Water and Wastewater Rate Study

Township of Hornepayne

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List of Acronyms and Abbreviations

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

List of Acronyms and Abbreviations (Cont'd)

S.D.E.	Single detached equivalent
S.W.S.S.A.	Sustainable Water and Sewage Systems Act, 2002

Executive Summary

Executive Summary

The Township of Hornepayne 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, and customer profiles. The results of this analysis provide updated water and wastewater flat rates for customers within the Township of Hornepayne (the Township). 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 present rate structure is a combined water and wastewater flat rate based on the type of customer.
- This report provides separated water and wastewater flat rates based on a "single-detached equivalent" rate for different types of customers (i.e. different customer types are compared to the average water consumption of a single family home).
- An analysis was undertaken to determine whether existing rates are equitable based on the relative usage patterns of different customer types. This was analyzed through water usage patterns in a comparative northern Ontario municipality. The rates for the different types of customers were validated, and most were found to be relatively equitable. Adjustments were made to the weighting of rates where there was not a clear link between the rate currently charged and the typical usage of a customer class.
- Although they are users of the systems, Township-owned facilities are not currently charged for water and wastewater services. For increased equity and ensuring all users pay for the service provided, it is recommended that the Township impose a charge on these facilities. The related revenue would then be drawn from tax-supported revenues. Based on typical usage patterns, rates for these facilities have been suggested within this report.
- The 2021 to 2029 capital spending program for water and wastewater is $1.38 million and $2.00 million (inflated), respectively.
- Annual operating expenditures related to the Ontario Clean Water Agency (O.C.W.A.) operating contract are assumed to increase 4.2% annually. All other operating expenditures are assumed to increase by 2% per annum.

- Existing water customers total 465; new customers will range from between 1 and 2 customers annually over the next 9-year period.
- Existing wastewater customers total 460; the same level of increase as water is assumed over the period.

Based on the above information, the needs for water are relatively constant over the forecast period, while wastewater needs are arising at the beginning of the forecast. Given the required capital expenditures, combined with the fixed annual operating costs required to run the water and wastewater systems, rate increases have been set for the combined water/wastewater user to experience an average 2.8% annual increase on the combined bill over the 2022-2029 forecast period. This is achieved by providing the following changes to water and wastewater:

- To meet the needs of the water forecast while keeping the combined rate increases at a reasonable level, the water rates are assumed to remain constant in 2022, followed by 1% annual increases between 2022-2023 and 2% annual increases thereafter.
- In contrast to water, the wastewater expenditures increase significantly at the beginning of the forecast period and therefore, it is recommended that the wastewater flat rates increase annually by 10% for 2022, 6% between 2022-2023, 4% between 2025-2027 and an annual 2% increase for 2028-2029.

Table ES-1 summarizes the recommended water and wastewater rates and annual bills (for a single detached home customer) based on the analysis provided herein over the forecast period.

Table ES-1
Township of Hornepayne
Annual Single Detached Customer Bill

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029
Water									
Annual Flate Rate	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Annual % Increase (Water)		**0.0%**	**1.0%**	**1.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**
Wastewater									
Annual Flat Rate	$676	$744	$789	$836	$869	$904	$940	$959	$978
Annual % Increase (Wastewater)		**10.0%**	**6.0%**	**6.0%**	**4.0%**	**4.0%**	**4.0%**	**2.0%**	**2.0%**
Water and Wastewater									
Total Water and Wastewater Bill	$1,734	$1,802	$1,857	$1,915	$1,970	$2,027	$2,086	$2,127	$2,170
Annual % Increase (Water and Wastewater)		**3.9%**	**3.1%**	**3.1%**	**2.9%**	**2.9%**	**2.9%**	**2.0%**	**2.0%**

Report

Chapter 1
Introduction

1. Introduction

1.1 Background

The Township of Hornepayne currently services 465 water customers and 460 wastewater customers. The water source comes from Moonlight Lake and is transmitted approximately 5.5 km to the Herbert Avenue Water Treatment Plant where the raw water undergoes treatment and disinfection. The treated water is then distributed throughout the Township's water network.

The Township utilizes a flat rate charge for their customers. The flat rates for water and wastewater are differentiated by class of user. Table 1-1 provides the existing rates currently in effect.

Table 1-1
Township of Hornepayne
Water and Wastewater Rates – 2021

2021 Water & Wastewater Billing Rates	
Annual Flat Rate	
Single Family/Residential Unit	$1,734
Residential Unit - Water Only	$1,148
Multiple Family/Residential Unit (up to 4 units)	$1,734
Commercial/Business	$2,442
Multi-Residential Agreement #1	$39,021
Multi-Residential Agreement #2	$30,350
CN Old Transfer Building	$6,052
Department Stores	$6,106
Repair Garage and Service Station	$2,442
Railway Rate	$24,497
Detached Garages Services	$1,219
Water for each bay (in addition to one bay)	$1,192
Schools - Each Room	$1,734
Algoma District School Board	$50,294
Huron Superior Catholic District School Board	$43,357
Churches & Meeting Halls (not otherwise covered)	$1,219
Churches & Meeting Halls - Water Only	$807
Hospitals	$23,541
Royal Canadian Legion	$5,170
Hotels/Motels basic charge - 8 rooms	$2,442
Each additional room	$238
Restaurant or L.L.B. Licensed premises (Basic charge 20 seats)	$3,663
Each additional seat	$49
Banquet facilities (basic charge up to 100 seats)	$2,442
Each additional seat	$13

With the legislative changes being made across Ontario as a result of the Walkerton crisis, municipalities will be required to conform to new statutes governing the management of water and wastewater systems. Watson & Associates Economists Ltd. (Watson) was retained by the Township of Hornepayne to assist in addressing these

changes in a proactive manner as they relate to the water and wastewater systems. The assessment provided herein addresses changes recommended to the water and wastewater rates based on the most current information and forecasts the implications over the next nine-year 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. *Municipal Act*) 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 nine years. This assessment identifies fixed and variable costs in order to project those costs sensitive to changes to the existing infrastructure inventory, as well as costs which may increase commensurate with growth; and
- Provide staff and Committee/Council the findings to assist in gaining approval of the rates for 2022 and future years.

1.3 Regulatory Changes in Ontario

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

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

- lifecycle costing.

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

1.4 Sustainable Water and Sewage Systems Act

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

Full costs for water service was defined in subsection 3(7) of the Act and included "…source protection costs, operating costs, financing costs, renewal and replacement costs and improvement costs associated with extracting, treating or distributing water to the public and such other costs which may be specified by regulation." Similar provisions were made for wastewater services in subsection 4(7) with respect to "…collecting, treating or discharging waste water."

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

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

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

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

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

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

1.5 Financial Plans Regulation

On August 16, 2007, the M.O.E. passed O. Reg 453/07 which requires the preparation of financial plans for water (and wastewater) systems. The M.O.E. has also provided a Financial Plan Guidance Document to assist in preparing the plans. A brief summary of the key elements of the regulation is provided below:

- The financial plan will represent one of the key elements for the municipality to obtain its Drinking Water Licence;
- The financial plans shall be for a period of at least six years, but longer planning horizons are encouraged;
- As the regulation is under the *Safe Drinking Water Act, 2002*, the preparation of the plan is mandatory for water and encouraged for wastewater;
- The plan is considered a living document (i.e. will be updated as annual budgets are prepared) but will need to be undertaken, at a minimum, every five years;
- The plans generally require the forecasting of capital, operating and reserve fund positions, providing detailed inventories, forecasting future users and volume usage and corresponding calculation of rates. In addition, P.S.A.B. information on the system must be provided for each year of the forecast (i.e. total non-financial assets, tangible capital asset acquisitions, tangible capital asset construction, betterments, write-downs, disposals, total liabilities and net debt);
- The financial plans must be made available to the public (at no charge) upon request and be available on the municipality's website. The availability of this information must also be advertised; and
- The financial plans are to be approved by Resolution of the Council or governing body indicating that the drinking water system is financially viable.

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

A Guideline ("Towards Financially Sustainable Drinking Shores – Water and Wastewater Systems") had been developed to assist municipalities in understanding the Province's direction and provided a detailed discussion on possible approaches to sustainability. The Province's Principles of Financially Sustainable Water and Wastewater Services are provided below:

Principle #1: Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system(s) to which they relate.

Principle #2: An integrated approach to planning among water, wastewater, and stormwater systems is desirable given the inherent relationship among these services.

Principle #3: Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.

Principle #4: Lifecycle planning with mid-course corrections is preferable to planning over the short term, or not planning at all.

Principle #5: An asset management plan is a key input to the development of a financial plan.

Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.

Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.

Principle #8: Financial plans are "living" documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.

Principle #9: Financial plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal Council.

1.6 Water Opportunities Act, 2010

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

The Act provides for the following elements:

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

With regard to the sustainability plans:

- The Act extends from the water financial plans and requires a more detailed review of the water financial plan and requires a full plan for wastewater and stormwater services; and
- Regulations will provide performance targets for each service – these targets may vary based on the jurisdiction of the regulated entity or the class of entity.

The financial plan shall include:

- An asset management plan for the physical infrastructure;
- A financial plan;
- For water, a water conservation plan;
- An assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks; and

- Strategies for maintaining and improving the municipal service, including strategies to ensure the municipal service can satisfy future demand, consider technologies, services and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources, and increase co-operation with other municipal service providers.

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

- May relate to the financing, operation or maintenance of a municipal service or to any other matter in respect of what information may be required to be included in a plan;
- May be different for different municipal service providers or for municipal services in different areas of the Province.

