734,266	\$2,921,901	\$3,121,823	\$3,335,218	\$3,562,981
Wards 1 & 2 - Essex & Colchester North	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860
New	17	51	84	118	151	184	217	249	281	313
Subtotal Customers	3,877	3,911	3,944	3,978	4,011	4,044	4,077	4,109	4,141	4,173
Monthly Base Charge	\$21.31	\$22.59	\$23.94	\$25.38	\$26.90	\$28.52	\$30.23	\$32.04	\$33.96	\$36.00
Annual Base Charge	\$255.72	\$271.06	\$287.33	\$304.57	\$322.84	\$342.21	\$362.74	\$384.51	\$407.58	\$432.03
Total Annual Revenue	\$991,426	\$1,060,128	\$1,133,218	\$1,211,566	\$1,294,914	\$1,383,901	\$1,478,906	\$1,579,945	\$1,687,784	\$1,802,876
Wards 3 & 4 - Colchester South & Harrow	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	3,765	3,765	3,765	3,765	3,765	3,765	3,765	3,765	3,765	3,765
New	17	50	83	116	149	181	213	245	277	309
Subtotal Customers	3,782	3,815	3,848	3,881	3,914	3,946	3,978	4,010	4,042	4,074
Monthly Base Charge	\$21.31	\$22.59	\$23.94	\$25.38	\$26.90	\$28.52	\$30.23	\$32.04	\$33.96	\$36.00
Annual Base Charge	\$255.72	\$271.06	\$287.33	\$304.57	\$322.84	\$342.21	\$362.74	\$384.51	\$407.58	\$432.03
Total Annual Revenue	\$967,133	\$1,034,106	\$1,105,634	\$1,182,023	\$1,263,598	\$1,350,365	\$1,442,994	\$1,541,878	\$1,647,434	\$1,760,105



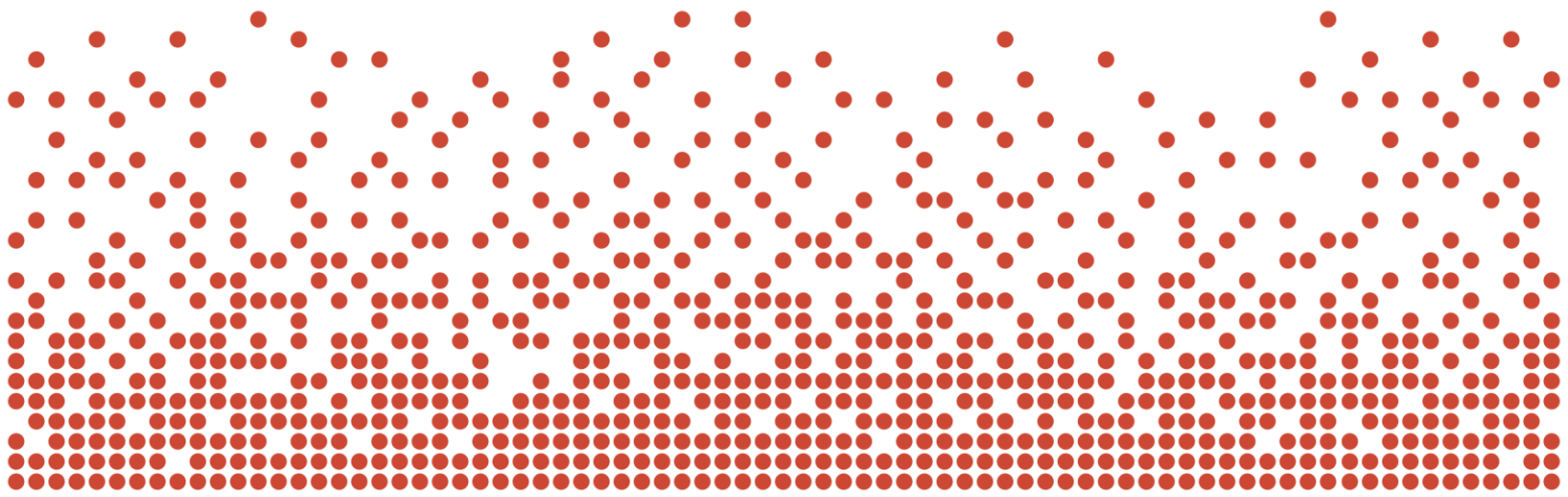
Table 6-2
Town of Essex
Base Charge Forecast – Wastewater

Wastewater	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	5,582	5,582	5,582	5,582	5,582	5,582	5,582	5,582	5,582	5,582
New	31	91	152	212	273	333	391	450	508	565
Subtotal Customers	5,613	5,673	5,734	5,794	5,855	5,915	5,973	6,032	6,090	6,147
Total Annual Revenue	\$1,522,413	\$1,682,435	\$1,859,519	\$2,054,798	\$2,270,894	\$2,509,194	\$2,654,902	\$2,813,012	\$2,983,786	\$3,168,440

Ward 1 - Essex Service Area	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	3,236	3,236	3,236	3,236	3,236	3,236	3,236	3,236	3,236	3,236
New	11	31	52	72	93	113	132	152	171	190
Subtotal Customers	3,247	3,267	3,288	3,308	3,329	3,349	3,368	3,388	3,407	3,426
Monthly Base Charge	\$22.38	\$24.62	\$27.08	\$29.79	\$32.77	\$36.04	\$36.76	\$37.50	\$38.25	\$39.01
Annual Base Charge	\$268.56	\$295.42	\$324.96	\$357.45	\$393.20	\$432.52	\$441.17	\$449.99	\$458.99	\$468.17
Total Annual Revenue	\$872,014	\$965,124	\$1,068,461	\$1,182,456	\$1,308,958	\$1,448,505	\$1,485,857	\$1,524,574	\$1,563,786	\$1,603,957

Ward 3 - Colchester South Service Area	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105	1,105
New	10	30	50	70	90	110	129	148	167	186
Subtotal Customers	1,115	1,135	1,155	1,175	1,195	1,215	1,234	1,253	1,272	1,291
Monthly Base Charge	\$23.50	\$25.85	\$28.44	\$31.28	\$34.41	\$37.85	\$41.63	\$45.79	\$50.37	\$55.41
Annual Base Charge	\$282.00	\$310.20	\$341.22	\$375.34	\$412.88	\$454.16	\$499.58	\$549.54	\$604.49	\$664.94
Total Annual Revenue	\$314,430	\$352,077	\$394,109	\$441,027	\$493,387	\$551,809	\$616,482	\$688,571	\$768,914	\$858,439

Ward 4 - Harrow Service Area	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Existing	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241
New	10	30	50	70	90	110	130	150	170	189
Subtotal Customers	1,251	1,271	1,291	1,311	1,331	1,351	1,371	1,391	1,411	1,430
Monthly Base Charge	\$22.38	\$23.95	\$25.62	\$27.42	\$29.34	\$31.39	\$33.59	\$35.94	\$38.45	\$41.14
Annual Base Charge	\$268.56	\$287.36	\$307.47	\$329.00	\$352.03	\$376.67	\$403.04	\$431.25	\$461.44	\$493.74
Total Annual Revenue	\$335,969	\$365,234	\$396,949	\$431,316	\$468,548	\$508,880	\$552,563	\$599,867	\$651,086	\$706,043



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 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 consumption forecast and wastewater volumes 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 Tables 5-1 and 5-2 (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. The volume rates are presented in Table 7-1 for Wards 1 & 2 and Table 7-2 for Wards 3 & 4. Detailed calculations of the volume rates are provided in Appendix A. A summary of the recommended base charge and volume rates along with the total annual bill for an average residential user with a usage of 180 cu.m per year for Wards 1 & 2 and Wards 3 & 4 are as follows:



Table 7-1
Town of Essex
Water Rate Summary – Wards 1 & 2
Annual Customer Water Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$21.31	\$22.59	\$23.94	\$25.38	\$26.90	\$28.52	\$30.23	\$32.04	\$33.96	\$36.00
Annual Base Rate Bill	\$255.72	\$271.06	\$287.33	\$304.57	\$322.84	\$342.21	\$362.74	\$384.51	\$407.58	\$432.03
Constant Rate	\$0.78	\$0.83	\$0.88	\$0.93	\$0.99	\$1.05	\$1.11	\$1.18	\$1.25	\$1.33
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$140.40	\$149.83	\$158.82	\$167.82	\$178.62	\$189.41	\$200.21	\$212.81	\$225.41	\$239.80
Total Annual Bill	\$396.12	\$420.89	\$446.15	\$472.39	\$501.46	\$531.62	\$562.95	\$597.32	\$632.98	\$671.84
\$ Increase - Total Annual Bill		\$24.77	\$25.26	\$26.24	\$29.07	\$30.17	\$31.33	\$34.36	\$35.67	\$38.85

Note: The above rates do not include the UWSS Inc. rate of \$0.7313 per cu.m. Based on 180 cu.m, this would add \$281.03 to an average bill in 2025.



Table 7-2
Town of Essex
Water Rate Summary – Wards 3 & 4
Annual Customer Water Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$21.31	\$22.59	\$23.94	\$25.38	\$26.90	\$28.52	\$30.23	\$32.04	\$33.96	\$36.00
Annual Base Rate Bill	\$255.72	\$271.06	\$287.33	\$304.57	\$322.84	\$342.21	\$362.74	\$384.51	\$407.58	\$432.03
Constant Rate	\$1.71	\$1.81	\$1.92	\$2.04	\$2.16	\$2.29	\$2.43	\$2.58	\$2.73	\$2.89
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$307.80	\$325.80	\$345.60	\$367.20	\$388.80	\$412.20	\$437.40	\$464.40	\$491.40	\$520.20
Total Annual Bill	\$563.52	\$596.86	\$632.93	\$671.77	\$711.64	\$754.41	\$800.14	\$848.91	\$898.98	\$952.23
\$ Increase - Total Annual Bill		\$33.34	\$36.06	\$38.84	\$39.87	\$42.77	\$45.73	\$48.76	\$50.07	\$53.25



7.3 Wastewater Rates

Similar to water, the calculation of the wastewater rates takes the net recoverable amounts from Tables 5-3, 5-4 and 5-5 and completes the calculation by dividing them by the volumes in each ward, resulting in the forecast rates. Detailed calculations are provided in Appendix B.

