Water and Wastewater Rate Study

Municipality of Chatham-Kent Public Utilities Commission

October 15, 2024

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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
A.M.O.	Association of Municipalities of Ontario
C.W.W.F.	Clean Water and Wastewater Fund
D.C.A.	Development Charges Act, 1997
F.I.R.	Financial Information Return
H.E.W.S.F.	Housing-Enabling Water Systems Fund
I.J.P.A.	Infrastructure for Jobs and Prosperity Act, 2015
I.O.	Infrastructure Ontario
M.O.E.	Ministry of Environment
O.C.I.F.	Ontario Community Infrastructure Fund
OLT	Ontario Land Tribunal
O. Reg.	Ontario Regulation
O.S.I.F.A.	Ontario Strategic Infrastructure Financing Authority
P.S.A.B.	Public Sector Accounting Board
P.T.I.F.	Public Transit Infrastructure Fund
S.W.S.S.A.	Sustainable Water and Sewage Systems Act, 2002

Executive Summary

Executive Summary

The Municipality of Chatham-Kent Public Utilities Commission (P.U.C.) retained Watson & Associates Economists Ltd. (Watson) to undertake a water and wastewater rate study. This study aims to provide an analysis of current capital and operating forecasts, costing for lifecycle cost 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 Municipality. The rate analysis contained herein provides fiscally responsible practices that are in line with current provincial legislation at a level of rate increases that are reasonable.

The analysis presented herein provides the following:

- The 2025 to 2034 capital spending program for water and wastewater is $870.17 million and $305.53 million (inflated), respectively;
- Reserve transfers for both water and wastewater have been provided over the forecast period to meet the asset management needs beyond 2034;
- The operating expenditures (for water and wastewater) presented herein have been adjusted to recognize inflation, which is assumed to be an average of 4% per year over the forecast period.
- The present rate structure of a base monthly charge (urban vs. rural) and 2-Step declining block volume rate (Step 1 is < 67m^3 per day and Step 2 is the balance) is continued. ;
- The Municipality currently has 39,057 water customers and 30,990 wastewater customers. 2,486 new water and wastewater customers are assumed to be added over 2034 forecast period.

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

- The water and wastewater base charges are calculated to increase at 4% per year. For rural water customers, their base charges are calculated to equal an additional $1.00 to $5.00 to the urban base charges, depending on meter sizes
- The water and wastewater Step 1 volume rates are calculated to initially increase by 15% per year for 2025 to 2027, then by 10% per year from 2028 to 2030, and 5% per year for the remainder of the forecast period.

- The water and wastewater Step 2 volume rates are proposed to be discounted by $0.40 of the Step 1 volume rate over the forecast period.

Based on the above, the combined water/wastewater bill will increase by an average of 7% annually over the 2025 to 2034 forecast period. This represents an average annual increase of $112 on the combined water and wastewater bill (based on 188 cubic metres of usage and a ¾" meter.)

Tables ES-1, ES-2, and ES-3 summarizes the recommended water and wastewater rates and average annual bill, respectively, (assuming an annual volume of 188 cubic metres) based on the analysis provided herein over the forecast period.

Tables ES-4 and ES-5 provides the combined water and wastewater bills.

Table ES-1
Municipality of Chatham-Kent P.U.C.
Water Rate Summary for Urban Customers – Based on a ¾" Meter and Annual Volume of 188 cubic metres

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Monthly Base Rate	$28.14	$29.27	$30.44	$31.65	$32.92	$34.24	$35.61	$37.03	$38.51	$40.05	$41.65
Step 1 Rate	$1.42	$1.63	$1.88	$2.16	$2.38	$2.61	$2.87	$3.02	$3.17	$3.33	$3.49
Step 2 Rate	$0.87	$1.23	$1.48	$1.76	$1.98	$2.21	$2.47	$2.62	$2.77	$2.93	$3.09
Annual Base Rate Bill	**$337.68**	**$351.19**	**$365.23**	**$379.84**	**$395.04**	**$410.84**	**$427.27**	**$444.36**	**$462.14**	**$480.62**	**$499.85**
Step 1 (<67 m^3 per day)	188	188	188	188	188	188	188	188	188	188	188
Step 2 (Balance)	-	-	-	-	-	-	-	-	-	-	-
Annual Volume Bill	**$266.96**	**$307.00**	**$353.05**	**$406.01**	**$446.61**	**$491.28**	**$540.40**	**$567.42**	**$595.79**	**$625.58**	**$656.86**
Total Annual Bill	**$604.64**	**$658.19**	**$718.29**	**$785.86**	**$841.65**	**$902.11**	**$967.68**	**$1,011.79**	**$1,057.93**	**$1,106.21**	**$1,156.71**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

Table ES-2
Municipality of Chatham-Kent P.U.C.
Water Rate Summary for Rural Customers – Based on a ¾" Meter and Annual Volume of 188 cubic metres

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Monthly Base Rate	$29.14	$30.27	$31.44	$32.65	$33.92	$35.24	$36.61	$38.03	$39.51	$41.05	$42.65
Step 1 Rate	$1.42	$1.63	$1.88	$2.16	$2.38	$2.61	$2.87	$3.02	$3.17	$3.33	$3.49
Step 2 Rate	$0.87	$1.23	$1.48	$1.76	$1.98	$2.21	$2.47	$2.62	$2.77	$2.93	$3.09
Annual Base Rate Bill	**$349.68**	**$363.19**	**$377.23**	**$391.84**	**$407.04**	**$422.84**	**$439.27**	**$456.36**	**$474.14**	**$492.62**	**$511.85**
Step 1 (<67 m^3 per day)	188	188	188	188	188	188	188	188	188	188	188
Step 2 (Balance)	-	-	-	-	-	-	-	-	-	-	-
Annual Volume Bill	**$266.96**	**$307.00**	**$353.05**	**$406.01**	**$446.61**	**$491.28**	**$540.40**	**$567.42**	**$595.79**	**$625.58**	**$656.86**
Total Annual Bill	**$616.64**	**$670.19**	**$730.29**	**$797.86**	**$853.65**	**$914.11**	**$979.68**	**$1,023.79**	**$1,069.93**	**$1,118.21**	**$1,168.71**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

Table ES-3
Municipality of Chatham-Kent P.U.C.
Wastewater Rate Summary
Customer Bill – Based on a ¾" Meter and Annual Volume of 188 cubic metres

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Monthly Base Rate	$29.76	$30.95	$32.19	$33.48	$34.81	$36.21	$37.66	$39.16	$40.73	$42.36	$44.05
Step 1 Rate	$1.45	$1.67	$1.92	$2.21	$2.43	$2.67	$2.94	$3.08	$3.24	$3.40	$3.57
Step 2 Rate	$0.86	$1.27	$1.52	$1.81	$2.03	$2.27	$2.54	$2.68	$2.84	$3.00	$3.17
Annual Base Rate Bill	**$357.12**	**$371.40**	**$386.26**	**$401.71**	**$417.78**	**$434.49**	**$451.87**	**$469.95**	**$488.74**	**$508.29**	**$528.62**
Step 1 (<67 m^3 per day)	188	188	188	188	188	188	188	188	188	188	188
Step 2 (Balance)	-	-	-	-	-	-	-	-	-	-	-
Annual Volume Bill	**$272.60**	**$313.49**	**$360.51**	**$414.59**	**$456.05**	**$501.65**	**$551.82**	**$579.41**	**$608.38**	**$638.80**	**$670.74**
Total Annual Bill	**$629.72**	**$684.89**	**$746.77**	**$816.30**	**$873.83**	**$936.15**	**$1,003.69**	**$1,049.36**	**$1,097.12**	**$1,147.09**	**$1,199.37**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

Table ES-4
Municipality of Chatham-Kent P.U.C.
Water and Wastewater Rate Summary – Urban
Total Combined Customer Bill – Based on a ¾" Meter and Annual Volume of 188 cubic metres

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Annual Base Rate Bill	**$694.80**	**$722.59**	**$751.50**	**$781.56**	**$812.82**	**$845.33**	**$879.14**	**$914.31**	**$950.88**	**$988.92**	**$1,028.47**
Annual Volume Bill	**$539.56**	**$620.49**	**$713.57**	**$820.60**	**$902.66**	**$992.93**	**$1,092.22**	**$1,146.83**	**$1,204.18**	**$1,264.38**	**$1,327.60**
Total Annual Bill	**$1,234.36**	**$1,343.09**	**$1,465.06**	**$1,602.16**	**$1,715.48**	**$1,838.26**	**$1,971.37**	**$2,061.14**	**$2,155.06**	**$2,253.30**	**$2,356.08**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

Table ES-5
Municipality of Chatham-Kent P.U.C.
Water and Wastewater Rate Summary – Rural
Total Combined Customer Bill – Based on a ¾" Meter and Annual Volume of 188 cubic metres

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Annual Base Rate Bill	**$706.80**	**$734.59**	**$763.50**	**$793.56**	**$824.82**	**$857.33**	**$891.14**	**$926.31**	**$962.88**	**$1,000.92**	**$1,040.47**
Annual Volume Bill	**$539.56**	**$620.49**	**$713.57**	**$820.60**	**$902.66**	**$992.93**	**$1,092.22**	**$1,146.83**	**$1,204.18**	**$1,264.38**	**$1,327.60**
Total Annual Bill	**$1,246.36**	**$1,355.09**	**$1,477.06**	**$1,614.16**	**$1,727.48**	**$1,850.26**	**$1,983.37**	**$2,073.14**	**$2,167.06**	**$2,265.30**	**$2,368.08**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

Report

Chapter 1
Introduction

1. Introduction

1.1 Background

The Municipality of Chatham-Kent Public Utilities Commission (P.U.C.) provides water and wastewater services to customers located in Chatham-Kent, Southwest Middlesex, Municipality of Lakeshore, and the Municipality of Leamington. Of these areas, there are some customers that receive servicing from external purchased water originating from the Tri-County Water Supply System, through the connection from the Municipality of Southwest Middlesex.

Currently, there are 39,057 water customers and 30,990 wastewater customers within the Municipality. These users are billed a fixed monthly charge (separated by urban vs. rural) as well as a 2-Step decreasing volume rate based on their water consumption. Revenues received from the charges directly fund the capital and operating budgets.

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

Table 1-1
Municipality of Chatham-Kent P.U.C.
Water and Wastewater Rates – 2024

2024 - Water Billing Rates - Urban	
Base Charge	
¾"	28.14
1"	32.08
1 ¼"	47.00
1 ½"	66.70
2"	87.24
3"	147.46
4"	186.60
6"	277.49
8"	415.97
Volume Charge	
Decreasing	
$ 1.420	Step 1 (<67 m^3 per day)
$ 0.870	Step 2 (Balance)

2024 - Water Billing Rates - Rural	
Base Charge	
¾"	29.14
1"	33.33
1 ¼"	48.00
1 ½"	68.20
2"	88.74
3"	149.46
4"	188.10
6"	282.49
8"	420.47
Volume Charge	
Decreasing	
$ 1.420	Step 1 (<67 m^3 per day)
$ 0.870	Step 2 (Balance)

2024 - Wastewater Billing Rates - Urban	
Base Charge	
¾"	29.76
1"	34.24
1 ¼"	38.10
1 ½"	44.95
2"	64.01
3"	74.13
4"	95.56
6"	134.04
8"	161.33
Volume Charge	
Decreasing	
$ 1.450	Step 1 (<67 m^3 per day)
$ 0.860	Step 2 (Balance)

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 P.U.C. to assist in addressing

these changes in a proactive manner as they relate to the water and wastewater systems. The assessment provided herein addresses changes recommended to the water and wastewater rates based on the most current information and forecasts the implications over the forecast period.

1.2 Study Process

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

- Identify all current and future water and wastewater system capital needs to assess the immediate and longer-term implications;
- Identify potential methods of cost recovery from the capital needs listing. These recovery methods may include other statutory authorities (e.g. *Development Charges Act, 1997* (D.C.A.), *Municipal Act*, etc.) as an offset to recovery through the water and wastewater rates;
- Identify existing operating costs by component and estimate future operating costs over the next ten years. This assessment identifies fixed and variable costs in order to project those costs sensitive to changes to the existing infrastructure inventory, as well as costs which may increase commensurate with growth; and
- Provide staff and Commission/Council the findings to assist in gaining approval of the rates for 2025 and future years.

1.3 Regulatory Changes in Ontario

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

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

- sustainable asset management; and
- lifecycle costing.

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

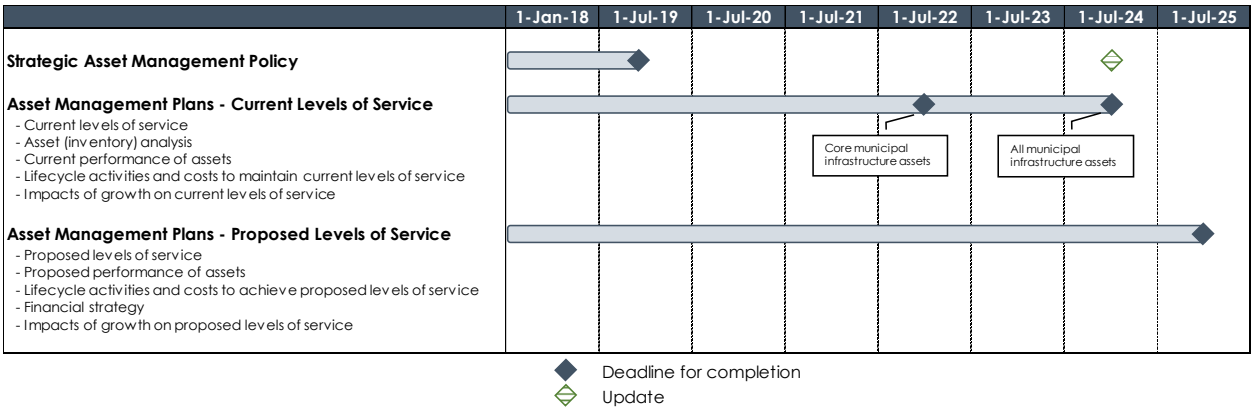
- Timing;
- Contents of the plans;
- Which identified portions of the plan will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

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 Infrastructure for Jobs and Prosperity Act
Legislation related to Asset Management Plans



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

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

- Phase 1 – Asset Management Plan (by July 1, 2022):
    - For core assets, municipalities must have the following:
        - Inventory of assets;
        - Current levels of service measured by standard metrics; and
        - Costs to maintain levels of service.
- Phase 2 – Asset Management Plan (by July 1, 2024):
    - Same steps as Phase 1 but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2025):
    - Builds on Phase 1 and 2 by adding:
        - Proposed levels of service; and
        - Lifecycle management and financial strategy.

In relation to water and wastewater (which is considered a core asset), municipalities were to have an asset management plan that addresses the related infrastructure by July 1, 2022 (Phase 1). O. Reg. 588/17 specifies that the municipality's asset management plan must include the following for each asset category:

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

1.8 Forecast Growth and Servicing Requirements

As described earlier in this chapter, the P.U.C. services 39,057 water customers and 30,990 wastewater customers. Information on the existing number of customers and existing billable volumes was obtained from the P.U.C.

For future water and wastewater customers to be added to the systems, consideration has been given to the potential new developments identified in the Development Charges Background Study over the forecast period between 2025 to 2034.

The forecast assumes the addition of 2,4,86 water and wastewater customers over the forecast period. For operating revenue purposes, it would be undesirable to forecast too high as it could produce a potential operating deficit should the growth in the water and wastewater systems not materialize.

Based on historical information, the P.U.C.'s volumes per customer is 188 m^3 per year. For forecasting purposes, the assumed billable volumes per customer will be based on that figure.

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

Table 1-2
Municipality of Chatham-Kent P.U.C.
Water System Forecast

Water Users Forecast

Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
2024	226	113	226	226	226	226	226	226	226	226	226	226
2025	226		113	226	226	226	226	226	226	226	226	226
2026	226			113	226	226	226	226	226	226	226	226
2027	226				113	226	226	226	226	226	226	226
2028	226					113	226	226	226	226	226	226
2029	226						113	226	226	226	226	226
2030	226							113	226	226	226	226
2031	226								113	226	226	226
2032	226									113	226	226
2033	226										113	226
2034	226											113
Total	**2,486**	**113**	**339**	**565**	**791**	**1,017**	**1,243**	**1,469**	**1,695**	**1,921**	**2,147**	**2,373**
m^3/user	188	188	188	188	188	188	188	188	188	188	188	188
Annual Flow		**21,244**	**63,732**	**106,220**	**148,708**	**191,196**	**233,684**	**276,172**	**318,660**	**361,148**	**403,636**	**446,124**

Water Customer Forecast	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing - Urban	32,692	32,692	32,692	32,692	32,692	32,692	32,692	32,692	32,692	32,692	32,692
Existing - Rural	5,450	5,450	5,450	5,450	5,450	5,450	5,450	5,450	5,450	5,450	5,450
Existing - Bulk Water Customers	721	721	721	721	721	721	721	721	721	721	721
Existing - Non-CK Customers	194	194	194	194	194	194	194	194	194	194	194
New - Growth	113	339	565	791	1,017	1,243	1,469	1,695	1,921	2,147	2,373
Total	**39,170**	**39,396**	**39,622**	**39,848**	**40,074**	**40,300**	**40,526**	**40,752**	**40,978**	**41,204**	**41,430**

Water Volume Forecast (m^3)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Step 1 (<67 m^3 per day)											
Existing	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870	9,503,870
New	21,244	63,732	106,220	148,708	191,196	233,684	276,172	318,660	361,148	403,636	446,124
Subtotal Step 1	**9,525,114**	**9,567,602**	**9,610,090**	**9,652,578**	**9,695,066**	**9,737,554**	**9,780,042**	**9,822,530**	**9,865,018**	**9,907,506**	**9,949,994**
Step 2 (Balance)											
Existing	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299
New	-	-	-	-	-	-	-	-	-	-	-
Subtotal Step 2	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**	**3,641,299**
Total	**13,166,413**	**13,208,901**	**13,251,389**	**13,293,877**	**13,336,365**	**13,378,853**	**13,421,341**	**13,463,829**	**13,506,317**	**13,548,805**	**13,591,293**

Table 1-3
Municipality of Chatham-Kent P.U.C.
Wastewater System Forecast

Wastewater Users Forecast

Year	Total Users	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
2024	226	113	226	226	226	226	226	226	226	226	226	226
2025	226		113	226	226	226	226	226	226	226	226	226
2026	226			113	226	226	226	226	226	226	226	226
2027	226				113	226	226	226	226	226	226	226
2028	226					113	226	226	226	226	226	226
2029	226						113	226	226	226	226	226
2030	226							113	226	226	226	226
2031	226								113	226	226	226
2032	226									113	226	226
2033	226										113	226
2034	226											113
Total	**2,486**	**113**	**339**	**565**	**791**	**1,017**	**1,243**	**1,469**	**1,695**	**1,921**	**2,147**	**2,373**
m^3/user	188	188	188	188	188	188	188	188	188	188	188	188
Annual Flow		**21,244**	**63,732**	**106,220**	**148,708**	**191,196**	**233,684**	**276,172**	**318,660**	**361,148**	**403,636**	**446,124**

Wastewater Customer Forecast	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990
New - Growth	113	339	565	791	1,017	1,243	1,469	1,695	1,921	2,147	2,373
Total	**31,103**	**31,329**	**31,555**	**31,781**	**32,007**	**32,233**	**32,459**	**32,685**	**32,911**	**33,137**	**33,363**

Wastewater Flows Forecast (m^3)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Block 1											
Existing	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377	7,236,377
New	21,244	63,732	106,220	148,708	191,196	233,684	276,172	318,660	361,148	403,636	446,124
Subtotal Step 1	**7,257,621**	**7,300,109**	**7,342,597**	**7,385,085**	**7,427,573**	**7,470,061**	**7,512,549**	**7,555,037**	**7,597,525**	**7,640,013**	**7,682,501**
Block 2											
Existing	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867
New	-	-	-	-	-	-	-	-	-	-	-
Subtotal Step 2	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**	**2,184,867**
Total	**9,442,488**	**9,484,976**	**9,527,464**	**9,569,952**	**9,612,440**	**9,654,928**	**9,697,416**	**9,739,904**	**9,782,392**	**9,824,880**	**9,867,368**

Note: Above flows are water flows on which the wastewater billing will be calculated

Chapter 2
Capital Infrastructure Needs

2. Capital Infrastructure Needs

2.1 Capital Forecast

Capital forecasts have been provided for the water and wastewater systems and are presented in Tables 2-1 and 2-2 (note: the costs are in inflated dollars). The basis for these forecasts include the P.U.C.'s capital requirements, development charge projects, as well as other lifecycle-related works. It is noted that the inflation assumption for the capital program is assumed to be 6% per year.

