TOWNSHIP OF Southwold

FINAL REPORT

One Water Utility Rate Study

23-2074

February 25, 2025

WT INFRASTRUCTURE
PRACTICAL INNOVATION

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February 25, 2025

Township of Southwold
35663 Fingal Line,
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Re: Final Report
ONE WATER UTILITY RATE STUDY
23-2074 | VERSION 4

WT Infrastructure Solutions Incorporated (WT) is pleased to submit the following report as part of the project delivery for the Southwold One Water Utility Rate Study.

This report is being presented as the final report, however if there are any additional comments or edits required please do not hesitate to reach out. We appreciate the opportunity to work with the Township of Southwold on this important project.

Respectfully submitted,

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1 INTRODUCTION

1.1 Background

The Township of Southwold (The Township) provides water services to 1,806 households and wastewater services to 333 households. The Township also supplies water to the Tri-County Water System for the Municipality of Dutton Dunwich and for a bulk water filling station. The Township purchases its water from the St. Thomas Area Secondary Water Supply System.

The Township is responsible for the costs of distribution, maintenance, and general operations of maintaining the system and charges utility rates to the end-users directly for such services which is intended to recover the total cost of providing services.

It is our understanding that the Township wants to complete a technical and economic review of the operational and capital requirements for the delivery of water and wastewater services to the community. In addition, the Township wants to include the stormwater and municipal drainage cost implications within the study.

This approach is known as the One Water approach where water is managed from source to tap and then back to source including the hydrological cycle.

The objective of the study will be to determine the necessary rate structure to achieve appropriate cost recovery within the community considering growth, infrastructure renewal, affordability and the comparative rate structures within the surrounding municipalities.

2 REGULATORY FRAMEWORK

2.1 Financial Plans Regulation

Financial plans for water and wastewater systems are required under the O. Reg 453/07. 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. Key elements for the preparation of the financial plans are provided below:

- The preparation of the plan is mandatory for water and encouraged for wastewater, as regulated by the Safe Drinking Water Act, 2002.
- The financial plans shall be for a period of at least six years and will represent one of the key elements for the municipality to obtain its Drinking Water Licence.
- 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.

In general, the intent of the financial plans is to move municipalities towards financial sustainability. A Guideline*, "Toward Financially Sustainable Drinking – 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.

2.2 Water Opportunities Act, 2010

The Water Opportunities Act, 2010, was introduced into legislation on May 18, 2010.

This Act reiterates the importance of the preparation of water conservation plans and sustainability plans to achieve water conservation targets established by the regulations as well as sustainable water, wastewater and stormwater services.

The Act also reinforces the importance of developing 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 cooperation with other municipal service providers.

2.3 Municipal Drainage Act, 1990

The Municipal Drainage Act in Ontario is a crucial piece of legislation that governs the construction, maintenance, and management of drainage systems within municipalities. This Act allows municipalities to create and maintain drainage systems to manage water flow and prevent flooding, particularly in agricultural areas. The process begins with a petition from landowners or a municipal council, followed by an engineer's report that outlines the design and cost distribution of the proposed drainage system1. Once the report is approved, the municipality enacts a bylaw to authorize the construction and future maintenance of the drain.

One of the key features of the Municipal Drainage Act is its provision for cost-sharing among landowners who benefit from the drainage system. The engineer's report includes an assessment of the benefits to each property, and costs are allocated accordingly. This ensures that the financial burden of constructing and maintaining the drainage system is fairly distributed among those who benefit from it. Additionally, the Act provides mechanisms for resolving disputes and appeals related to drainage assessments and maintenance responsibilities.

The Act also outlines the responsibilities of landowners and municipalities in maintaining the drainage systems. Municipalities are required to ensure that drains are kept in good working order, which may involve periodic inspections and maintenance work. Landowners, on the other hand, must allow access to their property for maintenance purposes and avoid obstructing the drainage system. This collaborative approach helps to manage water resources effectively, reduce the risk of flooding, and support agricultural productivity in rural Ontario.

3 SERVICE AREA

The areas objectives of this study are within the boundaries of the communities of Talbotville, Shedden, and Fingal. Current and forecasted development within the aforementioned communities have been developed and reported in Figure 3-1, and Figure 3-2.

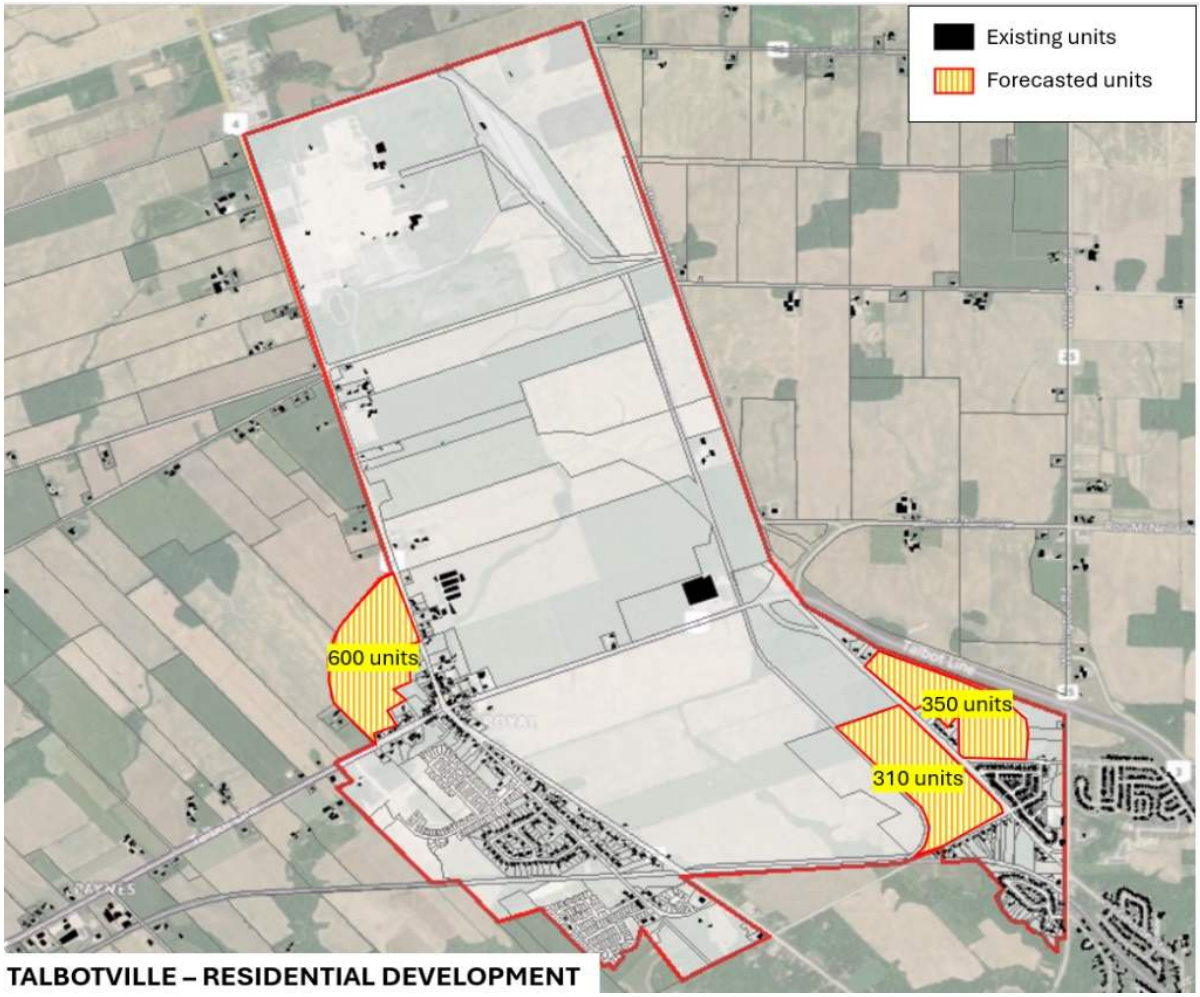

Figure 3-1 Talbotville– Current and forecasted units.