Tables 7-3, 7-4 and 7-5 summarize the recommended rates for wastewater and provide the average annual bill for a residential customer who utilizes 180 cu.m per year for Ward 1, Ward 3, and Ward 4.



Table 7-3
Town of Essex
Wastewater Rate Summary – Ward 1
Annual Customer Wastewater Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$22.38	\$23.95	\$25.62	\$27.42	\$29.34	\$31.39	\$33.59	\$35.94	\$38.45	\$41.14
Annual Base Rate Bill	\$268.56	\$287.36	\$307.47	\$329.00	\$352.03	\$376.67	\$403.04	\$431.25	\$461.44	\$493.74
Constant Rate	\$1.56	\$1.72	\$1.89	\$2.08	\$2.29	\$2.52	\$2.57	\$2.62	\$2.67	\$2.72
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$280.80	\$309.60	\$340.20	\$374.40	\$412.20	\$453.60	\$462.60	\$471.60	\$480.60	\$489.60
Total Annual Bill	\$549.36	\$596.96	\$647.67	\$703.40	\$764.23	\$830.27	\$865.64	\$902.85	\$942.04	\$983.34
\$ Increase - Total Annual Bill		\$47.60	\$50.72	\$55.72	\$60.83	\$66.04	\$35.37	\$37.21	\$39.19	\$41.30

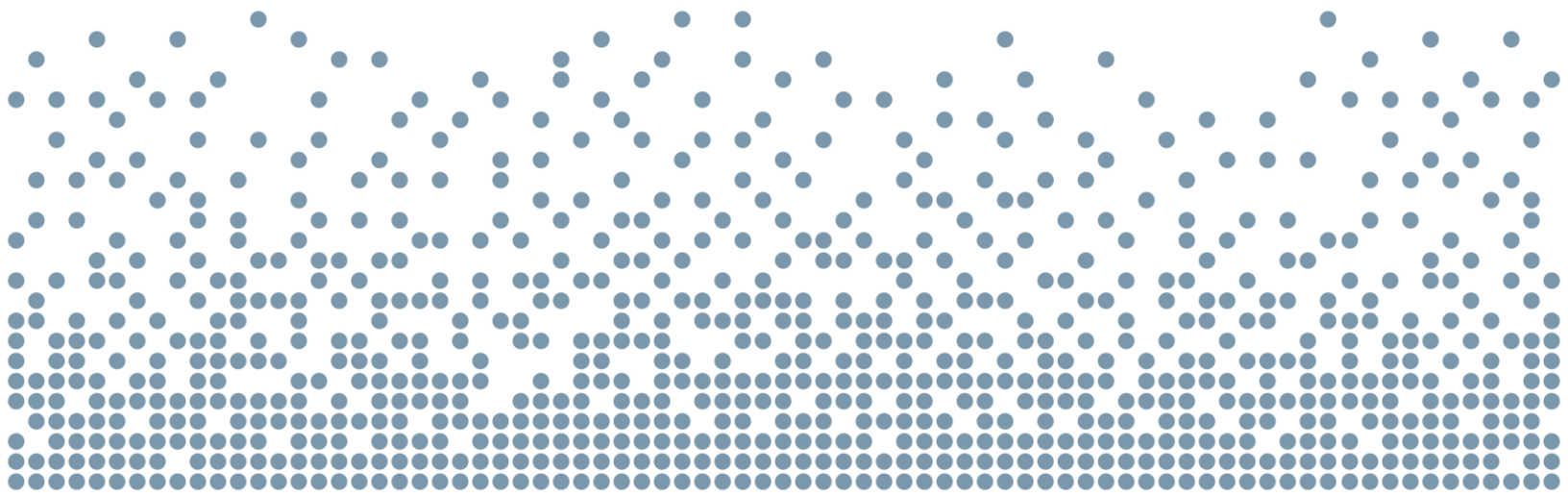
Table 7-4
Town of Essex
Wastewater Rate Summary – Ward 3
Annual Customer Wastewater Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$23.50	\$25.85	\$28.44	\$31.28	\$34.41	\$37.85	\$41.63	\$45.79	\$50.37	\$55.41
Annual Base Rate Bill	\$282.00	\$310.20	\$341.22	\$375.34	\$412.88	\$454.16	\$499.58	\$549.54	\$604.49	\$664.94
Constant Rate	\$2.48	\$2.73	\$3.00	\$3.30	\$3.63	\$3.99	\$4.39	\$4.83	\$5.32	\$5.85
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$446.40	\$491.04	\$540.14	\$594.16	\$653.57	\$718.93	\$790.82	\$869.91	\$956.90	\$1,052.59
Total Annual Bill	\$728.40	\$801.24	\$881.36	\$969.50	\$1,066.45	\$1,173.10	\$1,290.41	\$1,419.45	\$1,561.39	\$1,717.53
\$ Increase - Total Annual Bill		\$72.84	\$80.12	\$88.14	\$96.95	\$106.65	\$117.31	\$129.04	\$141.94	\$156.14



Table 7-5
Town of Essex
Wastewater Rate Summary – Ward 4
Annual Customer Wastewater Bill – Based on 180 cu.m of Volume

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$22.38	\$23.95	\$25.62	\$27.42	\$29.34	\$31.39	\$33.59	\$35.94	\$38.45	\$41.14
Annual Base Rate Bill	\$268.56	\$287.36	\$307.47	\$329.00	\$352.03	\$376.67	\$403.04	\$431.25	\$461.44	\$493.74
Constant Rate	\$2.17	\$2.32	\$2.48	\$2.65	\$2.84	\$3.04	\$3.25	\$3.48	\$3.72	\$3.98
Volume	180	180	180	180	180	180	180	180	180	180
Annual Volume Bill	\$390.60	\$417.60	\$446.40	\$477.00	\$511.20	\$547.20	\$585.00	\$626.40	\$669.60	\$716.40
Total Annual Bill	\$659.16	\$704.96	\$753.87	\$806.00	\$863.23	\$923.87	\$988.04	\$1,057.65	\$1,131.04	\$1,210.14
\$ Increase - Total Annual Bill		\$45.80	\$48.92	\$52.12	\$57.23	\$60.64	\$64.17	\$69.61	\$73.39	\$79.10



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 Town Council:

1. That Council provide for the recovery of all water and wastewater costs through full cost recovery rates.
2. That Council considers the Capital Plan for water and wastewater as provided in Tables 2-1 through 2-5 and the associated Capital Financing Plan as set out in Tables 4-1 through 4-5.
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 through 7-5.



Appendices



Appendix A

Detailed Water Rate Calculations



Table A-1-1
Town of Essex
Water Service – Wards 1 & 2
Capital Budget Forecast (Uninflated \$)

Description	Total 2024 to 2033	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
Pickup Truck	14,450	14,450									
Pickup Truck	160,000		40,000	40,000						40,000	40,000
Lifecycle:											
Engineering for Watermain Replacement	125,000	125,000									
Repairs to Shop Roof	10,000	10,000									
Replace Truck (Unit #613)	50,000	50,000									
Asset Management Plan:	-										
Asset Management Plan Capital Plan Requirements	14,929,400	978,500	999,000	1,238,500	1,332,000	1,762,500	2,104,000	2,825,500	843,500	1,422,950	1,422,950
Total Capital Expenditures	15,288,850	1,177,950	1,039,000	1,278,500	1,332,000	1,762,500	2,104,000	2,825,500	843,500	1,462,950	1,462,950



Table A-1-2
Town of Essex
Water Service – Wards 1 & 2
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
Pickup Truck	15,000	15,000	-	-	-	-	-	-	-	-	-
Pickup Truck	181,000	-	42,000	42,000	-	-	-	-	-	48,000	49,000
Lifecycle:											
Engineering for Watermain Replacement	128,000	128,000	-	-	-	-	-	-	-	-	-
Repairs to Shop Roof	10,000	10,000	-	-	-	-	-	-	-	-	-
Replace Truck (Unit #613)	51,000	51,000	-	-	-	-	-	-	-	-	-
Studies:											
Asset Management Plan Capital Plan Requirements	16,778,000	998,000	1,039,000	1,314,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,701,000	1,735,000
Total Capital Expenditures	17,163,000	1,202,000	1,081,000	1,356,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,749,000	1,784,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	11,593,000	988,000	509,000	772,000	890,000	1,383,000	1,795,000	2,661,000	390,000	1,091,000	1,114,000
Water Reserve	5,570,000	214,000	572,000	584,000	552,000	563,000	574,000	585,000	598,000	658,000	670,000
Total Capital Financing	17,163,000	1,202,000	1,081,000	1,356,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,749,000	1,784,000



Table A-1-3
Town of Essex
Water Service – Wards 1 & 2
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

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

Table A-1-4
Town of Essex
Water Service – Wards 1 & 2
Schedule of Growth-Related Debenture Repayments (Inflated \$)

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



Table A-1-5
Town of Essex
Water Service – Wards 1 & 2
Water General Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		3,892,725	4,705,661	4,715,302	4,556,006	4,473,771	4,433,916	4,437,233	4,373,619	4,238,250	3,980,426
Transfer from Operating		934,668	489,184	335,370	382,044	436,206	490,313	435,628	379,528	322,128	363,243
Transfer to Capital		214,000	572,000	584,000	552,000	563,000	574,000	585,000	598,000	658,000	670,000
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		4,613,393	4,622,845	4,466,672	4,386,050	4,346,976	4,350,229	4,287,862	4,155,147	3,902,378	3,673,669
Interest		92,268	92,457	89,333	87,721	86,940	87,005	85,757	83,103	78,048	73,473