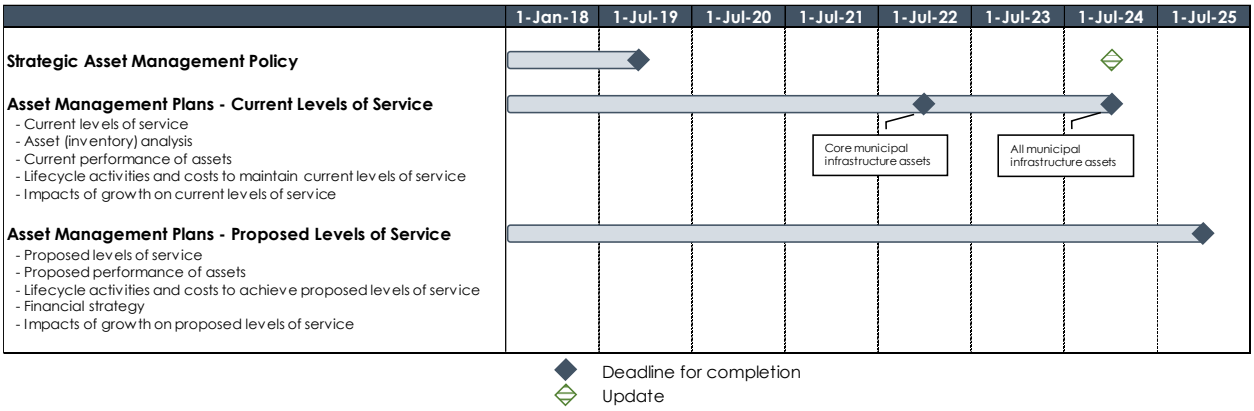
Regulations will prescribe:

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

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

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

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



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 will need to have an asset management plan that addresses the related infrastructure by July 1, 2022 (Phase 1). O. Reg. 588/17 specifies that the municipality's asset management plan must include the following for each asset category:

- The current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data from at

most the two calendar years prior to the year in which all information required under this section is included in the asset management plan;

- The current performance of each asset category, including:
    - a summary of the assets in the category;
    - the replacement cost of the assets in the category;
    - the average age of the assets in the category, determined by assessing the average age of the components of the assets;
    - the information available on the condition of the assets in the category;
    - a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate; and
- The lifecycle activities that would need to be undertaken to maintain the current levels of service.

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

1.8 Classes of Users

The Township of Hornepayne currently services 465 water customers and 460 wastewater customers. Information on the existing number of customers was obtained from the Township.

The Township's existing rates are based on a combined water and wastewater rate. In order to isolate the required rate increases for the water and wastewater systems, the combined rate has been separated for water and wastewater. Based on the relative expenditures for the two systems, the combined rate has been allocated 61% to water and 39% to wastewater. The analysis provided herein utilizes this separated rate structure to provide the forecasted rates.

As noted above, the flat rates are structured based on class of user. In order to calculate the forecasted rates, all rates are based on the relationship of each class of user, relative to a single detached residential customer. For example, a commercial customer is considered to be 1.4 residential customers, therefore they would pay 1.4 times the residential rate. Table 1-2 provides a summary of the existing customer profile, based on the existing class of users, and the existing weighting used to relate the class of user with a residential customer.

Table 1-2
Township of Hornepayne
Customer Profile – Existing Weighting (Based on S.D.E. Equivalent)

Customer Type	WATER				WASTEWATER			
	Existing Cutomers and Rates		Existing Weighting (Based on SDE)		Existing Cutomers and Rates		Existing Weighting (Based on SDE)	
	Water Customers	Annual Water Rate	Weighting	Weighted Customer Count	Wastewater Customers	Annual Wastewater Rate	Weighting	Weighted Customer Count
Residential	424.0	$1,057.90	1.0	424.0	424.0	$676.37	1.0	424.0
Commercial	23.0	$1,489.50	1.4	32.4	23.0	$952.30	1.4	32.4
Bunkhouse - Multi-Residential Agreement #1	1.0	$23,802.90	22.5	22.5	1.0	$15,218.25	22.5	22.5
HEDC - Multi-Residential Agreement #2	1.0	$18,513.44	17.5	17.5	1.0	$11,836.46	17.5	17.5
Residential - Water Only	4.0	$1,148.10	1.1	4.3	-	-	-	-
CN - Old Transfer Station	1.0	$3,691.65	3.5	3.5	1.0	$2,360.24	3.5	3.5
Department Stores	-	$3,724.75	3.5	-	-	$2,381.39	3.5	-
Repair Garage & Service Station	-	$1,489.50	1.4	-	-	$952.30	1.4	-
Railway	1.0	$14,943.13	14.1	14.1	1.0	$9,553.81	14.1	14.1
Detached Bay	1.0	$743.68	0.7	0.7	1.0	$475.46	0.7	0.7
Additional Bay	-	$726.98	0.7	-	-	$464.79	0.7	-
Algoma District School Board	1.0	$30,679.24	29.0	29.0	1.0	$19,614.59	29.0	29.0
Huron Superior Catholic District School Board	1.0	$26,447.62	25.0	25.0	1.0	$16,909.13	25.0	25.0
Churches & Meeting Halls	4.0	$743.68	0.7	2.8	4.0	$475.46	0.7	2.8
Churches - Water Only	1.0	$807.08	0.8	0.8	-	-	-	-
Hospital	1.0	$14,360.19	13.6	13.6	1.0	$9,181.10	13.6	13.6
Legion	1.0	$3,153.96	3.0	3.0	1.0	$2,016.47	3.0	3.0
Hotel/Motel	-	$1,489.50	1.4	-	-	$952.30	1.4	-
Restaurant - 20 Seats	-	$2,234.23	2.1	-	-	$1,428.45	2.1	-
Additional Seat	-	$29.79	0.03	-	-	$19.04	0.03	-
Banquet Facility - 100 Seats	-	$1,489.50	1.4	-	-	$952.30	1.4	-
Additional Seat	-	$7.65	0.01	-	-	$4.89	0.01	-
Total Customers (Weighted)	**465.0**			**593.2**	**460.0**			**588.1**

To assess the equity of the existing weighting structure and whether different classes of users were paying an appropriate rate relative to typical usage patterns, an analysis was undertaken utilizing detailed usage information of a comparative Northern Ontario municipality. Water usage information by type of customer was compared to an S.D.E. to determine whether the relative rates paid by the different customers in Hornepayne are in line with usage patterns.

Based on the analysis, Table 1-3 provides the recommended weighting (relative to an S.D.E.) for different types of customers. Several items should be noted:

- Many of the existing weightings are in line with usage patterns. For example, commercial customers are typically found to use 1.4 times the amount of water an S.D.E. would use. Therefore, it is appropriate to maintain these relative weightings in the water & wastewater rates.
- Where an agreement on water & wastewater rates is in place between the Township and the customer, the existing weighting has been maintained.
- Several customer categories are provided in the Township's water and wastewater rate by-law that are not currently utilized. Based on usage patterns, it is recommended that these categories be removed. For example, the Township currently has a charge for restaurants with a weighting of 2.1 relative to an S.D.E.

Based on usage patterns, a restaurant rate is more in line with the commercial weighting of 1.4.

- In order to provide a better link between the water and wastewater rates and the usage of water and wastewater, additional categories are recommended. For example, based on consumption data, grocery stores typically use 2.5 times the amount of water an S.D.E. would utilize. As a result, a separate category has been established for grocery stores, separate from the commercial category.
- Although they are users of the systems, Township-owned facilities are not currently charged for water and wastewater services, and as such, the revenues related to these expenditures are not being captured. For increased equity and ensuring all users pay for the service, it is recommended that the Township impose a charge for these facilities. The related rate revenue would then be drawn from tax-supported sources.

Table 1-3
Township of Hornepayne
Customer Profile – Recommended Weighting (Based on S.D.E. Equivalent)

Customer Type	WATER			WASTEWATER		
	Existing Cutomers	Proposed Weighting (Based onSDE)		Existing Cutomers	Proposed Weighting (Based on SDE)	
	Water Customers	Proposed Weighting	Weighted Customer Count	Wastewater Customers	Proposed Weighting	Weighted Customer Count
Residential	424.0	1.0	424.0	424.0	1.0	424.0
Commercial	17.0	1.4	23.9	17.0	1.4	23.9
Bunkhouse - Multi-Residential Agreement #1	1.0	22.5	22.5	1.0	22.5	22.5
HEDC - Multi-Residential Agreement #2	1.0	17.5	17.5	1.0	17.5	17.5
Residential - Water Only	4.0	1.0	4.0	-	-	-
CN - Old Transfer Station	1.0	3.5	3.5	1.0	3.5	3.5
Railway	1.0	14.1	14.1	1.0	14.1	14.1
Detached Bay	2.0	1.0	2.0	2.0	1.0	2.0
Additional Bay	5.0	0.7	3.4	5.0	0.7	3.4
Algoma District School Board	1.0	29.0	29.0	1.0	29.0	29.0
Huron Superior Catholic District School Board	1.0	25.0	25.0	1.0	25.0	25.0
Churches & Meeting Halls	4.0	1.0	4.0	4.0	1.0	4.0
Churches - Water Only	1.0	1.0	1.0	-	-	-
Hospital	1.0	34.3	34.3	1.0	34.3	34.3
Legion	1.0	2.0	2.0	1.0	2.0	2.0
Hotel/Motel	-	10.0	-	-	10.0	-
Grocery Store	1.0	2.5	2.5	1.0	2.5	2.5
Arena	1.0	25.0	25.0	1.0	25.0	25.0
Curling Club	1.0	2.4	2.4	1.0	2.4	2.4
Fire Hall/Township Hall/Library	1.0	1.4	1.4	1.0	1.4	1.4
Airport	1.0	1.4	1.4	1.0	1.4	1.4
Public Works Facility	1.0	1.4	1.4	1.0	1.4	1.4
Total Customers (Weighted)	**471.0**		**644.4**	**466.0**		**639.4**

1.9 Forecast Growth and Servicing Requirements

For future water and wastewater customers to be added to the systems, consideration has been given to development potential within the serviced areas of the Township over the forecast period.