For water, the capital costs over the forecast period totals $870.17 million. For wastewater, the capital costs over the forecast period totals $305.53 million.

Table 2-1
Municipality of Chatham-Kent P.U.C.
2025 to 2034 Water Capital Forecast Summary (Inflated $)

Description	Total 2025-2034	Years Undertaken
Capital Expenditures		
Raw Water Pumping Station	5,670,000	2032
11 kms of new 600mm transmission main from existing Water Treatment Plant Highlift pumping station to the Southwest area of Chatham Water System (Partial Ring TM). Refer to Figure 10-1	65,931,000	2032-2034
Increase storage capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-4	22,263,000	2025-2027
Increase treatment capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-1	266,522,000	2027-2029
Increase pumping capacity at the existing Chatham Water Treatment Plant Highlift Pumping Station.	3,682,000	2027
Conduct condition assessment for existing raw water transmission main.	1,060,000	2025
300mm watermain from Thamesville Elevated Tank to Zone 6 Rd. Refer to Figure 10-2	11,476,000	2032
Zone 6 Road to Delaware Nation 200mm watermain Refer to Figure 10-2	1,943,000	2033
New Booster Pump Station at the Northeast corner of Zone 5 Road and Baseline. Refer to Figure 10-2	507,000	2033
New 300mm watermain from Zone 6 Rd and Baseline to Bothwell. Refer to Figure 10-2	17,407,000	2034
Replace the Thamesville Standpipe with a 2.3ML Standpipe. Refer to Figure 10-2	7,093,000	2030
300mm Integration Transmission Main for Blenheim and Ridgetown. Refer to Figure 10-3	31,761,000	2028-2029
Retrofitting existing water treatment plant as pumping station for Ridgetown.	6,401,000	2028
Replacement / Rehabilitation of the existing Ridgetown Elevated Tank.	11,910,000	2027
New Water Treatment Plant for Wallaceburg-Dresden Integrated Water System.	78,616,000	2028-2030
New storage reservoir (56ML).	71,196,000	2028-2030
New intake and lowlift pumping station for new Wallaceburg Water Treatment Plant.	18,132,000	2028-2030
New raw water transmission main.	40,506,000	2028-2030
600mm Treated water transmission main. Refer to Figure 10-4	39,898,000	2026-2028
2.6 km New Charing Cross Road 600mm transmission main. Refer to Figure 10-5	11,624,000	2031
5.6 km of new 200mm local distribution system Looping. Refer to Figure 10-6	10,233,000	2030
Increase pumping capacity at the existing South Chatham Kent Water Treatment Plant Highlift Pumping Station.	1,326,000	2027
New Booster Pumping Station to transfer water supply from Wheatley WS to Tilbury WS. Refer to Figure 10-7	3,419,000	2030
New local booster pumping station for east of Wheatley WS. Refer to Figure 10-7	3,494,000	2034
Decommissioning of Tilbury inground reservoir and pumping station.	3,228,000	2032
Various Investigative Studies	897,000	2025-2029
Preventative Maintenance of the Composite Elevated Tanks, Stand Pipes and Spheroid Tanks, and their replacement.	27,943,000	2025-2034
Rate Study and Financial Plan (split with water and wastewater)	63,000	2029-2034
Wheatley WTP Rehabilitation	4,770,000	2025
Decommissioning – Dealtown WTP	947,000	2028
Decommissioning - Dresden WTP	893,000	2027
Ridgetown S2 & C2 Well pump and adapter	636,000	2025
600mm Transmission Main Eberts-KBR - phase 1 for NE WDS	13,227,000	2026
Annual Watermain Lifecycle Replacement	85,500,000	2025-2034
Total Capital Expenditures	**870,174,000**	

Table 2-2
Municipality of Chatham-Kent P.U.C.
2025 to 2034 Wastewater Capital Forecast Summary (Inflated $)

Description	Total 2025-2034	Years Undertaken
Capital Expenditures		
Pumping Station Upgrades to Chatham SPS-103 (Campus Parkway/Grand Ave Area) (Figure 10-12)		
· Twin Forcemain to Water Pollution Control Plant	5,955,000	2027
· Long Term Complete Station Upgrade	15,045,000	2026-2027
Pumping station upgrades to Chatham main lift station to WPCP (Figure 10-13)		
· Pumping Upgrades, increasing firm capacity to 800L/s	2,025,000	2027
· Twin 750mm Forcemain Section	1,434,000	2032
Pumping station upgrades to Wallaceburg SPS-405 (Dundas St/ Thomas Ave Area)		
· Upsizing Pumps to 185 L/s Firm Capacity	797,000	2032
Pumping station upgrades to Wallaceburg SPS-402 (Arnold St / Biden St Area)		
· Upsizing Pumps to 140 L/s Firm Capacity	797,000	2032
Pumping station upgrades to Wallaceburg SPS-401 (Bill McDougall Park)		
· Upsizing Pumps to 240 L/s	638,000	2032
Erie Street / Tecumseh Street 600mm (Figure 10-8)	2,550,000	2032
West Street 300mm (Figure 10-8)	760,000	2033
Marlborough Street / Industrial Avenue 525mm (Figure 10-9)	7,163,000	2034
SPS – 602 Pumping Upgrade	638,000	2032
Inflow and Infiltration Reduction Study	318,000	2025
Inflow and Infiltration Study	318,000	2025
Optimizing capacity of the combined sewer trunks / interceptors	34,930,000	2025-2034
Continuing Sewer Separation Program for Chatham Targeting largest Downstream Sewers Feeding the Trunk / Interceptor	69,857,000	2025-2034
Rate Study and Financial Plan (split with water and wastewater)	63,000	2029-2034
Chatham WPCP - Plant#1 Concrete repairs to elevated walkways- access to gears and scimmers	2,146,000	2028
Lynwood Subdivision PS#14 (formerly 9A)	13,382,000	2029
PS#7 -John Street Chatham - complete rebuild	4,015,000	2029
New South Hub PS - Chatham	44,528,000	2025-2028
S9- Chatham- North Area Intermediate Sewer Servicing, Pumping Stations, Forcemains	17,469,000	2025-2026
Annual Sewermain Lifecycle Replacement	80,700,000	2025-2034
Total Capital Expenditures	**305,528,000**	

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.

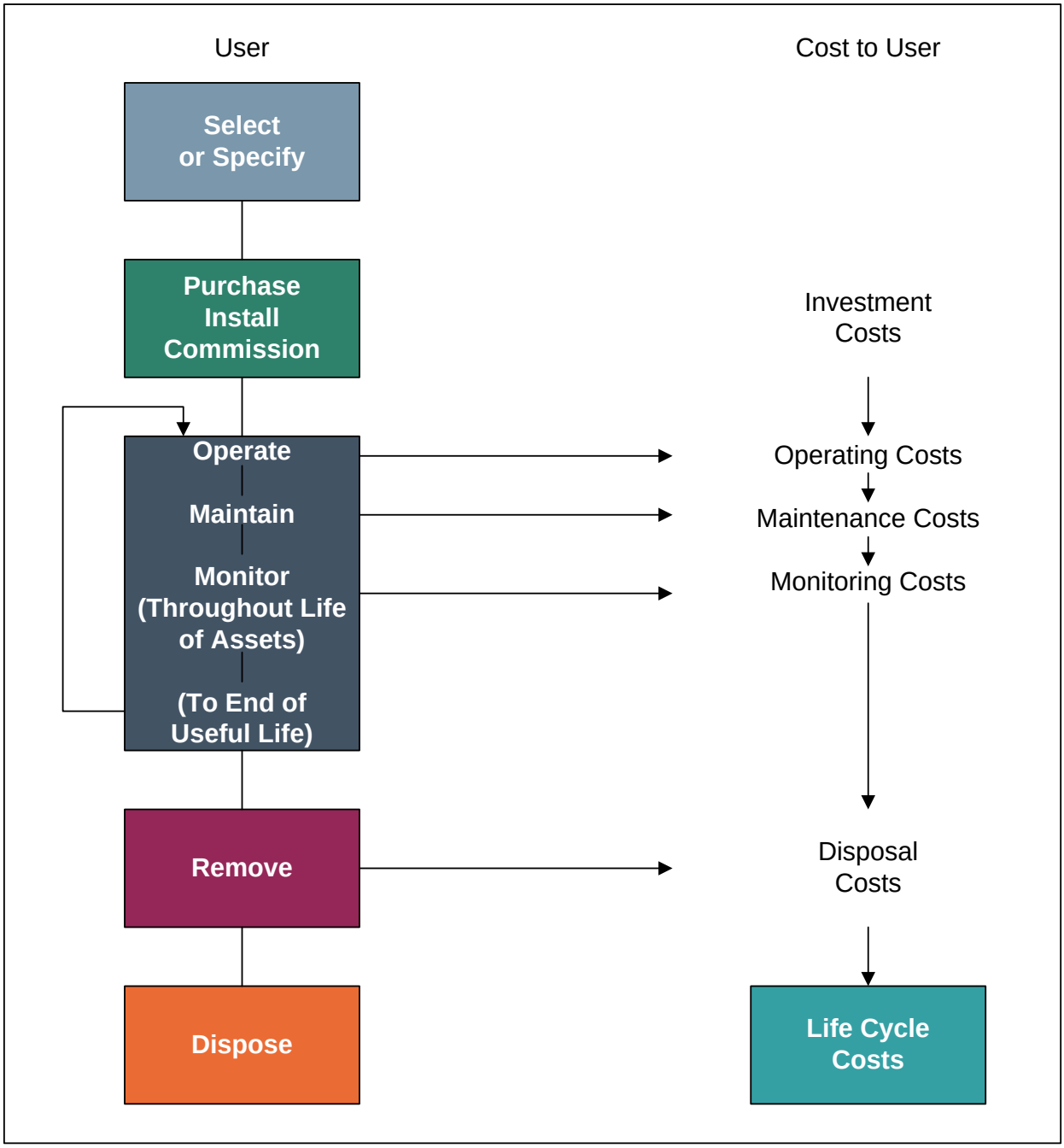
3.1.2 Financing Costs

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

Capital expenditures are recouped through several methods, 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.

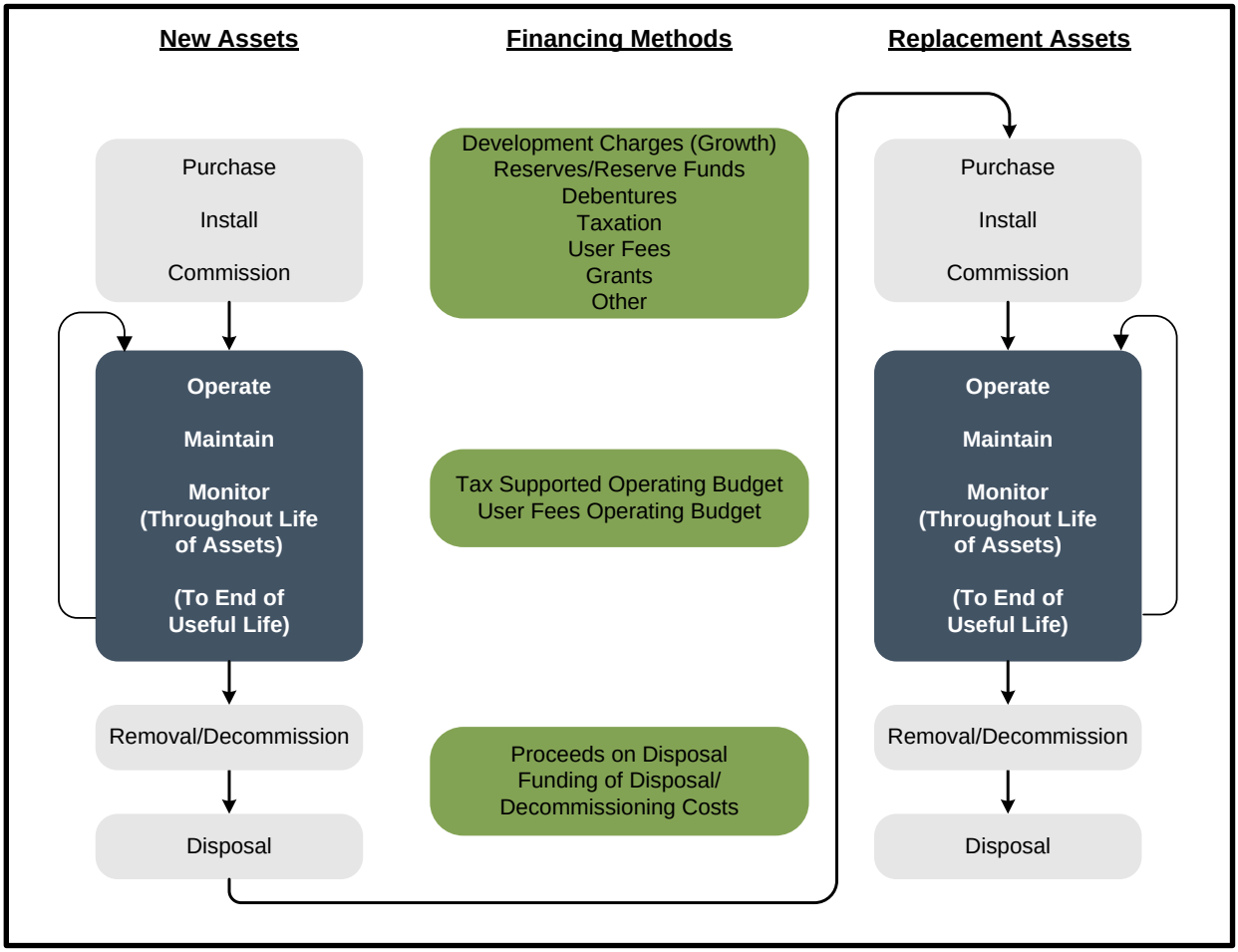
As referred to earlier, growth-related financing methods such as development charges and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of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

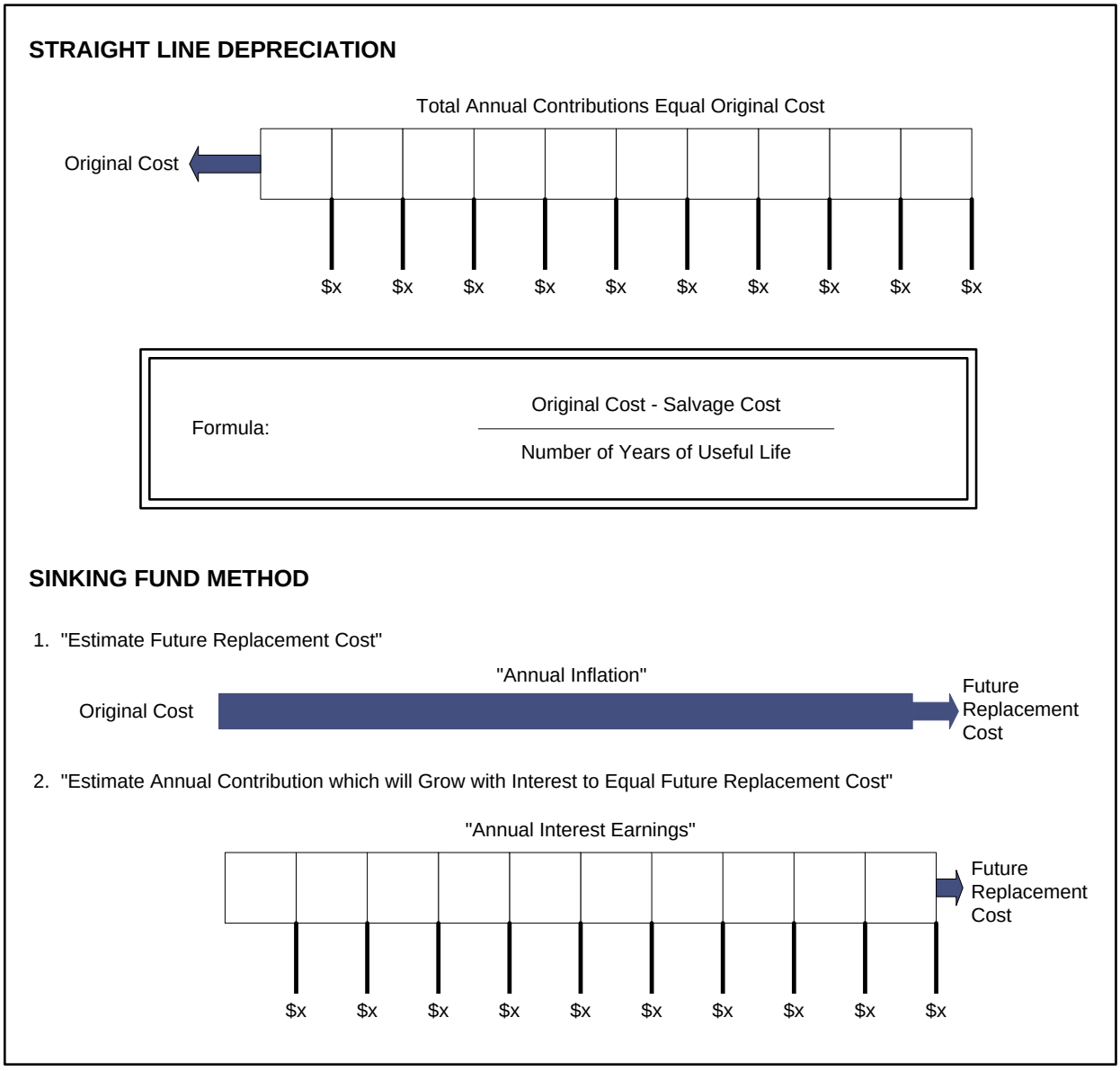
forms of depreciation: the straight-line method and the reducing balance method (shown graphically in Figure 3-3).