Table A-1-6
Town of Essex
Water Service – Wards 1 & 2
Water Lifecycle Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		7,027,431	6,160,220	6,322,453	6,482,829	6,590,550	6,267,877	5,595,257	4,220,135	5,344,504	5,995,692
Transfer from Operating		-	547,263	805,262	868,495	937,428	1,012,669	1,203,131	1,409,575	1,624,626	1,757,567
Transfer to Capital		988,000	509,000	772,000	890,000	1,383,000	1,795,000	2,661,000	390,000	1,091,000	1,114,000
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		6,039,431	6,198,483	6,355,715	6,461,324	6,144,978	5,485,546	4,137,388	5,239,710	5,878,130	6,639,259
Interest		120,789	123,970	127,114	129,226	122,900	109,711	82,748	104,794	117,563	132,785



Table A-1-7
Town of Essex
Water Service – Wards 1 & 2
Operating Budget Forecast (Inflated \$)

Description		Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures											
Operating Costs											
Distribution /Transmission											
Contracted Services											
55100 - ELK Energy Incorporated - Billing and Collection Charges		-	-	-	-	-	-	-	-	-	-
55265 - Ontario Clean Water Agency - Drinking Water Quality Management System		1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
55460 - Contractors - Backflow Program		5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
58900 - Amounts Allocated from Other Departments		204,004	208,100	212,300	216,500	220,800	225,200	229,700	234,300	239,000	243,800
51100 - Office Supplies		100	100	100	100	100	100	100	100	100	100
51105 - Computer Hardware and Software		500	500	500	500	500	500	500	500	500	500
51115 - Memberships		1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
51150 - Vehicles - Fuel		14,300	14,600	14,900	15,200	15,500	15,800	16,100	16,400	16,700	17,000
51190 - Materials and Supplies - Other		1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
51600 - Materials and Supplies - Water Meters		45,900	46,800	47,700	48,700	49,700	50,700	51,700	52,700	53,800	54,900
51840 - Small Tools		500	500	500	500	500	500	500	500	500	500
53605 - System Access Fee - Automatic Vehicle Locator		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
53140 - Professional Fees - Engineering		20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800	24,300
53190 - Professional Fees - Other		10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800	12,000
56700 - Leases - Office Equipment and Computers		100	100	100	100	100	100	100	100	100	100
52200 - Repairs & Mntce - Bldgs & Misc Structures		2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
52300 - Repairs & Mntce - Vehicles (Labour)		1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
52305 - Repairs & Mntce - Vehicles (Parts)		3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
52350 - Repairs & Mntce - Equipment (Labour)		200	200	200	200	200	200	200	200	200	200
52355 - Repairs & Mntce - Equipment (Parts)		300	300	300	300	300	300	300	300	300	300
52600 - Repairs & Mntce - Watermains		35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
52620 - Repairs & Mntce - Hydrants		10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800	12,000
52640 - Repairs & Mntce - Valves		5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
52660 - Repairs & Mntce - Water Meters		22,400	22,800	23,300	23,800	24,300	24,800	25,300	25,800	26,300	26,800
52690 - Repairs & Mntce - Private Water Serv		35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
50100 - Salaries & Wages - Full-Time		227,533	232,100	236,700	241,400	246,200	251,100	256,100	261,200	266,400	271,700
50150 - Salaries & Wages - Overtime		6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900	7,000



Table A-1-7 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
50500 - Cda Pension Plan - Employer Contrib	7,456	7,600	7,800	8,000	8,200	8,400	8,600	8,800	9,000	9,200
50510 - Employment Inscce - Employer Contrib	2,504	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50520 - Employer Health Insurance	3,136	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
50530 - Workplace Safety & Inscce Bd Premiums	5,094	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
50540 - OMERS - Employer Contribution	16,145	16,500	16,800	17,100	17,400	17,700	18,100	18,500	18,900	19,300
50550 - Health Insurance Premiums	12,011	12,300	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600
50560 - Life Insurance Premiums	4,336	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
Additional Staff Benefits	3,333	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
50700 - Clothing & Uniforms	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
50720 - Training & Tuition Refund	500	500	500	500	500	500	500	500	500	500
54100 - Utilities - Hydro	6,000	6,300	6,600	6,900	7,200	7,600	8,000	8,400	8,800	9,200
54120 - Utilities - Gas	3,200	3,400	3,600	3,800	4,000	4,200	4,400	4,600	4,800	5,000
54140 - Utilities - Water	500	500	500	500	500	500	500	500	500	500
54200 - Communications - Telephone	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500	3,600
54300 - Insurance - Buildings	600	600	600	600	600	600	600	600	600	600
54310 - Insurance - Vehicles	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100
54320 - Insurance - General	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
54400 - Payments-in-Lieu of Taxes	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000	6,100	6,200
55300 - Union Water - Water Supply										
54300 - Insurance - Buildings	400	400	400	400	400	400	400	400	400	400
54310 - Insurance - Vehicles	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
54320 - Insurance - General	300	300	300	300	300	300	300	300	300	300
Sub Total Operating	737,354	752,300	767,500	783,000	798,900	815,100	831,600	848,400	865,500	882,800
Capital-Related										
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	287	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	5	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	934,668	489,184	335,370	382,044	436,206	490,313	435,628	379,528	322,128	363,243
Sub Total Capital Related	934,960	489,184	335,370	382,044	436,206	490,313	435,628	379,528	322,128	363,243
Total Expenditures	1,672,313	1,241,484	1,102,870	1,165,044	1,235,106	1,305,413	1,267,228	1,227,928	1,187,628	1,246,043

Note: The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.



Table A-1-7 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Expenditures	1,672,313	1,241,484	1,102,870	1,165,044	1,235,106	1,305,413	1,267,228	1,227,928	1,187,628	1,246,043
Revenues										
Base Charge	991,426	1,060,128	1,133,218	1,211,566	1,294,914	1,383,901	1,478,906	1,579,945	1,687,784	1,802,876
Other Revenue	-	-	-	-	-	-	-	-	-	-
Distribution /Transmission	-	-	-	-	-	-	-	-	-	-
49900 - Revenue Contributions from Reserve Funds	-	-	-	-	-	-	-	-	-	-
47800 - Miscellaneous Revenue	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
46415 - Water - Miscellaneous	500	500	500	500	500	500	500	500	500	500
46420 - Water Meter Sales & Inspection	30,600	31,200	31,800	32,400	33,000	33,700	34,400	35,100	35,800	36,500
46430 - Water Hook-Up Charges	16,300	16,600	16,900	17,200	17,500	17,900	18,300	18,700	19,100	19,500
46450 - Watermain Buy-Ins	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Treatment										
49900 - Revenue Contributions from Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,055,126	1,125,028	1,199,318	1,278,866	1,363,414	1,453,801	1,550,206	1,652,645	1,761,884	1,878,476
Water Billing Recovery - Operating	617,187	116,455	(96,447)	(113,822)	(128,308)	(148,389)	(282,978)	(424,717)	(574,256)	(632,433)
Lifecycle Reserve Contribution (\$)		547,263	805,262	868,495	937,428	1,012,669	1,203,131	1,409,575	1,624,626	1,757,567
Water Billing Recovery - Total	617,187	663,718	708,815	754,673	809,120	864,280	920,153	984,858	1,050,370	1,125,134

Table A-1-8
Town of Essex
Water Service – Wards 1 & 2
Water Rate Forecast (Inflated \$)

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Water Billing Recovery	617,187	663,718	708,815	754,673	809,120	864,280	920,153	984,858	1,050,370	1,125,134
Total Volume (m ³)	791,265	797,385	803,325	809,445	815,385	821,325	827,265	833,025	838,785	844,545
Constant Rate	\$ 0.78	\$ 0.83	\$ 0.88	\$ 0.93	\$ 0.99	\$ 1.05	\$ 1.11	\$ 1.18	\$ 1.25	\$ 1.33
Annual Dollar Change		\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.07	\$ 0.07	\$ 0.08



Table A-2-1
Town of Essex
Water Service – Wards 3 & 4
Capital Budget Forecast (Uninflated \$)

Description	Total 2024 to 2033	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
OWCA Capital Recommendations	1,559,000	456,000	550,000	335,000	138,000	80,000					
Pickup Truck	14,450	14,450									
Pickup Truck	160,000		40,000	40,000						40,000	40,000
Engineering for Watermain Replacement	125,000	125,000									
Repairs to Shop Roof	10,000	10,000									
Replace Truck (Unit #613)	50,000	50,000									
Asset Management Plan Capital Plan Requirements	14,879,400	928,500	999,000	1,238,500	1,332,000	1,762,500	2,104,000	2,825,500	843,500	1,422,950	1,422,950
Growth Related:	-										
Harrow-Colchester Reservoir Expansion	2,000,000					150,000	150,000	1,700,000			
Trunk Main from Harrow-Colchester to Harrow Water Tower	1,800,000		90,000	90,000	1,620,000						
Total Capital Expenditures	20,597,850	1,583,950	1,679,000	1,703,500	3,090,000	1,992,500	2,254,000	4,525,500	843,500	1,462,950	1,462,950