Table 1-4 provides for the forecast of water users for Hornepayne, while Table 1-5 provides the forecast of wastewater users. All customers have been weighted on an S.D.E. basis to provide for a simplified calculation methodology.

Table 1-2
Township of Hornepayne
2021 to 2029 Water System Forecast

Year	Total Users (Single Detached Equivalents)	2021	2022	2023	2024	2025	2026	2027	2028	2029
2021	1	1	1	1	1	1	1	1	1	1
2022	11		6	11	11	11	11	11	11	11
2023	1			1	1	1	1	1	1	1
2024	2				1	2	2	2	2	2
2025	2					1	2	2	2	2
2026	2						1	2	2	2
2027	2							1	2	2
2028	2								1	2
2029	2									1
Total	**29**	**1**	**7**	**13**	**14**	**16**	**18**	**20**	**22**	**24**

Water Customer Forecast	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing (Weighted)	644	644	644	644	644	644	644	644	644
New - Growth	1	7	13	14	16	18	20	22	24

Table 1-3
Township of Hornepayne
2021 to 2029 Wastewater System Forecast

Year	Total Users (Single Detached Equivalents)	2021	2022	2023	2024	2025	2026	2027	2028	2029
2021	1	1	1	1	1	1	1	1	1	1
2022	11		6	11	11	11	11	11	11	11
2023	1			1	1	1	1	1	1	1
2024	2				1	2	2	2	2	2
2025	2					1	2	2	2	2
2026	2						1	2	2	2
2027	2							1	2	2
2028	2								1	2
2029	2									1
Total	**29**	**1**	**7**	**13**	**14**	**16**	**18**	**20**	**22**	**24**
m^3/user		-	-	-	-	-	-	-	-	-
Annual Flow		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Wastewater Customer Forecast	2021	2022	2023	2024	2025	2026	2027	2028	2029
Existing (Weighted)	639	639	639	639	639	639	639	639	639
New - Growth	1	7	13	14	16	18	20	22	24
Total	**640**	**646**	**652**	**653**	**655**	**657**	**659**	**661**	**663**

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 on Tables 2-1 and 2-2 (note: the costs are in inflated dollars). The basis for these forecasts is the Township's Capital Forecasts (developed by O.C.W.A.) and works identified as asset replacement needs based on the inventory data provided for the water and wastewater systems.

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

Table 2-1
Township of Hornepayne
2021 to 2029 Water Capital Forecast Summary (Inflated $)

Description	Total 2021-2029	Years Undertaken
Water Treatment Plant		
Fuel Tank Replacement for RWP Generator (New)	7,500	2021
Turbidity Meter Upgrades (Current Obsolete)	60,000	2021, 2029
Filter Train Assessment	10,000	2023
Remote Access	15,000	2022
Electrical Assessment of Entire System	26,000	2023
Intake, Clear Wells & Tower Inspection (ROV)	5,000	2022
Filter Train Replacement Parts	32,000	2021, 2024, 2027
Crossarm/Insulator Repairs & Hydro Line Patrol (Approved)	19,000	2021
Water Distribution		
Valve Replacement/Repairs (Vac Trailer Work)	245,000	2021-2029
Unscheduled Capital Works	958,500	2021-2029
Total Water	**1,378,000**	

Table 2-2
Township of Hornepayne
2021 to 2029 Wastewater Capital Forecast Summary (Inflated $)

Description	Total 2021-2029	Years Undertaken
Sludge Haul for The Year	10,000	2021
Clarifier Maintenance Plan	5,000	2021
CCTV Sewer Mains	206,000	2021-2024
WPCP UV Project	1,104,874	2021
Provision for Asset Replacement	281,000	2025-2029
Emergency Power Line Reconfiguration	394,000	2023-2024
Total Wastewater	**2,000,874**	

Chapter 3
Lifecycle Costing

3. Lifecycle Costing

3.1 Overview of Lifecycle Costing

3.1.1 Definition

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

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

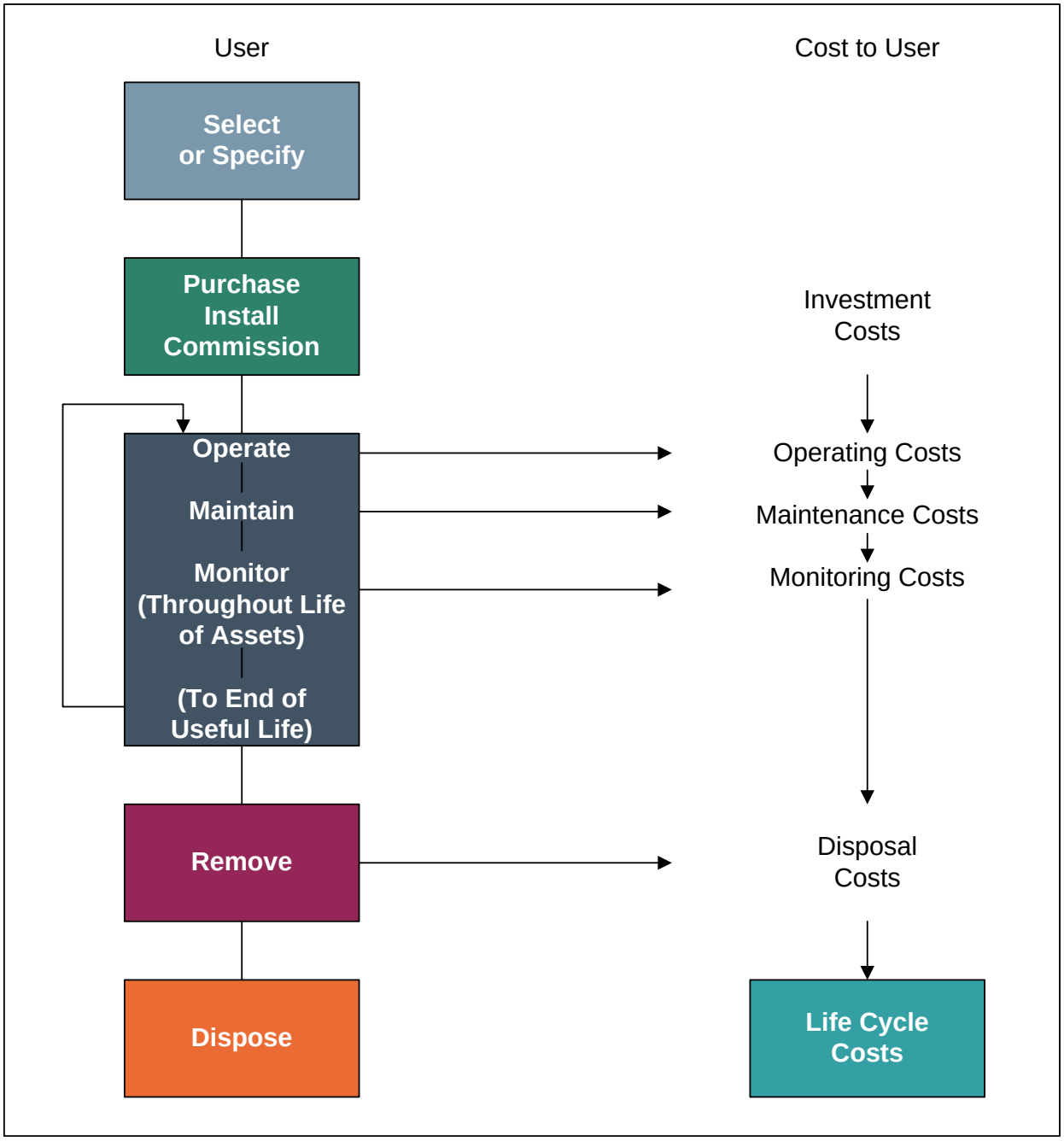
3.1.2 Financing Costs

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

In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the Township. Over the past few decades, new financing techniques such as development charges have been employed based on the underlying principle of having tax/rate payers who benefit directly from the service paying for that service. Operating costs which reflect the cost of the service for that year are charged directly to all existing tax/rate payers who have received the benefit. Operating costs are normally charged through the tax base or user rates.

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

Figure 3-1
Lifecycle Costing



New construction related to growth could produce development charges and developer contributions (e.g. works internal to a subdivision which are the responsibility of the developer to construct) to fund a significant portion of projects, where new assets are being acquired to allow growth within the Township to continue. As well, debentures

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

Capital construction to replace existing infrastructure, however, is largely not growth-related and will therefore not yield development charges or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves and contributions from the operating budget to fund these works.

Figure 3-2 depicts the costs of an asset from its initial conception through to replacement and then continues to follow the associated costs through to the next replacement.