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 Impact on Budgets

Based on the P.U.C.'s review of its water and wastewater assets, an annual replacement program has been established to address the aging water and wastewater infrastructure. An annual contribution amount of up to $9 million for water and up to $8.5 million for wastewater has been included in the calculations. Over the 10-year forecast period, this totals to $85.5 million for water and $80.7 million for wastewater.

Chapter 4
Capital Cost Financing Options

4. Capital Cost Financing Options

4.1 Summary of Capital Cost Financing Alternatives

Historically, the powers that municipalities had to raise alternative revenues to taxation to fund capital services have been restrictive. Over the past decade, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g. Bill 26 introduced in 1996 to provide for expanded powers for imposing fees and charges), while others appear to restrict them (Bill 98 in 1997 providing amendments to the D.C.A. along with recently proposed changes through Bill 23, *More Homes Built Faster Act*, 2022).

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

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

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

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

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

4.2 Development Charges Act, 1997

In November, 1996, the Ontario Government introduced Bill 98, a new *Development Charges Act*. The Province's stated intentions were to "create new construction jobs and make home ownership more affordable" by reducing the charges and to "make municipal Council decisions more accountable and more cost effective." The basis for this Act is to allow municipalities to recover the growth-related capital cost of infrastructure necessary to accommodate new growth within the municipality. Generally, the Act provided the following changes to the former Act:

- Replace those sections of the 1989 Act that govern municipal development charges;
- Limit services which can be financed from development charges, specifically excluding parkland acquisition, administration buildings, and cultural, entertainment, tourism, solid waste management and hospital facilities;
- Ensure that the level of service used in the calculation of capital costs will not exceed the average level of service over the previous decade. Level of service is to be measured from both a quality and quantity perspective;
- Provide that uncommitted excess capacity available in existing municipal facilities and benefits to existing residents are removed from the calculation of the charge;
- Ensure that the development charge revenues collected by municipalities are spent only on those capital costs identified in the calculation of the development charge;
- Require municipalities to contribute funds (e.g. taxes, user charges or other non-development charge revenues) to the financing of certain projects primarily funded from development charges. The municipal contribution is 10 percent for services such as recreation, parkland development, libraries, etc.;

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

In late 2015, the Province approved further amendments to the D.C.A. With respect to water and wastewater, the only changes are for the municipality to provide an asset management calculation for the growth-related works and for the Council to consider (but not necessarily approve) area-specific rates.

As of 2019, a number of amendments to the D.C.A. were made through the Bill 108 the More Homes, More Choice Act, 2019, Bill 138 the Plan to Build Ontario Together Act, 2019, Bill 197 the COVID-19 Economic Recovery Act, 2020, and Bill 213 the Better for People, Smarter for Business Act, 2020. With respect to water and wastewater, a few changes may impact D.C. revenue collections:

1. Timing of Collection:

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

    b. D.C. Installment Payments - For rental housing and institutional development D.C.s are paid over 5 years and for non-profit housing, D.C.s are paid over 20 years. This provides a delay in receipt of D.C. revenues which will need to be cash-flowed by the Municipality.

2. Mandatory Exemption (additional units) – For existing dwellings, one additional dwelling unit could be constructed within the existing dwelling. This additional dwelling unit is exempt from D.C.s. With the changes to the Act, one additional dwelling unit may be constructed within a new residential dwelling, which would

be exempt from D.C.s. Further, one ancillary dwelling unit may be constructed on the same property as a new unit. This ancillary dwelling would be exempt from D.C.s. As these new additional units are exempt from D.C.s, no D.C. revenue may be collected for these units, however, each additional unit provides additional population which requires capacity in the water and wastewater treatment plants. As a result, consideration for these additional units should be made during the D.C. study process to ensure all capacity available to growth is allocated appropriately.

3. Mandatory Exemption (universities) – A new mandatory exemption has been introduced which exempts the payment of D.C.s for developments of land intended for use by a university that receives operating funds from the Government.

On October 25, 2022, the Province introduced Bill 23: *More Homes Built Faster Act*, which subsequently received Royal Assent on November 28, 2022. The Bill amended several items within the D.C.A. and other legislation. These changes would impact a municipality's ability to recover D.C.s for growth-related water and wastewater capital costs.

4.3 Municipal Act

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

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

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

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

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

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

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

Under the previous *Local Improvement Act*:

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

4.4 Grant Funding Availability

Federal Infrastructure Funding

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

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

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

Phase 2: Next Steps

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

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

Federal Gas Tax

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

Ontario Government

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

Housing-Enabling Water Systems Fund

In Ontario's 2023 Fall Economic Statement, the Province announced the Housing-Enabling Water Systems Fund (H.E.W.S.F.), which aims to invests a total of $200

million over three years towards the repair, rehabilitation, and expansion of core water, wastewater, and stormwater infrastructure to promote growth and enable new housing development. The H.E.W.S.F. is a competitive application-based funding program and the program guidelines were release on January 29, 2024.

Eligible Asset types include:

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

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

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

Grant Funding

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

4.5 Existing Reserves/Reserve Funds

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

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

Reserve	Dec. 31 2024
Water	
Capital Reserve	**3,668,949**
Lifecycle Reserve Fund - Watermains	**8,185,382**
Lifecycle Reserve Fund - Facilities	**423,578**
Wastewater	
Capital Reserve	**13,968,706**
Lifecycle Reserve Fund - Sanitary Sewer	**5,868,319**
Lifecycle Reserve Fund - Facilities	**18,042,592**

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 Municipality of Chatham-Kent's calculation on Debt Capacity is shown on Schedule 81 of the Municipality's most recent Financial Information Return (F.I.R.). This calculates to the Municipality's estimated annual repayment limit of approximately $67.45 million. Based upon 20-year financing at an assumed rate of 3.5%, the available debt for the Municipality is approximately $958.67 million. Based on the calculations provided herein, it is assumed that the Municipality will require $187.45 million of additional debt over the forecast period.

4.7 Infrastructure Ontario

Infrastructure Ontario (I.O.) is an arms-length crown corporation, which has been set up as a tool to offer low-cost and longer-term financing to assist municipalities in renewing their infrastructure (this corporation has merged the former O.S.I.F.A. into its

operations). I.O. combines the infrastructure renewal needs of municipalities into an infrastructure investment "pool." I.O. will raise investment capital to finance loans to the public sector by selling a new investment product called Infrastructure Renewal Bonds to individual and institutional investors.

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

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

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

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

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

4.8 Recommended Capital Financing Approach

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

Table 4-2
Municipality of Chatham-Kent P.U.C.
Capital Forecasting Financing Sources
Inflated $

Description	Water 2025-2034	Wastewater 2025-2034
Capital Financing		
Development Charges Reserve Fund	497,858,550	16,345,200
Non-Growth Related Debenture Requirements	149,687,300	37,461,500
Lifecycle Reserve Fund - Facilities	86,041,950	61,567,100
Lifecycle Reserve Fund - Watermains / Sewers	129,498,200	177,375,200
Water Reserve / Wastewater Reserve	7,088,000	12,779,000
Total Capital Financing	**870,174,000**	**305,528,000**

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

Table 4-3
Municipality of Chatham-Kent P.U.C.
Capital Budget Forecast – Water (inflated $)

Description	Budget 2024	Total	Forecast 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Expenditures												
Raw Water Pumping Station	-	5,670,000	-	-	-	-	-	-	-	5,670,000	-	-
11 kms of new 600mm transmission main from existing Water Treatment Plant Highlift pumping station to the Southwest area of Chatham Water System (Partial Ring TM). Refer to Figure 10-1	-	65,931,000	-	-	-	-	-	-	-	6,090,000	29,049,000	30,792,000
Increase storage capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-4	-	22,263,000	2,056,000	9,809,000	10,398,000	-	-	-	-	-	-	-
Increase treatment capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-1	-	266,522,000	-	-	24,618,000	117,429,000	124,475,000	-	-	-	-	-
Increase pumping capacity at the existing Chatham Water Treatment Plant Highlift Pumping Station.	-	3,682,000	-	-	3,682,000	-	-	-	-	-	-	-
Conduct condition assessment for existing raw water transmission main.	1,500,000	1,060,000	1,060,000	-	-	-	-	-	-	-	-	-
300mm watermain from Thamesville Elevated Tank to Zone 6 Rd. Refer to Figure 10-2	-	11,476,000	-	-	-	-	-	-	-	11,476,000	-	-
Zone 6 Road to Delaware Nation 200mm watermain Refer to Figure 10-2	-	1,943,000	-	-	-	-	-	-	-	-	1,943,000	-
New Booster Pump Station at the Northeast corner of Zone 5 Road and Baseline. Refer to Figure 10-2	-	507,000	-	-	-	-	-	-	-	-	507,000	-
New 300mm watermain from Zone 6 Rd and Baseline to Bothwell. Refer to Figure 10-2	-	17,407,000	-	-	-	-	-	-	-	-	-	17,407,000
Replace the Thamesville Standpipe with a 2.3ML Standpipe. Refer to Figure 10-2	-	7,093,000	-	-	-	-	-	7,093,000	-	-	-	-
300mm Integration Transmission Main for Blenheim and Ridgetown. Refer to Figure 10-3	-	31,761,000	-	-	-	15,418,000	16,343,000	-	-	-	-	-
Retrofitting existing water treatment plant as pumping station for Ridgetown.	-	6,401,000	-	-	-	6,401,000	-	-	-	-	-	-
Replacement / Rehabilitation of the existing Ridgetown Elevated Tank.	-	11,910,000	-	-	11,910,000	-	-	-	-	-	-	-
New Water Treatment Plant for Wallaceburg-Dresden Integrated Water System.	-	78,616,000	-	-	-	7,262,000	34,638,000	36,716,000	-	-	-	-
New storage reservoir (56ML).	-	71,196,000	-	-	-	6,576,000	31,369,000	33,251,000	-	-	-	-
New intake and lowlift pumping station for new Wallaceburg Water Treatment Plant.	-	18,132,000	-	-	-	1,675,000	7,989,000	8,468,000	-	-	-	-
New raw water transmission main.	-	40,506,000	-	-	-	3,741,000	17,847,000	18,918,000	-	-	-	-
600mm Treated water transmission main. Refer to Figure 10-4	-	39,898,000	-	3,685,000	17,579,000	18,634,000	-	-	-	-	-	-
2.6 km New Charing Cross Road 600mm transmission main. Refer to Figure 10-5	-	11,624,000	-	-	-	-	-	-	11,624,000	-	-	-
5.6 km of new 200mm local distribution system Looping. Refer to Figure 10-6	-	10,233,000	-	-	-	-	-	10,233,000	-	-	-	-
Increase pumping capacity at the existing South Chatham Kent Water Treatment Plant Highlift Pumping Station.	-	1,326,000	-	-	1,326,000	-	-	-	-	-	-	-
New Booster Pumping Station to transfer water supply from Wheatley WS to Tilbury WS. Refer to Figure 10-7	-	3,419,000	-	-	-	-	-	3,419,000	-	-	-	-
New local booster pumping station for east of Wheatley WS. Refer to Figure 10-7	-	3,494,000	-	-	-	-	-	-	-	-	-	3,494,000
Decommissioning of Tilbury inground reservoir and pumping station.	-	3,228,000	-	-	-	-	-	-	-	3,228,000	-	-
Various Investigative Studies	-	897,000	159,000	169,000	179,000	189,000	201,000	-	-	-	-	-
Preventative Maintenance of the Composite Elevated Tanks, Stand Pipes and Spheroid Tanks, and their replacement.	2,000,000	27,943,000	2,120,000	2,247,000	2,382,000	2,525,000	2,676,000	2,837,000	3,007,000	3,188,000	3,379,000	3,582,000
Rate Study and Financial Plan (split with water and wastewater)	20,000	63,000	-	-	-	-	27,000	-	-	-	-	36,000
Wheatley WTP Rehabilitation	4,500,000	4,770,000	4,770,000	-	-	-	-	-	-	-	-	-
Decommissioning – Dealtown WTP	-	947,000	-	-	-	947,000	-	-	-	-	-	-
Decommissioning - Dresden WTP	-	893,000	-	-	893,000	-	-	-	-	-	-	-
Ridgetown S2 & C2 Well pump and adapter	450,000	636,000	636,000	-	-	-	-	-	-	-	-	-
600mm Transmission Main Eberts-KBR - phase 1 for NE WDS	-	13,227,000	-	13,227,000	-	-	-	-	-	-	-	-
Elevated Tank Michell's Bay - Tender and Construction	3,498,491	-	-	-	-	-	-	-	-	-	-	-
Annual Watermain Lifecycle Replacement	4,500,000	85,500,000	6,000,000	7,500,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000
Total Capital Expenditures	**16,468,491**	**870,174,000**	**16,801,000**	**36,637,000**	**81,967,000**	**189,797,000**	**244,565,000**	**129,935,000**	**23,631,000**	**38,652,000**	**43,878,000**	**64,311,000**
Capital Financing												
Provincial/Federal Grants		-										
Development Charges Reserve Fund	-	497,858,550	2,056,000	11,098,750	46,704,650	133,994,000	163,608,450	47,322,500	5,812,000	19,183,000	25,689,200	42,390,000
Non-Growth Related Debenture Requirements	-	149,687,300	-	8,122,250	11,426,350	22,297,650	52,228,550	55,612,500	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund - Facilities	6,100,000	86,041,950	7,526,000	2,247,000	13,764,000	18,369,350	13,500,000	11,500,000	3,007,000	6,023,000	3,379,000	6,726,600
Lifecycle Reserve Fund - Watermains	4,500,000	129,498,200	6,000,000	15,000,000	9,000,000	14,000,000	15,000,000	15,500,000	14,812,000	10,218,000	14,809,800	15,158,400
Water Reserve	5,868,491	7,088,000	1,219,000	169,000	1,072,000	1,136,000	228,000	-	-	3,228,000	-	36,000
Total Capital Financing	**16,468,491**	**870,174,000**	**16,801,000**	**36,637,000**	**81,967,000**	**189,797,000**	**244,565,000**	**129,935,000**	**23,631,000**	**38,652,000**	**43,878,000**	**64,311,000**

Table 4-4
Municipality of Chatham-Kent P.U.C.
Capital Budget Forecast – Wastewater (inflated $)

Description	Budget 2024	Total	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Expenditures												
Pumping Station Upgrades to Chatham SPS-103 (Campus Parkway/Grand Ave Area) (Figure 10-12)	-	-	-	-	-	-	-	-	-	-	-	-
· Short Term Additional Pumping Capacity	300,000	-	-	-	-	-	-	-	-	-	-	-
· Twin Forcemain to Water Pollution Control Plant	-	5,955,000	-	-	5,955,000	-	-	-	-	-	-	-
· Long Term Complete Station Upgrade	-	15,045,000	-	7,303,000	7,742,000	-	-	-	-	-	-	-
Pumping station upgrades to Chatham main lift station to WPCP (Figure 10-13)	-	-	-	-	-	-	-	-	-	-	-	-
· Pumping Upgrades, increasing firm capacity to 800L/s	-	2,025,000	-	-	2,025,000	-	-	-	-	-	-	-
· Twin 750mm Forcemain Section	-	1,434,000	-	-	-	-	-	-	-	1,434,000	-	-
Pumping station upgrades to Wallaceburg SPS-405 (Dundas St/ Thomas Ave Area)	-	-	-	-	-	-	-	-	-	-	-	-
· Upsizing Pumps to 185 L/s Firm Capacity	-	797,000	-	-	-	-	-	-	-	797,000	-	-
Pumping station upgrades to Wallaceburg SPS-402 (Arnold St / Biden St Area)	-	-	-	-	-	-	-	-	-	-	-	-
· Upsizing Pumps to 140 L/s Firm Capacity	-	797,000	-	-	-	-	-	-	-	797,000	-	-
Pumping station upgrades to Wallaceburg SPS-401 (Bill McDougall Park)	-	-	-	-	-	-	-	-	-	-	-	-
· Upsizing Pumps to 240 L/s	-	638,000	-	-	-	-	-	-	-	638,000	-	-
Erie Street / Tecumseh Street 600mm (Figure 10-8)	-	2,550,000	-	-	-	-	-	-	-	2,550,000	-	-
West Street 300mm (Figure 10-8)	-	760,000	-	-	-	-	-	-	-	-	760,000	-
Marlborough Street / Industrial Avenue 525mm (Figure 10-9)	-	7,163,000	-	-	-	-	-	-	-	-	-	7,163,000
SPS – 602 Pumping Upgrade	-	638,000	-	-	-	-	-	-	-	638,000	-	-
Inflow and Infiltration Reduction Study	-	318,000	318,000	-	-	-	-	-	-	-	-	-
Inflow and Infiltration Study	-	318,000	318,000	-	-	-	-	-	-	-	-	-
Optimizing capacity of the combined sewer trunks / interceptors	2,500,000	34,930,000	2,650,000	2,809,000	2,978,000	3,156,000	3,346,000	3,546,000	3,759,000	3,985,000	4,224,000	4,477,000
Continuing Sewer Separation Program for Chatham Targeting largest Downstream Sewers Feeding the Trunk / Interceptor	5,000,000	69,857,000	5,300,000	5,618,000	5,955,000	6,312,000	6,691,000	7,093,000	7,518,000	7,969,000	8,447,000	8,954,000
Rate Study and Financial Plan (split with water and wastewater)	20,000	63,000	-	-	-	-	27,000	-	-	-	-	36,000
Chatham WPCP - Plant#1 Concrete repairs to elevated walkways- access to gears and scimmers	-	2,146,000	-	-	-	2,146,000	-	-	-	-	-	-
Lynwood Subdivision PS#14 (formerly 9A)	-	13,382,000	-	-	-	-	13,382,000	-	-	-	-	-
PS#7 -John Street Chatham - complete rebuild	-	4,015,000	-	-	-	-	4,015,000	-	-	-	-	-
New South Hub PS - Chatham	-	44,528,000	3,180,000	15,169,000	16,079,000	10,100,000	-	-	-	-	-	-
S9- Chatham- North Area Intermediate Sewer Servicing, Pumping Stations, Forcemains	-	17,469,000	8,480,000	8,989,000	-	-	-	-	-	-	-	-
Annual Sewermain Lifecycle Replacement	4,250,000	80,700,000	5,650,000	7,050,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000
Total Capital Expenditures	**12,070,000**	**305,528,000**	**25,896,000**	**46,938,000**	**49,234,000**	**30,214,000**	**35,961,000**	**19,139,000**	**19,777,000**	**27,308,000**	**21,931,000**	**29,130,000**
Capital Financing												
Provincial/Federal Grants		-										
Development Charges Reserve Fund	-	16,345,200	-	3,651,500	11,243,500	-	-	-	-	1,450,200	-	-
Non-Growth Related Debenture Requirements	-	37,461,500	-	3,466,000	18,490,500	4,968,000	10,537,000	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Facilities Reserve Fund	300,000	61,567,100	3,180,000	18,820,500	7,500,000	12,246,000	17,397,000	-	-	2,423,600	-	-
Lifecycle Sewers Reserve Fund	11,750,000	177,375,200	15,000,000	16,000,000	12,000,000	13,000,000	8,000,000	19,139,000	19,777,000	23,434,200	21,931,000	29,094,000
Wastewater Reserve	20,000	12,779,000	7,716,000	5,000,000	-	-	27,000	-	-	-	-	36,000
Total Capital Financing	**12,070,000**	**305,528,000**	**25,896,000**	**46,938,000**	**49,234,000**	**30,214,000**	**35,961,000**	**19,139,000**	**19,777,000**	**27,308,000**	**21,931,000**	**29,130,000**

Chapter 5
Overview of Expenditures and Revenues

5. Overview of Expenditures and Revenues

5.1 Water Operating Expenditures

In this report, the forecast water budget figures (2025 to 2034) are based on the 2024 operating budgets. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments. Note that these operating costs include the costs associated with the purchased water from the Tri-County Water Supply System, which are based on the forecast volumes of the applicable customers.