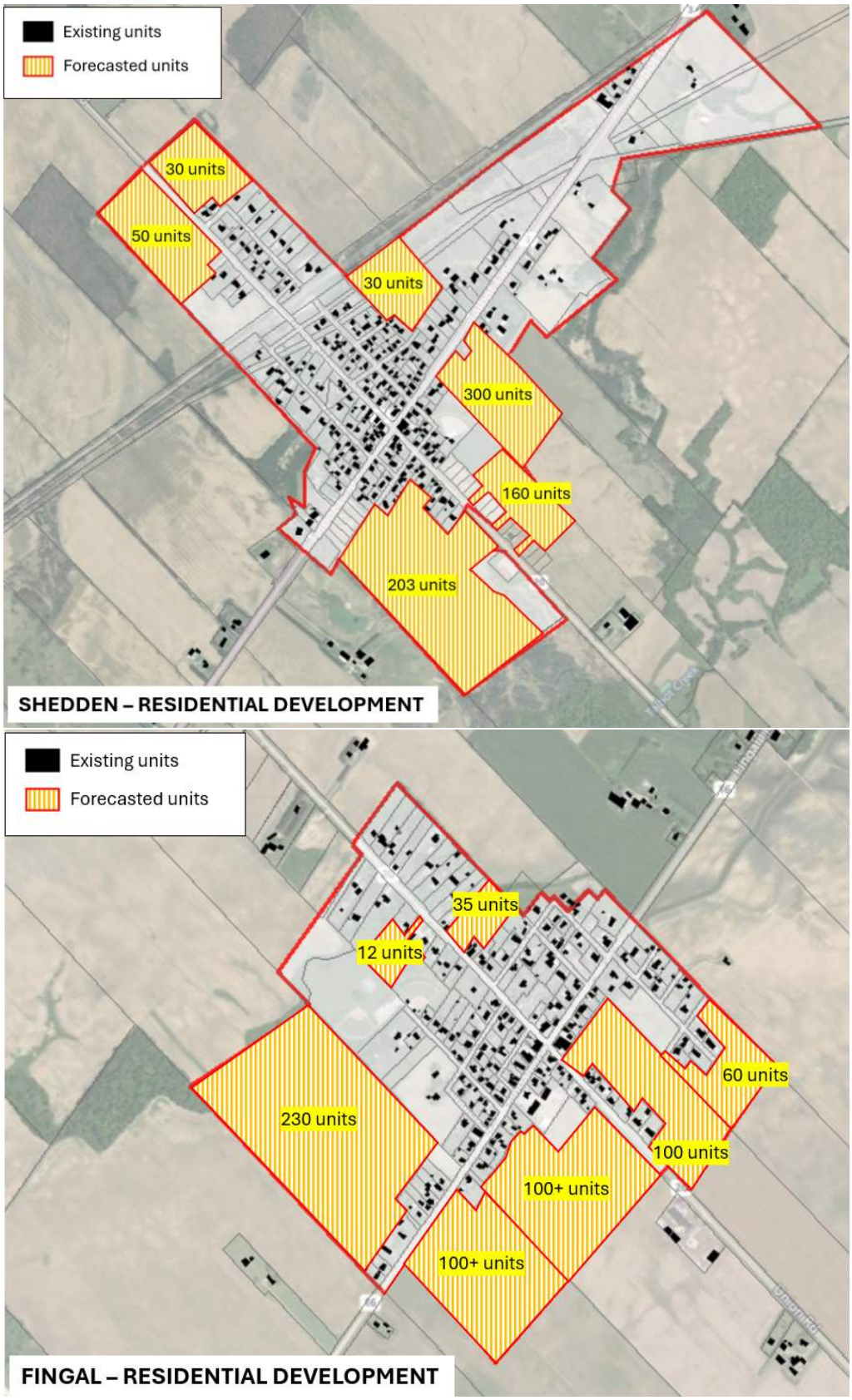

Figure 3-2 Shedden and Fingal – Current and forecasted units.

3.1 Existing Connections

The Township provides water to the existing residents within the Township boundaries, to the Tri-County Water System and for a bulk water filling station. Wastewater services are provided within settlement areas for the communities of Talbotville, Lynhurst and Ferndale.

In agreement with the background documents received by the client, a total of 1,806 water connections have been estimated by the 2023. The number of wastewater customer connections in Talbotville, Lynhurst and Ferndale was 333, 47 and 175 respectively.

3.2 Forecasted Growth

The current population Table 3-1 identifies the forecasted development for both the community of Talbotville, Shedden and Fingal.

Table 3-1 Forecasted growth within the study area.

	No. of Units	Reference Document
Shedden	773	Proposed Residential Development and units counts in Shedden and Fingal (2024). (Map Produced by the Township of Southwold)
Fingal	637	
Talbotville	1260	
TOTAL	**2,670**	**Shedden + Fingal + Talbotville**

4 WATER AND WASTEWATER SYSTEMS

4.1 Service Demand

4.1.1 Water System Demand

The water usage is estimated separately for each of the water customer resulting in a total average consumption for customers within Southwold of 356,500 m^3, for the Tri-County Water System of 214,000 m^3 and for the bulk water filling station of 3,000 m^3.

The growth forecast is reported in Section 3.1.2. In total, water system connections are anticipated to increase by 773 in Shedden, 637 in Fingal, and 1260 in Talbotville. This results in an increase from 1,806 customers currently to 4,476.

An annual average water consumption of 168 m^3 per customer connections (2024) has been used as an estimate of the expected future water consumption. As a result, the 2024 consumption levels were applied to the Township's growth projections to forecast future service demands. No increases in annual water consumption for the Tri-County water system or the Bulk filling station is currently anticipated or considered in this review.

Applying the average annual consumption estimate to new customers within Southwold results in an estimated increase in total water consumption from approximately 370,000 m^3 currently to 818,560 m^3 by 2044 (6% per year). For the purpose of this study, it is assumed that the St. Thomas Secondary Water Supply System (STSWSS) has available capacity to meet the forecasted demand. However, additional investigations are needed to verify its availability. A summary of the forecasted water consumption is provided in Table 4-1.

Table 4-1 Current and forecasted connections and water consumption

	Service Connections	Annual Water Demand (m^3)	Comments
2024	1,806	356,500	2024 Water Operating Data
2044	4,476	818,560	Calculated as customer connections average water consumption (168 m^3) per total number of customers

4.1.2 Wastewater System Demand

The existing wastewater production in Talbotville is 55,945 m^3 based on the number of serviced customers (333) and average water usage per customer within the Township.

Wastewater customers within Talbotville are projected to increase by 1,260 over the forecast period.