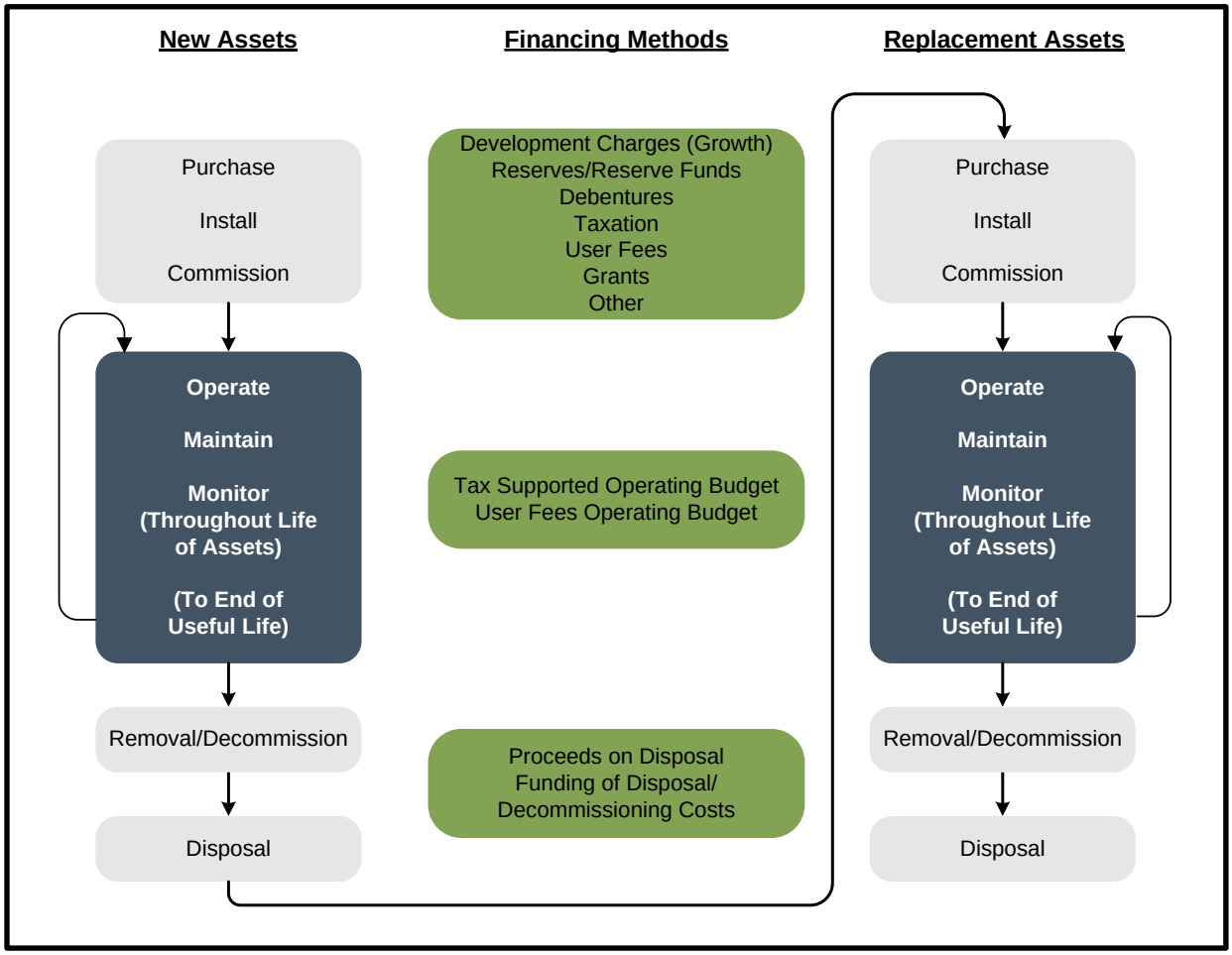
As referred to earlier, growth-related financing methods such as development charges and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of this asset. Other financing methods may be used as well to finance the non-growth-related component of this project, such as reserves which have been collected from past tax/rate payers, operating budget contributions which are collected from existing tax/rate payers and debenturing which will be carried by future tax/rate payers. Ongoing costs for monitoring, operating and maintaining the asset will be charged annually to the existing tax/rate payer.

When the asset requires replacement, the sources of financing will be limited to reserves, debentures and contributions from the operating budget. At this point, the question is raised: "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset, should the past tax/rate payer pay for this cost or should future rate payers assume this cost?" If the position is taken that the past user has used up the asset, hence he should pay for the cost of replacement, then a charge should be assessed annually through the life of the asset, to have funds available to replace it when the time comes. If the position is taken that the future tax/rate payer should assume this cost, then debenturing and, possibly, a contribution from the operating budget should be used to fund this work.

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

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

Figure 3-2
Financing Lifecycle Costs



3.1.3 Costing Methods

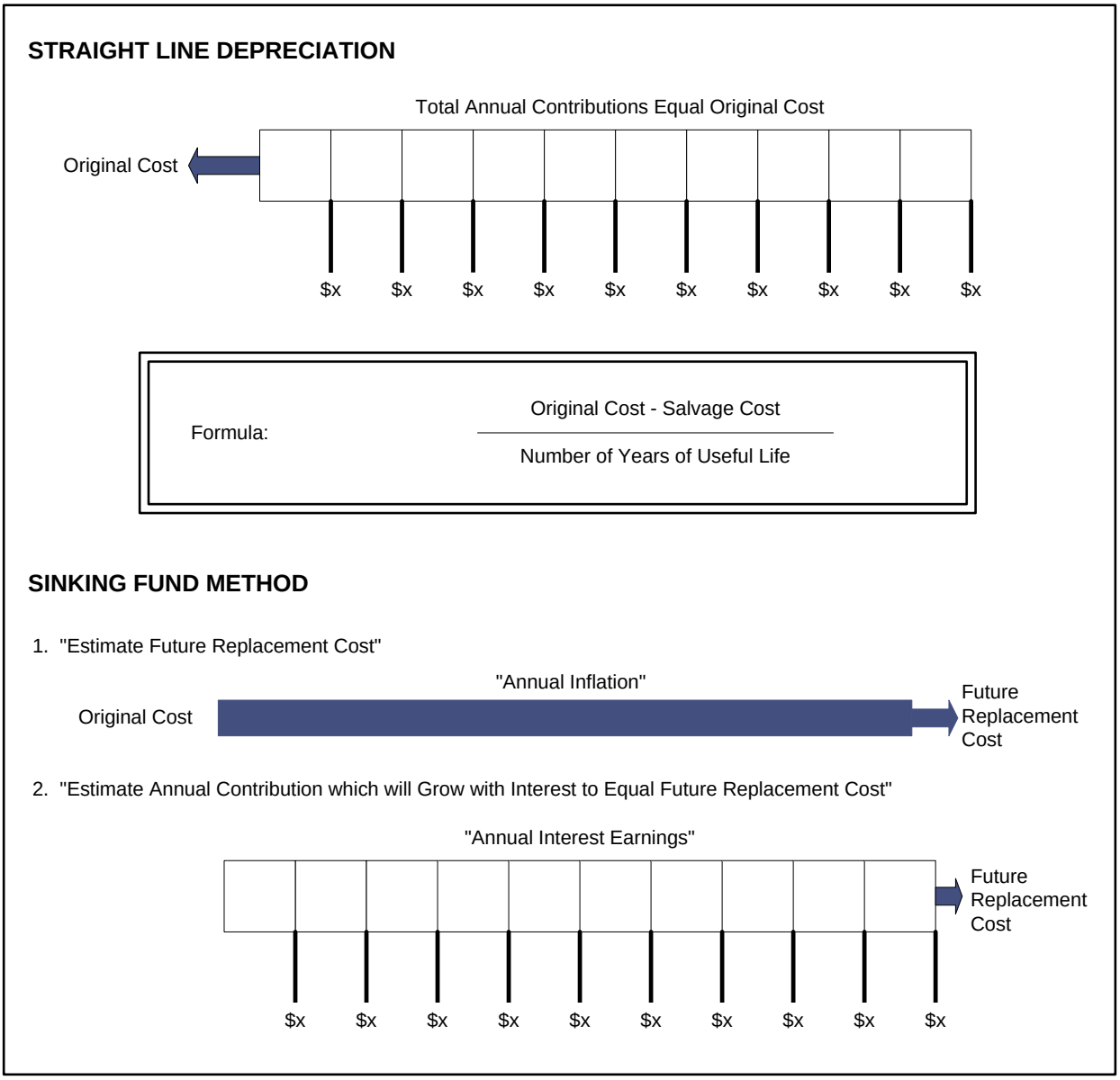
There are two fundamental methods of calculating the cost of the usage of an asset and for the provision of the revenue required when the time comes to retire and replace it. The first method is the Depreciation Method. This method recognizes the reduction in the value of the asset through wear and tear and aging. There are two commonly used forms of depreciation: the straight-line method and the reducing balance method (shown graphically in Figure 3-3).

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

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

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

Figure 3-3



3.2 Impact on Budgets

Detailed water and wastewater systems inventory information was obtained from the Township. The age of the water and wastewater systems date back to the 1970s. The total value of existing water infrastructure is $29.73 million, and the value of existing wastewater infrastructure is $22.14 million.

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

Figure 3-4
Township of Hornepayne
Summary of Water and Wastewater Infrastructure

Area	Total Replacement Value	Amount included in 2021-2029 forecast	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement
Water				
Water Facilities	12,173,670			602,461
Water Equipment	5,277,680	1,275,000	28,451,050	6,857
Hydrants and Valves	452,100			-
Watermains	11,822,600			463,960
Total Water	**29,726,050**	**1,275,000**	**28,451,050**	**1,073,279**
Wastewater				
Wastewater Facilities	3,965,850			45,281
Wastewater Equipment	2,592,570			-
Manholes	597,320	1,944,874	20,190,486	-
Forcemains	2,373,250			94,726
Sanitary Sewers	12,606,370			502,646
Total Wastewater	**22,135,360**	**1,944,874**	**20,190,486**	**642,653**
Total	**51,861,410**	**3,219,874**	**48,641,536**	**1,715,931**

Investment per customer is $46,130 for water and $34,619 for wastewater

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

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

Summaries of both water and wastewater assets are shown on Figures 3-5 and 3-6. These figures show when the assets are coming due and the cost of replacement in 2021 dollars.