With respect to all other operating expenditures, the forecast has assumed a 4% annual inflation rate.

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

5.2 Water Operating Revenues

The P.U.C. has base charges and miscellaneous revenue sources to help contribute towards operating expenditures. These miscellaneous revenues, include items such as service connections, meter sales, and bulk sales. Miscellaneous revenues have been assumed to remain constant.

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

Note that the operating revenue presented herein represents the fixed component of the total operating revenue. The shortfall of the fixed revenue from the operating expenditures is what is used to calculate the recovery from the water volume rates, which is presented in Chapter 7. Table 5-1 provides for the water operating budget for the P.U.C.

Table 5-1
Municipality of Chatham-Kent P.U.C.
Operating Budget Forecast – Water (inflated $)

Description	Budget 2024		Forecast 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures												
Operating Costs												
Operations and Maintenance	3,727,240		3,876,300	4,031,400	4,192,700	4,360,400	4,534,800	4,716,200	4,904,800	5,101,000	5,305,000	5,517,200
Compliance and Enforcement	480,087		499,300	519,300	540,100	561,700	584,200	607,600	631,900	657,200	683,500	710,800
Purchased Water	230,000		239,200	248,800	258,800	269,200	280,000	291,200	302,800	314,900	327,500	340,600
Plant, ground and equipment	2,701,040		2,809,100	2,921,500	3,038,400	3,159,900	3,286,300	3,417,800	3,554,500	3,696,700	3,844,600	3,998,400
Pumping Stations	1,371,548		1,426,400	1,483,500	1,542,800	1,604,500	1,668,700	1,735,400	1,804,800	1,877,000	1,952,100	2,030,200
Main Maintenance	2,656,650		2,762,900	2,873,400	2,988,300	3,107,800	3,232,100	3,361,400	3,495,900	3,635,700	3,781,100	3,932,300
Service Maintenance	58,269		60,600	63,000	65,500	68,100	70,800	73,600	76,500	79,600	82,800	86,100
Hydrant Maintenance	-		-	-	-	-	-	-	-	-	-	-
Meter Maintenance	781,535		812,800	845,300	879,100	914,300	950,900	988,900	1,028,500	1,069,600	1,112,400	1,156,900
Administration	2,961,808		3,080,300	3,203,500	3,331,600	3,464,900	3,603,500	3,747,600	3,897,500	4,053,400	4,215,500	4,384,100
Meter Reading/Billing & Collection	1,186,020		1,233,500	1,282,800	1,334,100	1,387,500	1,443,000	1,500,700	1,560,700	1,623,100	1,688,000	1,755,500
AM/FM	232,660		242,000	251,700	261,800	272,300	283,200	294,500	306,300	318,600	331,300	344,600
Engineering	802,172		834,300	867,700	902,400	938,500	976,000	1,015,000	1,055,600	1,097,800	1,141,700	1,187,400
Sub Total Operating	**17,189,029**		**17,876,700**	**18,591,900**	**19,335,600**	**20,109,100**	**20,913,500**	**21,749,900**	**22,619,800**	**23,524,600**	**24,465,500**	**25,444,100**
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	2,849,198		1,773,001	591,213	620,417	651,062	683,222	354,164	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	265,023		185,227	134,398	105,195	74,549	42,390	8,642	-	-	-	-
New Non-Growth Related Debt (Principal)			-	-	287,212	701,312	1,514,327	3,414,186	5,500,200	5,692,707	5,891,952	6,098,170
New Non-Growth Related Debt (Interest)			-	-	284,279	674,149	1,430,020	3,205,018	5,031,959	4,839,452	4,640,207	4,433,989
Transfer to Capital	-		-	-	-	-	-	-	-	-	-	-
Lifecycle Facilities Reserve Contribution ($)	5,750,000		9,294,271	12,180,274	12,872,369	9,880,287	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000
Lifecycle Watermain Reserve Contribution ($)	2,478,122		6,000,000	7,500,000	9,000,000	14,000,000	15,231,785	15,480,680	13,931,962	13,544,349	18,273,898	20,626,795
Transfer to Capital Reserve	2,550,000			100,000	1,100,000	1,200,000				2,500,000		
Sub Total Capital Related	**13,892,343**		**17,252,499**	**20,505,886**	**24,269,471**	**27,181,359**	**30,401,743**	**33,962,689**	**35,964,122**	**38,076,508**	**40,306,058**	**42,658,954**
Total Expenditures	**31,081,372**		**35,129,199**	**39,097,786**	**43,605,071**	**47,290,459**	**51,315,243**	**55,712,589**	**58,583,922**	**61,601,108**	**64,771,558**	**68,103,054**
Revenues												
Base Charge - Urban CK	11,616,136		12,160,150	12,729,099	13,324,107	13,946,350	14,597,054	15,277,500	15,989,026	16,733,030	17,510,973	18,324,377
Base Charge - Urban Non-CK	5,441		5,658	5,885	6,120	6,365	6,619	6,884	7,159	7,446	7,744	8,053
Base Charge - Rural CK	2,020,306		2,101,068	2,182,336	2,266,856	2,354,756	2,446,172	2,541,244	2,640,120	2,742,951	2,849,894	2,961,116
Base Charge - Rural Non-CK	70,397		73,207	76,039	78,985	82,048	85,234	88,548	91,993	95,577	99,304	103,180
Water Bulk Sales	470,000		470,000	470,000	470,000	470,000	470,000	470,000	470,000	470,000	470,000	470,000
Services Connections	20,000		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Meter Revenue	185,500		185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500
Contributions from Development Charges Reserve Fund	-		-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-		-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	**14,387,779**		**15,015,583**	**15,668,859**	**16,351,568**	**17,065,019**	**17,810,579**	**18,589,676**	**19,403,799**	**20,254,504**	**21,143,415**	**22,072,227**
Water Billing Recovery - Total	**16,693,592**		**20,113,616**	**23,428,927**	**27,253,503**	**30,225,440**	**33,504,664**	**37,122,914**	**39,180,123**	**41,346,605**	**43,628,143**	**46,030,827**

5.3 Wastewater Operating Expenditures

Similar to water expenditures, the wastewater operating expenditures have been adjusted over the forecast period to reflect the current inflationary pressures in Ontario.

With respect to all other operating expenditures, the forecast has assumed a 4% annual inflation rate.

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

5.4 Wastewater Operating Revenues

The P.U.C.'s fixed revenue sources are generated primarily from base charges and miscellaneous sources, which includes rent, Leachate revenue, etc., connection fees, and penalties. Similar to water, miscellaneous revenues have been assumed to remain constant over the forecast period, with the exception of Leachate revenues which are estimated to increase by 4% per year.

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

As noted in the section above, the operating revenue presented herein represents the fixed component of the total operating revenue. The shortfall of the fixed revenue from the operating expenditures is what is used to calculate the recovery from the wastewater volume rates, which is presented in Chapter 7. Table 5-2 provides for the wastewater operating budget for the P.U.C.

Table 5-2
Municipality of Chatham-Kent P.U.C.
Operating Budget Forecast – Wastewater (inflated $)

Description	Budget 2024		Forecast 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures												
Operating Costs												
Operations and Maintenance	4,862,695		5,057,200	5,259,500	5,469,900	5,688,700	5,916,200	6,152,800	6,398,900	6,654,900	6,921,100	7,197,900
Compliance and Enforcement	312,920		325,400	338,400	351,900	366,000	380,600	395,800	411,600	428,100	445,200	463,000
Plant, ground and equipment	1,397,570		1,453,500	1,511,600	1,572,100	1,635,000	1,700,400	1,768,400	1,839,100	1,912,700	1,989,200	2,068,800
Pumping Stations	741,966		771,600	802,500	834,600	868,000	902,700	938,800	976,400	1,015,500	1,056,100	1,098,300
Sanitary Maintenance	906,340		942,600	980,300	1,019,500	1,060,300	1,102,700	1,146,800	1,192,700	1,240,400	1,290,000	1,341,600
Administration	1,300,165		1,352,200	1,406,300	1,462,600	1,521,100	1,581,900	1,645,200	1,711,000	1,779,400	1,850,600	1,924,600
Meter Reading/Billing & Collection	694,730		722,500	751,400	781,500	812,800	845,300	879,100	914,300	950,900	988,900	1,028,500
AM/FM	90,971		94,600	98,400	102,300	106,400	110,700	115,100	119,700	124,500	129,500	134,700
Engineering	507,132		527,400	548,500	570,400	593,200	616,900	641,600	667,300	694,000	721,800	750,700
Sub Total Operating	**10,814,489**		**11,247,000**	**11,696,900**	**12,164,800**	**12,651,500**	**13,157,400**	**13,683,600**	**14,231,000**	**14,800,400**	**15,392,400**	**16,008,100**
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	2,966,495		1,379,875	1,251,197	1,216,035	1,179,985	1,234,897	699,167	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	379,549		291,691	236,276	181,892	128,395	73,483	15,933	-	-	-	-
New Non-Growth Related Debt (Principal)			-	-	122,561	780,695	983,693	1,390,722	1,439,398	1,489,776	1,541,919	1,595,886
New Non-Growth Related Debt (Interest)			-	-	121,310	764,188	910,744	1,245,109	1,196,434	1,146,055	1,093,913	1,039,946
Transfer to Capital	-		-	-	-	-	-	-	-	-	-	-
Lifecycle Facilities Reserve Contribution ($)	4,450,751		5,356,960	2,145,881	8,000,000	10,000,000	16,435,520	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000
Lifecycle Sewers Reserve Contribution ($)	4,250,000		10,000,000	16,000,000	12,986,203	12,158,665	8,000,000	19,180,780	21,654,053	23,508,746	25,465,567	27,529,635
Transfer to Capital Reserve	2,300,000											
Sub Total Capital Related	**14,346,795**		**17,028,526**	**19,633,354**	**22,628,001**	**25,011,928**	**27,638,336**	**30,531,712**	**32,289,885**	**34,144,577**	**36,101,399**	**38,165,467**
Total Expenditures	**25,161,283**		**28,275,526**	**31,330,254**	**34,792,801**	**37,663,428**	**40,795,736**	**44,215,312**	**46,520,885**	**48,944,977**	**51,493,799**	**54,173,567**
Revenues												
Base Charge	11,355,036		11,893,175	12,456,197	13,045,232	13,661,460	14,306,113	14,980,480	15,685,907	16,423,799	17,195,626	18,002,920
Leachate Revenue	908,960		945,300	983,100	1,022,400	1,063,300	1,105,800	1,150,000	1,196,000	1,243,800	1,293,600	1,345,300
Rent	63,000		63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000
Other	431,751		431,800	431,800	431,800	431,800	431,800	431,800	431,800	431,800	431,800	431,800
Contributions from Development Charges Reserve Fund	-		-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-		-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	**12,758,747**		**13,333,275**	**13,934,097**	**14,562,432**	**15,219,560**	**15,906,713**	**16,625,280**	**17,376,707**	**18,162,399**	**18,984,026**	**19,843,020**
Wastewater Billing Recovery - Operating	**12,402,536**		**14,942,251**	**17,396,156**	**20,230,369**	**22,443,868**	**24,889,024**	**27,590,032**	**29,144,178**	**30,782,578**	**32,509,773**	**34,330,547**

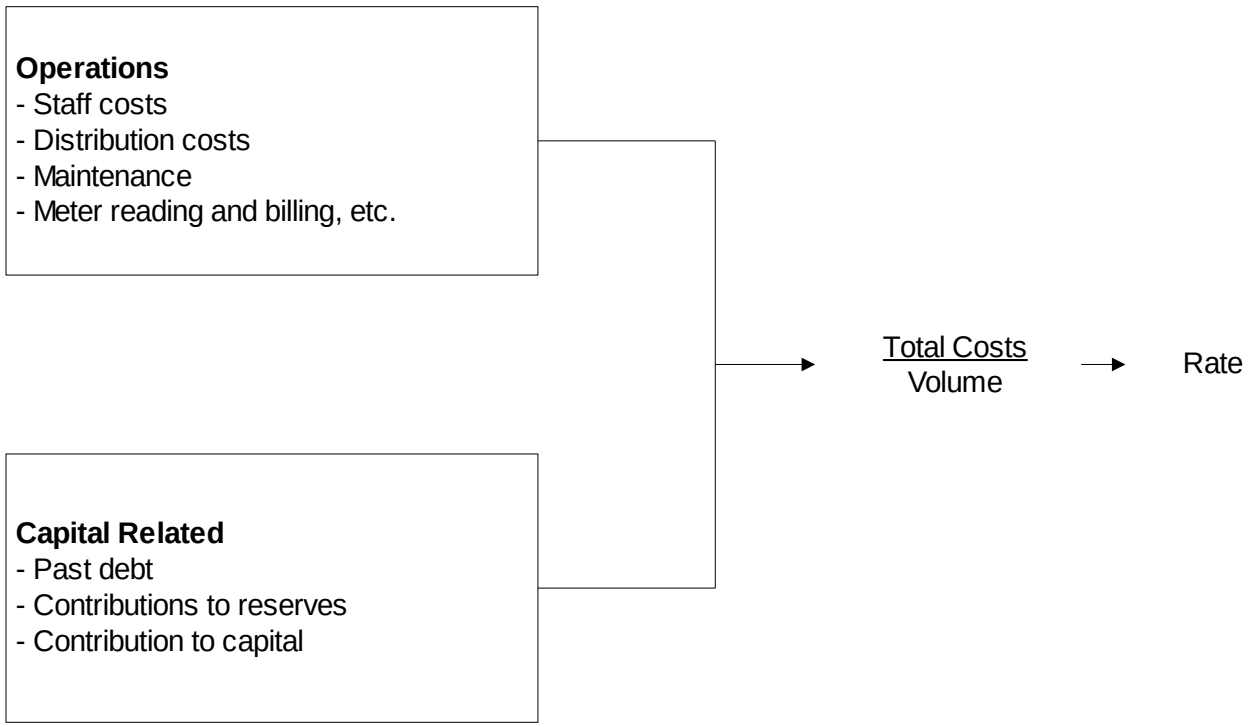
Chapter 6
Pricing Structures

6. Pricing Structures

6.1 Introduction

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

"Annual Costs"



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

Operations

- Inflation;

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

Capital Related

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

6.2 Alternative Pricing Structures

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

Municipalities within Ontario have two basic forms of collecting revenues for water purposes, those being through incorporation of the costs within the tax rate charged on property assessment and/or through the establishment of a specific water rate billed to the customer. Within the rate methods, there are five basic rate structures employed along with other variations:

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

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

Property Assessment: This method incorporates the total costs of providing water into the general requisition or the assessment base of the municipality. This form of collection is a "wealth tax," as payment increases directly with the value of property owned and bears no necessary relationship to actual consumption. This form is easy to

administer as the costs to be recovered are incorporated in the calculation for all general services, normally collected through property taxes.

Flat Rate: This rate is a constant charge applicable to all customers served. The charge is calculated by dividing the total number of user households and other entities (e.g. businesses) into the costs to be recovered. This method does not recognize differences in actual consumption but provides for a uniform spreading of costs across all users. Some municipalities define users into different classes of similar consumption patterns, that is, a commercial user, residential user and industrial user, and charge a flat rate by class. Each user is then billed on a periodic basis. No meters are required to facilitate this method, but an accurate estimate of the number of users is required. This method ensures set revenue for the collection period but is not sensitive to consumption, hence may cause a shortfall or surplus of revenues collected.

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

Declining Block Rates: This rate structure charges a successively lower price for set volumes, as consumption increases through a series of "blocks." That is to say that within set volume ranges, or blocks, the charge per unit is set at one rate. Within the next volume range, the charge per unit decreases to a lower rate, and so on. Typically, the first, or first and second blocks cover residential and light commercial uses. Subsequent blocks normally are used for heavier commercial and industrial uses. This rate structure requires the use of meters to record the volume consumed by each type of user. This method requires the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect revenue from rate payers.

Increasing or Inverted Block Rates: The increasing block rate works essentially the same way as the declining block rate, except that the price of water in successive blocks increases rather than declines. Under this method the consumer's bill rises faster with higher volumes used. This rate structure also requires the use of meters to

record the volume consumed by each user. This method requires, as with the declining block structure, the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect from rate payers.

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

6.3 Assessment of Alternative Pricing Structures

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

Cost Recovery

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

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

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

Administration

Administration is defined herein as the staffing, equipment and supplies required to support the undertaking of a particular pricing strategy. This factor not only addresses the physical tangible requirements to support the collection of the revenues, but also the intangible requirements, such as policy development.

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

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

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

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

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

Equity

Equity is always a consideration in the establishment of pricing structures but its definition can vary depending on a municipality's circumstances and based on the subjective interpretation of those involved. For example: is the price charged to a particular class of rate payer consistent with those of a similar class in surrounding municipalities; through the pricing structure does one class of rate payer pay more than another class; should one pay based on ability to pay, or on the basis that a unit of water costs the same to supply no matter who consumes it; etc.? There are many interpretations. Equity therefore must be viewed broadly in light of many factors as part of achieving what is best for the municipality as a whole.