Table A-2-2
Town of Essex
Water Service – Wards 3 & 4
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
OWCA Capital Recommendations	1,630,000	465,000	572,000	356,000	149,000	88,000	-	-	-	-	-
Pickup Truck	15,000	15,000	-	-	-	-	-	-	-	-	-
Pickup Truck	181,000	-	42,000	42,000	-	-	-	-	-	48,000	49,000
Engineering for Watermain Replacement	128,000	128,000	-	-	-	-	-	-	-	-	-
Repairs to Shop Roof	10,000	10,000	-	-	-	-	-	-	-	-	-
Replace Truck (Unit #613)	51,000	51,000	-	-	-	-	-	-	-	-	-
Asset Management Plan :	-	-	-	-	-	-	-	-	-	-	-
Asset Management Plan Capital Plan Requirements	16,727,000	947,000	1,039,000	1,314,000	1,442,000	1,946,000	2,369,000	3,246,000	988,000	1,701,000	1,735,000
Growth Related:											
Harrow-Colchester Reservoir Expansion	2,288,000	-	-	-	-	166,000	169,000	1,953,000	-	-	-
Trunk Main from Harrow-Colchester to Harrow Water Tower	1,944,000	-	94,000	96,000	1,754,000	-	-	-	-	-	-
Total Capital Expenditures	22,974,000	1,616,000	1,747,000	1,808,000	3,345,000	2,200,000	2,538,000	5,199,000	988,000	1,749,000	1,784,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	9,202,000	677,000	296,000	554,000	668,000	1,157,000	1,564,000	2,426,000	150,000	846,000	864,000
Water Reserve	13,772,000	939,000	1,451,000	1,254,000	2,677,000	1,043,000	974,000	2,773,000	838,000	903,000	920,000
Total Capital Financing	22,974,000	1,616,000	1,747,000	1,808,000	3,345,000	2,200,000	2,538,000	5,199,000	988,000	1,749,000	1,784,000



Table A-2-3
Town of Essex
Water Service – Wards 3 & 4
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

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

Table A-2-4
Town of Essex
Water Service – Wards 3 & 4
Schedule of Growth-Related Debenture Repayments (Inflated \$)

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



Table A-2-5
Town of Essex
Water Service – Wards 3 & 4
Water General Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		3,155,091	2,219,889	1,568,256	983,662	(337,571)	146,569	890,192	8,358	1,139,230	1,735,728
Transfer from Operating		-	768,616	650,119	1,362,386	1,524,266	1,700,168	1,891,002	1,946,534	1,465,465	1,678,885
Transfer to Capital		939,000	1,451,000	1,254,000	2,677,000	1,043,000	974,000	2,773,000	838,000	903,000	920,000
Transfer to Operating		39,728	-	-	-	-	-	-	-	-	-
Closing Balance		2,176,362	1,537,505	964,374	(330,952)	143,695	872,737	8,194	1,116,892	1,701,694	2,494,613
Interest		43,527	30,750	19,287	(6,619)	2,874	17,455	164	22,338	34,034	49,892

Table A-2-6
Town of Essex
Water Service – Wards 3 & 4
Water Lifecycle Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		10,328,521	10,862,511	11,078,742	11,302,356	10,847,044	9,883,844	8,486,241	6,181,446	6,306,095	6,432,217
Transfer from Operating		998,000	295,000	556,000	-	-	-	-	151,000	846,000	863,000
Transfer to Capital		677,000	296,000	554,000	668,000	1,157,000	1,564,000	2,426,000	150,000	846,000	864,000
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		10,649,521	10,861,511	11,080,742	10,634,356	9,690,044	8,319,844	6,060,241	6,182,446	6,306,095	6,431,217
Interest		212,990	217,230	221,615	212,687	193,801	166,397	121,205	123,649	126,122	128,624



Table A-2-7
Town of Essex
Water Service – Wards 3 & 4
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
<u>Operating Costs</u>										
55100 - ELK Energy Incorporated - Billing and Collection Charges	-	-	-	-	-	-	-	-	-	-
55265 - Ontario Clean Water Agency - Drinking Water Quality Management System	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
55460 - Contractors - Backflow Program	12,000	12,200	12,400	12,600	12,900	13,200	13,500	13,800	14,100	14,400
51900 - Administration Charges - Town of Essex	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	204,004	208,100	212,300	216,500	220,800	225,200	229,700	234,300	239,000	243,800
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
51150 - Vehicles - Fuel	11,000	11,200	11,400	11,600	11,800	12,000	12,200	12,400	12,600	12,900
51190 - Materials and Supplies - Other	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
51600 - Materials and Supplies - Water Meters	65,000	66,300	67,600	69,000	70,400	71,800	73,200	74,700	76,200	77,700
51840 - Small Tools	500	500	500	500	500	500	500	500	500	500
53605 - System Access Fee - Automatic Vehicle Locator	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
53900 - Miscellaneous Services	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
53140 - Professional Fees - Engineering	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
53190 - Professional Fees - Other	10,000	10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800
56700 - Leases - Office Equipment and Computers	70	100	100	100	100	100	100	100	100	100
52200 - Repairs & Mtce - Bldgs & Misc Structures	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
52300 - Repairs & Mtce - Vehicles (Labour)	1,250	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
52305 - Repairs & Mtce - Vehicles (Parts)	1,250	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
52350 - Repairs & Mtce - Equipment (Labour)	150	200	200	200	200	200	200	200	200	200
52355 - Repairs & Mtce - Equipment (Parts)	150	200	200	200	200	200	200	200	200	200
52600 - Repairs & Mtce - Watermains	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
52620 - Repairs & Mtce - Hydrants	12,000	12,200	12,400	12,600	12,900	13,200	13,500	13,800	14,100	14,400
52640 - Repairs & Mtce - Valves	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
52660 - Repairs & Mtce - Water Meters	25,000	25,500	26,000	26,500	27,000	27,500	28,100	28,700	29,300	29,900
52690 - Repairs & Mtce - Private Water Serv	50,000	51,000	52,000	53,000	54,100	55,200	56,300	57,400	58,500	59,700
50100 - Salaries & Wages - Full-Time	211,990	216,200	220,500	224,900	229,400	234,000	238,700	243,500	248,400	253,400



Table A-2-7 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
50500 - Cda Pension Plan - Employer Contrib	7,456	7,600	7,800	8,000	8,200	8,400	8,600	8,800	9,000	9,200
50510 - Employment Inscse - Employer Contrib	2,504	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50520 - Employer Health Insurance	3,136	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
50530 - Workplace Safety & Inscse Bd Premiums	5,094	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
50540 - OMERS - Employer Contribution	16,145	16,500	16,800	17,100	17,400	17,700	18,100	18,500	18,900	19,300
50550 - Health Insurance Premiums	12,011	12,300	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600
50560 - Life Insurance Premiums	4,336	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
Benefits for additional staff	3,333	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
50700 - Clothing & Uniforms	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
50720 - Training & Tuition Refund	450	500	500	500	500	500	500	500	500	500
54100 - Utilities - Hydro	4,389	4,600	4,800	5,000	5,300	5,600	5,900	6,200	6,500	6,800
54120 - Utilities - Gas	2,827	3,000	3,200	3,400	3,600	3,800	4,000	4,200	4,400	4,600
54140 - Utilities - Water	548	600	600	600	600	600	600	600	600	600
54200 - Communications - Telephone	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
54300 - Insurance - Buildings	6,653	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,700
54310 - Insurance - Vehicles	1,821	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
54320 - Insurance - General	1,473	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
54400 - Payments-in-Lieu of Taxes	3,334	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
55200 - Ontario Clean Water Agency - Annual Operating Costs	523,270	558,700	569,900	581,300	592,900	604,800	616,900	629,200	641,800	654,600
55250 - Ontario Clean Water Agency - Other Operating Costs	84,072	85,800	87,500	89,300	91,100	92,900	94,800	96,700	98,600	100,600
55450 - Contractors	15,000	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700
53650 - Weed Control Services	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600	14,900	15,200
54100 - Utilities - Hydro	90,615	95,100	99,900	104,900	110,100	115,600	121,400	127,500	133,900	140,600
54120 - Utilities - Gas	10,179	10,700	11,200	11,800	12,400	13,000	13,700	14,400	15,100	15,900
54300 - Insurance - Buildings	6,550	6,700	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500
54310 - Insurance - Vehicles	1,821	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
54320 - Insurance - General	393	400	400	400	400	400	400	400	400	400
54400 - Payments-in-Lieu of Taxes	24,707	25,200	25,700	26,200	26,700	27,200	27,700	28,300	28,900	29,500
Sub Total Operating	1,506,880	1,565,500	1,599,800	1,635,000	1,671,200	1,708,200	1,746,300	1,785,300	1,825,300	1,866,500
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	1,420	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	23	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	-	768,616	650,119	1,362,386	1,524,266	1,700,168	1,891,002	1,946,534	1,465,465	1,678,885
Sub Total Capital Related	1,443	768,616	650,119	1,362,386	1,524,266	1,700,168	1,891,002	1,946,534	1,465,465	1,678,885
Total Expenditures	1,508,323	2,334,116	2,249,919	2,997,386	3,195,466	3,408,368	3,637,302	3,731,834	3,290,765	3,545,385

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table A-2-7 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Expenditures	1,508,323	2,334,116	2,249,919	2,997,386	3,195,466	3,408,368	3,637,302	3,731,834	3,290,765	3,545,385
Revenues										
Base Charge	967,133	1,034,106	1,105,634	1,182,023	1,263,598	1,350,365	1,442,994	1,541,878	1,647,434	1,760,105
Other Revenue										
Distribution/Transmission										
47800 - Miscellaneous Revenue	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
46415 - Water - Miscellaneous	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
46420 - Water Meter Sales & Inspection	18,400	18,800	19,200	19,600	20,000	20,400	20,800	21,200	21,600	22,000
46430 - Water Hook-Up Charges	22,400	22,800	23,300	23,800	24,300	24,800	25,300	25,800	26,300	26,800
46450 - Watermain Buy-Ins	18,900	19,300	19,700	20,100	20,500	20,900	21,300	21,700	22,100	22,500
46945 - Building Leases & Rentals	9,500	9,700	9,900	10,100	10,300	10,500	10,700	10,900	11,100	11,300
Treatment/Disposal										
49900 - Revenue Contributions from Reserve Funds	-	-	-	-	-	-	-	-	-	-
46945 - Building Leases & Rentals	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	39,728	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,083,661	1,112,506	1,185,734	1,263,823	1,347,098	1,435,565	1,529,894	1,630,478	1,737,734	1,852,105
Water Billing Recovery - Operating	424,662	1,221,610	1,064,184	1,733,563	1,848,368	1,972,803	2,107,408	2,101,355	1,553,031	1,693,280
Lifecycle Reserve Contribution (\$)	998,000	295,000	556,000	-	-	-	-	151,000	846,000	863,000
Water Billing Recovery - Total	1,422,662	1,516,610	1,620,184	1,733,563	1,848,368	1,972,803	2,107,408	2,252,355	2,399,031	2,556,280