Due to the construction of a new WWTP in Shedden, which will serve both Shedden and Fingal, the number of existing customers will account for the new development units in both Shedden (773) and Fingal (637).

Based on discussion with the Township, the opportunity to connect to the new municipal wastewater collection system may be provided to existing residential units within the communities of Shedden and Fingal within the next 20-year project timeline. The total residential units within the communities of Shedden and Fingal are 260.

Table 4-2: Current and Future Wastewater Demand

	Service Connections	Annual Wastewater Demand (m^3)	Comments
2024	333	55,945	Average water consumption (168 m^3) per total number of customers
2044	3,263	548,200	Average water consumption (168 m^3) per total number of customers. Service connections include existing customer connections (333), Developments within Shedden (773), Fingal (637), Talbotville (1,260) and existing units not yet connected (260)

5 STORMWATER SYSTEM

5.1 Service Area

The stormwater system within the Township of Southwold is characterized by roadside ditches, driveway culverts, open and closed municipal drains, and storm sewers.

One of the challenges in the three primary communities in Southwold is the number of municipal drains that fall within the community settlement area. These drains address the bigger picture of drainage of larger agricultural and development lands as well as benefit individual properties. As land is subdivided, the assessments against individual properties are also divided; however, it becomes challenging to manage.

The approach of this study is to assess the cost of maintaining and renewing municipal drains as a community benefit within the other costs associated with stormwater in each settlement area. As

such, the intent is that in the future when work is required to be completed on the drain and the assessment that the Township will charge assessed properties outside of the settlement area in accordance with the individual Engineer's Report. Areas within the settlement area would be paid directly from stormwater reserves recovered through the stormwater rate structure.

As the purpose of this study is to develop a single rate structure comprising water, wastewater and stormwater systems, the service area for the stormwater system will be limited to the settlement area of the communities of Shedden, Fingal and Talbotville.

The table below reports the number of drains within each settlement. The total stormwater area counts approximately 120 ha in both Shedden and Fingal, and 1018 ha in Talbotville. For both Shedden and Fingal, the majority of the stormwater area (> 90%) is within the residential area; for Talbotville, only 20% of the stormwater area is within the residential area. There are currently a total of 870 properties within the stormwater system area. A total of 3263 properties are forecasted at the build out.

Table 5-1 Drains within each settlement area.

	Total Drain Area (ha)	Total drain area within the settlement area (ha)	Total drain area within the settlement area (%)
Talbotville Drains			
Lindsay Drain	600	321.5	54%
Travers Drain	55	52.5	95%
James Fife Drain	38	21.6	57%
Talbotville Drain	43	25.6	60%
Ooms Drain	20.3	16.6	82%
Larson Drain	27	8	30%
Wallis Drain	21	21	100%
Talbotville Meadows Drain	93	74.5	80%
South Talbotville Drain	21	21	100%
DL Gilbert Drain	41	41	100%
JE Smith Drain	13	13	100%
Auckland Main Outlet Drain	580.5	262.5	45%
James McBain Drain	25.5	25.5	100%
Bostwick Drain	18	18	100%
Underhill Drain	3.2	2.5	78%
Andrews Drain	81	23	28%
Henderson Drain	94	70	74%
TOTAL	**1790**	**1018**	**57%**
Shedden Drains			
Orchard-Carrol Drain	222	39.5	18%
Varga-David Drain 2007	3.5	3.5	100%
Caswell Drain	8	7.5	94%
John Street Drain	2.5	2.5	100%
Horton Drain	70.6	39	55%
Sells Drain	12.3	9	73%
Branton Drain	7.5	7	93%

G.H. Penning Drain	48.6	7.5	15%
Union Road Drain	4	4	100%
TOTAL	**379**	**120**	**32%**
Fingal Drains			
Fowler Drain	317	54.5	17%
Fingal Drain	57.5	55	96%
Goodhue Drainage Works	98	10.5	11%
TOTAL	**473**	**120**	**25%**

6 INFRASTRUCTURE COSTS

6.1 Water and Wastewater

6.1.1 Capital Costs

A 20-year capital forecast has been developed for the water and wastewater systems to address capital needs across all areas for the systems. The capital needs that have been identified and reported in Table 6-1 are based on the Township's capital budget, OCWA recommendations.

Table 6-1 Annual capital requirements for water and wastewater systems

	Annual Capital Requirements ($2024)	Comments
Water	**$0.07 M**	
Talbotville	$0.020 M	26% of the total capital forecast is associated to Talbotville
Shedden	$0.020 M	25% of the total capital forecast is associated to Shedden
Fingal	$0.020 M	25% of the total capital forecast is associated to Fingal
Remaining Township	$0.017 M	24% of the total capital forecast is associated to the remaining Township
Wastewater	**$4.65 M**	
Talbotville	$1.50 M	32% of the total capital forecast is associated to Talbotville
Shedden	$1.70 M	36% of the total capital forecast is associated to Shedden
Fingal	$1.50 M	32% of the total capital forecast is associated to Fingal

6.1.2 Operation and Maintenance Expenditures

Capital-related annual expenditures for both water and wastewater systems have been reviewed based on the Township's operating budget to estimate the required O&M costs for the systems.

The overall water and wastewater operating expenditures for 2024 were $2.3 million and $0.45 million, respectively. The current and forecasted O&M expenditures for the water and wastewater systems are summarized in Table 6-2. Operating costs forecast for the wastewater system have incorporated the forecasted operating costs of for the Shedden Wastewater Treatment Plant.

Table 6-2 Current and forecasted O&M expenditures for water and wastewater systems

	2024 O&M Expenditures ($2024)	Forecasted Annual O&M Expenditures ($2024)	Comments
Water	$2.3 M	$2.3 M	Costs/yr were calculated by dividing the 20-yr forecast expenditures by the 20-yr forecasted period
Wastewater	$0.45 M	$1.3 M	

6.1.3 Asset Renewal

Asset conditions and renewal costs of the existing water and wastewater infrastructure have been reviewed to determine the level of capital investment that should ultimately be included in the full cost assessment and rate forecast. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs.

The capital requirements were forecasted for the next 90 years for both the water and wastewater system, respectively. The 90 years forecast projection was used to ensure that every asset has gone through one full iteration of replacement.

Table 6-3 summarizes the annual requirements for asset replacement costs. These values were calculated based on detailed capital asset inventory information obtained from the Township's Asset Management Plan and estimates for the forecasted projects.

Table 6-3 Current and Forecasted Asset Renewal Costs for water and wastewater systems

	Annual Asset Renewal Costs ($2024)	Comments
Water (Distribution and Facilities)	$0.8 M	Based on the Township Asset Management Plan (2022) and adjusted for 2022-2024 inflation
Wastewater (Distribution and Facilities)	$0.7 M	Costs/yr were calculated by considering the total lifespan infrastructure costs divided by the 90-yr forecasted period

(a) The 20-year forecasted asset replacement costs include the Shedden WWTP

6.2 Stormwater

6.2.1 Capital Costs

As per the water and wastewater system, a capital forecast has been developed for the stormwater systems to address capital needs across all the areas of the system. The capital needs that have been identified and reported in Table 6-4 are based on the Township's capital budget.

Table 6-4 Capital forecast needs for the stormwater system.