Conservation

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

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

The Declining Block Rate provides a decreasing incentive towards conservation. By creating awareness of volumes consumed, the consumer can reduce his total costs by restricting consumption; however, the incentive lessens as more water is consumed, because the marginal cost per unit declines as the consumer enters the next block

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

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

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

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

Figure 6-1

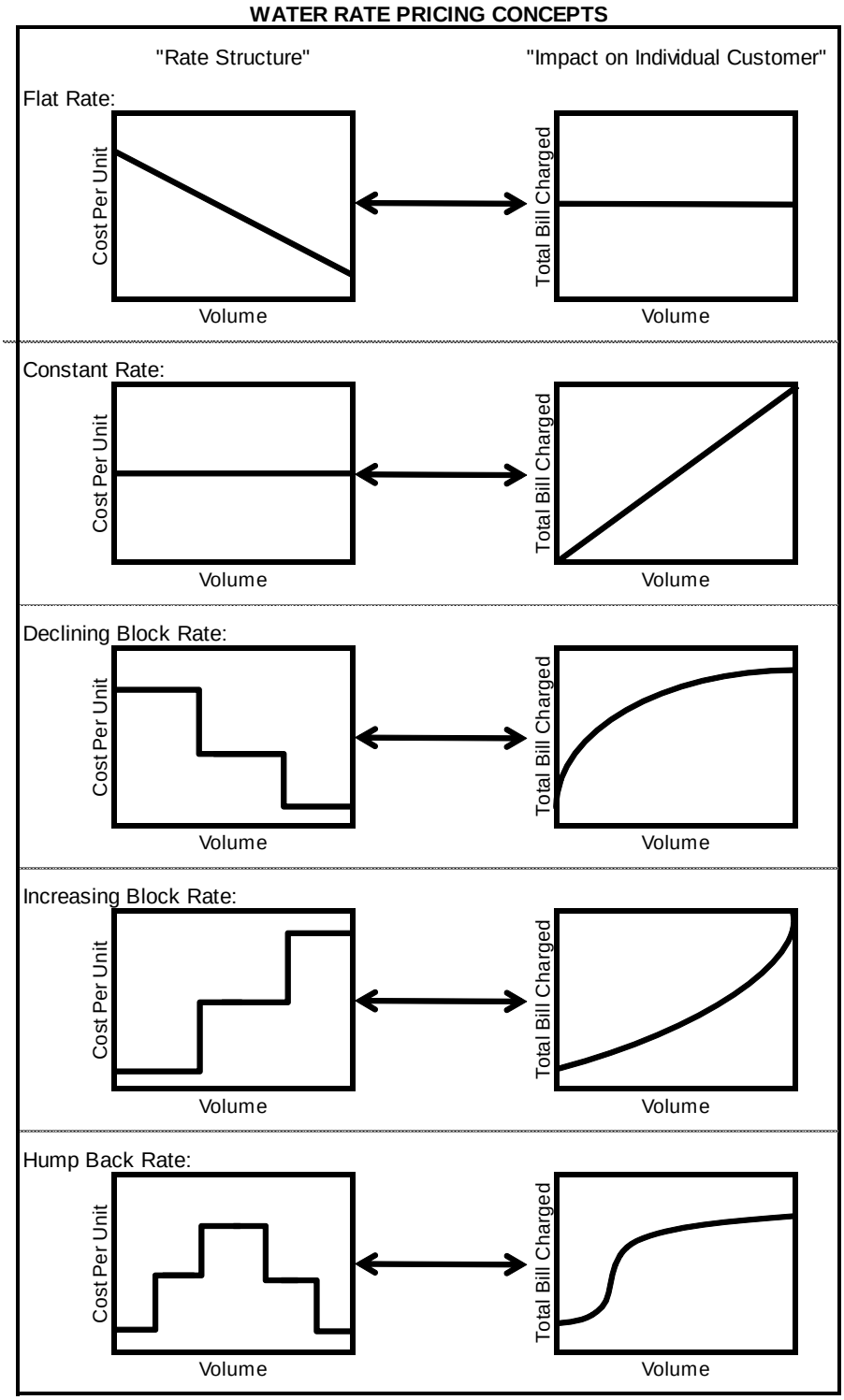

WATER RATE PRICING CONCEPTS
"Rate Structure"
"Impact on Individual Customer"
Flat Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Constant Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Declining Block Rate:
Cost Per Unit
Volume
Total Bill Charged
Volume
Increasing Block Rate:
Cost Per Unit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

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

Rate Structure	Cost Per Unit As Volume Increases	Impact On Customer Bill As Volume Increases
Flat Rate	Cost per unit decreases as more volume consumed	Bill remains the same no matter how much volume is consumed
Constant Rate	Cost per unit remains the same	Bill increases in direct proportion to consumption
Declining Block	Cost per unit decreases as threshold targets are achieved	Bill increases at a slower rate as volumes increase
Increasing Block	Cost per unit increases as threshold targets are achieved	Bill increases at a faster rate as volumes increase
Hump Back Rate	Combination of an increasing block at the lower consumption volumes and then converts to a declining block for the high consumption	Bill increases at a faster rate at the lower consumption amounts and then slows as volumes increase

6.4 Rate Structures in Ontario

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

The P.U.C. currently utilizes a base charge (separated between urban vs. rural customers) and a 2-Step declining block volume rate for its water and wastewater customers. It is recommended that the same rate structures be continued in the future.

In order to provide for the P.U.C.'s capital expenditures, future asset replacement needs, payments to the Tri-County Water Supply System, as well as the day-to-day operating expenditures, the water base charges for urban customers are proposed to increase by 4% annually. For rural customers, their base charges are an additional $1 to $5 on top of the urban base charges, depending on meter size as outlined below:

- ¾" = $1.00
- 1" = $1.50
- 1 ¼" = $2.00
- 1 ½" = $ 2.50
- 2" = $3.00
- 3" = $3.50
- 4" = $4.00
- 6" = $4.50
- 8" = $5.00

With respect to wastewater, the base charges are also calculated to increase by 4% on an annual basis over the forecast period.

The above increases in the base charges are recommended to ensure that the Municipality can fund the capital and operating costs while minimizing the need for debentures.

The forecasted base charges and corresponding revenues are provided in Tables 6-1, 6-2, and 6-3.

Table 6-1
Municipality of Chatham-Kent P.U.C.
Base Charge Forecast – Water – Urban Customers

Water	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	32,696	32,696	32,696	32,696	32,696	32,696	32,696	32,696	32,696	32,696	32,696
New	113	339	565	791	1,017	1,243	1,469	1,695	1,921	2,147	2,373
Total Customers	**32,809**	**33,035**	**33,261**	**33,487**	**33,713**	**33,939**	**34,165**	**34,391**	**34,617**	**34,843**	**35,069**
Total Annual Revenue	**$11,621,577**	**$12,165,808**	**$12,734,983**	**$13,330,227**	**$13,952,715**	**$14,603,673**	**$15,284,384**	**$15,996,185**	**$16,740,476**	**$17,518,716**	**$18,332,431**

¾" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	31,738	31,738	31,738	31,738	31,738	31,738	31,738	31,738	31,738	31,738	31,738
New	113	339	565	791	1,017	1,243	1,469	1,695	1,921	2,147	2,373
Subtotal Customers	**31,851**	**32,077**	**32,303**	**32,529**	**32,755**	**32,981**	**33,207**	**33,433**	**33,659**	**33,885**	**34,111**
Monthly Base Charge	$28.14	$29.27	$30.44	$31.65	$32.92	$34.24	$35.61	$37.03	$38.51	$40.05	$41.65
Annual Base Charge	$337.68	$351.19	$365.23	$379.84	$395.04	$410.84	$427.27	$444.36	$462.14	$480.62	$499.85
Total Annual Revenue	**$10,755,446**	**$11,265,032**	**$11,798,176**	**$12,355,948**	**$12,939,464**	**$13,549,893**	**$14,188,452**	**$14,856,416**	**$15,555,116**	**$16,285,942**	**$17,050,345**

1" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	294	294	294	294	294	294	294	294	294	294	294
New											
Subtotal Customers	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**	**294**
Monthly Base Charge	$32.08	$33.36	$34.70	$36.09	$37.53	$39.03	$40.59	$42.22	$43.90	$45.66	$47.49
Annual Base Charge	$384.96	$400.36	$416.37	$433.03	$450.35	$468.36	$487.10	$506.58	$526.84	$547.92	$569.83
Total Annual Revenue	**$113,178**	**$117,705**	**$122,414**	**$127,310**	**$132,403**	**$137,699**	**$143,207**	**$148,935**	**$154,892**	**$161,088**	**$167,531**

1 ¼" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	23	23	23	23	23	23	23	23	23	23	23
New											
Subtotal Customers	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Monthly Base Charge	$47.00	$48.88	$50.84	$52.87	$54.98	$57.18	$59.47	$61.85	$64.32	$66.90	$69.57
Annual Base Charge	$564.00	$586.56	$610.02	$634.42	$659.80	$686.19	$713.64	$742.19	$771.87	$802.75	$834.86
Total Annual Revenue	**$12,972**	**$13,491**	**$14,031**	**$14,592**	**$15,175**	**$15,782**	**$16,414**	**$17,070**	**$17,753**	**$18,463**	**$19,202**

1 ½" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	169	169	169	169	169	169	169	169	169	169	169
New											
Subtotal Customers	**169**	**169**	**169**	**169**	**169**	**169**	**169**	**169**	**169**	**169**	**169**
Monthly Base Charge	$66.70	$69.37	$72.14	$75.03	$78.03	$81.15	$84.40	$87.77	$91.28	$94.93	$98.73
Annual Base Charge	$800.40	$832.42	$865.71	$900.34	$936.35	$973.81	$1,012.76	$1,053.27	$1,095.40	$1,139.22	$1,184.79
Total Annual Revenue	**$135,268**	**$140,678**	**$146,305**	**$152,158**	**$158,244**	**$164,574**	**$171,157**	**$178,003**	**$185,123**	**$192,528**	**$200,229**

2" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	370	370	370	370	370	370	370	370	370	370	370
New											
Subtotal Customers	**370**	**370**	**370**	**370**	**370**	**370**	**370**	**370**	**370**	**370**	**370**
Monthly Base Charge	$87.24	$90.73	$94.36	$98.13	$102.06	$106.14	$110.39	$114.80	$119.39	$124.17	$129.14
Annual Base Charge	$1,046.88	$1,088.76	$1,132.31	$1,177.60	$1,224.70	$1,273.69	$1,324.64	$1,377.62	$1,432.73	$1,490.04	$1,549.64
Total Annual Revenue	**$387,346**	**$402,839**	**$418,953**	**$435,711**	**$453,140**	**$471,265**	**$490,116**	**$509,720**	**$530,109**	**$551,314**	**$573,366**

3" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	55	55	55	55	55	55	55	55	55	55	55
New											
Subtotal Customers	**55**	**55**	**55**	**55**	**55**	**55**	**55**	**55**	**55**	**55**	**55**
Monthly Base Charge	$147.46	$153.36	$159.49	$165.87	$172.51	$179.41	$186.58	$194.05	$201.81	$209.88	$218.28
Annual Base Charge	$1,769.52	$1,840.30	$1,913.91	$1,990.47	$2,070.09	$2,152.89	$2,239.01	$2,328.57	$2,421.71	$2,518.58	$2,619.32
Total Annual Revenue	**$97,324**	**$101,217**	**$105,265**	**$109,476**	**$113,855**	**$118,409**	**$123,145**	**$128,071**	**$133,194**	**$138,522**	**$144,063**
		5.90	**6.13**	**6.38**	**6.63**	**6.90**	**7.18**	**7.46**	**7.76**	**8.07**	**8.40**

4" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	38	38	38	38	38	38	38	38	38	38	38
New											
Subtotal Customers	**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**
Monthly Base Charge	$186.60	$194.06	$201.83	$209.90	$218.30	$227.03	$236.11	$245.55	$255.37	$265.59	$276.21
Annual Base Charge	$2,239.20	$2,328.77	$2,421.92	$2,518.80	$2,619.55	$2,724.33	$2,833.30	$2,946.63	$3,064.50	$3,187.08	$3,314.56
Total Annual Revenue	**$85,090**	**$88,493**	**$92,033**	**$95,714**	**$99,543**	**$103,525**	**$107,665**	**$111,972**	**$116,451**	**$121,109**	**$125,953**
		7.46	**7.76**	**8.07**	**8.40**	**8.73**	**9.08**	**9.44**	**9.82**	**10.21**	**10.62**

6" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Subtotal Customers	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
Monthly Base Charge	$277.49	$288.59	$300.13	$312.14	$324.62	$337.61	$351.11	$365.16	$379.76	$394.95	$410.75
Annual Base Charge	$3,329.88	$3,463.08	$3,601.60	$3,745.66	$3,895.49	$4,051.31	$4,213.36	$4,381.89	$4,557.17	$4,739.46	$4,929.04
Total Annual Revenue	**$19,979**	**$20,778**	**$21,610**	**$22,474**	**$23,373**	**$24,308**	**$25,280**	**$26,291**	**$27,343**	**$28,437**	**$29,574**
		11.10	**11.54**	**12.01**	**12.49**	**12.98**	**13.50**	**14.04**	**14.61**	**15.19**	**15.80**

8" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	3	3	3	3	3	3	3	3	3	3	3
New											
Subtotal Customers	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Monthly Base Charge	$415.97	$432.61	$449.91	$467.91	$486.63	$506.09	$526.33	$547.39	$569.28	$592.06	$615.74
Annual Base Charge	$4,991.64	$5,191.31	$5,398.96	$5,614.92	$5,839.51	$6,073.09	$6,316.02	$6,568.66	$6,831.40	$7,104.66	$7,388.85
Total Annual Revenue	**$14,975**	**$15,574**	**$16,197**	**$16,845**	**$17,519**	**$18,219**	**$18,948**	**$19,706**	**$20,494**	**$21,314**	**$22,167**

Table 6-2
Municipality of Chatham-Kent P.U.C.
Base Charge Forecast – Water – Rural Customers

Water	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	5,640	5,640	5,640	5,640	5,640	5,640	5,640	5,640	5,640	5,640	5,640
New	-	-	-	-	-	-	-	-	-	-	-
Total Customers	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**	**5,640**
Total Annual Revenue	**$2,090,703**	**$2,174,275**	**$2,258,376**	**$2,345,840**	**$2,436,804**	**$2,531,406**	**$2,629,792**	**$2,732,113**	**$2,838,528**	**$2,949,199**	**$3,064,297**

¾" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365	5,365
New											
Subtotal Customers	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**	**5,365**
Monthly Base Charge	$29.14	$30.27	$31.44	$32.65	$33.92	$35.24	$36.61	$38.03	$39.51	$41.05	$42.65
Annual Base Charge	$349.68	$363.19	$377.23	$391.84	$407.04	$422.84	$439.27	$456.36	$474.14	$492.62	$511.85
Total Annual Revenue	**$1,876,033**	**$1,948,499**	**$2,023,864**	**$2,102,243**	**$2,183,758**	**$2,268,533**	**$2,356,699**	**$2,448,392**	**$2,543,752**	**$2,642,927**	**$2,746,069**

1" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	144	144	144	144	144	144	144	144	144	144	144
New											
Subtotal Customers	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**	**144**
Monthly Base Charge	$33.33	$34.86	$36.20	$37.59	$39.03	$40.53	$42.09	$43.72	$45.40	$47.16	$48.99
Annual Base Charge	$399.96	$418.36	$434.37	$451.03	$468.35	$486.36	$505.10	$524.58	$544.84	$565.92	$587.83
Total Annual Revenue	**$57,594**	**$60,244**	**$62,550**	**$64,948**	**$67,442**	**$70,036**	**$72,734**	**$75,540**	**$78,458**	**$81,492**	**$84,648**

1 ¼" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	1	1	1	1	1	1	1	1	1	1	1
New											
Subtotal Customers	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Monthly Base Charge	$48.00	$50.88	$52.84	$54.87	$56.98	$59.18	$61.47	$63.85	$66.32	$68.90	$71.57
Annual Base Charge	$576.00	$610.56	$634.02	$658.42	$683.80	$710.19	$737.64	$766.19	$795.87	$826.75	$858.86
Total Annual Revenue	**$576**	**$611**	**$634**	**$658**	**$684**	**$710**	**$738**	**$766**	**$796**	**$827**	**$859**

1 ½" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	23	23	23	23	23	23	23	23	23	23	23
New											
Subtotal Customers	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Monthly Base Charge	$68.20	$71.87	$74.64	$77.53	$80.53	$83.65	$86.90	$90.27	$93.78	$97.43	$101.23
Annual Base Charge	$818.40	$862.42	$895.71	$930.34	$966.35	$1,003.81	$1,042.76	$1,083.27	$1,125.40	$1,169.22	$1,214.79
Total Annual Revenue	**$18,823**	**$19,836**	**$20,601**	**$21,398**	**$22,226**	**$23,088**	**$23,984**	**$24,915**	**$25,884**	**$26,892**	**$27,940**

2" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	88	88	88	88	88	88	88	88	88	88	88
New											
Subtotal Customers	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**	**88**
Monthly Base Charge	$88.74	$93.73	$97.36	$101.13	$105.06	$109.14	$113.39	$117.80	$122.39	$127.17	$132.14
Annual Base Charge	$1,064.88	$1,124.76	$1,168.31	$1,213.60	$1,260.70	$1,309.69	$1,360.64	$1,413.62	$1,468.73	$1,526.04	$1,585.64
Total Annual Revenue	**$93,709**	**$98,978**	**$102,811**	**$106,797**	**$110,942**	**$115,253**	**$119,736**	**$124,399**	**$129,248**	**$134,291**	**$139,536**

3" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	5	5	5	5	5	5	5	5	5	5	5
New											
Subtotal Customers	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Monthly Base Charge	$149.46	$156.86	$162.99	$169.37	$176.01	$182.91	$190.08	$197.55	$205.31	$213.38	$221.78
Annual Base Charge	$1,793.52	$1,882.30	$1,955.91	$2,032.47	$2,112.09	$2,194.89	$2,281.01	$2,370.57	$2,463.71	$2,560.58	$2,661.32
Total Annual Revenue	**$8,968**	**$9,412**	**$9,780**	**$10,162**	**$10,560**	**$10,974**	**$11,405**	**$11,853**	**$12,319**	**$12,803**	**$13,307**

4" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	11	11	11	11	11	11	11	11	11	11	11
New											
Subtotal Customers	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**
Monthly Base Charge	$188.10	$198.06	$205.83	$213.90	$222.30	$231.03	$240.11	$249.55	$259.37	$269.59	$280.21
Annual Base Charge	$2,257.20	$2,376.77	$2,469.92	$2,566.80	$2,667.55	$2,772.33	$2,881.30	$2,994.63	$3,112.50	$3,235.08	$3,362.56
Total Annual Revenue	**$24,829**	**$26,144**	**$27,169**	**$28,235**	**$29,343**	**$30,496**	**$31,694**	**$32,941**	**$34,237**	**$35,586**	**$36,988**

6" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	3	3	3	3	3	3	3	3	3	3	3
New											
Subtotal Customers	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Monthly Base Charge	$282.49	$293.09	$304.63	$316.64	$329.12	$342.11	$355.61	$369.66	$384.26	$399.45	$415.25
Annual Base Charge	$3,389.88	$3,517.08	$3,655.60	$3,799.66	$3,949.49	$4,105.31	$4,267.36	$4,435.89	$4,611.17	$4,793.46	$4,983.04
Total Annual Revenue	**$10,170**	**$10,551**	**$10,967**	**$11,399**	**$11,848**	**$12,316**	**$12,802**	**$13,308**	**$13,834**	**$14,380**	**$14,949**

8" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	0	0	0	0	0	0	0	0	0	0	0
New											
Subtotal Customers	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Monthly Base Charge	$420.47	$437.61	$454.91	$472.91	$491.63	$511.09	$531.33	$552.39	$574.28	$597.06	$620.74
Annual Base Charge	$5,045.64	$5,251.31	$5,458.96	$5,674.92	$5,899.51	$6,133.09	$6,376.02	$6,628.66	$6,891.40	$7,164.66	$7,448.85
Total Annual Revenue	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Table 6-3
Municipality of Chatham-Kent P.U.C.
Base Charge Forecast – Wastewater

Wastewater	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990	30,990
New	113	339	565	791	1,017	1,243	1,469	1,695	1,921	2,147	2,373
Subtotal Customers	**31,103**	**31,329**	**31,555**	**31,781**	**32,007**	**32,233**	**32,459**	**32,685**	**32,911**	**33,137**	**33,363**
Total Annual Revenue	**$11,355,036**	**$11,893,175**	**$12,456,197**	**$13,045,232**	**$13,661,460**	**$14,306,113**	**$14,980,480**	**$15,685,907**	**$16,423,799**	**$17,195,626**	**$18,002,920**