Table A-2-8
Town of Essex
Water Service – Wards 3 & 4
Water Rate Forecast (Inflated \$)

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Water Billing Recovery	1,422,662	1,516,610	1,620,184	1,733,563	1,848,368	1,972,803	2,107,408	2,252,355	2,399,031	2,556,280
Total Volume (m ³)	831,966	837,906	843,846	849,786	855,726	861,486	867,246	873,006	878,766	884,526
Constant Rate	\$ 1.71	\$ 1.81	\$ 1.92	\$ 2.04	\$ 2.16	\$ 2.29	\$ 2.43	\$ 2.58	\$ 2.73	\$ 2.89
Annual Dollar Change		\$ 0.10	\$ 0.11	\$ 0.12	\$ 0.12	\$ 0.13	\$ 0.14	\$ 0.15	\$ 0.15	\$ 0.16



Appendix B

Detailed Wastewater Rate Calculations



Table B-1-1
Town of Essex
Wastewater Service – Ward 1
Capital Budget Forecast (Uninflated \$)

Description	Total 2024 to 2033	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
Treatment - Ward 1 Contingency	450,000	90,000	90,000	90,000	90,000	90,000					
OWCA Capital Recommendations - Ward 1	3,812,500	730,750	728,750	169,000	2,142,000	42,000					
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	2,667	2,667									
Asset Management Plan:	-										
Asset Management Plan Capital Requirements	4,000,200	251,333	926,333	246,333	211,333	214,667	220,000	1,148,000	-	391,100	391,100
Growth Related:											
Oversizing component of servicing extension into Industrial Park	100,000					100,000					
Total Capital Expenditures	8,365,367	1,074,750	1,745,083	505,333	2,443,333	446,667	220,000	1,148,000	-	391,100	391,100



Table B-1-2
Town of Essex
Wastewater Service – Ward 1
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
Treatment - Ward 1 Contingency	478,000	92,000	94,000	96,000	97,000	99,000	-	-	-	-	-
OWCA Capital Recommendations - Ward 1	4,047,000	745,000	758,000	179,000	2,319,000	46,000	-	-	-	-	-
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	3,000	3,000	-	-	-	-	-	-	-	-	-
Asset Management Plan:											
Asset Management Plan Capital Requirements	4,458,000	256,000	964,000	261,000	229,000	237,000	248,000	1,319,000	-	467,000	477,000
Growth Related:											
Oversizing component of servicing extension into Industrial Park	110,000	-	-	-	-	110,000	-	-	-	-	-
Total Capital Expenditures	9,096,000	1,096,000	1,816,000	536,000	2,645,000	492,000	248,000	1,319,000	-	467,000	477,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	110,000	-	-	-	-	110,000	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	4,253,000	195,000	964,000	261,000	229,000	237,000	248,000	1,319,000	-	396,000	404,000
Wastewater Reserve	4,733,000	901,000	852,000	275,000	2,416,000	145,000	-	-	-	71,000	73,000
Total Capital Financing	9,096,000	1,096,000	1,816,000	536,000	2,645,000	492,000	248,000	1,319,000	-	467,000	477,000



Table B-1-3
Town of Essex
Wastewater Service – Ward 1
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

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

Table B-1-4
Town of Essex
Wastewater Service – Ward 1
Schedule of Growth-Related Debenture Repayments (Inflated \$)

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



Table B-1-5
Town of Essex
Wastewater Service – Ward 1
Wastewater General Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		713,973	(412,536)	(1,366,926)	(1,564,485)	(3,670,284)	(2,905,377)	(1,717,216)	(752,596)	270,713	1,391,192
Transfer from Operating		-	-	108,117	382,167	966,876	1,221,831	979,377	1,018,001	1,164,200	1,201,800
Transfer to Capital		901,000	852,000	275,000	2,416,000	145,000	-	-	-	71,000	73,000
Loan Allocation to DCs											
Transfer to Operating		217,420	75,588	-	-	-	-	-	-	-	-
Closing Balance		(404,447)	(1,340,124)	(1,533,809)	(3,598,318)	(2,848,409)	(1,683,546)	(737,839)	265,405	1,363,913	2,519,991
Interest		(8,089)	(26,802)	(30,676)	(71,966)	(56,968)	(33,671)	(14,757)	5,308	27,278	50,400

Table B-1-6
Town of Essex
Wastewater Service – Ward 1
Wastewater D.C. Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		(2,105,217)	(1,918,504)	(1,721,048)	(1,517,416)	(1,302,404)	(1,192,978)	(961,564)	(723,124)	(472,003)	(207,908)
Development Charge Proceeds		224,331	231,202	233,385	240,550	242,818	250,268	252,619	260,376	268,172	278,983
Loan Allocation from Capital Reserve											
Transfer to Capital		-	-	-	-	110,000	-	-	-	-	-
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		(1,880,886)	(1,687,302)	(1,487,663)	(1,276,867)	(1,169,586)	(942,710)	(708,945)	(462,748)	(203,831)	71,075
Interest		(37,618)	(33,746)	(29,753)	(25,537)	(23,392)	(18,854)	(14,179)	(9,255)	(4,077)	1,422
Required from Development Charges		-	-	-	-	110,000	-	-	-	-	-



Table B-1-7
Town of Essex
Wastewater Service – Ward 1
Wastewater Lifecycle Reserve Fund Continuity (Inflated \$)

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance	1,739,164	1,575,047	623,268	369,514	358,884	343,282	321,587	(507,361)	(7,508)	(12,656)
Transfer from Operating	-	-	-	211,333	214,667	220,000	500,000	500,000	391,100	391,100
Transfer to Capital	195,000	964,000	261,000	229,000	237,000	248,000	1,319,000	-	396,000	404,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	1,544,164	611,047	362,268	351,847	336,551	315,282	(497,413)	(7,361)	(12,408)	(25,556)
Interest	30,883	12,221	7,245	7,037	6,731	6,306	(9,948)	(147)	(248)	(511)



Table B-1-8
Town of Essex
Wastewater Service – Ward 1
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
<u>Operating Costs</u>										
Collection Conveyance										
55100 - ELK Energy Incorporated - Billing and Collection Charges	-	-	-	-	-	-	-	-	-	-
55900 - Donations, Grants	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
51900 - Administration Charges - Town of Essex	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	63,562	64,800	66,100	67,400	68,700	70,100	71,500	72,900	74,400	75,900
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	300	300	300	300	300	300	300	300	300	300
51150 - Vehicles - Fuel	2,250	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
51190 - Materials and Supplies - Other	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
51840 - Small Tools	100	100	100	100	100	100	100	100	100	100
53605 - System Access Fee - Automatic Vehicle Locator	260	300	300	300	300	300	300	300	300	300
53650 - Weed Control Services	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
53140 - Professional Fees - Engineering	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
56700 - Leases - Office Equipment and Computers	14	-	-	-	-	-	-	-	-	-
52200 - Repairs & Mntce - Bldgs & Misc Structures	200	200	200	200	200	200	200	200	200	200
52300 - Repairs & Mntce - Vehicles (Labour)	600	600	600	600	600	600	600	600	600	600
52305 - Repairs & Mntce - Vehicles (Parts)	700	700	700	700	700	700	700	700	700	700
52350 - Repairs & Mntce - Equipment (Labour)	50	100	100	100	100	100	100	100	100	100
52355 - Repairs & Mntce - Equipment (Parts)	50	100	100	100	100	100	100	100	100	100
52900 - Repairs & Mntce - Other	50,000	51,000	52,000	53,000	54,100	55,200	56,300	57,400	58,500	59,700
50100 - Salaries & Wages - Full-Time	41,822	42,700	43,600	44,500	45,400	46,300	47,200	48,100	49,100	50,100
50500 - Cda Pension Plan - Employer Contrib	1,570	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
50510 - Employment Insc - Employer Contrib	527	500	500	500	500	500	500	500	500	500
50520 - Employer Health Insurance	660	700	700	700	700	700	700	700	700	700
50530 - Workplace Safety & Insc Bd Premiums	1,072	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
50540 - OMERS - Employer Contribution	3,399	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
50550 - Health Insurance Premiums	2,529	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50560 - Life Insurance Premiums	913	900	900	900	900	900	900	900	900	900
50700 - Clothing & Uniforms	300	300	300	300	300	300	300	300	300	300
50720 - Training & Tuition Refund	200	200	200	200	200	200	200	200	200	200
54800 - Uncollectible A/R - Other	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	118,102	124,000	130,200	136,700	143,500	150,700	158,200	166,100	174,400	183,100
54140 - Utilities - Water	539	600	600	600	600	600	600	600	600	600
54200 - Communications - Telephone	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
54310 - Insurance - Vehicles	383	400	400	400	400	400	400	400	400	400
54400 - Payments-in-Lieu of Taxes	2,765	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500	3,600