	Capital forecast ($2024)	Costs/yr ($2024)	Comments
Stormwater	$8.5 M	$0.5 M	

6.2.2 Operation and Maintenance Costs

Capital-related annual expenditures for the stormwater system have been reviewed based on the required O&M costs for the systems. As the majority of the stormwater system is characterized by open and closed drain, stormwater pipes and maintenance holes and catchment basin, it Is expected

that routine maintenance would require CCTV storm sewer inspection every 5 years, as well as ditch and catchment basin clean out every year.

The O&M costs for the stormwater system are summarized in Table 6-5.

Table 6-5 Forecasted O&M expenditures for the stormwater system.

	Forecasted O&M Expenditures ($2024)	Costs/yr ($2024)	Comments
Stormwater	$9.0 M	$0.5M	Costs/yr were calculated by dividing the capital needs by expected lifespan of each system components period

6.2.3 Asset Renewal

The existing stormwater systems within the community of Shedden, Fingal and Talbotville has a replacement value of approximately $0.4M. This includes an inventory of approximately 8.6 kilometres of pipes, open and closed drains/ditches.

As the majority of the asset of the stormwater system was installed between the 2016 and 2021, and it has approximately 75 years of estimated lifespan, most of the stormwater assets will be required to be renewed by the 2091. Table 6-6 summarizes the current total asset replacement value, the 75-yr forecasted replacement needs and the annual replacement needs. The asset replacement costs forecast have incorporated the installation of new infrastructure identified during the review of the capital infrastructure needs.

Table 6-6 Current and Forecasted Asset Renewal Costs for the stormwater system

	Annual Asset Renewal Costs ($2024)	Comments
Stormwater	$0.15 M	Asset Renewal costs for existing infrastructure were calculated based on the Township Asset Management Plan. Asset renewal costs for forecasted infrastructure were calculated by considering the total lifespan infrastructure costs.

6.3 Estimated Costs Summary

Table 6-7 summarizes the annual forecasted expenditures for the water, wastewater and stormwater systems. The following is noted:

- **Wastewater System:** The existing wastewater system currently serves 333 properties. The communal wastewater system within the Township is being expanded within the servicing area of Shedden and Fingal. This results in a significant capital costs increase that would need to be recovered by the ratepayers. It must be noted that during the initial years, it is expected that a total of approximately 500 properties will be impacted. In this period, where the system designed for several thousand properties is only servicing a few hundred, the full cost recovery for the system will not be achievable and will need to be completed over time. As such, the rate will need to be set to be reasonably affordable and it is expected that as more connections are made the system will become revenue positive.

- **Water System:** The existing water system currently serves 1,806 properties. As the system is already in place and with a reasonable number of users, it is expected that the forecasted cost recovery will be reasonable achieved by the forecasted growth.
- **Stormwater System:** The total stormwater area counts approximately 120 ha in both Shedden, and Fingal, and 1018 ha in Talbotville. The stormwater area within the residential area is approximately 95% within both Shedden and Fingal, and 20% for Talbotville. There are currently 870 properties within the stormwater system area. As per the water system, this is a reasonable number of users, and it is expected that the forecasted cost recovery will be reasonably achieved by the forecasted growth.

Table 6-7 Annual expenditures forecast for the water, wastewater and stormwater system.

	Capital Infrastructure Costs ($/yr)	O&M Costs ($/yr)	Asset Renewal Costs ($/yr)	TOTAL per system
Water	$0.07 M	$1.92 M	$0.75 M	$2.74 M
Wastewater	$4.65 M	$1.25 M	$0.95 M	$6.85 M
Stormwater	$0.50 M	$0.50 M	$ 0.15 M	$1.15 M
TOTAL	**$ 5.22 M**	**$3.67 M**	**$1.85 M**	**$10.74 M**

7 RATE STRUCTURE ANALYSIS

7.1 Current Rate Structure

The Township currently charges water rates through a quarterly base charge plus a metered consumptive charge. Volumetric rates on the Tri-County Water System and for the bulk water filling station are charged based on the volume of water consumed.

Wastewater rates are imposed on serviced customers in Talbotville through a monthly base charge plus a volumetric charge per cubic metre of water consumption. A monthly capital charge is paid by the wastewater customers in Lynhurst and Ferndale.

Current 2024 water and wastewater rates in the Township are presented in Table 7-1.

Table 7-1 water and wastewater user rates (2024)

Water System			
	Township Customers	Water Filling Rate	Tri-County Rate
Per m^3	$ 2.870	$ 3.440	$ 2.130
Quarterly Base Charge	$ 43.20	-	-
Wastewater System			
	Talbotville	Lynhurst	Ferndale
Per m^3	$ 2.71	-	-
Monthly Base Charge	$ 22.74	$ 22.74	$ 22.74

The average cost per connection for water is approximately $873 per year.

The average cost per connection for wastewater is approximately $463 per year.

The total revenue that is currently generated per year is as follows:

- Water: $2,287,213
- Wastewater: $283,772

There is currently no stormwater rate structure for generation of revenue. Costs incurred from stormwater are currently covered from general revenue and direct assessment charges against individual landowners associated with municipal drains on a case-by-case basis.

7.2 Connection Charges

7.2.1 Water

Water connection fees in the Township currently include the capital charge associated with the connection's component of the capital renewal value of the Township distribution and contribution to treatment capacity as appropriate. Depending on the type of connection, the physical cost of servicing from the watermain to the property line is included in the connection charge. This inclusion is a fixed fee, but in reality, is variable based on site and market conditions. As such, there is a risk that the cost recovered is less than the actual cost of servicing.

There are three primary categories of water connection charge that are location based on type of connection as follows:

- General Connections (Rural) – varies from $16,799 to $32,629 depending on service size including physical service connection.
- Settlement Area Connections – varies from $10,919 to $21,210 depending on service size including physical service connection.
- Subdivision Development Connections – varies from $5,342 to $10,376 depending on service size excluding physical service connection.

7.2.2 Wastewater

Wastewater connection fees in the Township currently include the capital charge associated with the connection's component of the capital renewal value of the Township collection and contribution to treatment capacity. The physical cost of servicing from the sanitary sewer to the property line is included in the connection charge. This inclusion is a fixed fee, but in reality, is variable based on site and market conditions. As such, there is a risk that the cost recovered is less than the actual cost of servicing.

There are two current categories of wastewater connection charge as follows:

- Talbotville Wastewater Treatment Plant Connection – varies from $13,274 to $28,609 with individual reviews for connections above a 50mm (2") water service connection.
- Other Sanitary Sewer Treatment Jurisdictions (Ferndale/Lynhurst) – subject to the cost levied by the adjacent municipality.
- Replacement of existing service connection as part of Township construction project (no capital charge) - $4,000

7.2.3 Stormwater

There are currently no capital charges associated with the storm sewer system for the infrastructure, but for a private drain connection (PDC), the following cost is levied against connections to the system for the cost of the service connection alone:

- As part of the Township construction project (Sanitary/Storm) - $2,000

- Repair/Replace PDC independent of Township construction project – Actual Cost

7.3 Comparable Rate Structure

According to a review of existing rate structure, 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. Examples from nearby communities of similar size have been listed below.