Figure 3-5
Township of Hornepayne
Summary of Water Infrastructure Replacement Years (2021 $)

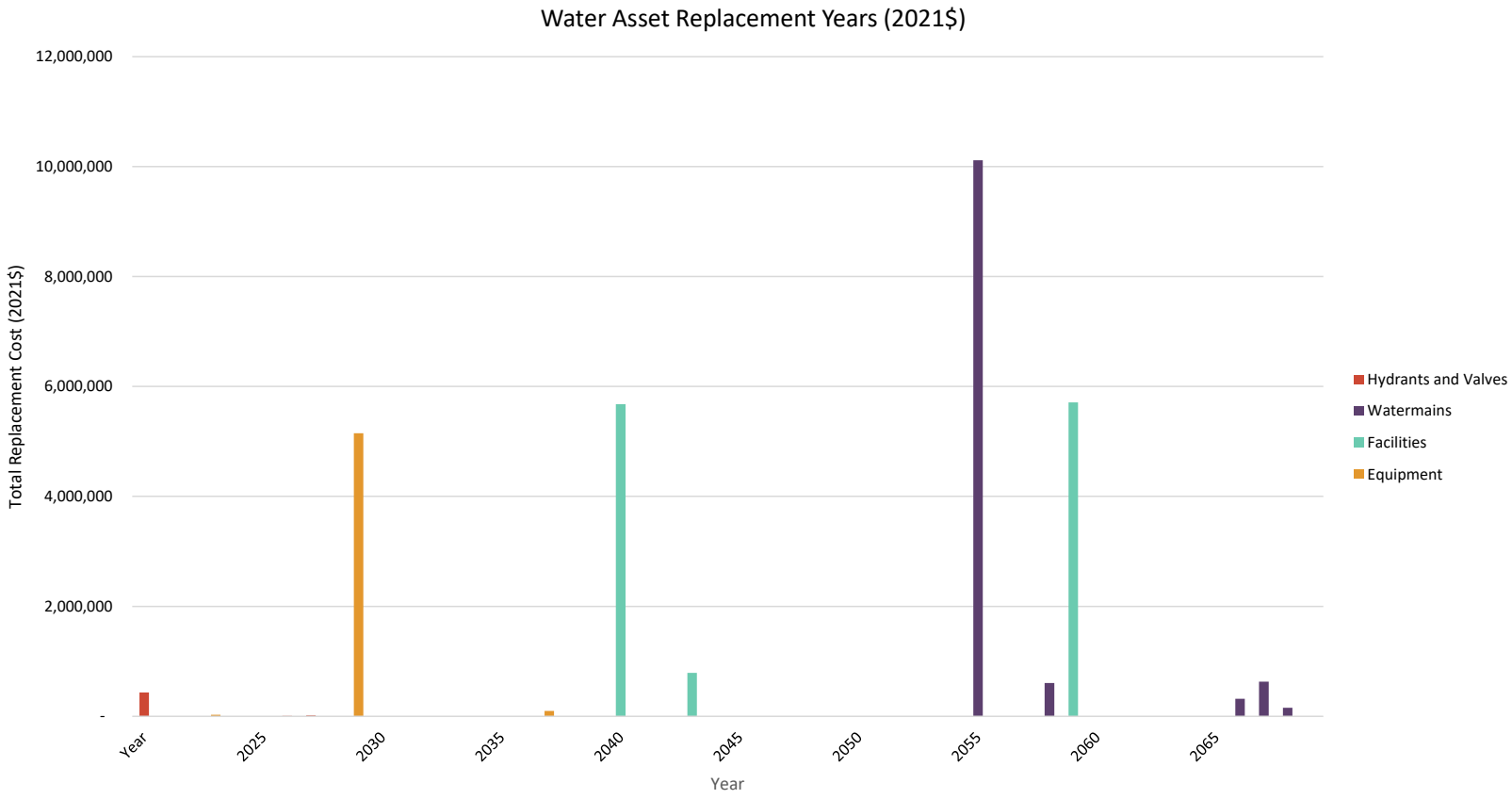
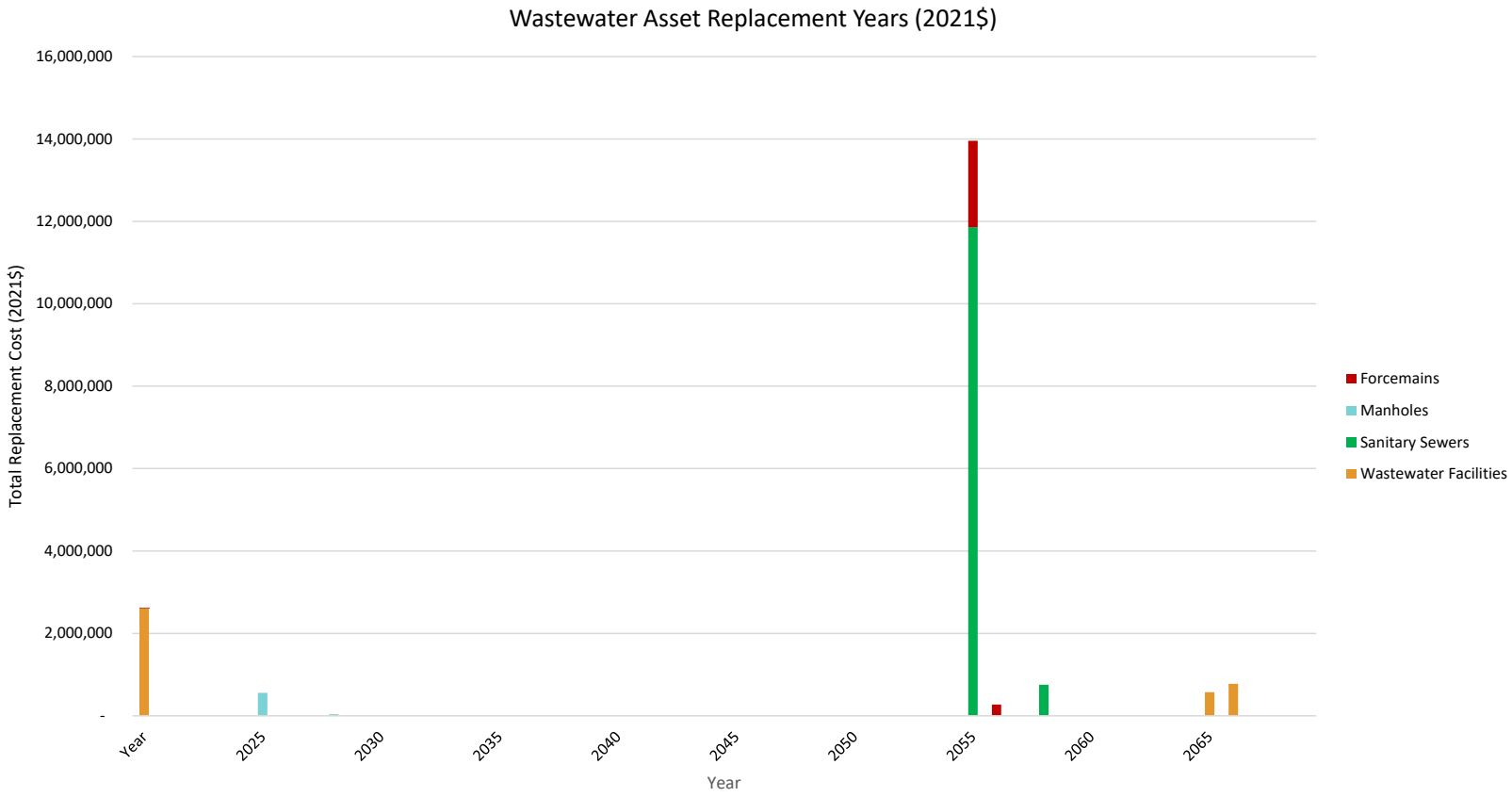


Figure 3-5
Township of Hornepayne
Summary of Wastewater Infrastructure Replacement Years (2021 $)



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.).

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	
○ Local Improvements	

Recovery Methods	Section Reference
• 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.

Most recently, a number of amendments to the D.C.A. were made through 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 City 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 City.

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.

The Township of Hornepayne does not impose D.C.s, and as such, this funding source for growth-related infrastructure is not currently available.

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

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

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

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

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

Under the previous *Local Improvement Act*:

- A variety of different types of works could be undertaken, such as watermain, storm and sanitary sewer projects, supply of electrical light or power, bridge construction, sidewalks, road widening and paving;

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

4.4 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 by 2018/2019. As well, $15 million annually will go to the new Connecting Links program to help pay for the construction and repair costs of municipal roads that connect communities to provincial highways. This is on top of the Building Ontario Up investment of $130 billion in public infrastructure over 10 years starting in 2015.

Potential Grant Funding

From time to time, programs are made available by senior levels of government to assist municipalities in funding capital projects subsequent to major economic downturns (funding for municipalities was available after the U.S. financial crisis in 2008 rippled into Canada). If major grant funding were to be available after COVID-19, the Township could revisit the proposed capital forecast and rates provided herein.

4.5 Existing Reserves

The Township has established reserves for water and wastewater costs. Note that the for the purposes of this analysis, the reserve balance has been allocated 61% to water and 39% to wastewater, based on the proportionate share of expenditures for the two systems. The following table summarizes the water and wastewater reserves utilized in this analysis and their respective balances at December 31, 2020:

Reserve	Dec. 31 2020
Water Reserve	173,067
Wastewater Reserve	110,649

4.6 Debenture Financing

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

The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act*. Ontario Regulation 403/02 provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e. debt charges). The Township of Hornepayne's 2019 calculation on Debt Capacity is shown on Schedule 81 of the Township's most recent Financial Information Return (F.I.R.). This calculates to the Township's estimated annual repayment limit of approximately $710,000. Based upon 20-year financing at an assumed rate of 3.5%, the available debt for the Township is approximately $10.1 million.

4.7 Infrastructure Ontario

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

infrastructure investment "pool." I.O. will raise investment capital to finance loans to the public sector by selling a new investment product called Infrastructure Renewal Bonds to individual and institutional investors.

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

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

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

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

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

The analysis provided herein assumes that the Township will require debt financing for a portion of the capital projects identified.