Table B-1-8 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
Treatment										
55200 - Ontario Clean Water Agency - Annual Operating Costs	390,691	423,500	432,000	440,600	449,400	458,400	467,600	477,000	486,500	496,200
55250 - Ontario Clean Water Agency - Other Operating Costs	334,204	340,900	347,700	354,700	361,800	369,000	376,400	383,900	391,600	399,400
55310 - Garbage Collection Fees - Ward 1	100	100	100	100	100	100	100	100	100	100
55400 - Garbage Disposal (Tipping Fees)	18,000	18,400	18,800	19,200	19,600	20,000	20,400	20,800	21,200	21,600
55900 - Donations, Grants	-	-	-	-	-	-	-	-	-	-
51190 - Materials and Supplies - Other	5,175	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000	6,100
53650 - Weed Control Services	13,500	13,800	14,100	14,400	14,700	15,000	15,300	15,600	15,900	16,200
52900 - Repairs & Mntce - Other	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
54100 - Utilities - Hydro	84,300	88,500	92,900	97,500	102,400	107,500	112,900	118,500	124,400	130,600
54120 - Utilities - Gas	7,943	8,300	8,700	9,100	9,600	10,100	10,600	11,100	11,700	12,300
54140 - Utilities - Water	6,890	7,200	7,600	8,000	8,400	8,800	9,200	9,700	10,200	10,700
54200 - Communications - Telephone	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000	5,100	5,200
54300 - Insurance - Buildings	176,361	179,900	183,500	187,200	190,900	194,700	198,600	202,600	206,700	210,800
54310 - Insurance - Vehicles	383	400	400	400	400	400	400	400	400	400
54320 - Insurance - General	18	-	-	-	-	-	-	-	-	-
54400 - Payments-in-Lieu of Taxes	98,061	100,000	102,000	104,000	106,100	108,200	110,400	112,600	114,900	117,200
Sub Total Operating	1,490,195	1,551,600	1,589,400	1,628,100	1,668,000	1,709,000	1,751,200	1,794,500	1,839,500	1,885,600
Capital-Related										
Existing Debt (Principal) - Non-Growth Related	577,930	593,729	609,960	346,957	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	54,056	38,257	22,026	7,198	-	-	-	-	-	-
Transfer to Capital Reserve	-	-	108,117	382,167	966,876	1,221,831	979,377	1,018,001	1,164,200	1,201,800
Sub Total Capital Related	631,986	631,986	740,103	736,323	966,876	1,221,831	979,377	1,018,001	1,164,200	1,201,800
Total Expenditures	2,122,181	2,183,586	2,329,503	2,364,423	2,634,876	2,930,831	2,730,577	2,812,501	3,003,700	3,087,400
Revenues										
Base Charge	872,014	965,124	1,068,461	1,182,456	1,308,958	1,448,505	1,485,857	1,524,574	1,563,786	1,603,957
Other Revenue	-	-	-	-	-	-	-	-	-	-
Collection Conveyance										
43220 - Sewer Frontage and Connection Charges	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Treatment/Disposal										
46970 - Land Leases & Rentals	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Contributions from Reserves / Reserve Funds	217,420	75,588	-	-	-	-	-	-	-	-
Total Operating Revenue	1,111,735	1,063,312	1,091,361	1,205,656	1,332,458	1,472,305	1,509,957	1,548,974	1,588,486	1,629,057
Wastewater Billing Recovery - Operating	1,010,446	1,120,274	1,238,143	1,158,767	1,302,417	1,458,527	1,220,620	1,263,527	1,415,214	1,458,342
Lifecycle Reserve Contribution (\$)	-	-	-	211,333	214,667	220,000	500,000	500,000	391,100	391,100
Wastewater Billing Recovery - Total	1,010,446	1,120,274	1,238,143	1,370,100	1,517,084	1,678,527	1,720,620	1,763,527	1,806,314	1,849,442

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table B-1-9
Town of Essex
Wastewater Service – Ward 1
Wastewater Rate Forecast (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Wastewater Billing Recovery		1,010,446	1,120,274	1,238,143	1,370,100	1,517,084	1,678,527	1,720,620	1,763,527	1,806,314	1,849,442
Total Volume (m ³)		647,722	651,322	655,102	658,702	662,482	666,082	669,502	673,102	676,522	679,942
Constant Rate		\$ 1.56	\$ 1.72	\$ 1.89	\$ 2.08	\$ 2.29	\$ 2.52	\$ 2.57	\$ 2.62	\$ 2.67	\$ 2.72
Annual Dollar Change			\$ 0.16	\$ 0.17	\$ 0.19	\$ 0.21	\$ 0.23	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05



Table B-2-1
Town of Essex
Wastewater Service – Ward 3
Capital Budget Forecast (Uninflated \$)

Description	Total 2024 to 2033	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
Treatment - Ward 3 Contingency	275,000	55,000	55,000	55,000	55,000	55,000					
OWCA Capital Recommendations - Ward 3	488,500	76,500	103,500	129,500	89,500	89,500					
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	2,667	2,667									
Lifecycle:											
Collection and Conveyance - Ward 3	1,082,000	62,500	62,500	62,500	62,500	519,500	62,500	62,500	62,500	62,500	62,500
Growth Related:											
Treatment Alternative SBR (mechanism system)	36,500,000		3,650,000	3,650,000	29,200,000						
Pumpstation No. 1 Upgrades	2,435,000		243,500	243,500	1,948,000						
Pumpstation No. 2,3,5,6 & 7 Upgrades	4,560,000		456,000	456,000	3,648,000						
Total Capital Expenditures	45,343,167	196,667	4,570,500	4,596,500	35,003,000	664,000	62,500	62,500	62,500	62,500	62,500



Table B-2-2
Town of Essex
Wastewater Service – Ward 3
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
Treatment - Ward 3 Contingency	292,000	56,000	57,000	58,000	60,000	61,000	-	-	-	-	-
OWCA Capital Recommendations - Ward 3	519,000	78,000	108,000	137,000	97,000	99,000	-	-	-	-	-
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	3,000	3,000	-	-	-	-	-	-	-	-	-
Lifecycle:											
Collection and Conveyance - Ward 3	1,203,000	64,000	65,000	66,000	68,000	574,000	70,000	72,000	73,000	75,000	76,000
Growth Related:											
Treatment Alternative SBR (mechanism system)	39,277,000	-	3,797,000	3,873,000	31,607,000	-	-	-	-	-	-
Pumpstation No. 1 Upgrades	2,620,000	-	253,000	258,000	2,109,000	-	-	-	-	-	-
Pumpstation No. 2,3,5,6 & 7 Upgrades	4,907,000	-	474,000	484,000	3,949,000	-	-	-	-	-	-
Total Capital Expenditures	48,821,000	201,000	4,754,000	4,876,000	37,890,000	734,000	70,000	72,000	73,000	75,000	76,000
Capital Financing											
Provincial/Federal Grants	29,552,590		2,955,259	2,955,259	23,642,072						
Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	17,251,410	-	1,568,741	1,659,741	14,022,928	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	-	-	-	-	-	-	-	-	-	-	-
Wastewater Reserve	2,017,000	201,000	230,000	261,000	225,000	734,000	70,000	72,000	73,000	75,000	76,000
Total Capital Financing	48,821,000	201,000	4,754,000	4,876,000	37,890,000	734,000	70,000	72,000	73,000	75,000	76,000



Table B-2-3
Town of Essex
Wastewater Service – Ward 3
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

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

Table B-2-4
Town of Essex
Wastewater Service – Ward 3
Schedule of Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
2024	-		-	-	-	-	-	-	-	-	-
2025	1,568,741			118,518	118,518	118,518	118,518	118,518	118,518	118,518	118,518
2026	1,659,741				125,393	125,393	125,393	125,393	125,393	125,393	125,393
2027	14,022,928					1,059,427	1,059,427	1,059,427	1,059,427	1,059,427	1,059,427
2028	-						-	-	-	-	-
2029	-							-	-	-	-
2030	-								-	-	-
2031	-									-	-
2032	-										-
2033	-										
Total Annual Debt Charges		17,251,410	-	-	118,518	243,911	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338



Table B-2-5
Town of Essex
Wastewater Service – Ward 3
Wastewater General Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		1,949,568	1,925,379	1,919,707	1,966,167	1,861,773	1,338,412	946,701	561,235	424,716	560,192
Transfer from Operating		139,058	186,687	268,907	84,102	324,324	349,635	426,248	571,116	734,658	919,291
Transfer from Lifecycle Reserve Fund		-	-	-	-	-	300,000	300,000	400,000	500,000	300,000
Transfer to Capital		201,000	230,000	261,000	225,000	734,000	70,000	72,000	73,000	75,000	76,000
Loan to DC Reserve Fund		-	-	-	-	-	938,433	1,050,719	1,042,963	1,035,166	1,024,354
Transfer to Operating		-	-	-	-	139,929	51,475	-	-	-	-
Closing Balance		1,887,627	1,882,066	1,927,614	1,825,268	1,312,168	928,139	550,230	416,388	549,208	679,129
Interest		37,753	37,641	38,552	36,505	26,243	18,563	11,005	8,328	10,984	13,583

Table B-2-6
Town of Essex
Wastewater Service – Ward 3
Wastewater D.C. Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		525,347	764,672	1,015,791	1,153,272	1,172,909	114,637	-	-	-	-
Development Charge Proceeds		224,331	231,202	233,385	240,550	242,818	250,268	252,619	260,376	268,172	278,983
Loan from Capital Reserve Fund		-	-	-	-	-	938,433	1,050,719	1,042,963	1,035,166	1,024,354
Transfer to Capital		-	-	-	-	-	-	-	-	-	-
Transfer to Operating		-	-	118,518	243,911	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338
Closing Balance		749,679	995,874	1,130,659	1,149,911	112,389	-	-	-	-	-
Interest		14,994	19,917	22,613	22,998	2,248	-	-	-	-	-
Required from Development Charges		-	3,785,860	3,861,860	31,517,480	-	-	-	-	-	-