Table 7-2 Locally Comparable Rate Structures

		Water	Wastewater
Town of Aylmer	Monthly Fixed Rate	Based on size meter 16mm - $10.01 up to 200mm – $310.2	Based on size meter 16mm - $4.69 up to 200mm – $219.9
	Per m^3	$2.67	$1.67
London	Monthly Fixed Rate	Based on size meter 16mm - $17.88 up to 250mm – $2,681	Based on size meter 16mm - $4.69 up to 200mm – $219.9
	Per m^3	Based on water usage >7-15 m^3 - $2.54 up to 50,000$m^3$ – $1.06	Based on water usage >7-15 m^3 - $2.54 up to 50,000$m^3$ – $1.06
St. Thomas	Monthly Base Charge	Based on size meter 16mm - $17.75 up to 200mm – $507.75	-
	Per m^3	$2.1	$2.55
Norfolk County	Monthly Base Charge	Based on size meter 15mm - $31.23 up to 150mm – $887.64	Based on size meter 15mm - $43.00 up to 150mm – $1,222.30
	Per m^3	$2.14	$2.78
Central Elgin	Monthly Base Charge	$36.19	$40.84
	Per m^3	$3.19	$2.85

8 FORECASTED RATE STRUCTURE

8.1 Cost Recovery Philosophy

In accordance with the Provincial requirements, the cost of water and wastewater services needs to be recovered under its own merits rather than being subsidized through the general taxes within a community. As such, the available revenues sources are fee for service and upper tier funding (when available).

The Township of Southwold is entering a transition period where communal wastewater is being expanded with a new wastewater treatment plant in Shedden servicing Shedden as well as Fingal. As such, there is a significant capital outlay to implement this expansion of services and, while the Township has secured significant funding, there remains a significant cost that is recoverable from the ratepayers for the system. Furthermore, the operating cost of the system is not linear to the number of connections and during the first few years the cost of operating the system will significantly exceed the reasonable cost recovery from ratepayers. However, since the benefit of operating the system as the development occurs can be considered part of the required cost recovery, that excess cost should be integrated into the rate structure until it is recovered.

The standard rate structure approach is a fixed rate per period followed by a metered rate based on the water consumption at the connection.

The objective of the development of a rate structure is to both recover the cost of providing the water, wastewater and storm servicing of properties within the utility service area(s) and be as fair and equitable as possible in maintaining an affordable service.

The following sections will detail the options for rate structures on that basis.

8.2 Water/Wastewater

8.2.1 Connection Charge – Water

Similar to the wastewater system, there are or were capital costs expended to develop the water system, and those costs have been previously identified by the Township and paid under a standard connection charge. Those charges should be maintained to reflect the value of the system; however, in the absence of any current outstanding debt, this can be applied against the capital and asset renewal costs looking forward.

The current capital connection charges vary depending on location and size of connection. The variation in rates may be beneficial; however, simplification of the rate structure with an objective of fairness is preferrable in the long term. It is recommended that the connection charge be simplified from the current structure to a two-stage connection charge between rural and in-fill/development lots as indicated in the table below.

Table 8-1: Proposed Water Connection Charges

	Urban/Development Connection	Rural Connection
25mm connection	$5,400	$10,800
38mm connection	$7,100	$14,200
50mm connection	$8,000	$16,000
100mm connection	$8,900	$17,800
150mm connection	$10,350	$20,700

The intent of the two-stage connection charge is to promote water servicing in settlement areas rather promoting strip rural development along existing watermains. This approach also acknowledges the additional operation, maintenance and renewal costs distributed over larger frontages in rural vs. settlement areas.

8.2.2 Connection Charge - Wastewater

The costs associated with the construction of the Shedden and Fingal wastewater system including plant, linear and vertical assets can be recovered in one of two ways. Firstly, the cost can be recovered as a fixed cost per connection starting when the first asset can be used in 2026 and adjusted for inflation and/or financing costs annually. The second option is to recover that cost through the fixed charge on a monthly/quarterly basis as part of the standard billing of the water system. In both cases, the financed capital cost must allow for the upper tier funding (HEWS) and only recover costs incurred by the Township.

In the interest of minimizing the community debt load and minimizing the risk of ongoing water and wastewater fees being unaffordable, the upfront capital connection charge is the most equitable approach as it ties the cost of the connection to the owner who wants to connect (existing property

owner or development lot buyer). Spreading the cost over an undefined time to the current or future landowner or tenant is going to increase the Township's debt servicing requirements and reduce the community affordability.

For this project, the recoverable costs associated with the infrastructure project is approximately $14 million divided by 1,670 future and existing equivalent residential units within the communities of Shedden and Fingal. This equates to a cost of approximately $8,500 per connection; however, for consistency sake, maintaining a standard fee equal to the rate currently used in Talbotville, a common rate for the Township of $19,200 ($18,462 plus 3%) which would increase annually in accordance with the financing cost incurred by the Township with the objective of being revenue neutral but ensuring that the capital costs are covered entirely by users. The variation in the base cost will be allocated to the asset management costs for the property in order to reduce the ongoing fixed rate amount. The cost of the physical service connection would be completed either separately as part of subdivision development or for existing properties would be recovered by the Township at cost with an allowance for staff time.

The Township can offer alternative repayment strategies, but we would recommend that cost recovery be achieved within five years and that upon sale or transfer of the home that any remaining cost recovery is paid to the Township to avoid extending debts to future owners.

Similar to what is currently done with the Talbotville rate, the rate should be pro-rated based on the size of the water connection as an analog for flow as follows

- Single Service (Residential): $19,200
- Apartment Buildings (Per Unit): $13,500
- Commercial (25mm): $19,200
- Commercial (38mm): $25,550
- Commercial (50mm): $29,100
- Greater than 50mm: Prorated based on water connection size

8.2.3 Demand Based Rate Structure

For the purposes of setting the initial rate structure, a fixed unit rate per m^3 of consumption will be used for simplicity; however, there may be a desire to consider an alternative block structure to promote conservation.

The rate structure can be defined into primary components for metered connections, the fixed base rate and the metered variable rate. The simplest approach is to break costs into fixed and variable costs and apply the fixed costs to the fixed based rate and the variable cost to the metered variable rate. Unfortunately, this approach does not address equity in terms the user pay approach, primarily because the variable costs (water purchase, power, chemicals, etc.) are not necessarily the majority of the costs associated with the operation of the system.

As previously indicated, for the wastewater there will be a period where the full cost recovery for the system will not be achievable for the initial few years from the existing residences that connect and completed development projects. In order to select the point where the revenue breakeven is achieved, the capital and asset renewal costs are applied as an average of the current and full build-out costs. This was selected for the following reasons:

1. It represents a reasonable fixed rate on a monthly basis.

2. It is an achievable milestone in terms of development.
3. Based on anticipated growth it would be met within five years, thus limiting the period where the system is in a deficit position.
4. Maintaining the rate after the five years (while doing an annual inflation adjustment) will result in a surplus position if growth is maintained and the annual rate increase could be curtailed as appropriate while still paying down debt, maintaining appropriate revenue and reserves.

Table 8-1 illustrates the proposed rate structure rounded up to the nearest dollar. Table 8-2 illustrates the proposed fixed rate structure based on meter size.