4.8 Recommended Capital Financing Approach

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

Description	Water 2021-2029	Wastewater 2021-2029
Capital Financing		
Provincial/Federal Grants	-	165,281
Debenture Requirements	-	1,253,593
Operating Contributions	-	-
Water/Wastewater Reserve	1,378,000	582,000
Total Capital Financing	**1,378,000**	**2,000,874**

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

Table 4-1
Township of Hornepayne
Capital Budget Forecast – Water (inflated $)

Description	Budget 2021	Total	Forecast							
			2022	2023	2024	2025	2026	2027	2028	2029
Capital Expenditures										
Water Treatment Plant										
Fuel Tank Replacement for RWP Generator (New)	7,500	-	-	-	-	-	-	-	-	-
Turbidity Meter Upgrades (Current Obsolete)	25,000	35,000	-	-	-	-	-	-	-	35,000
Filter Train Assessment	-	10,000	-	10,000	-	-	-	-	-	-
Remote Access	-	15,000	15,000	-	-	-	-	-	-	-
Electrical Assessment of Entire System	-	26,000	-	26,000	-	-	-	-	-	-
Intake, Clear Wells & Tower Inspection (ROV)	-	5,000	5,000	-	-	-	-	-	-	-
Filter Train Replacement Parts	10,000	22,000	-	-	11,000	-	-	11,000	-	-
Crossarm/Insulator Repairs & Hydro Line Patrol (Approved)	19,000	-	-	-	-	-	-	-	-	-
Water Distribution	-	-	-	-	-	-	-	-	-	-
Valve Replacement/Repairs (Vac Trailer Work)	25,000	220,000	26,000	26,000	27,000	27,000	28,000	28,000	29,000	29,000
Unscheduled Capital Works	83,500	875,000	102,000	104,000	106,000	108,000	110,000	113,000	115,000	117,000
Total Capital Expenditures	**170,000**	**1,208,000**	**148,000**	**166,000**	**144,000**	**135,000**	**138,000**	**152,000**	**144,000**	**181,000**
Capital Financing										
Provincial/Federal Grants		-								
Debenture Requirements	-	-	-	-	-	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-
Water Reserve	170,000	1,208,000	148,000	166,000	144,000	135,000	138,000	152,000	144,000	181,000
Total Capital Financing	**170,000**	**1,208,000**	**148,000**	**166,000**	**144,000**	**135,000**	**138,000**	**152,000**	**144,000**	**181,000**

Table 4-2
Township of Hornepayne
Capital Budget Forecast – Wastewater (inflated $)

Description	Budget 2021	Total	Forecast							
			2022	2023	2024	2025	2026	2027	2028	2029
Capital Expenditures										
Sludge Haul for The Year	10,000	-	-	-	-	-	-	-	-	-
Clarifier Maintenance Plan	5,000	-	-	-	-	-	-	-	-	-
CCTV Sewer Mains	50,000	156,000	51,000	52,000	53,000	-	-	-	-	-
WPCP UV Project	1,104,874	-	-	-	-	-	-	-	-	-
Provision for Asset Replacement	-	281,000	-	-	-	54,000	55,000	56,000	57,000	59,000
Emergency Power Line Reconfiguration	-	394,000	-	195,000	199,000	-	-	-	-	-
Total Capital Expenditures	**1,169,874**	**831,000**	**51,000**	**247,000**	**252,000**	**54,000**	**55,000**	**56,000**	**57,000**	**59,000**
Capital Financing										
Provincial/Federal Grants	165,281	-								
Debenture Requirements	939,593	314,000	-	127,000	187,000	-	-	-	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-
Wastewater Reserve	65,000	517,000	51,000	120,000	65,000	54,000	55,000	56,000	57,000	59,000
Total Capital Financing	**1,169,874**	**831,000**	**51,000**	**247,000**	**252,000**	**54,000**	**55,000**	**56,000**	**57,000**	**59,000**

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 (2022 to 2029) are based on the 2021 operating budgets. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments. The major operating expenditure for the Township relates to the O.C.W.A. operating contract. This expenditure has been assumed to increase at a rate of 4.2% annually, based on the increases in the contract cost in recent years. Other expenditures related to wages, advertising, etc. are assumed to increase at a rate of 2.0% annually. Note that annual contributions have been provided to the water reserve in order to limit the need for additional debt to finance the capital program. Also included are debenture expenditures related to existing debt.

5.2 Water Operating Revenues

The Township has miscellaneous revenue sources to help contribute towards operating expenditures. These miscellaneous revenues, including water sales and O.C.W.A. credits have been assumed to remain constant each year over the forecast period. Table 5-1 provides for the operating budget for the water system.

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

Description	Budget 2021	Forecast 2022	2023	2024	2025	2026	2027	2028	2029
Expenditures									
Operating Costs									
Wages interdepartment (10%)	8,726	8,900	9,100	9,300	9,500	9,700	9,900	10,100	10,300
Advertising / Public Relations	610	600	600	600	600	600	600	600	600
Telephone/Alarm System	2,440	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200
OCWA- Water Requisition	432,620	450,600	469,400	489,000	509,400	530,600	552,700	575,700	599,700
Sub Total Operating	**444,396**	**462,600**	**481,700**	**501,600**	**522,300**	**543,800**	**566,200**	**589,500**	**613,800**
Capital-Related									
Existing Debt (Principal)	29,623	30,711	31,839	33,008	34,221	35,477	36,781	38,132	39,532
Existing Debt (Interest)	35,292	34,204	33,076	31,907	30,694	29,437	28,134	26,783	25,383
New Debt (Principal)		-	-	-	-	-	-	-	-
New Debt (Interest)		-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	178,185	166,342	160,210	148,072	143,100	137,684	131,742	125,269	118,180
Additional Transfers to Reserves - Charging Township Facilities	33,455	33,455	33,790	34,127	34,810	35,506	36,216	36,940	37,679
Sub Total Capital Related	**276,555**	**264,712**	**258,914**	**247,114**	**242,824**	**238,105**	**232,873**	**227,124**	**220,774**
Total Expenditures	**720,951**	**727,312**	**740,614**	**748,714**	**765,124**	**781,905**	**799,073**	**816,624**	**834,574**
Revenues									
Water Sales	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
OCWA Credits	33,183	33,200	33,200	33,200	33,200	33,200	33,200	33,200	33,200
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-
Total Operating Revenue	**38,183**	**38,200**	**38,200**	**38,200**	**38,200**	**38,200**	**38,200**	**38,200**	**38,200**
Water Billing Recovery - Total	**682,767**	**689,112**	**702,414**	**710,514**	**726,924**	**743,705**	**760,873**	**778,424**	**796,374**

5.3 Wastewater Operating Expenditures

Similar to water, the main operating expenditure for wastewater is the O.C.W.A. operating contract. This expenditure has been inflated at an annual rate of 4.2% to reflect increases in operating contract costs. All other expenditures have been adjusted over the forecast period by an annual inflationary factor of 2.0%. Also included are contributions to the capital reserve. Debt payments for existing and anticipated debt are also included in the capital-related component of the operating forecast.

5.4 Wastewater Operating Revenues

The operating revenue for the wastewater program comes mainly from flat rate revenue from customers. A small amount of revenue is also generated through O.C.W.A. credits. This amount has been assumed to remain constant over the forecast period. Table 5-2 outlines the operating budget for the Hornepayne wastewater system.

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

Description	Budget 2021	Forecast 2022	2023	2024	2025	2026	2027	2028	2029
Expenditures									
Operating Costs									
Wages interdepartment (10%)	5,579	5,700	5,800	5,900	6,000	6,100	6,200	6,300	6,400
Advertising / Public Relations	390	400	400	400	400	400	400	400	400
Telephone/Alarm System	1,560	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Hydrogeological Assessment - Sludge Site	7,175	7,300	7,400	7,500	7,700	7,900	8,100	8,300	8,500
OCWA-Sewer Requisition	333,315	357,600	372,500	388,000	404,200	421,000	438,500	456,800	475,800
Sub Total Operating	**340,490**	**364,900**	**379,900**	**395,500**	**411,900**	**428,900**	**446,600**	**465,100**	**484,300**
Capital-Related									
Existing Debt (Principal)	16,619	16,619	16,619	16,619	16,619	16,619	16,619	8,309	-
Existing Debt (Interest)	3,784	3,262	2,741	2,225	1,697	1,175	653	132	-
New Debt (Principal)		33,225	34,388	40,082	48,098	49,781	51,523	53,327	55,193
New Debt (Interest)		32,886	31,723	34,964	40,106	38,423	36,681	34,877	33,011
Transfer to Capital	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	72,075	27,699	45,396	51,587	45,088	52,113	59,449	63,507	66,784
Additional Transfers to Reserves - Charging Township Facilities	21,389	23,528	24,940	26,436	27,494	28,594	29,738	30,332	30,939
Sub Total Capital Related	**113,867**	**137,219**	**155,805**	**171,913**	**179,101**	**186,704**	**194,663**	**190,484**	**185,927**
Total Expenditures	**454,357**	**502,119**	**535,705**	**567,413**	**591,001**	**615,604**	**641,263**	**655,584**	**670,227**
Revenues									
OCWA Credits	21,216	21,200	21,200	21,200	21,200	21,200	21,200	21,200	21,200
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-
Total Operating Revenue	**21,216**	**21,200**	**21,200**	**21,200**	**21,200**	**21,200**	**21,200**	**21,200**	**21,200**
Wastewater Billing Recovery - Total	**433,142**	**480,919**	**514,505**	**546,213**	**569,801**	**594,404**	**620,063**	**634,384**	**649,027**