¾" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	30,129	30,129	30,129	30,129	30,129	30,129	30,129	30,129	30,129	30,129	30,129
New	113	339	565	791	1,017	1,243	1,469	1,695	1,921	2,147	2,373
Subtotal Customers	**30,242**	**30,468**	**30,694**	**30,920**	**31,146**	**31,372**	**31,598**	**31,824**	**32,050**	**32,276**	**32,502**
Monthly Base Charge	$29.76	$30.95	$32.19	$33.48	$34.81	$36.21	$37.66	$39.16	$40.73	$42.36	$44.05
Annual Base Charge	$357.12	$371.40	$386.26	$401.71	$417.78	$434.49	$451.87	$469.95	$488.74	$508.29	$528.62
Total Annual Revenue	**$10,800,023**	**$11,315,961**	**$11,855,895**	**$12,420,917**	**$13,012,172**	**$13,630,854**	**$14,278,211**	**$14,955,547**	**$15,664,225**	**$16,405,669**	**$17,181,365**
		$1.19	**$1.24**	**$1.29**	**$1.34**	**$1.39**	**$1.45**	**$1.51**	**$1.57**	**$1.63**	**$1.69**

1" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	250	250	250	250	250	250	250	250	250	250	250
New											
Subtotal Customers	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**
Monthly Base Charge	$34.24	$35.61	$37.03	$38.52	$40.06	$41.66	$43.32	$45.06	$46.86	$48.73	$50.68
Annual Base Charge	$410.88	$427.32	$444.41	$462.18	$480.67	$499.90	$519.89	$540.69	$562.32	$584.81	$608.20
Total Annual Revenue	**$102,720**	**$106,829**	**$111,102**	**$115,546**	**$120,168**	**$124,975**	**$129,974**	**$135,173**	**$140,579**	**$146,203**	**$152,051**

1 ¼" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	22	22	22	22	22	22	22	22	22	22	22
New											
Subtotal Customers	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**	**22**
Monthly Base Charge	$38.10	$39.62	$41.21	$42.86	$44.57	$46.35	$48.21	$50.14	$52.14	$54.23	$56.40
Annual Base Charge	$457.20	$475.49	$494.51	$514.29	$534.86	$556.25	$578.50	$601.64	$625.71	$650.74	$676.77
Total Annual Revenue	**$10,058**	**$10,461**	**$10,879**	**$11,314**	**$11,767**	**$12,238**	**$12,727**	**$13,236**	**$13,766**	**$14,316**	**$14,889**

1 ½" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	164	164	164	164	164	164	164	164	164	164	164
New											
Subtotal Customers	**164**	**164**	**164**	**164**	**164**	**164**	**164**	**164**	**164**	**164**	**164**
Monthly Base Charge	$44.95	$46.75	$48.62	$50.56	$52.59	$54.69	$56.88	$59.15	$61.52	$63.98	$66.54
Annual Base Charge	$539.40	$560.98	$583.42	$606.75	$631.02	$656.26	$682.51	$709.81	$738.21	$767.73	$798.44
Total Annual Revenue	**$88,462**	**$92,000**	**$95,680**	**$99,507**	**$103,488**	**$107,627**	**$111,932**	**$116,409**	**$121,066**	**$125,908**	**$130,945**

2" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	329	329	329	329	329	329	329	329	329	329	329
New											
Subtotal Customers	**329**	**329**	**329**	**329**	**329**	**329**	**329**	**329**	**329**	**329**	**329**
Monthly Base Charge	$64.01	$66.57	$69.23	$72.00	$74.88	$77.88	$80.99	$84.23	$87.60	$91.11	$94.75
Annual Base Charge	$768.12	$798.84	$830.80	$864.03	$898.59	$934.54	$971.92	$1,010.79	$1,051.23	$1,093.27	$1,137.01
Total Annual Revenue	**$252,711**	**$262,820**	**$273,333**	**$284,266**	**$295,637**	**$307,462**	**$319,761**	**$332,551**	**$345,853**	**$359,687**	**$374,075**

3" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	52	52	52	52	52	52	52	52	52	52	52
New											
Subtotal Customers	**52**	**52**	**52**	**52**	**52**	**52**	**52**	**52**	**52**	**52**	**52**
Monthly Base Charge	$74.13	$77.10	$80.18	$83.39	$86.72	$90.19	$93.80	$97.55	$101.45	$105.51	$109.73
Annual Base Charge	$889.56	$925.14	$962.15	$1,000.63	$1,040.66	$1,082.29	$1,125.58	$1,170.60	$1,217.42	$1,266.12	$1,316.77
Total Annual Revenue	**$46,257**	**$48,107**	**$50,032**	**$52,033**	**$54,114**	**$56,279**	**$58,530**	**$60,871**	**$63,306**	**$65,838**	**$68,472**

4" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	36	36	36	36	36	36	36	36	36	36	36
New											
Subtotal Customers	**36**	**36**	**36**	**36**	**36**	**36**	**36**	**36**	**36**	**36**	**36**
Monthly Base Charge	$95.56	$99.38	$103.36	$107.49	$111.79	$116.26	$120.91	$125.75	$130.78	$136.01	$141.45
Annual Base Charge	$1,146.72	$1,192.59	$1,240.29	$1,289.90	$1,341.50	$1,395.16	$1,450.97	$1,509.01	$1,569.37	$1,632.14	$1,697.43
Total Annual Revenue	**$41,282**	**$42,933**	**$44,651**	**$46,437**	**$48,294**	**$50,226**	**$52,235**	**$54,324**	**$56,497**	**$58,757**	**$61,107**

6" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Subtotal Customers	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
Monthly Base Charge	$134.04	$139.40	$144.98	$150.78	$156.81	$163.08	$169.60	$176.39	$183.44	$190.78	$198.41
Annual Base Charge	$1,608.48	$1,672.82	$1,739.73	$1,809.32	$1,881.69	$1,956.96	$2,035.24	$2,116.65	$2,201.32	$2,289.37	$2,380.94
Total Annual Revenue	**$9,651**	**$10,037**	**$10,438**	**$10,856**	**$11,290**	**$11,742**	**$12,211**	**$12,700**	**$13,208**	**$13,736**	**$14,286**

8" Meter Size	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
Subtotal Customers	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
Monthly Base Charge	$161.33	$167.78	$174.49	$181.47	$188.73	$196.28	$204.13	$212.30	$220.79	$229.62	$238.81
Annual Base Charge	$1,935.96	$2,013.40	$2,093.93	$2,177.69	$2,264.80	$2,355.39	$2,449.61	$2,547.59	$2,649.49	$2,755.47	$2,865.69
Total Annual Revenue	**$3,872**	**$4,027**	**$4,188**	**$4,355**	**$4,530**	**$4,711**	**$4,899**	**$5,095**	**$5,299**	**$5,511**	**$5,731**

Chapter 7
Analysis of Water and Wastewater Rates and Policy Matters

7. Analysis of Water and Wastewater Rates and Policy Matters

7.1 Introduction

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

7.2 Water Rates

Based on the discussion of rate structures provided in section 6.5 and the recommendation to continue with the present structures, the rates are calculated by taking the net recoverable amounts from Table 5-1 (the product of total expenditures less non-rate revenues and deduct the base charge amounts provided in section 6.5) and completes the calculation by dividing them by the volumes resulting in the forecasted rates. Of the P.U.C.'s 2-Step declining block volume rates, Step 1 (which consist of volumes less than 67m^3 per day) are anticipated to increase by:

- 15% per year from 2025 to 2027;
- 10% per year from 2028 to 2030; and
- 5% per year from 2031 onwards.

With respect to the Step 2 rate (volumes equal to or greater than 67m^3 per day), the rates will be discount by $0.40 of the Step 1 rate.

These increases are required in order to fund the operating and capital expenditure forecast, while providing reserve fund transfers to prepare for the future lifecycle requirements. Detailed calculations of the volume rates are provided in Appendix A. A summary of the recommended base charge and 2-Step declining block volume rates, along with the total annual bill for an average residential urban and rural user who consumes 188 cubic meters per year, are presented in Tables 7-1 and 7-2.

Table 7-1
Annual Urban Customer Water Bill
Based on 188 cubic metres of usage and ¾" Water Meter

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Monthly Base Rate	$28.14	$29.27	$30.44	$31.65	$32.92	$34.24	$35.61	$37.03	$38.51	$40.05	$41.65
Step 1 Rate	$1.42	$1.63	$1.88	$2.16	$2.38	$2.61	$2.87	$3.02	$3.17	$3.33	$3.49
Step 2 Rate	$0.87	$1.23	$1.48	$1.76	$1.98	$2.21	$2.47	$2.62	$2.77	$2.93	$3.09
Annual Base Rate Bill	**$337.68**	**$351.19**	**$365.23**	**$379.84**	**$395.04**	**$410.84**	**$427.27**	**$444.36**	**$462.14**	**$480.62**	**$499.85**
Step 1 (<67 m^3 per day)	188	188	188	188	188	188	188	188	188	188	188
Step 2 (Balance)	-	-	-	-	-	-	-	-	-	-	-
Annual Volume Bill	**$266.96**	**$307.00**	**$353.05**	**$406.01**	**$446.61**	**$491.28**	**$540.40**	**$567.42**	**$595.79**	**$625.58**	**$656.86**
Total Annual Bill	**$604.64**	**$658.19**	**$718.29**	**$785.86**	**$841.65**	**$902.11**	**$967.68**	**$1,011.79**	**$1,057.93**	**$1,106.21**	**$1,156.71**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

Table 7-2
Annual Rural Customer Water Bill
Based on 188 cubic metres of usage and ¾" Water Meter

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Monthly Base Rate	$29.14	$30.27	$31.44	$32.65	$33.92	$35.24	$36.61	$38.03	$39.51	$41.05	$42.65
Step 1 Rate	$1.42	$1.63	$1.88	$2.16	$2.38	$2.61	$2.87	$3.02	$3.17	$3.33	$3.49
Step 2 Rate	$0.87	$1.23	$1.48	$1.76	$1.98	$2.21	$2.47	$2.62	$2.77	$2.93	$3.09
Annual Base Rate Bill	**$349.68**	**$363.19**	**$377.23**	**$391.84**	**$407.04**	**$422.84**	**$439.27**	**$456.36**	**$474.14**	**$492.62**	**$511.85**
Step 1 (<67 m^3 per day)	188	188	188	188	188	188	188	188	188	188	188
Step 2 (Balance)	-	-	-	-	-	-	-	-	-	-	-
Annual Volume Bill	**$266.96**	**$307.00**	**$353.05**	**$406.01**	**$446.61**	**$491.28**	**$540.40**	**$567.42**	**$595.79**	**$625.58**	**$656.86**
Total Annual Bill	**$616.64**	**$670.19**	**$730.29**	**$797.86**	**$853.65**	**$914.11**	**$979.68**	**$1,023.79**	**$1,069.93**	**$1,118.21**	**$1,168.71**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

7.3 Wastewater Rates

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

Based on the capital and operating needs over the forecast period, Step 1 of the P.U.C. declining block volume rate (which consist of volumes less than 67m^3 per day) are anticipated to increase by:

- 15% per year from 2025 to 2027;
- 10% per year from 2028 to 2030; and
- 5% per year from 2031 onwards.

With respect to the Step 2 rate (volumes equal to or greater than 67m^3 per day), the rates will be discount by $0.40 of the Step 1 rate.

Table 7-3 summarizes the recommended rates for wastewater and provides the average annual bill for a residential customer who uses 188 cubic meters per year:

Table 7-3
Annual Customer Wastewater Bill
Based on 188 cubic metres of usage and ¾" Water Meter

Description	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Monthly Base Rate	$29.76	$30.95	$32.19	$33.48	$34.81	$36.21	$37.66	$39.16	$40.73	$42.36	$44.05
Step 1 Rate	$1.45	$1.67	$1.92	$2.21	$2.43	$2.67	$2.94	$3.08	$3.24	$3.40	$3.57
Step 2 Rate	$0.86	$1.27	$1.52	$1.81	$2.03	$2.27	$2.54	$2.68	$2.84	$3.00	$3.17
Annual Base Rate Bill	**$357.12**	**$371.40**	**$386.26**	**$401.71**	**$417.78**	**$434.49**	**$451.87**	**$469.95**	**$488.74**	**$508.29**	**$528.62**
Step 1 (<67 m^3 per day)	188	188	188	188	188	188	188	188	188	188	188
Step 2 (Balance)	-	-	-	-	-	-	-	-	-	-	-
Annual Volume Bill	**$272.60**	**$313.49**	**$360.51**	**$414.59**	**$456.05**	**$501.65**	**$551.82**	**$579.41**	**$608.38**	**$638.80**	**$670.74**
Total Annual Bill	**$629.72**	**$684.89**	**$746.77**	**$816.30**	**$873.83**	**$936.15**	**$1,003.69**	**$1,049.36**	**$1,097.12**	**$1,147.09**	**$1,199.37**
%Increase - Base Rate		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
%Increase - Volume Rate		15%	15%	15%	10%	10%	10%	5%	5%	5%	5%
%Increase - Total Annual Bill		9%	9%	9%	7%	7%	7%	5%	5%	5%	5%

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 the Commission and Council:

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

2. That the Commission and Council consider the Capital Plan for water and wastewater as provided in Tables 2-1 and 2-2 and the associated Capital Financing Plan as set out in Tables 4-3 and 4-4.

3. That the Commission and Council consider the base charges provided in Tables 6-1 and 6-2 for water (urban and rural customers) and Table 6-3 for wastewater.

4. That the Commission and Council consider the 2-Step declining block volume rates for water (urban and rural) and wastewater as provided in Tables 7-1, 7-2, and 7-3 respectively.

Appendices

Appendix A
Detailed Water Rate Calculations

Appendix A: Detailed Water Rate Calculations

Table A-1
Municipality of Chatham-Kent P.U.C.
Water Service
Capital Budget Forecast (Uninflated $)

Description	Budget 2024	Total	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Expenditures												
Raw Water Pumping Station	-	3,557,250	-	-	-	-	-	-	-	3,557,250	-	-
11 kms of new 600mm transmission main from existing Water Treatment Plant Highlift pumping station to the Southwest area of Chatham Water System (Partial Ring TM). Refer to Figure 10-1	-	38,208,788	-	-	-	-	-	-	-	3,820,879	17,193,955	17,193,955
Increase storage capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-4	-	19,400,000	1,940,000	8,730,000	8,730,000	-	-	-	-	-	-	-
Increase treatment capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-1	-	206,700,000	-	-	20,670,000	93,015,000	93,015,000	-	-	-	-	-
Increase pumping capacity at the existing Chatham Water Treatment Plant Highlift Pumping Station.	-	3,091,500	-	-	3,091,500	-	-	-	-	-	-	-
Conduct condition assessment for existing raw water transmission main.	1,500,000	1,000,000	1,000,000	-	-	-	-	-	-	-	-	-
300mm watermain from Thamesville Elevated Tank to Zone 6 Rd. Refer to Figure 10-2	-	7,200,000	-	-	-	-	-	-	-	7,200,000	-	-
Zone 6 Road to Delaware Nation 200mm watermain Refer to Figure 10-2	-	1,150,000	-	-	-	-	-	-	-	-	1,150,000	-
New Booster Pump Station at the Northeast corner of Zone 5 Road and Baseline. Refer to Figure 10-2	-	300,000	-	-	-	-	-	-	-	-	300,000	-
New 300mm watermain from Zone 6 Rd and Baseline to Bothwell. Refer to Figure 10-2	-	9,720,000	-	-	-	-	-	-	-	-	-	9,720,000
Replace the Thamesville Standpipe with a 2.3ML Standpipe. Refer to Figure 10-2	-	5,000,000	-	-	-	-	-	5,000,000	-	-	-	-
300mm Integration Transmission Main for Blenheim and Ridgetown. Refer to Figure 10-3	-	24,425,625	-	-	-	12,212,813	12,212,813	-	-	-	-	-
Retrofitting existing water treatment plant as pumping station for Ridgetown.	-	5,070,000	-	-	-	5,070,000	-	-	-	-	-	-
Replacement / Rehabilitation of the existing Ridgetown Elevated Tank.	-	10,000,000	-	-	10,000,000	-	-	-	-	-	-	-
New Water Treatment Plant for Wallaceburg-Dresden Integrated Water System.	-	57,519,000	-	-	-	5,751,900	25,883,550	25,883,550	-	-	-	-
New storage reservoir (56ML).	-	52,090,000	-	-	-	5,209,000	23,440,500	23,440,500	-	-	-	-
New intake and lowlift pumping station for new Wallaceburg Water Treatment Plant.	-	13,266,000	-	-	-	1,326,600	5,969,700	5,969,700	-	-	-	-
New raw water transmission main.	-	29,636,000	-	-	-	2,963,600	13,336,200	13,336,200	-	-	-	-
600mm Treated water transmission main. Refer to Figure 10-4	-	32,800,000	-	3,280,000	14,760,000	14,760,000	-	-	-	-	-	-
2.6 km New Charing Cross Road 600mm transmission main. Refer to Figure 10-5	-	7,730,600	-	-	-	-	-	-	7,730,600	-	-	-
5.6 km of new 200mm local distribution system Looping. Refer to Figure 10-6	-	7,214,063	-	-	-	-	-	7,214,063	-	-	-	-
Increase pumping capacity at the existing South Chatham Kent Water Treatment Plant Highlift Pumping Station.	-	1,113,005	-	-	1,113,005	-	-	-	-	-	-	-
New Booster Pumping Station to transfer water supply from Wheatley WS to Tilbury WS. Refer to Figure 10-7	-	2,410,250	-	-	-	-	-	2,410,250	-	-	-	-
New local booster pumping station for east of Wheatley WS. Refer to Figure 10-7	-	1,951,250	-	-	-	-	-	-	-	-	-	1,951,250
Decommissioning of Tilbury inground reservoir and pumping station.	-	2,025,000	-	-	-	-	-	-	-	2,025,000	-	-
Various Investigative Studies	-	750,000	150,000	150,000	150,000	150,000	150,000					
Preventative Maintenance of the Composite Elevated Tanks, Stand Pipes and Spheroid Tanks, and their replacement.	2,000,000	20,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Rate Study and Financial Plan (split with water and wastewater)	20,000	40,000					20,000					20,000
Wheatley WTP Rehabilitation	4,500,000	4,500,000	4,500,000									
Decommissioning – Dealtown WTP		750,000				750,000						
Decommissioning - Dresden WTP		750,000			750,000							
Ridgetown S2 & C2 Well pump and adapter	450,000	600,000	600,000									
600mm Transmission Main Eberts-KBR - phase 1 for NE WDS		11,771,821		11,771,821								
Elevated Tank Michell's Bay - Tender and Construction	3,498,491	-										
Annual Watermain Lifecycle Replacement	4,500,000	85,500,000	6,000,000	7,500,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000
Total Capital Expenditures	**16,468,491**	**667,240,152**	**16,190,000**	**33,431,821**	**70,264,505**	**152,208,913**	**185,027,763**	**94,254,263**	**18,730,600**	**27,603,129**	**29,643,955**	**39,885,205**

Table A-2
Municipality of Chatham-Kent P.U.C.
Water Service
Capital Budget Forecast (Inflated $)