Table 8-2: Fixed Rate Structure per residential connection

	Current Fixed Water Rate (2024)	Proposed Fixed Water Rate	Current Fixed Wastewater Rate	Proposed Fixed Wastewater Rate
Annual Fixed Rate	$172.80	**$226.17**	$272.88	**$277.04**
Quarterly Rate Equivalent	$43.20	**$56.54**	$68.22	**$69.26**
Monthly Rate Equivalent	$14.40	**$18.85**	$22.74	**$23.09**

Table 8-3 Fixed Rate Structure per residential connection based on meter size

Meter Size (mm)	Proposed Fixed Water Rate		Proposed Fixed Wastewater Rate	
	Annual	Monthly	Annual	Monthly
20	$226.17	$18.85	$277.04	$23.09
25	$282.71	$23.56	$346.30	$28.86
38	$429.72	$35.81	$526.38	$43.86
50	$565.42	$47.12	$692.61	$57.72
75	$848.13	$70.68	$1,028.92	$86.58
100	$1,130.84	$94.24	$1,371.89	$114.32
150	$1,696.26	$141.36	$2,057.84	$171.49

The cost recovery related to the variable rate component of the cost is directly related to the metered consumption of water. As such, variations in demand from household to household will change the cost incurred as a user pay rate. As such, consumers that use a lot of water will pay more and those that use less will pay less. Since there is a relationship between water entering the residence and wastewater leaving the residence, metered water consumption is used for both water and wastewater measurement.

Similar to the fixed rate scenario, while the increased development will impact the water rate, it has a dramatic impact on the wastewater rate during the initial years where the system designed for several thousand properties is only servicing a few hundred. As such, the rate will need to be set to be reasonably affordable and, as more connections are made, the system will become revenue positive.

In order to assess the options for rates, the assessment of the rate at low, average and high-water consumption should be considered to select a rate that best represents cost recovery, promotion of conservation and equity.

In the table below, we have selected the low consumption as the current system consumption which, at 165 Litres per capita per day (Lpcd), is very low. Average consumption of 250 Lpcd is what is typically anticipated in a residential application and the high consumption is 350 Lpcd, which is typically a design guideline with some allowance for safety; however, the average in Ontario is around 335 Lpcd. It would be anticipated that in Southwold, with new development, that the consumption will fall between low and average. This is also based on a residential occupancy of 2.8 persons per household, which is consistent with the 2021 Census data for Southwold.

For the water system, since the system is in place and reasonably subscribed, the variable rate structure will be impacted by growth in terms of revenue and full cost recovery. Table 8-3 illustrates the proposed rate alternatives based on consumption and revenue considerations using the 2024 operating expenditure budget amount of $1.92M as a reference point. For reference, there are currently 1,806 connections to the water system.

Table 8-4: Variable Water Rate Alternatives (Consumption Based)

	Current Rate Structure	Low Consumption	Average Consumption	High Consumption
Per capita daily water consumption	165 Lpcd	165 Lpcd	250 Lpcd	350 Lpcd
Variable Rate (per m^3)	$2.87	$4.97	$3.27	$2.33
Required Breakeven Water Sales	668,371 m^3	385,961 m^3	586,613 m^3	823,272 m^3
Equivalent Household Breakeven Point	3,964	2,289	2,295	2,302

The variation in households in the table above is essentially rounding variations; however, it can be seen by the current water use vs. cost recovery number of households, there is a significant discrepancy between the existing 1,806 connections vs. the required revenue requirements of 3,964 households. Part of that discrepancy is larger or commercial users, and the other is that the current revenue model does not fully address asset management and capital renewal.

For wastewater, undertaking a similar analysis does not entirely equate to the water analysis, as there are currently only 333 sanitary service connections to Township owned and operated wastewater treatment facilities. Table 8-4 illustrates the proposed rate alternatives based on consumption and revenue considerations using the projected operating expenditure budget amount for Shedden and Talbotville of $1.25M as a reference point.

Table 8-5: Variable Wastewater Rate Alternatives (Consumption Based)

	Current Rate Structure (Talbotville)	Low Consumption	Average Consumption	High Consumption
Per capita daily water consumption (wastewater surrogate amount)	165 Lpcd	165 Lpcd	250 Lpcd	350 Lpcd
Variable Rate (per m^3)	$2.71	$6.17	$4.06	$2.96
Required Breakeven Wastewater Sales	463,052 m^3	203,383 m^3	309,082 m^3	423,943 m^3
Equivalent Household Breakeven Point	2,746	1,206	1,210	1,185

Again, similar to the water scenario, the variation in number of equivalent households in the proposed rate structure is primarily related to rounding. In this scenario, where there are only 333 existing connections, independent of the rate structure, there needs to be approximately 900 new service connections in order to generate the revenue necessary to recover the estimated operating costs of the system. This will come with the anticipated growth; however, there will be a period where operating the system will cost more than the revenue generated. This start-up cost will need to be recovered over time through the rate structure. The longer the period that the start-up cost is recovered, the more financing costs incurred by the Township and the ability to incur debt would also be reduced until the communities are built out.

Based on anticipated growth, and using the proposed rate structures indicated above, the graphs in Figure 8-1 and Figure 8-2 illustrate the anticipated breakeven points and time for the water and wastewater system. The breakeven point for water is within four years with the new rate structure as the system is already in place and operating, so new connections are less of an issue than adjusting the rates to allow for capital renewal and full cost recovery.

It is important to note that, while the graph below indicates revenues exceeding expenditures after the breakeven point is met, in reality, the rate structure would be optimized considering cost recovery, available reserves and inflation in order to ensure that cost recovery is met without excessive surpluses in order to maximize the affordability of the service. However, this financial balance is important to monitor and adjust in a fashion that maintains financial health of the system and avoids the need for significant rate hikes or transfers from reserves in order to operate the system.

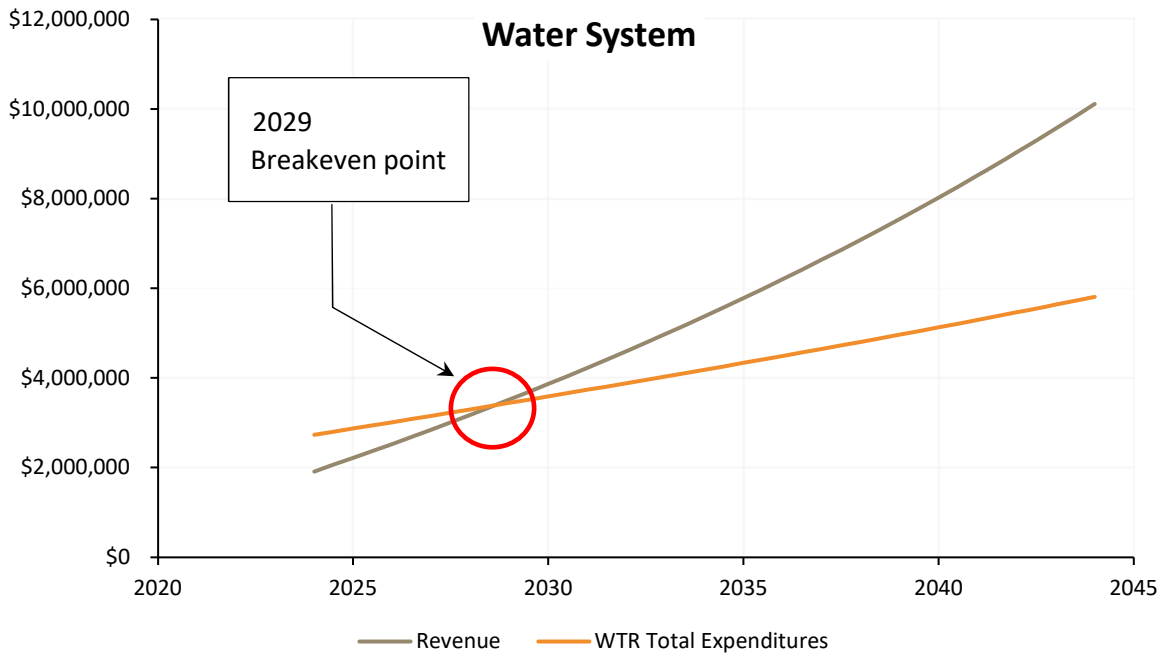

Figure 8-1 Water System: Revenue vs Expenditures forecast.