Table B-2-7
Town of Essex
Wastewater Service – Ward 3
Wastewater Lifecycle Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		1,596,492	1,628,422	1,660,991	1,694,210	1,728,095	1,762,656	1,491,910	1,215,748	832,063	338,704
Transfer from Operating		-	-	-	-	-	-	-	-	-	-
Transfer to Capital		-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve		-	-	-	-	-	300,000	300,000	400,000	500,000	300,000
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		1,596,492	1,628,422	1,660,991	1,694,210	1,728,095	1,462,656	1,191,910	815,748	332,063	38,704
Interest		31,930	32,568	33,220	33,884	34,562	29,253	23,838	16,315	6,641	774



Table B-2-8
Town of Essex
Wastewater Service – Ward 3
Operating Budget (Inflated \$)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
Operating Costs										
55100 - ELK Energy Incorporated - Billing and Collection Charges	-	-	-	-	-	-	-	-	-	-
55900 - Donations, Grants	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900
51900 - Administration Charges - Town of Essex	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	63,562	64,800	66,100	67,400	68,700	70,100	71,500	72,900	74,400	75,900
51105 - Computer Hardware and Software	500	500	500	500	500	500	500	500	500	500
51115 - Memberships	300	300	300	300	300	300	300	300	300	300
51150 - Vehicles - Fuel	2,250	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
51190 - Materials and Supplies - Other	520	500	500	500	500	500	500	500	500	500
51840 - Small Tools	100	100	100	100	100	100	100	100	100	100
53605 - System Access Fee - Automatic Vehicle Locator	250	300	300	300	300	300	300	300	300	300
53650 - Weed Control Services	6,000	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900
53140 - Professional Fees - Engineering	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
56700 - Leases - Office Equipment and Computers	14	20	20	20	20	20	20	20	20	20
52200 - Repairs & Mntce - Bldgs & Misc Structures	500	500	500	500	500	500	500	500	500	500
52300 - Repairs & Mntce - Vehicles (Labour)	500	500	500	500	500	500	500	500	500	500
52305 - Repairs & Mntce - Vehicles (Parts)	600	600	600	600	600	600	600	600	600	600
52350 - Repairs & Mntce - Equipment (Labour)	50	100	100	100	100	100	100	100	100	100
52355 - Repairs & Mntce - Equipment (Parts)	50	100	100	100	100	100	100	100	100	100
52900 - Repairs & Mntce - Other	35,000	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800
50100 - Salaries & Wages - Full-Time	41,822	42,700	43,600	44,500	45,400	46,300	47,200	48,100	49,100	50,100
50500 - Cda Pension Plan - Employer Contrib	1,570	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
50510 - Employment Insce - Employer Contrib	527	500	500	500	500	500	500	500	500	500
50520 - Employer Health Insurance	660	700	700	700	700	700	700	700	700	700
50530 - Workplace Safety & Insce Bd Premiums	1,072	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
50540 - OMERS - Employer Contribution	3,399	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
50550 - Health Insurance Premiums	2,529	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50560 - Life Insurance Premiums	913	900	900	900	900	900	900	900	900	900
50700 - Clothing & Uniforms	315	300	300	300	300	300	300	300	300	300
50720 - Training & Tuition Refund	125	100	100	100	100	100	100	100	100	100
54800 - Uncollectible A/R - Other	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	6,665	7,000	7,400	7,800	8,200	8,600	9,000	9,500	10,000	10,500
54200 - Communications - Telephone	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
54310 - Insurance - Vehicles	383	400	400	400	400	400	400	400	400	400
54320 - Insurance - General	50	100	100	100	100	100	100	100	100	100



Table B-2-8 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
55200 - Ontario Clean Water Agency - Annual Operating Costs	150,743	178,800	182,400	372,000	379,400	387,000	394,700	402,600	410,700	418,900
55250 - Ontario Clean Water Agency - Other Operating Costs	86,834	88,600	90,400	184,400	188,100	191,900	195,700	199,600	203,600	207,700
55900 - Donations, Grants	-	-	-	-	-	-	-	-	-	-
51190 - Materials and Supplies - Other	675	700	700	700	700	700	700	700	700	700
53650 - Weed Control Services	11,000	11,200	11,400	11,600	11,800	12,000	12,200	12,400	12,600	12,900
52900 - Repairs & Mntce - Other	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
54100 - Utilities - Hydro	79,798	83,800	88,000	92,400	97,000	101,900	107,000	112,400	118,000	123,900
54300 - Insurance - Buildings	31,609	32,200	32,800	33,500	34,200	34,900	35,600	36,300	37,000	37,700
54310 - Insurance - Vehicles	383	400	400	400	400	400	400	400	400	400
54320 - Insurance - General	17	20	20	20	20	20	20	20	20	20
54400 - Payments-in-Lieu of Taxes	3,848	3,900	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700
Sub Total Operating	569,234	608,440	623,340	916,740	937,840	959,740	981,940	1,004,840	1,028,540	1,052,840
Capital-Related										
New Growth Related Debt (Principal)	-	-	51,062	107,282	568,336	592,775	618,264	644,849	672,578	701,499
New Growth Related Debt (Interest)	-	-	67,456	136,629	735,002	710,563	685,074	658,489	630,760	601,839
Transfer to Capital Reserve	139,058	186,687	268,907	84,102	324,324	349,635	426,248	571,116	734,658	919,291
Sub Total Capital Related	139,058	186,687	387,425	328,012	1,627,662	1,652,973	1,729,586	1,874,454	2,037,996	2,222,629
Total Expenditures	708,293	795,127	1,010,765	1,244,752	2,565,502	2,612,713	2,711,526	2,879,294	3,066,536	3,275,469
Revenues										
Base Charge	314,430	352,077	394,109	441,027	493,387	551,809	616,482	688,571	768,914	858,439
46970 - Land Leases & Rentals	200	200	200	200	200	200	200	200	200	200
Contributions from Development Charges Reserve Fund	-	-	118,518	243,911	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338	1,303,338
Contributions from Reserves / Reserve Funds	-	-	-	-	139,929	51,475	-	-	-	-
Total Operating Revenue	314,630	352,277	512,827	685,138	1,936,854	1,906,822	1,920,020	1,992,109	2,072,452	2,161,977
Wastewater Billing Recovery - Operating	393,663	442,850	497,938	559,615	628,648	705,891	791,506	887,185	994,084	1,113,492
Lifecycle Reserve Contribution (\$)	-	-	-	-	-	-	-	-	-	-
Wastewater Billing Recovery - Total	393,663	442,850	497,938	559,615	628,648	705,891	791,506	887,185	994,084	1,113,492

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table B-2-9
Town of Essex
Wastewater Service – Ward 3
Wastewater Rate Forecast (Inflated \$)

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Wastewater Billing Recovery	393,663	442,850	497,938	559,615	628,648	705,891	791,506	887,185	994,084	1,113,492
Total Volume (m ³)	158,735	162,335	165,935	169,535	173,135	176,735	180,155	183,575	186,995	190,415
Constant Rate	\$ 2.48	\$ 2.73	\$ 3.00	\$ 3.30	\$ 3.63	\$ 3.99	\$ 4.39	\$ 4.83	\$ 5.32	\$ 5.85
Annual Dollar Change		\$ 0.25	\$ 0.27	\$ 0.30	\$ 0.33	\$ 0.36	\$ 0.40	\$ 0.44	\$ 0.48	\$ 0.53



Table B-3-1
Town of Essex
Wastewater Service – Ward 4
Capital Budget Forecast (Uninflated \$)

Description	Total 2024 to 2033	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
OWCA Capital Recommendations - Ward 4	145,000	90,000			25,000	30,000					
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	2,667	2,667									
Collections and Conveyance	230,000	57,500	-	57,500	57,500	57,500					
Lifecycle Capital Requirements	3,770,200	193,833	926,333	188,833	153,833	157,167	220,000	1,148,000		391,100	391,100
Growth Related:											
Harrow Raw Sewage Pump Station	1,187,000	1,187,000									
Harrow Lagoon Environmental Assessment	300,000			300,000							
Total Capital Expenditures	5,634,867	1,531,000	926,333	546,333	236,333	244,667	220,000	1,148,000	-	391,100	391,100



Table B-3-2
Town of Essex
Wastewater Service – Ward 4
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Capital Expenditures											
OWCA Capital Recommendations - Ward 4	152,000	92,000	-	-	27,000	33,000	-	-	-	-	-
Significant Drinking Water Threat Assessment Report for Proposed Alterations (CLI-ECA Requirement)	3,000	3,000	-	-	-	-	-	-	-	-	-
Lifecycle:	-	-	-	-	-	-	-	-	-	-	-
Collections and Conveyance	310,000	59,000	-	61,000	62,000	63,000	65,000	-	-	-	-
Asset Management Plan											
Lifecycle Capital Requirements	4,214,000	198,000	964,000	200,000	167,000	174,000	248,000	1,319,000	-	467,000	477,000
Growth Related:											
Harrow Raw Sewage Pump Station	1,211,000	1,211,000	-	-	-	-	-	-	-	-	-
Harrow Lagoon Environmental Assessment	318,000	-	-	318,000	-	-	-	-	-	-	-
Total Capital Expenditures	6,208,000	1,563,000	964,000	579,000	256,000	270,000	313,000	1,319,000	-	467,000	477,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	923,500	605,500	-	318,000	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund	3,459,000	142,000	907,000	142,000	107,000	113,000	186,000	1,190,000	-	332,000	340,000
Wastewater Reserve	1,825,500	815,500	57,000	119,000	149,000	157,000	127,000	129,000	-	135,000	137,000
Total Capital Financing	6,208,000	1,563,000	964,000	579,000	256,000	270,000	313,000	1,319,000	-	467,000	477,000

Note: The above analysis assumes grant funding is received to allow the project to be constructed in 2027. Should grant funding not be received, the project would occur outside of the 10-year forecast.