Description	Budget 2024	Total	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Expenditures												
Raw Water Pumping Station	-	5,670,000	-	-	-	-	-	-	-	5,670,000	-	-
11 kms of new 600mm transmission main from existing Water Treatment Plant Highlift pumping station to the Southwest area of Chatham Water System (Partial Ring TM). Refer to Figure 10-1	-	65,931,000	-	-	-	-	-	-	-	6,090,000	29,049,000	30,792,000
Increase storage capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-4	-	22,263,000	2,056,000	9,809,000	10,398,000	-	-	-	-	-	-	-
Increase treatment capacity at the existing Chatham Water Treatment Plant. Refer to Figure 7-1	-	266,522,000	-	-	24,618,000	117,429,000	124,475,000	-	-	-	-	-
Increase pumping capacity at the existing Chatham Water Treatment Plant Highlift Pumping Station.	-	3,682,000	-	-	3,682,000	-	-	-	-	-	-	-
Conduct condition assessment for existing raw water transmission main.	1,500,000	1,060,000	1,060,000	-	-	-	-	-	-	-	-	-
300mm watermain from Thamesville Elevated Tank to Zone 6 Rd. Refer to Figure 10-2	-	11,476,000	-	-	-	-	-	-	-	11,476,000	-	-
Zone 6 Road to Delaware Nation 200mm watermain Refer to Figure 10-2	-	1,943,000	-	-	-	-	-	-	-	-	1,943,000	-
New Booster Pump Station at the Northeast corner of Zone 5 Road and Baseline. Refer to Figure 10-2	-	507,000	-	-	-	-	-	-	-	-	507,000	-
New 300mm watermain from Zone 6 Rd and Baseline to Bothwell. Refer to Figure 10-2	-	17,407,000	-	-	-	-	-	-	-	-	-	17,407,000
Replace the Thamesville Standpipe with a 2.3ML Standpipe. Refer to Figure 10-2	-	7,093,000	-	-	-	-	-	7,093,000	-	-	-	-
300mm Integration Transmission Main for Blenheim and Ridgetown. Refer to Figure 10-3	-	31,761,000	-	-	-	15,418,000	16,343,000	-	-	-	-	-
Retrofitting existing water treatment plant as pumping station for Ridgetown.	-	6,401,000	-	-	-	6,401,000	-	-	-	-	-	-
Replacement / Rehabilitation of the existing Ridgetown Elevated Tank.	-	11,910,000	-	-	11,910,000	-	-	-	-	-	-	-
New Water Treatment Plant for Wallaceburg-Dresden Integrated Water System.	-	78,616,000	-	-	-	7,262,000	34,638,000	36,716,000	-	-	-	-
New storage reservoir (56ML).	-	71,196,000	-	-	-	6,576,000	31,369,000	33,251,000	-	-	-	-
New intake and lowlift pumping station for new Wallaceburg Water Treatment Plant.	-	18,132,000	-	-	-	1,675,000	7,989,000	8,468,000	-	-	-	-
New raw water transmission main.	-	40,506,000	-	-	-	3,741,000	17,847,000	18,918,000	-	-	-	-
600mm Treated water transmission main. Refer to Figure 10-4	-	39,898,000	-	3,685,000	17,579,000	18,634,000	-	-	-	-	-	-
2.6 km New Charing Cross Road 600mm transmission main. Refer to Figure 10-5	-	11,624,000	-	-	-	-	-	-	11,624,000	-	-	-
5.6 km of new 200mm local distribution system Looping. Refer to Figure 10-6	-	10,233,000	-	-	-	-	-	10,233,000	-	-	-	-
Increase pumping capacity at the existing South Chatham Kent Water Treatment Plant Highlift Pumping Station.	-	1,326,000	-	-	1,326,000	-	-	-	-	-	-	-
New Booster Pumping Station to transfer water supply from Wheatley WS to Tilbury WS. Refer to Figure 10-7	-	3,419,000	-	-	-	-	-	3,419,000	-	-	-	-
New local booster pumping station for east of Wheatley WS. Refer to Figure 10-7	-	3,494,000	-	-	-	-	-	-	-	-	-	3,494,000
Decommissioning of Tilbury inground reservoir and pumping station.	-	3,228,000	-	-	-	-	-	-	-	3,228,000	-	-
Various Investigative Studies	-	897,000	159,000	169,000	179,000	189,000	201,000	-	-	-	-	-
Preventative Maintenance of the Composite Elevated Tanks, Stand Pipes and Spheroid Tanks, and their replacement.	2,000,000	27,943,000	2,120,000	2,247,000	2,382,000	2,525,000	2,676,000	2,837,000	3,007,000	3,188,000	3,379,000	3,582,000
Rate Study and Financial Plan (split with water and wastewater)	20,000	63,000	-	-	-	-	27,000	-	-	-	-	36,000
Wheatley WTP Rehabilitation	4,500,000	4,770,000	4,770,000	-	-	-	-	-	-	-	-	-
Decommissioning – Dealtown WTP	-	947,000	-	-	-	947,000	-	-	-	-	-	-
Decommissioning - Dresden WTP	-	893,000	-	-	893,000	-	-	-	-	-	-	-
Ridgetown S2 & C2 Well pump and adapter	450,000	636,000	636,000	-	-	-	-	-	-	-	-	-
600mm Transmission Main Eberts-KBR - phase 1 for NE WDS	-	13,227,000	-	13,227,000	-	-	-	-	-	-	-	-
Elevated Tank Michell's Bay - Tender and Construction	3,498,491	-	-	-	-	-	-	-	-	-	-	-
Annual Watermain Lifecycle Replacement	4,500,000	85,500,000	6,000,000	7,500,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000	9,000,000
Total Capital Expenditures	**16,468,491**	**870,174,000**	**16,801,000**	**36,637,000**	**81,967,000**	**189,797,000**	**244,565,000**	**129,935,000**	**23,631,000**	**38,652,000**	**43,878,000**	**64,311,000**
Capital Financing												
Provincial/Federal Grants		-										
Development Charges Reserve Fund	-	497,858,550	2,056,000	11,098,750	46,704,650	133,994,000	163,608,450	47,322,500	5,812,000	19,183,000	25,689,200	42,390,000
Non-Growth Related Debenture Requirements	-	149,687,300	-	8,122,250	11,426,350	22,297,650	52,228,550	55,612,500	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Reserve Fund - Facilities	6,100,000	86,041,950	7,526,000	2,247,000	13,764,000	18,369,350	13,500,000	11,500,000	3,007,000	6,023,000	3,379,000	6,726,600
Lifecycle Reserve Fund - Watermains	4,500,000	129,498,200	6,000,000	15,000,000	9,000,000	14,000,000	15,000,000	15,500,000	14,812,000	10,218,000	14,809,800	15,158,400
Water Reserve	5,868,491	7,088,000	1,219,000	169,000	1,072,000	1,136,000	228,000	-	-	3,228,000	-	36,000
Total Capital Financing	**16,468,491**	**870,174,000**	**16,801,000**	**36,637,000**	**81,967,000**	**189,797,000**	**244,565,000**	**129,935,000**	**23,631,000**	**38,652,000**	**43,878,000**	**64,311,000**

Table A-3
Municipality of Chatham-Kent P.U.C.
Water Service
Water Debt Forecast
Inflated $

Debenture Year	2024	Principal (Inflated)	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
2025		-		-	-	-	-	-	-	-	-	-
2026		8,122,250			571,490	571,490	571,490	571,490	571,490	571,490	571,490	571,490
2027		11,426,350				803,970	803,970	803,970	803,970	803,970	803,970	803,970
2028		22,297,650					1,568,887	1,568,887	1,568,887	1,568,887	1,568,887	1,568,887
2029		52,228,550						3,674,857	3,674,857	3,674,857	3,674,857	3,674,857
2030		55,612,500							3,912,955	3,912,955	3,912,955	3,912,955
2031		-								-	-	-
2032		-									-	-
2033		-										-
2034		-										
Total Annual Debt Charges	-	**149,687,300**	-	-	571,490	1,375,461	2,944,347	6,619,204	10,532,160	10,532,160	10,532,160	10,532,160

Table A-4
Municipality of Chatham-Kent P.U.C.
Water Service
Water Capital Reserve Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	6,880,577		3,668,949	2,523,447	2,528,081	2,632,763	2,777,666	2,626,156	2,704,941	2,786,089	2,119,832	2,183,427
Transfer from Operating	2,550,000		-	100,000	1,100,000	1,200,000	-	-	-	2,500,000	-	-
Transfer to Capital	5,868,491		1,219,000	169,000	1,072,000	1,136,000	228,000	-	-	3,228,000	-	36,000
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**3,562,086**		**2,449,949**	**2,454,447**	**2,556,081**	**2,696,763**	**2,549,666**	**2,626,156**	**2,704,941**	**2,058,089**	**2,119,832**	**2,147,427**
Interest	106,863		73,498	73,633	76,682	80,903	76,490	78,785	81,148	61,743	63,595	64,423

Table A-5
Municipality of Chatham-Kent P.U.C.
Water Service
Water Development Charges Reserve Fund Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	-		3,041,185	6,104,778	3,134,100	(36,076,195)	(165,842,867)	(329,445,711)	(377,588,715)	(383,791,226)	(403,285,186)	(429,358,659)
Development Charge Proceeds	2,952,607		4,941,784	8,036,788	8,545,118	9,057,703	9,601,113	10,177,225	10,787,874	11,435,210	12,121,320	12,848,670
Transfer to Capital	-		2,056,000	11,098,750	46,704,650	133,994,000	163,608,450	47,322,500	5,812,000	19,183,000	25,689,200	42,390,000
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**2,952,607**		**5,926,969**	**3,042,816**	**(35,025,432)**	**(161,012,492)**	**(319,850,204)**	**(366,590,985)**	**(372,612,841)**	**(391,539,016)**	**(416,853,067)**	**(458,899,989)**
Interest	88,578		177,809	91,284	(1,050,763)	(4,830,375)	(9,595,506)	(10,997,730)	(11,178,385)	(11,746,170)	(12,505,592)	(13,767,000)
Required from Development Charges	-		2,056,000	11,098,750	46,704,650	133,994,000	163,608,450	47,322,500	5,812,000	19,183,000	25,689,200	42,390,000

Table A-6
Municipality of Chatham-Kent P.U.C.
Water Service
Water Lifecycle Facilities Reserve Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	761,241		423,578	2,257,604	12,556,605	12,014,923	3,631,636	1,680,585	1,731,003	10,530,723	16,487,954	25,347,223
Transfer from Operating	5,750,000		9,294,271	12,180,274	12,872,369	9,880,287	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000
Transfer to Capital	6,100,000		7,526,000	2,247,000	13,764,000	18,369,350	13,500,000	11,500,000	3,007,000	6,023,000	3,379,000	6,726,600
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**411,241**		**2,191,849**	**12,190,879**	**11,664,974**	**3,525,860**	**1,631,636**	**1,680,585**	**10,224,003**	**16,007,723**	**24,608,954**	**30,120,623**
Interest	12,337		65,755	365,726	349,949	105,776	48,949	50,418	306,720	480,232	738,269	903,619

Table A-7
Municipality of Chatham-Kent P.U.C.
Water Service
Water Lifecycle Watermains Reserve Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	9,968,852		8,185,382	8,430,944	958,872	987,638	1,017,267	1,286,524	1,305,219	437,937	3,877,214	7,561,552
Transfer from Operating	2,478,122		6,000,000	7,500,000	9,000,000	14,000,000	15,231,785	15,480,680	13,931,962	13,544,349	18,273,898	20,626,795
Transfer to Capital	4,500,000		6,000,000	15,000,000	9,000,000	14,000,000	15,000,000	15,500,000	14,812,000	10,218,000	14,809,800	15,158,400
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**7,946,973**		**8,185,382**	**930,944**	**958,872**	**987,638**	**1,249,052**	**1,267,203**	**425,181**	**3,764,286**	**7,341,312**	**13,029,946**
Interest	238,409		245,561	27,928	28,766	29,629	37,472	38,016	12,755	112,929	220,239	390,898

Table A-8
Municipality of Chatham-Kent P.U.C.
Water Service
Operating Budget Forecast – Inflated $
Inflated $

Description	Budget 2024		Forecast 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures												
Operating Costs												
Operations and Maintenance	3,727,240		3,876,300	4,031,400	4,192,700	4,360,400	4,534,800	4,716,200	4,904,800	5,101,000	5,305,000	5,517,200
Compliance and Enforcement	480,087		499,300	519,300	540,100	561,700	584,200	607,600	631,900	657,200	683,500	710,800
Purchased Water	230,000		239,200	248,800	258,800	269,200	280,000	291,200	302,800	314,900	327,500	340,600
Plant, ground and equipment	2,701,040		2,809,100	2,921,500	3,038,400	3,159,900	3,286,300	3,417,800	3,554,500	3,696,700	3,844,600	3,998,400
Pumping Stations	1,371,548		1,426,400	1,483,500	1,542,800	1,604,500	1,668,700	1,735,400	1,804,800	1,877,000	1,952,100	2,030,200
Main Maintenance	2,656,650		2,762,900	2,873,400	2,988,300	3,107,800	3,232,100	3,361,400	3,495,900	3,635,700	3,781,100	3,932,300
Service Maintenance	58,269		60,600	63,000	65,500	68,100	70,800	73,600	76,500	79,600	82,800	86,100
Hydrant Maintenance	-		-	-	-	-	-	-	-	-	-	-
Meter Maintenance	781,535		812,800	845,300	879,100	914,300	950,900	988,900	1,028,500	1,069,600	1,112,400	1,156,900
Administration	2,961,808		3,080,300	3,203,500	3,331,600	3,464,900	3,603,500	3,747,600	3,897,500	4,053,400	4,215,500	4,384,100
Meter Reading/Billing & Collection	1,186,020		1,233,500	1,282,800	1,334,100	1,387,500	1,443,000	1,500,700	1,560,700	1,623,100	1,688,000	1,755,500
AM/FM	232,660		242,000	251,700	261,800	272,300	283,200	294,500	306,300	318,600	331,300	344,600
Engineering	802,172		834,300	867,700	902,400	938,500	976,000	1,015,000	1,055,600	1,097,800	1,141,700	1,187,400
Sub Total Operating	**17,189,029**		**17,876,700**	**18,591,900**	**19,335,600**	**20,109,100**	**20,913,500**	**21,749,900**	**22,619,800**	**23,524,600**	**24,465,500**	**25,444,100**
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	2,849,198		1,773,001	591,213	620,417	651,062	683,222	354,164	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	265,023		185,227	134,398	105,195	74,549	42,390	8,642	-	-	-	-
New Non-Growth Related Debt (Principal)			-	-	287,212	701,312	1,514,327	3,414,186	5,500,200	5,692,707	5,891,952	6,098,170
New Non-Growth Related Debt (Interest)			-	-	284,279	674,149	1,430,020	3,205,018	5,031,959	4,839,452	4,640,207	4,433,989
Transfer to Capital	-		-	-	-	-	-	-	-	-	-	-
Lifecycle Facilities Reserve Contribution ($)	5,750,000		9,294,271	12,180,274	12,872,369	9,880,287	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000	11,500,000
Lifecycle Watermain Reserve Contribution ($)	2,478,122		6,000,000	7,500,000	9,000,000	14,000,000	15,231,785	15,480,680	13,931,962	13,544,349	18,273,898	20,626,795
Transfer to Capital Reserve	2,550,000			100,000	1,100,000	1,200,000				2,500,000		
Sub Total Capital Related	**13,892,343**		**17,252,499**	**20,505,886**	**24,269,471**	**27,181,359**	**30,401,743**	**33,962,689**	**35,964,122**	**38,076,508**	**40,306,058**	**42,658,954**
Total Expenditures	**31,081,372**		**35,129,199**	**39,097,786**	**43,605,071**	**47,290,459**	**51,315,243**	**55,712,589**	**58,583,922**	**61,601,108**	**64,771,558**	**68,103,054**
Revenues												
Base Charge - Urban CK	11,616,136		12,160,150	12,729,099	13,324,107	13,946,350	14,597,054	15,277,500	15,989,026	16,733,030	17,510,973	18,324,377
Base Charge - Urban Non-CK	5,441		5,658	5,885	6,120	6,365	6,619	6,884	7,159	7,446	7,744	8,053
Base Charge - Rural CK	2,020,306		2,101,068	2,182,336	2,266,856	2,354,756	2,446,172	2,541,244	2,640,120	2,742,951	2,849,894	2,961,116
Base Charge - Rural Non-CK	70,397		73,207	76,039	78,985	82,048	85,234	88,548	91,993	95,577	99,304	103,180
Water Bulk Sales	470,000		470,000	470,000	470,000	470,000	470,000	470,000	470,000	470,000	470,000	470,000
Services Connections	20,000		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Meter Revenue	185,500		185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500
Contributions from Development Charges Reserve Fund	-		-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-		-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	**14,387,779**		**15,015,583**	**15,668,859**	**16,351,568**	**17,065,019**	**17,810,579**	**18,589,676**	**19,403,799**	**20,254,504**	**21,143,415**	**22,072,227**
Water Billing Recovery - Total	**16,693,592**		**20,113,616**	**23,428,927**	**27,253,503**	**30,225,440**	**33,504,664**	**37,122,914**	**39,180,123**	**41,346,605**	**43,628,143**	**46,030,827**

Table A-9
Municipality of Chatham-Kent P.U.C.
Water Rate Forecast
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Water Billing Recovery	16,693,592		20,113,616	23,428,927	27,253,503	30,225,440	33,504,664	37,122,914	39,180,123	41,346,605	43,628,143	46,030,827
Total Volume (m^3)	13,166,413		13,208,901	13,251,389	13,293,877	13,336,365	13,378,853	13,421,341	13,463,829	13,506,317	13,548,805	13,591,293
Declining Block Structure												
Volume Forecast By Block (m^3)												
Block 1	9,525,114		9,567,602	9,610,090	9,652,578	9,695,066	9,737,554	9,780,042	9,822,530	9,865,018	9,907,506	9,949,994
Block 2	3,641,299		3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299	3,641,299
Check Total Volume	**13,166,413**		**13,208,901**	**13,251,389**	**13,293,877**	**13,336,365**	**13,378,853**	**13,421,341**	**13,463,829**	**13,506,317**	**13,548,805**	**13,591,293**
Declining Block Rates ($/$m^3$)												
Step 1 (<67 m^3 per day)	**1.420**		**1.633**	**1.878**	**2.160**	**2.376**	**2.613**	**2.874**	**3.018**	**3.169**	**3.328**	**3.494**
Step 2 (Balance)	**0.870**		**1.233**	**1.478**	**1.760**	**1.976**	**2.213**	**2.474**	**2.618**	**2.769**	**2.928**	**3.094**
Check Revenue												
Block 1	13,525,662		15,623,895	18,047,269	20,846,118	23,031,665	25,445,860	28,112,577	29,646,443	31,263,415	32,967,968	34,764,817
Block 2	3,167,930		4,489,722	5,381,658	6,407,384	7,193,775	8,058,804	9,010,337	9,533,680	10,083,189	10,660,175	11,266,010
Check Total Revenue	**16,693,592**		**20,113,616**	**23,428,927**	**27,253,503**	**30,225,440**	**33,504,664**	**37,122,914**	**39,180,123**	**41,346,605**	**43,628,143**	**46,030,827**
Annual % Change			15.0%	15.0%	15.0%	10.0%	10.0%	10.0%	5.0%	5.0%	5.0%	5.0%

Appendix B
Detailed Wastewater Rate Calculations

Appendix B: Detailed Wastewater Rate Calculations

Table B-1
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Capital Budget Forecast (Uninflated $)