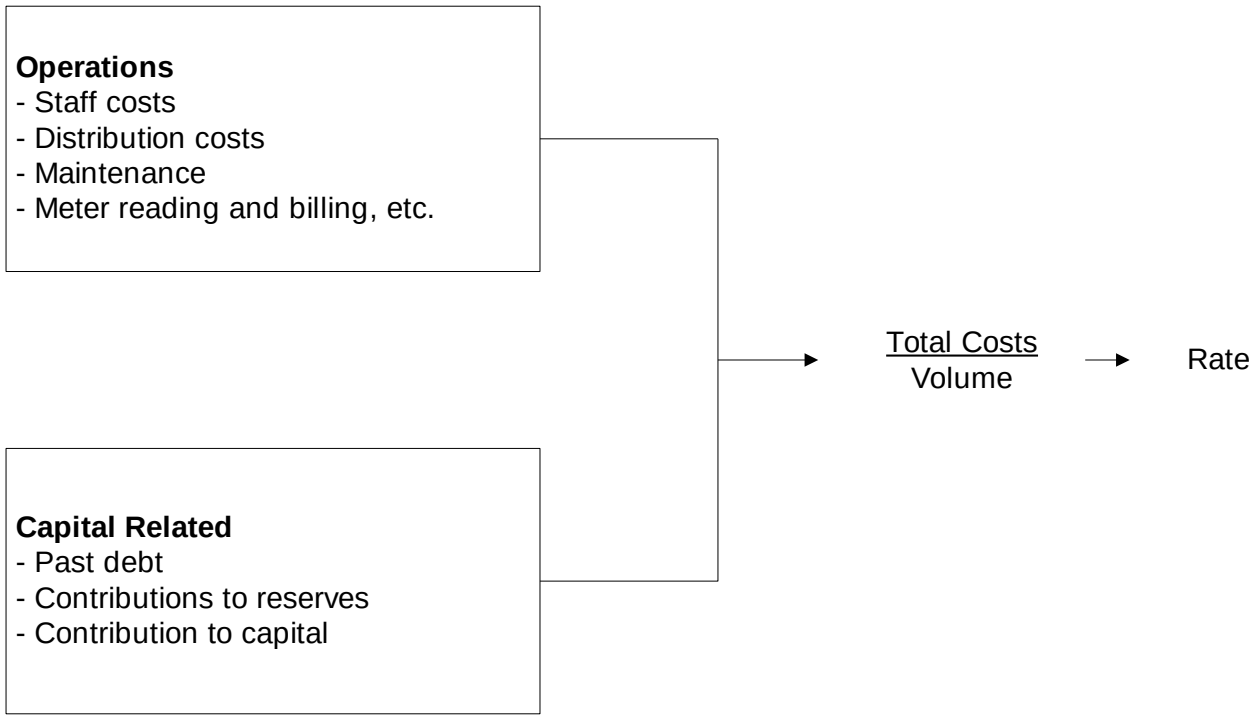
Chapter 6
Pricing Structures

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

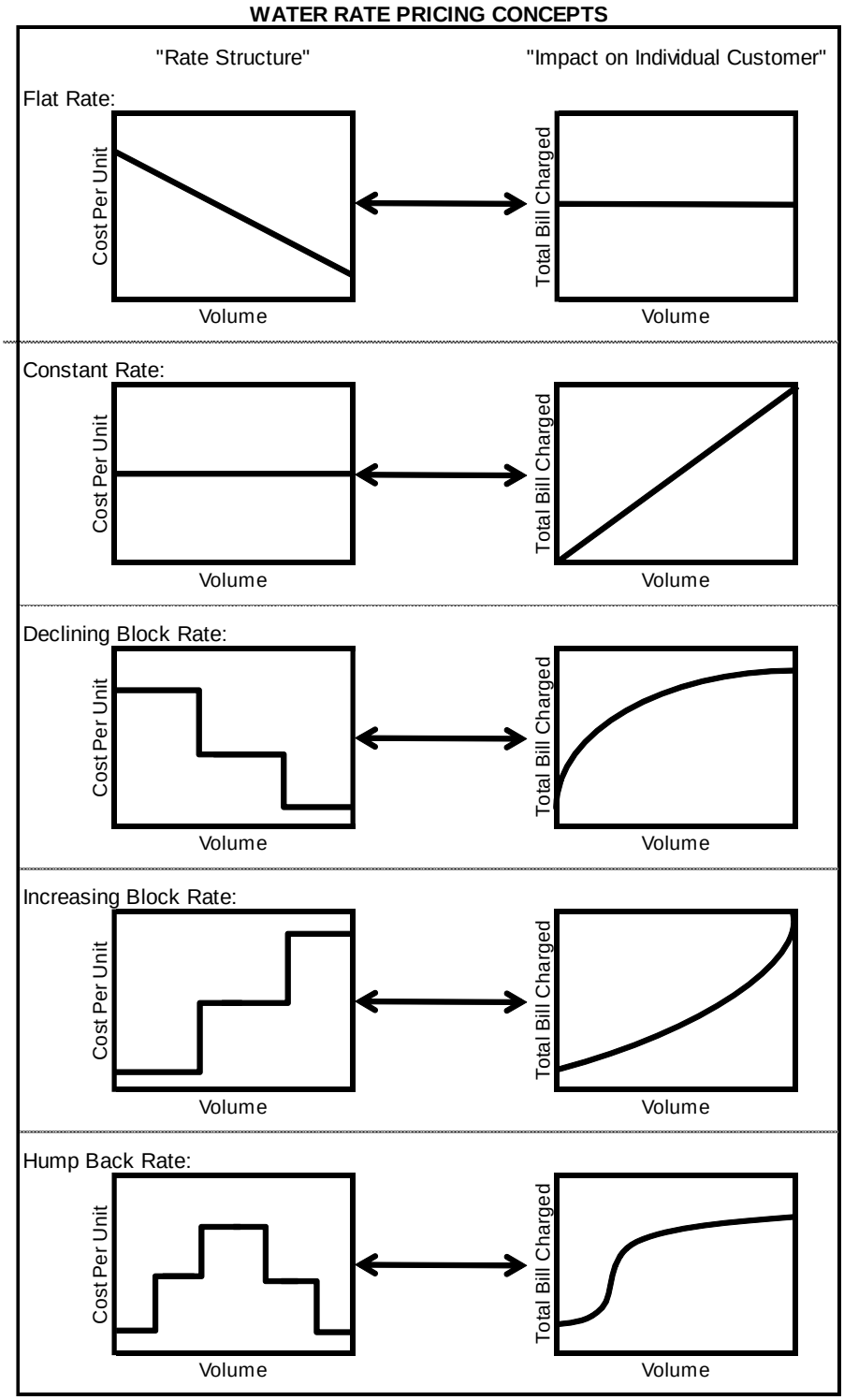
pricing range. Similarly, those whose consumption level is at the top end of a block have less incentive to reduce consumption.

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

RATE STRUCTURE	COST PER UNIT AS VOLUME CONSUMPTION INCREASES	IMPACT ON CUSTOMER BILL AS VOLUME CONSUMPTION 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 increases
Increasing Block	Cost per unit increases as threshold targets are achieved	Bill increases at a faster rate as volumes increase
Hump Back Rate	Combination of an increasing block at the lower consumption volumes and then converts to a declining block for the high	Bill increases at a faster rate at the lower consumption amounts and then slows as volumes increase

6.4 Rate Structures in Ontario

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 Cost Considerations for Metering

The Township currently charges users on a flat rate basis and although customers are classified into classes based on similar consumption patterns, the rates charged to users do not recognize differences in the actual consumption of water. Charging customers based on a price per unit consumed allows for certain benefits such as increased equity and water conservation, although in order to charge customers based on the amount of the service used, the Township would need to install meters for all customers.

The costs of installing meters in all existing units would need to be considered prior to a move towards imposing a volume-based rate structure. There are basic meters as well as automatic meter reads (A.M.R.s). Basic meters entail higher operating costs as staff would be required to manually read each meter throughout the Township. On the other hand, A.M.R.s can automatically read meters within a certain radius. A.M.R.s are approximately $1,100 per meter, and should the Township move towards metering customers, this would result in an approximate cost of $500,000. In addition to the incremental operating costs, the Township will need to consider the relative advantages and disadvantages of installing meters and imposing a volume-based rate structure based on the discussion of rate structures in the previous sections.

6.6 Recommended Rate Structures

Based on the foregoing, it is recommended that the Township impose separate water and wastewater flat rate charges. The rates for these two systems have been historically combined, however, to provide for increased transparency into the costs of providing these two services, these rates should be separated.

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. Chapter 6 provided a summary of the anticipated rates over the forecast period, whereas this chapter provides for the detailed calculation of the flat charges over the forecast period. These calculations will be based on the net operating expenditures provided in Chapter 5, divided by the weighted number of customers forecasted in section 1.9.

7.2 Water Rates

Based on the discussion of rate structures provided in section 6.6 and the recommendation to continue with a flat rate structure, the rates are calculated by taking the net recoverable amounts from Table 5-1 (the product of total expenditures less non-rate revenues amounts) and completes the calculation by dividing them by the number of customers (on a residential equivalent basis) resulting in the forecasted rates. .

As the needs for water are less immediate when compared to wastewater, the water rate is proposed to remain constant for 2021, followed by 1% annual increases for 2023 and 2024, and 2% annual increases thereafter.

The above increases are recommended to ensure that the Township can fund the capital and operating costs while limiting the need for debentures. Additionally, the rate increases assist the Township in saving for the lifecycle replacement of existing assets for the future. Detailed calculations of the flat rates are provided in Appendix C. A summary of the recommended flat rate charges for a residential customer are as follows:

Table 7-1
Township of Hornepayne
Forecasted Annual Residential Water Bill

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029
Water									
Annual Flate Rate	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Annual % Increase (Water)		**0.0%**	**1.0%**	**1.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**

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 residential equivalent customers, resulting in the forecasted flat rates. Detailed calculations are provided in Appendix D.

As noted earlier, the needs for wastewater are significant at the beginning of the forecast period, while the needs for water are relatively constant throughout the forecast period. Additionally, given the small reserve balance and the capital costs required for wastewater, rate increases for wastewater are proposed to be 10% in 2021. The rate is then proposed to increase annually by 6% for 2023-2024, 4% annually for 2025 to 2027, and 2% for 2028 and 2029.