Table B-3-3
Town of Essex
Wastewater Service – Ward 4
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

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

Table B-3-4
Town of Essex
Wastewater Service – Ward 4
Schedule of Growth-Related Debenture Repayments (Inflated \$)

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



Table B-3-5
Town of Essex
Wastewater Service – Ward 4
Wastewater General Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		363,351	(195,414)	192,759	451,389	797,348	1,222,562	1,772,268	2,555,295	2,883,357	2,803,324
Transfer from Operating		260,566	441,394	368,780	479,324	558,242	641,956	861,924	271,525	-	-
Loan Allocation from DC Reserve Fund											
Transfer to Capital		815,500	57,000	119,000	149,000	157,000	127,000	129,000		135,000	137,000
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		(191,583)	188,979	442,539	781,713	1,198,590	1,737,518	2,505,191	2,826,820	2,748,357	2,666,324
Interest		(3,832)	3,780	8,851	15,634	23,972	34,750	50,104	56,536	54,967	53,326

Table B-3-6
Town of Essex
Wastewater Service – Ward 4
Wastewater D.C. Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		(2,411,429)	(2,848,450)	(2,669,593)	(2,809,292)	(2,620,117)	(2,424,845)	(2,218,069)	(2,004,759)	(1,779,271)	(1,541,321)
Development Charge Proceeds		224,331	231,202	233,385	240,550	242,818	250,268	252,619	260,376	268,172	278,983
Transfer to Capital		605,500	-	318,000	-	-	-	-	-	-	-
Loan Allocation to Capital Reserve											
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		(2,792,598)	(2,617,248)	(2,754,208)	(2,568,742)	(2,377,299)	(2,174,577)	(1,965,450)	(1,744,383)	(1,511,099)	(1,262,338)
Interest		(55,852)	(52,345)	(55,084)	(51,375)	(47,546)	(43,492)	(39,309)	(34,888)	(30,222)	(25,247)
Required from Development Charges		605,500	-	318,000	-	-	-	-	-	-	-

Note: The total reserve / reserves fund amounts identified to cash flow deficit in D.C. reserve fund.



Table B-3-7
Town of Essex
Wastewater Service – Ward 4
Wastewater Lifecycle Reserve Fund Continuity (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Opening Balance		1,375,101	1,402,603	505,515	515,626	525,938	536,457	480,886	(723,296)	(23,762)	747,630
Transfer from Operating		142,000	-	142,000	107,000	113,000	121,000	-	700,000	1,088,733	1,216,435
Transfer to Capital		142,000	907,000	142,000	107,000	113,000	186,000	1,190,000	-	332,000	340,000
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		1,375,101	495,603	505,515	515,626	525,938	471,457	(709,114)	(23,296)	732,971	1,624,065
Interest		27,502	9,912	10,110	10,313	10,519	9,429	(14,182)	(466)	14,659	32,481



Table B-3-8
Town of Essex
Wastewater Service – Ward 4
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
<u>Operating Costs</u>										
Collection/Conveyance	-	-	-	-	-	-	-	-	-	-
55100 - ELK Energy Incorporated - Billing and Collection Charges	-	-	-	-	-	-	-	-	-	-
55900 - Donations, Grants	3,000	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900
51900 - Administration Charges - Town of Essex	-	-	-	-	-	-	-	-	-	-
58900 - Amounts Allocated from Other Departments	63,562	64,800	66,100	67,400	68,700	70,100	71,500	72,900	74,400	75,900
51105 - Computer Hardware and Software	250	300	300	300	300	300	300	300	300	300
51115 - Memberships	260	300	300	300	300	300	300	300	300	300
51150 - Vehicles - Fuel	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
51190 - Materials and Supplies - Other	1,035	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
51840 - Small Tools	100	100	100	100	100	100	100	100	100	100
53605 - System Access Fee - Automatic Vehicle Locator	250	300	300	300	300	300	300	300	300	300
53140 - Professional Fees - Engineering	20,000	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800
56700 - Leases - Office Equipment and Computers	14	-	-	-	-	-	-	-	-	-
52200 - Repairs & Mntce - Bldgs & Misc Structures	250	300	300	300	300	300	300	300	300	300
52300 - Repairs & Mntce - Vehicles (Labour)	400	400	400	400	400	400	400	400	400	400
52305 - Repairs & Mntce - Vehicles (Parts)	650	700	700	700	700	700	700	700	700	700
52350 - Repairs & Mntce - Equipment (Labour)	50	100	100	100	100	100	100	100	100	100
52355 - Repairs & Mntce - Equipment (Parts)	50	100	100	100	100	100	100	100	100	100
52900 - Repairs & Mntce - Other	17,000	17,300	17,600	18,000	18,400	18,800	19,200	19,600	20,000	20,400
50100 - Salaries & Wages - Full-Time	41,822	43,900	46,100	48,400	50,800	53,300	56,000	58,800	61,700	64,800
50500 - Cda Pension Plan - Employer Contrib	1,570	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
50510 - Employment Insce - Employer Contrib	527	500	500	500	500	500	500	500	500	500
50520 - Employer Health Insurance	660	700	700	700	700	700	700	700	700	700
50530 - Workplace Safety & Insce Bd Premiums	1,072	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
50540 - OMERS - Employer Contribution	3,399	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300
50550 - Health Insurance Premiums	2,529	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400
50560 - Life Insurance Premiums	913	900	900	900	900	900	900	900	900	900
50700 - Clothing & Uniforms	315	300	300	300	300	300	300	300	300	300
50720 - Training & Tuition Refund	125	100	100	100	100	100	100	100	100	100
54800 - Uncollectible A/R - Other	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	9,356	9,800	10,300	10,800	11,300	11,900	12,500	13,100	13,800	14,500
54140 - Utilities - Water	288	300	300	300	300	300	300	300	300	300
54200 - Communications - Telephone	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
54310 - Insurance - Vehicles	767	800	800	800	800	800	800	800	800	800
54320 - Insurance - General	52	100	100	100	100	100	100	100	100	100
54400 - Payments-in-Lieu of Taxes	22,127	22,600	23,100	23,600	24,100	24,600	25,100	25,600	26,100	26,600



Table B-3-8 (Cont'd)

Description	Forecast									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures										
Treatment/Disposal		-	-	-	-	-	-	-	-	-
55200 - Ontario Clean Water Agency - Annual Operating Costs	134,927	162,600	165,900	169,200	172,600	176,100	179,600	183,200	186,900	190,600
55250 - Ontario Clean Water Agency - Other Operating Costs	81,605	83,200	84,900	86,600	88,300	90,100	91,900	93,700	95,600	97,500
55340 - Garbage Collection Fees - Ward 4	250	300	300	300	300	300	300	300	300	300
51190 - Materials and Supplies - Other	520	500	500	500	500	500	500	500	500	500
53650 - Weed Control Services	8,000	8,200	8,400	8,600	8,800	9,000	9,200	9,400	9,600	9,800
52900 - Repairs & Mntce - Other	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900
54100 - Utilities - Hydro	90,692	95,200	100,000	105,000	110,300	115,800	121,600	127,700	134,100	140,800
54200 - Communications - Telephone	200	200	200	200	200	200	200	200	200	200
54300 - Insurance - Buildings	9,389	9,600	9,800	10,000	10,200	10,400	10,600	10,800	11,000	11,200
54320 - Insurance - General	17	-	-	-	-	-	-	-	-	-
54400 - Payments-in-Lieu of Taxes	50,798	51,800	52,800	53,900	55,000	56,100	57,200	58,300	59,500	60,700
Sub Total Operating	581,892	623,000	639,900	657,300	675,200	693,800	712,900	732,500	753,100	774,200
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	260,566	441,394	368,780	479,324	558,242	641,956	861,924	271,525		
Sub Total Capital Related	260,566	441,394	368,780	479,324	558,242	641,956	861,924	271,525	-	-
Total Expenditures	842,459	1,064,394	1,008,680	1,136,624	1,233,442	1,335,756	1,574,824	1,004,025	753,100	774,200
Revenues										
Base Charge	335,969	365,234	396,949	431,316	468,548	508,880	552,563	599,867	651,086	706,043
Collection/Conveyance										
43220 - Sewer Frontage and Connection Charges	49,100	50,100	51,100	52,100	53,100	54,200	55,300	56,400	57,500	58,700
Treatment Disposal										
46945 - Building Leases & Rentals	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
Total Operating Revenue	388,169	418,534	451,349	486,816	525,148	566,680	611,563	660,067	712,486	768,743
Wastewater Billing Recovery - Operating	454,290	645,860	557,330	649,808	708,294	769,076	963,261	343,958	40,614	5,457
Lifecycle Reserve Contribution (\$)	142,000		142,000	107,000	113,000	121,000		700,000	1,088,733	1,216,435
Wastewater Billing Recovery - Total	596,290	645,860	699,330	756,808	821,294	890,076	963,261	1,043,958	1,129,347	1,221,891

Note:

- (1) The operating budget includes an allocation of funds for additional water operator's salary and benefits in 2025 and 2026.
- (2) An additional position within the Ontario Clean Water Agency has been included to support the additional requirements for 2025 and onwards.



Table B-3-8
Town of Essex
Wastewater Service – Ward 4
Wastewater Rate Forecast (Inflated \$)

Description		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Wastewater Billing Recovery		596,290	645,860	699,330	756,808	821,294	890,076	963,261	1,043,958	1,129,347	1,221,891
Total Volume (m ³)		274,788	278,388	281,988	285,588	289,188	292,788	296,388	299,988	303,588	307,008
Constant Rate		\$ 2.17	\$ 2.32	\$ 2.48	\$ 2.65	\$ 2.84	\$ 3.04	\$ 3.25	\$ 3.48	\$ 3.72	\$ 3.98
Annual Dollar Change			\$ 0.15	\$ 0.16	\$ 0.17	\$ 0.19	\$ 0.20	\$ 0.21	\$ 0.23	\$ 0.24	\$ 0.26