Description	Budget 2024	Total	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Expenditures												
Pumping Station Upgrades to Chatham SPS-103 (Campus Parkway/Grand Ave Area) (Figure 10-12)		-										
· Short Term Additional Pumping Capacity	300,000	-										
· Twin Forcemain to Water Pollution Control Plant		5,000,000			5,000,000							
· Long Term Complete Station Upgrade		13,000,000		6,500,000	6,500,000							
Pumping station upgrades to Chatham main lift station to WPCP (Figure 10-13)		-										
· Pumping Upgrades, increasing firm capacity to 800L/s		1,700,000			1,700,000							
· Twin 750mm Forcemain Section		900,000								900,000		
Pumping station upgrades to Wallaceburg SPS-405 (Dundas St/ Thomas Ave Area)		-										
· Upsizing Pumps to 185 L/s Firm Capacity		500,000								500,000		
Pumping station upgrades to Wallaceburg SPS-402 (Arnold St / Biden St Area)		-										
· Upsizing Pumps to 140 L/s Firm Capacity		500,000								500,000		
Pumping station upgrades to Wallaceburg SPS-401 (Bill McDougall Park)		-										
· Upsizing Pumps to 240 L/s		400,000								400,000		
Erie Street / Tecumseh Street 600mm (Figure 10-8)		1,600,000								1,600,000		
West Street 300mm (Figure 10-8)		450,000									450,000	
Marlborough Street / Industrial Avenue 525mm (Figure 10-9)		4,000,000										4,000,000
SPS – 602 Pumping Upgrade		400,000								400,000		
Inflow and Infiltration Reduction Study		300,000	300,000									
Inflow and Infiltration Study		300,000	300,000									
Optimizing capacity of the combined sewer trunks / interceptors	2,500,000	25,000,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
Continuing Sewer Separation Program for Chatham Targeting largest Downstream Sewers Feeding the Trunk / Interceptor	5,000,000	50,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Rate Study and Financial Plan (split with water and wastewater)	20,000	40,000					20,000					20,000
Chatham WPCP - Plant#1 Concrete repairs to elevated walkways- access to gears and scimmers		1,700,000			-	1,700,000						
Lynwood Subdivision PS#14 (formerly 9A)		10,000,000					10,000,000					
PS#7 -John Street Chatham - complete rebuild		3,000,000					3,000,000					
New South Hub PS - Chatham		38,000,000	3,000,000	13,500,000	13,500,000	8,000,000						
S9- Chatham- North Area Intermediate Sewer Servicing, Pumping Stations, Forcemains		16,000,000	8,000,000	8,000,000								
Annual Sewermain Lifecycle Replacement	4,250,000	80,700,000	5,650,000	7,050,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000
Total Capital Expenditures	**12,070,000**	**253,490,000**	**24,750,000**	**42,550,000**	**42,700,000**	**25,700,000**	**29,020,000**	**16,000,000**	**16,000,000**	**20,300,000**	**16,450,000**	**20,020,000**

Table B-2
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Capital Budget Forecast (Inflated $)

Description	Budget 2024	Total	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Capital Expenditures												
Pumping Station Upgrades to Chatham SPS-103 (Campus Parkway/Grand Ave Area) (Figure 10-12)	-	-	-	-	-	-	-	-	-	-	-	-
· Short Term Additional Pumping Capacity	300,000	-	-	-	-	-	-	-	-	-	-	-
· Twin Forcemain to Water Pollution Control Plant	-	5,955,000	-	-	5,955,000	-	-	-	-	-	-	-
· Long Term Complete Station Upgrade	-	15,045,000	-	7,303,000	7,742,000	-	-	-	-	-	-	-
Pumping station upgrades to Chatham main lift station to WPCP (Figure 10-13)	-	-	-	-	-	-	-	-	-	-	-	-
· Pumping Upgrades, increasing firm capacity to 800L/s	-	2,025,000	-	-	2,025,000	-	-	-	-	-	-	-
· Twin 750mm Forcemain Section	-	1,434,000	-	-	-	-	-	-	-	1,434,000	-	-
Pumping station upgrades to Wallaceburg SPS-405 (Dundas St/ Thomas Ave Area)	-	-	-	-	-	-	-	-	-	-	-	-
· Upsizing Pumps to 185 L/s Firm Capacity	-	797,000	-	-	-	-	-	-	-	797,000	-	-
Pumping station upgrades to Wallaceburg SPS-402 (Arnold St / Biden St Area)	-	-	-	-	-	-	-	-	-	-	-	-
· Upsizing Pumps to 140 L/s Firm Capacity	-	797,000	-	-	-	-	-	-	-	797,000	-	-
Pumping station upgrades to Wallaceburg SPS-401 (Bill McDougall Park)	-	-	-	-	-	-	-	-	-	-	-	-
· Upsizing Pumps to 240 L/s	-	638,000	-	-	-	-	-	-	-	638,000	-	-
Erie Street / Tecumseh Street 600mm (Figure 10-8)	-	2,550,000	-	-	-	-	-	-	-	2,550,000	-	-
West Street 300mm (Figure 10-8)	-	760,000	-	-	-	-	-	-	-	-	760,000	-
Marlborough Street / Industrial Avenue 525mm (Figure 10-9)	-	7,163,000	-	-	-	-	-	-	-	-	-	7,163,000
SPS – 602 Pumping Upgrade	-	638,000	-	-	-	-	-	-	-	638,000	-	-
Inflow and Infiltration Reduction Study	-	318,000	318,000	-	-	-	-	-	-	-	-	-
Inflow and Infiltration Study	-	318,000	318,000	-	-	-	-	-	-	-	-	-
Optimizing capacity of the combined sewer trunks / interceptors	2,500,000	34,930,000	2,650,000	2,809,000	2,978,000	3,156,000	3,346,000	3,546,000	3,759,000	3,985,000	4,224,000	4,477,000
Continuing Sewer Separation Program for Chatham Targeting largest Downstream Sewers Feeding the Trunk / Interceptor	5,000,000	69,857,000	5,300,000	5,618,000	5,955,000	6,312,000	6,691,000	7,093,000	7,518,000	7,969,000	8,447,000	8,954,000
Rate Study and Financial Plan (split with water and wastewater)	20,000	63,000	-	-	-	-	27,000	-	-	-	-	36,000
Chatham WPCP - Plant#1 Concrete repairs to elevated walkways- access to gears and scimmers	-	2,146,000	-	-	-	2,146,000	-	-	-	-	-	-
Lynwood Subdivision PS#14 (formerly 9A)	-	13,382,000	-	-	-	-	13,382,000	-	-	-	-	-
PS#7 -John Street Chatham - complete rebuild	-	4,015,000	-	-	-	-	4,015,000	-	-	-	-	-
New South Hub PS - Chatham	-	44,528,000	3,180,000	15,169,000	16,079,000	10,100,000	-	-	-	-	-	-
S9- Chatham- North Area Intermediate Sewer Servicing, Pumping Stations, Forcemains	-	17,469,000	8,480,000	8,989,000	-	-	-	-	-	-	-	-
Annual Sewermain Lifecycle Replacement	4,250,000	80,700,000	5,650,000	7,050,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000	8,500,000
Total Capital Expenditures	**12,070,000**	**305,528,000**	**25,896,000**	**46,938,000**	**49,234,000**	**30,214,000**	**35,961,000**	**19,139,000**	**19,777,000**	**27,308,000**	**21,931,000**	**29,130,000**
Capital Financing												
Provincial/Federal Grants		-										
Development Charges Reserve Fund	-	16,345,200	-	3,651,500	11,243,500	-	-	-	-	1,450,200	-	-
Non-Growth Related Debenture Requirements	-	37,461,500	-	3,466,000	18,490,500	4,968,000	10,537,000	-	-	-	-	-
Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle Facilities Reserve Fund	300,000	61,567,100	3,180,000	18,820,500	7,500,000	12,246,000	17,397,000	-	-	2,423,600	-	-
Lifecycle Sewers Reserve Fund	11,750,000	177,375,200	15,000,000	16,000,000	12,000,000	13,000,000	8,000,000	19,139,000	19,777,000	23,434,200	21,931,000	29,094,000
Wastewater Reserve	20,000	12,779,000	7,716,000	5,000,000	-	-	27,000	-	-	-	-	36,000
Total Capital Financing	**12,070,000**	**305,528,000**	**25,896,000**	**46,938,000**	**49,234,000**	**30,214,000**	**35,961,000**	**19,139,000**	**19,777,000**	**27,308,000**	**21,931,000**	**29,130,000**

Table B-3
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Wastewater Debt Forecast
Inflated $

Debenture Year	2024	Principal (Inflated)	Forecast									
			2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
2025		-		-	-	-	-	-	-	-	-	-
2026		3,466,000			243,871	243,871	243,871	243,871	243,871	243,871	243,871	243,871
2027		18,490,500				1,301,011	1,301,011	1,301,011	1,301,011	1,301,011	1,301,011	1,301,011
2028		4,968,000					349,554	349,554	349,554	349,554	349,554	349,554
2029		10,537,000						741,395	741,395	741,395	741,395	741,395
2030		-							-	-	-	-
2031		-								-	-	-
2032		-									-	-
2033		-										-
2034		-										
Total Annual Debt Charges	-	**37,461,500**	-	-	243,871	1,544,883	1,894,437	2,635,831	2,635,831	2,635,831	2,635,831	2,635,831

Table B-4
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Wastewater Capital Reserve Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	11,281,851		13,968,706	6,440,287	1,483,496	1,528,001	1,573,841	1,593,246	1,641,043	1,690,275	1,740,983	1,793,212
Transfer from Operating	2,300,000		-	-	-	-	-	-	-	-	-	-
Transfer to Capital	20,000		7,716,000	5,000,000	-	-	27,000	-	-	-	-	36,000
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**13,561,851**		**6,252,706**	**1,440,287**	**1,483,496**	**1,528,001**	**1,546,841**	**1,593,246**	**1,641,043**	**1,690,275**	**1,740,983**	**1,757,212**
Interest	406,856		187,581	43,209	44,505	45,840	46,405	47,797	49,231	50,708	52,229	52,716

Table B-5
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Wastewater Development Charges Reserve Fund Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	-		895,645	1,871,945	(826,480)	(11,365,172)	(10,575,184)	(4,975,365)	1,147,518	2,529,050	2,539,130	4,128,847
Development Charge Proceeds	869,558		921,778	977,147	1,035,833	1,098,003	5,744,733	6,089,460	1,307,870	1,386,325	1,469,459	1,557,614
Transfer to Capital	-		-	3,651,500	11,243,500	-	-	-	-	1,450,200	-	-
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**869,558**		**1,817,423**	**(802,408)**	**(11,034,148)**	**(10,267,169)**	**(4,830,451)**	**1,114,096**	**2,455,388**	**2,465,175**	**4,008,589**	**5,686,461**
Interest	26,087		54,523	(24,072)	(331,024)	(308,015)	(144,914)	33,423	73,662	73,955	120,258	170,594
Required from Development Charges	-		-	3,651,500	11,243,500	-	-	-	-	1,450,200	-	-

Table B-6
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Wastewater Lifecycle Facilities Reserve Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	13,366,329		18,042,592	20,826,139	4,276,065	4,919,347	2,753,548	1,845,830	10,141,205	18,685,441	24,989,696	33,979,387
Transfer from Operating	4,450,751		5,356,960	2,145,881	8,000,000	10,000,000	16,435,520	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000
Transfer to Capital	300,000		3,180,000	18,820,500	7,500,000	12,246,000	17,397,000	-	-	2,423,600	-	-
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**17,517,080**		**20,219,552**	**4,151,520**	**4,776,065**	**2,673,347**	**1,792,068**	**9,845,830**	**18,141,205**	**24,261,841**	**32,989,696**	**41,979,387**
Interest	525,512		606,587	124,546	143,282	80,200	53,762	295,375	544,236	727,855	989,691	1,259,382

Table B-7
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Wastewater Lifecycle Sewers Reserve Continuity
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	13,197,397		5,868,319	894,369	921,200	1,964,625	1,156,989	1,191,698	1,270,483	3,241,962	3,416,004	7,159,088
Transfer from Operating	4,250,000		10,000,000	16,000,000	12,986,203	12,158,665	8,000,000	19,180,780	21,654,053	23,508,746	25,465,567	27,529,635
Transfer to Capital	11,750,000		15,000,000	16,000,000	12,000,000	13,000,000	8,000,000	19,139,000	19,777,000	23,434,200	21,931,000	29,094,000
Transfer to Operating	-		-	-	-	-	-	-	-	-	-	-
Closing Balance	**5,697,397**		**868,319**	**894,369**	**1,907,403**	**1,123,290**	**1,156,989**	**1,233,479**	**3,147,536**	**3,316,508**	**6,950,571**	**5,594,723**
Interest	170,922		26,050	26,831	57,222	33,699	34,710	37,004	94,426	99,495	208,517	167,842

Table B-8
Municipality of Chatham-Kent P.U.C.
Wastewater Service
Operating Budget Forecast – Inflated $
Inflated $

Description	Budget 2024		Forecast 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures												
Operating Costs												
Operations and Maintenance	4,862,695		5,057,200	5,259,500	5,469,900	5,688,700	5,916,200	6,152,800	6,398,900	6,654,900	6,921,100	7,197,900
Compliance and Enforcement	312,920		325,400	338,400	351,900	366,000	380,600	395,800	411,600	428,100	445,200	463,000
Plant, ground and equipment	1,397,570		1,453,500	1,511,600	1,572,100	1,635,000	1,700,400	1,768,400	1,839,100	1,912,700	1,989,200	2,068,800
Pumping Stations	741,966		771,600	802,500	834,600	868,000	902,700	938,800	976,400	1,015,500	1,056,100	1,098,300
Sanitary Maintenance	906,340		942,600	980,300	1,019,500	1,060,300	1,102,700	1,146,800	1,192,700	1,240,400	1,290,000	1,341,600
Administration	1,300,165		1,352,200	1,406,300	1,462,600	1,521,100	1,581,900	1,645,200	1,711,000	1,779,400	1,850,600	1,924,600
Meter Reading/Billing & Collection	694,730		722,500	751,400	781,500	812,800	845,300	879,100	914,300	950,900	988,900	1,028,500
AM/FM	90,971		94,600	98,400	102,300	106,400	110,700	115,100	119,700	124,500	129,500	134,700
Engineering	507,132		527,400	548,500	570,400	593,200	616,900	641,600	667,300	694,000	721,800	750,700
Sub Total Operating	**10,814,489**		**11,247,000**	**11,696,900**	**12,164,800**	**12,651,500**	**13,157,400**	**13,683,600**	**14,231,000**	**14,800,400**	**15,392,400**	**16,008,100**
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	2,966,495		1,379,875	1,251,197	1,216,035	1,179,985	1,234,897	699,167	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	379,549		291,691	236,276	181,892	128,395	73,483	15,933	-	-	-	-
New Non-Growth Related Debt (Principal)			-	-	122,561	780,695	983,693	1,390,722	1,439,398	1,489,776	1,541,919	1,595,886
New Non-Growth Related Debt (Interest)			-	-	121,310	764,188	910,744	1,245,109	1,196,434	1,146,055	1,093,913	1,039,946
Transfer to Capital	-		-	-	-	-	-	-	-	-	-	-
Lifecycle Facilities Reserve Contribution ($)	4,450,751		5,356,960	2,145,881	8,000,000	10,000,000	16,435,520	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000
Lifecycle Sewers Reserve Contribution ($)	4,250,000		10,000,000	16,000,000	12,986,203	12,158,665	8,000,000	19,180,780	21,654,053	23,508,746	25,465,567	27,529,635
Transfer to Capital Reserve	2,300,000											
Sub Total Capital Related	**14,346,795**		**17,028,526**	**19,633,354**	**22,628,001**	**25,011,928**	**27,638,336**	**30,531,712**	**32,289,885**	**34,144,577**	**36,101,399**	**38,165,467**
Total Expenditures	**25,161,283**		**28,275,526**	**31,330,254**	**34,792,801**	**37,663,428**	**40,795,736**	**44,215,312**	**46,520,885**	**48,944,977**	**51,493,799**	**54,173,567**
Revenues												
Base Charge	11,355,036		11,893,175	12,456,197	13,045,232	13,661,460	14,306,113	14,980,480	15,685,907	16,423,799	17,195,626	18,002,920
Leachate Revenue	908,960		945,300	983,100	1,022,400	1,063,300	1,105,800	1,150,000	1,196,000	1,243,800	1,293,600	1,345,300
Rent	63,000		63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000
Other	431,751		431,800	431,800	431,800	431,800	431,800	431,800	431,800	431,800	431,800	431,800
Contributions from Development Charges Reserve Fund	-		-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-		-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	**12,758,747**		**13,333,275**	**13,934,097**	**14,562,432**	**15,219,560**	**15,906,713**	**16,625,280**	**17,376,707**	**18,162,399**	**18,984,026**	**19,843,020**
Wastewater Billing Recovery - Operating	**12,402,536**		**14,942,251**	**17,396,156**	**20,230,369**	**22,443,868**	**24,889,024**	**27,590,032**	**29,144,178**	**30,782,578**	**32,509,773**	**34,330,547**

Table B-9
Municipality of Chatham-Kent P.U.C.
Wastewater Rate Forecast
Inflated $

Description	2024		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Wastewater Billing Recovery	12,402,536		14,942,251	17,396,156	20,230,369	22,443,868	24,889,024	27,590,032	29,144,178	30,782,578	32,509,773	34,330,547
Total Volume (m^3)	9,442,488		9,484,976	9,527,464	9,569,952	9,612,440	9,654,928	9,697,416	9,739,904	9,782,392	9,824,880	9,867,368
Declining Block Structure												
Volume Forecast By Block (m^3)												
Block 1	7,257,621		7,300,109	7,342,597	7,385,085	7,427,573	7,470,061	7,512,549	7,555,037	7,597,525	7,640,013	7,682,501
Block 2	2,184,867		2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867	2,184,867
Check Total Volume	**9,442,488**		**9,484,976**	**9,527,464**	**9,569,952**	**9,612,440**	**9,654,928**	**9,697,416**	**9,739,904**	**9,782,392**	**9,824,880**	**9,867,368**
Declining Block Rates ($/$m^3$)												
Step 1 (<67 m3 per day)	**1.45**		**1.67**	**1.92**	**2.21**	**2.43**	**2.67**	**2.94**	**3.08**	**3.24**	**3.40**	**3.57**
Step 2 (Balance)	**0.86**		**1.27**	**1.52**	**1.81**	**2.03**	**2.27**	**2.54**	**2.68**	**2.84**	**3.00**	**3.17**
Check Revenue												
Block 1	10,523,550		12,172,932	14,080,348	16,286,097	18,017,774	19,932,925	22,050,929	23,284,423	24,586,138	25,959,814	27,409,392
Block 2	1,878,986		2,769,319	3,315,809	3,944,272	4,426,094	4,956,098	5,539,103	5,859,755	6,196,440	6,549,959	6,921,155
Check Total Revenue	**12,402,536**		**14,942,251**	**17,396,156**	**20,230,369**	**22,443,868**	**24,889,024**	**27,590,032**	**29,144,178**	**30,782,578**	**32,509,773**	**34,330,547**
Annual % Change			15.0%	15.0%	15.0%	10.0%	10.0%	10.0%	5.0%	5.0%	5.0%	5.0%