For the wastewater system, since on day one of operating the new Shedden WWTP and the associated infrastructure as well as continuing to operate the Talbotville WWTP will cost significantly more than the reasonable revenue generation from the initial connections. As such, the anticipated breakeven point is five years after the system is in place to service all three major communities in the Township. Similarly, the rate structure will need to be optimized once the breakeven point is met to ensure that the financial sustainability of the system is secure without excessive surpluses beyond those destined for maintaining capital and operational reserves.

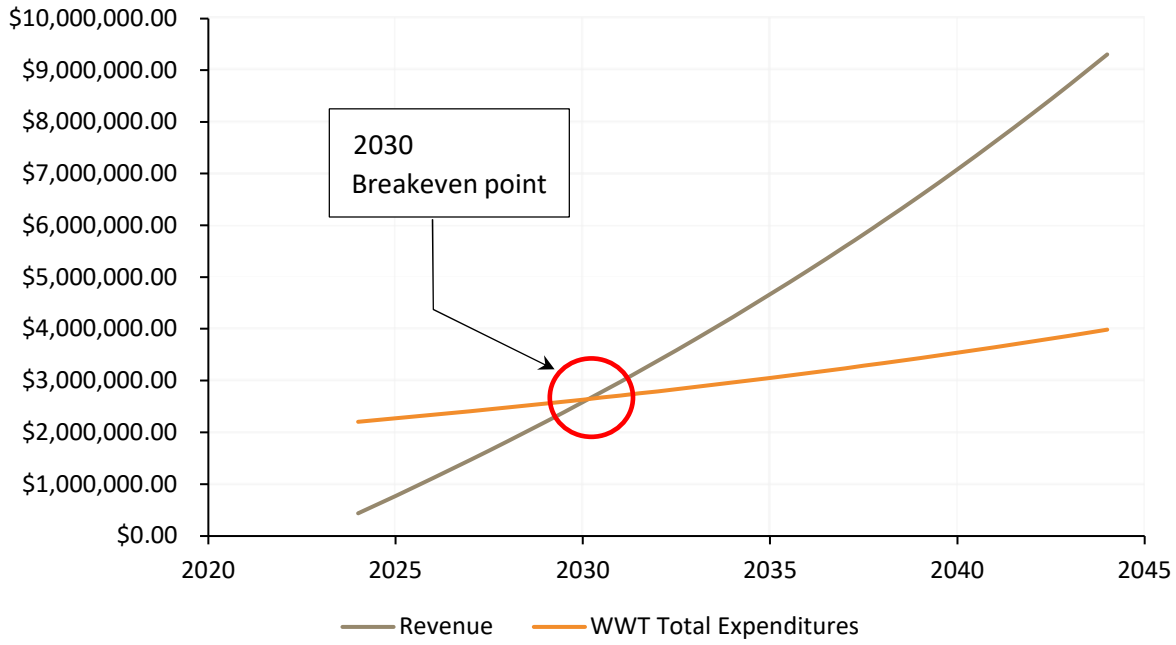

Figure 8-2 Wastewater System: Revenue vs Expenditures forecast.

8.2.4 Revenue Generation Risks

The most significant revenue recovery risk associated with the Southwold development projects is any delay in development and occupancy of subdivisions within the service area. The growth projections indicated over 20 years that there will be up to 2,930 new service connections between Shedden, Fingal and Talbotville, which equates into linear growth of up to 147 connections per year. This is aggressive growth for a community of this size, but with the significant local industrial growth within the Talbotville area, it is feasible. However, if growth does not meet the target, there will be a revenue deficit relative to the capital charges, ongoing operating revenue and asset renewal contribution.

In Figure 8-3 and Figure 8-4, the impacts of a delay in growth have been assessed for both water and wastewater system in terms of revenue generated vs expenditures. Several scenarios have been developed based on a delay of the forecasted growth.

As can be seen, a delay of the forecasted growth will result in a delay of the breakeven point for both water and wastewater expenditures vs revenue generation. In particular, the following can be noted:

- **Growth forecasted – 10% delay:** Under this scenario, a 10% delay growth will result in a delay of 1-2 years of the breakeven point revenue vs expenditures. The Township will run in deficit up to the 2030 for the water system, and up to the 2036 for the wastewater system. The total accumulated deficit for both water and wastewater system will be $3.9M and $11.8M, respectively.
- **Growth forecasted – 20% delay:** Under this scenario, a 20% delay growth will result in a delay of 5-6 years of the breakeven point revenue vs expenditures. The Township will run in deficit up to the 2033 for the water system, and up to the 2036 for the wastewater system. The total accumulated deficit for both water and wastewater system will be $6.0M and $13.4M, respectively.

- **Growth forecasted – 30% delay:** Under this scenario, a 30% delay growth will result in a delay of 10-12 years of the breakeven point revenue vs expenditures. The Township will run in deficit up to the 2038 for the water system, and up to the 2041 for the wastewater system. The total accumulated deficit for both water and wastewater system will be $9.0M and $15.4M, respectively.