The following summarizes the recommended rates for wastewater and provides the annual bill for a residential customer:

Table 7-2
Township of Hornepayne
Forecasted Annual Residential Wastewater Bill

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029
Wastewater									
Annual Flat Rate	$676	$744	$789	$836	$869	$904	$940	$959	$978
Annual % Increase (Wastewater)		**10.0%**	**6.0%**	**6.0%**	**4.0%**	**4.0%**	**4.0%**	**2.0%**	**2.0%**

7.4 Forecast of Combined Water and Wastewater Impact for the Average Residential Customer

Based on the foregoing information, the combined impact of the water and wastewater flat rate charges equal to an increase of 3.9% in 2021, 3.1% annually from 2023-2024, 2.9% annually from 2025 to 2027 and 2% annually for 2028 and 2029. Table 7-3 presents the forecast combined annual bill for residential customers.

Table 7-3
Township of Hornepayne
Forecasted Annual Residential Water and Wastewater Bill

Description	2021	2022	2023	2024	2025	2026	2027	2028	2029
Water									
Annual Flate Rate	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Annual % Increase (Water)		**0.0%**	**1.0%**	**1.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**
Wastewater									
Annual Flat Rate	$676	$744	$789	$836	$869	$904	$940	$959	$978
Annual % Increase (Wastewater)		**10.0%**	**6.0%**	**6.0%**	**4.0%**	**4.0%**	**4.0%**	**2.0%**	**2.0%**
Water and Wastewater									
Total Water and Wastewater Bill	$1,734	$1,802	$1,857	$1,915	$1,970	$2,027	$2,086	$2,127	$2,170
Annual % Increase (Water and Wastewater)		**3.9%**	**3.1%**	**3.1%**	**2.9%**	**2.9%**	**2.9%**	**2.0%**	**2.0%**

7.5 Forecast Rate for Water and Wasewater by Class of User

As noted previously, the rates have been calculated based on the estimated equivalency to a residential unit. Tables 7-4 and 7-5 provide the forecasted water and wastewater flat charges (by type of customer), respectively.

Table 7-4
Township of Hornepayne
Forecasted Water Rates by Type of Customer

Water - Annual Flat Rates	Weighting Factor	2021	2022	2023	2024	2025	2026	2027	2028	2029
Residential	**1.0**	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Commercial	**1.4**	$1,489	$1,489	$1,504	$1,519	$1,550	$1,581	$1,612	$1,645	$1,678
Bunkhouse - Multi-Residential Agreement #1	**22.5**	$23,803	$23,803	$24,041	$24,281	$24,767	$25,262	$25,767	$26,282	$26,808
HEDC - Multi-Residential Agreement #2	**17.5**	$18,513	$18,513	$18,698	$18,885	$19,263	$19,648	$20,041	$20,442	$20,851
Residential - Water Only	**1.0**	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
CN - Old Transfer Station	**3.5**	$3,692	$3,692	$3,729	$3,766	$3,841	$3,918	$3,996	$4,076	$4,158
Railway	**14.1**	$14,943	$14,943	$15,093	$15,243	$15,548	$15,859	$16,176	$16,500	$16,830
Detached Bay	**1.0**	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Additional Bay	**0.7**	$727	$727	$734	$742	$756	$772	$787	$803	$819
Algoma District School Board	**29.0**	$30,679	$30,679	$30,986	$31,296	$31,921	$32,560	$33,211	$33,875	$34,553
Huron Superior Catholic District School Board	**25.0**	$26,448	$26,448	$26,712	$26,979	$27,519	$28,069	$28,630	$29,203	$29,787
Churches & Meeting Halls	**1.0**	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Churches - Water Only	**1.0**	$1,058	$1,058	$1,068	$1,079	$1,101	$1,123	$1,145	$1,168	$1,191
Hospital	**34.3**	$36,271	$36,271	$36,634	$37,000	$37,740	$38,494	$39,264	$40,049	$40,850
Legion	**2.0**	$2,116	$2,116	$2,137	$2,158	$2,201	$2,246	$2,290	$2,336	$2,383
Hotel/Motel	**10.0**	$10,579	$10,579	$10,685	$10,792	$11,007	$11,228	$11,452	$11,681	$11,915
Grocery Store	**2.5**	$2,645	$2,645	$2,671	$2,698	$2,752	$2,807	$2,863	$2,920	$2,979
Arena	**25.0**	$26,448	$26,448	$26,712	$26,979	$27,519	$28,069	$28,630	$29,203	$29,787
Curling Club	**2.4**	$2,539	$2,539	$2,564	$2,590	$2,642	$2,695	$2,749	$2,803	$2,860
Fire Hall/Township Hall/Library	**1.4**	$1,489	$1,489	$1,504	$1,519	$1,550	$1,581	$1,612	$1,645	$1,678
Airport	**1.4**	$1,489	$1,489	$1,504	$1,519	$1,550	$1,581	$1,612	$1,645	$1,678
Public Works Facility	**1.4**	$1,489	$1,489	$1,504	$1,519	$1,550	$1,581	$1,612	$1,645	$1,678

Table 7-5
Township of Hornepayne
Forecasted Wastewater Rates by Type of Customer

Wastewater - Annual Flat Rates	Weighting Factor	2021	2022	2023	2024	2025	2026	2027	2028	2029
Residential	**1.0**	$676	$744	$789	$836	$869	$904	$940	$959	$978
Commercial	**1.4**	$952	$1,048	$1,110	$1,177	$1,224	$1,273	$1,324	$1,350	$1,377
Bunkhouse - Multi-Residential Agreement #1	**22.5**	$15,218	$16,740	$17,744	$18,809	$19,562	$20,344	$21,158	$21,581	$22,013
HEDC - Multi-Residential Agreement #2	**17.5**	$11,836	$13,020	$13,801	$14,629	$15,215	$15,823	$16,456	$16,785	$17,121
Residential - Water Only	**0.0**									
CN - Old Transfer Station	**3.5**	$2,360	$2,596	$2,752	$2,917	$3,034	$3,155	$3,281	$3,347	$3,414
Railway	**14.1**	$9,554	$10,509	$11,140	$11,808	$12,280	$12,772	$13,283	$13,548	$13,819
Detached Bay	**1.0**	$676	$744	$789	$836	$869	$904	$940	$959	$978
Additional Bay	**0.7**	$465	$511	$542	$574	$597	$621	$646	$659	$672
Algoma District School Board	**29.0**	$19,615	$21,576	$22,871	$24,243	$25,213	$26,221	$27,270	$27,816	$28,372
Huron Superior Catholic District School Board	**25.0**	$16,909	$18,600	$19,716	$20,899	$21,735	$22,605	$23,509	$23,979	$24,459
Churches & Meeting Halls	**1.0**	$676	$744	$789	$836	$869	$904	$940	$959	$978
Churches - Water Only	**0.0**									
Hospital	**34.3**	$23,190	$25,509	$27,039	$28,661	$29,808	$31,000	$32,241	$32,885	$33,543
Legion	**2.0**	$1,353	$1,488	$1,577	$1,672	$1,739	$1,808	$1,881	$1,918	$1,957
Hotel/Motel	**10.0**	$6,764	$7,440	$7,886	$8,360	$8,694	$9,042	$9,404	$9,592	$9,783
Grocery Store	**2.5**	$1,691	$1,860	$1,972	$2,090	$2,174	$2,260	$2,351	$2,398	$2,446
Arena	**25.0**	$16,909	$18,600	$19,716	$20,899	$21,735	$22,605	$23,509	$23,979	$24,459
Curling Club	**2.4**	$1,623	$1,786	$1,893	$2,006	$2,087	$2,170	$2,257	$2,302	$2,348
Fire Hall/Township Hall/Library	**1.4**	$952	$1,048	$1,110	$1,177	$1,224	$1,273	$1,324	$1,350	$1,377
Airport	**1.4**	$952	$1,048	$1,110	$1,177	$1,224	$1,273	$1,324	$1,350	$1,377
Public Works Facility	**1.4**	$952	$1,048	$1,110	$1,177	$1,224	$1,273	$1,324	$1,350	$1,377

7.6 Vacancy Discounts

Property owners are not charged water and wastewater rates when they disconnect from the Township's water service and temporarily vacate their property. Although the costs directly related to providing water volumes for that vacant property are no longer incurred by the Township, there are still fixed costs required to run the overall system (i.e., maintenance activities, staffing costs, operating treatment facilities, etc.). The Township is responsible for maintaining the system such that when a customer returns to their property after an extended absence, the water and wastewater services can be immediately resumed. To recognize that certain fixed costs are incurred by the Township regardless of whether a property is occupied or vacant, it is recommended that the Township impose a 50% vacancy discount for periods where water and wastewater services are temporarily suspended. A vacancy discount allows for the recognition that the Township incurs certain expenses regardless of water and wastewater usage in addition to providing for fuller cost recovery.

7.7 Charging Township Facilities for Water & Wastewater Services

As mentioned earlier in this report, Township-owned facilities are not currently charged for water and wastewater services, and as such, the revenues related to these expenditures are not being captured. It is recommended that the Township impose a charge on these facilities. As discussed in Section 3.2, the Township has provided for significant investments into water and wastewater infrastructure. The Township will need to provide for the replacement costs of this aging infrastructure. As the current reserve balances are minimal, it is recommended that the rate-related revenue provided through charging Township facilities be transferred into the capital reserves for future asset replacements. These additional transfers are shown as a line item in the rate calculations in Appendices C and D for water and wastewater, respectively.

Chapter 8
Recommendations

8. Recommendations

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

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

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

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

3. That Council consider the flat rate charges provided in Table 7-1 for water and Table 7-2 for wastewater.