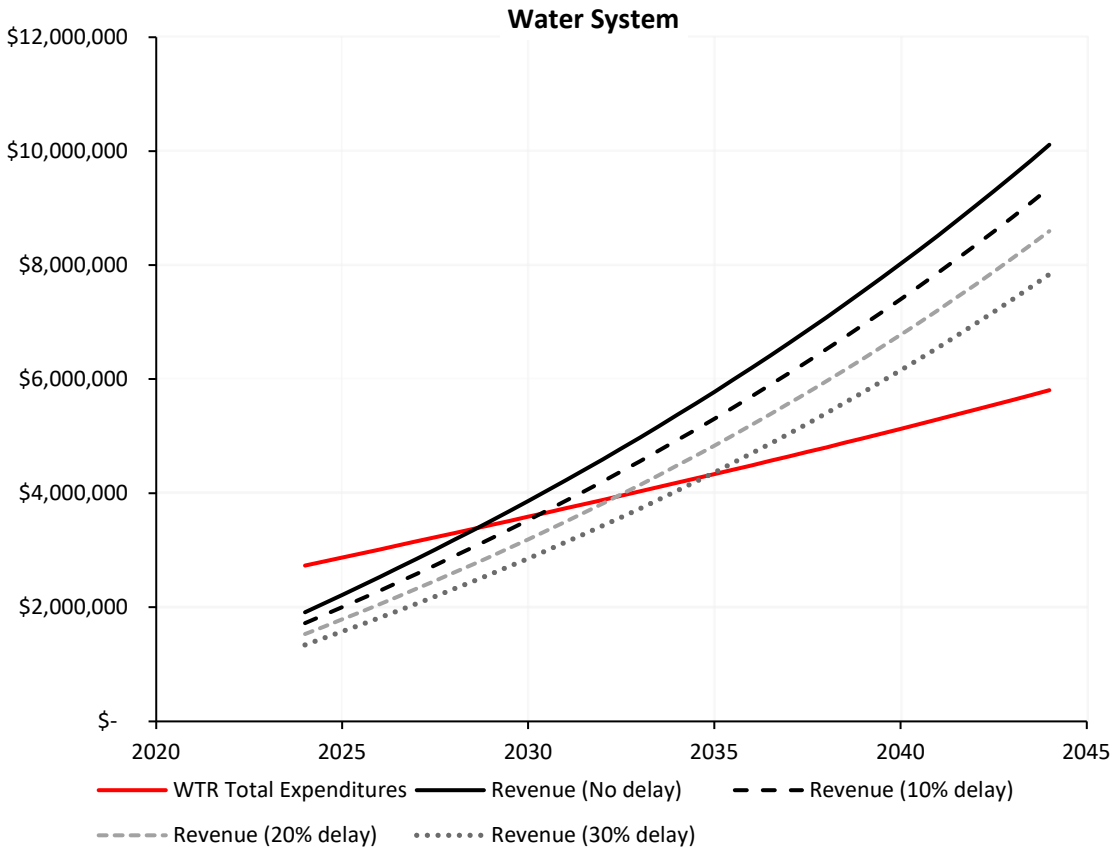

Figure 8-3 Water System: revenue vs expenditures based on growth.

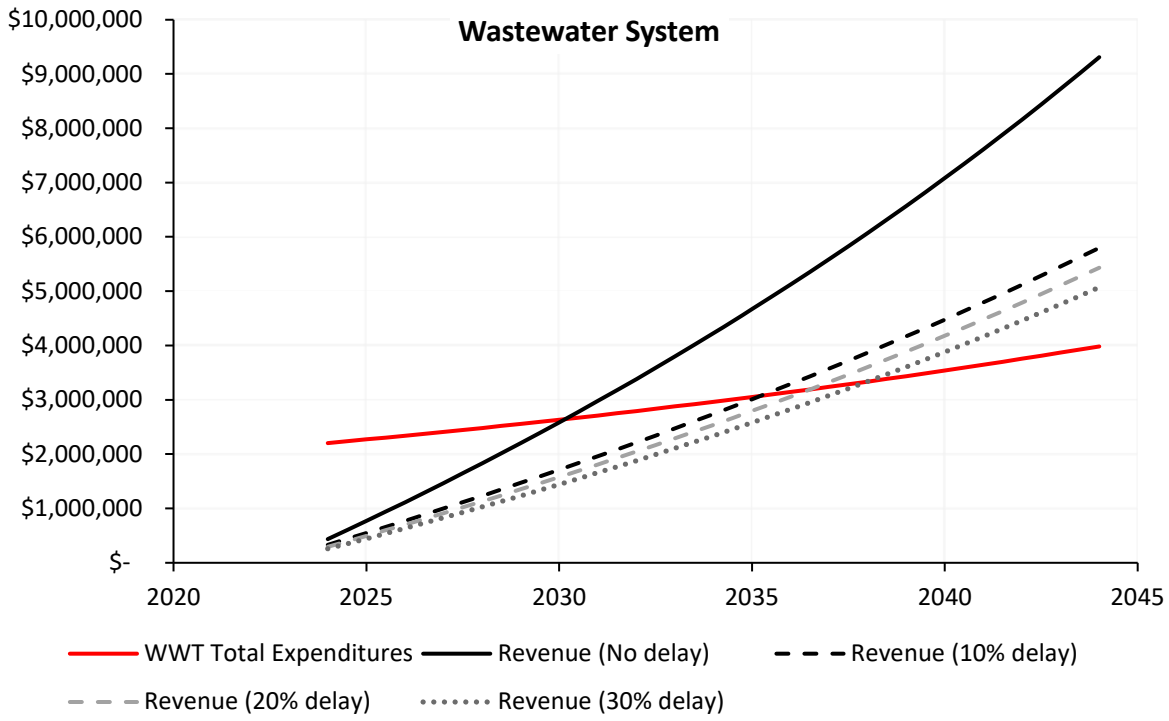

Figure 8-4 Wastewater System: revenue vs expenditures based on growth.

8.3 Storm

As indicated in the previous sections of the report, the expenditures associated with both municipal drains and municipal infrastructure is $1.15M per year. There is both a local and community benefit in terms of drainage of individual properties and the communal benefit of road and community space drainage as well as flood mitigation. Additionally, as the communities develop, stormwater management in terms of stormwater quantity and quality management (ponds, oil/sediment interceptors, bioswales, rain gardens, etc.) will become more prevalent and will become the Township's operational and financial responsibility.

For the purposes of consistency, the stormwater rate structure will apply equally in each of the settlement areas rather than having different rates for each of the communities. As identified in Section 6.2, the total annual estimated cost of stormwater associated with the three settlement areas is $1.15M per year.

The stormwater system rate structure is ultimately not related to consumption in the way that water and wastewater are, so a fixed rate is the preferred cost recovery model; however, how that fixed rate is distributed can be considered in different manners. The two options that are most practical for the Township of Southwold are as follows:

1. Unit Based Rate
2. Area Based Rate

The unit-based rate structure is feasible in these communities as each of them are primarily residential. The approach is to simply divide the annual budgeted storm system expenditures by the number of equivalent lots in the communities within the built-out area. Lots that are more than a single unit or undeveloped would be charged on an equivalent lot basis.

The area-based rate uses the area of a property to proportion the cost as a percentage of the total area services. This could be considered as more equitable since stormwater flow is proportional to the area over which it falls. This is not entirely accurate as it does not address shared lands (road rights-of-way) that benefit all users and does not address properties that have higher stormwater runoff rates (e.g. sites with parking lots, etc.).

The permeability of the property in terms of the amount of runoff generated from a property due to impervious areas (roof, roads, parking, etc.) will impact the variation in stormwater contribution between properties. Considering that the majority of the properties will be single family residential lots, considering these lots as equivalent to each other is reasonable rather than attempting to differentiate at a lot level. Larger parcels of developed lands and/or high-density developments may have a meaningful differentiated impact on the municipal storm infrastructure. There are innumerable options for how this could be addressed. For simplicity's sake, we would propose a tiered approach to differentiate between higher imperviousness properties as follows:

1. Undeveloped land with pre-development imperviousness (i.e. no hard surfaces (paved or unpaved), then a stormwater rate would be applied at 75% of the base standard rate.
2. If the property is more than 25% impervious and less than 50% impervious or has on-site stormwater management for quantity and quality, then it would be considered as a standard property.
3. If the property is greater than 50% impervious and has no on-site stormwater management system (quantity and/or quality), then a stormwater rate would be applied at a rate of 125% of the base standard rate.

Additionally, for simplicity purposes, an average lot size will be used for each zoning type as follows:

- R1 Zone
    - Standard Lot - 750 sq.m. including 10 m allocation for ½ of ROW fronting lot.
    - Lot sizes within unit range - lots from 600 sq.m. to 900 sq.m.
    - Anticipated imperviousness – 25-50%
- R2 Zone
    - Standard Lot – 450 sq.m. lot including 10 m allocation for ½ of ROW fronting lot.
    - Lot sizes within unit range - lots from 390 sq.m. to 600 sq.m.
    - Anticipated imperviousness – 50-75%
- R3 Zone
    - Standard Lot – 300 sq.m. lot including 10 m allocation for ½ of ROW fronting lot.
    - Lot sizes within unit range - lots from 310 sq.m. to 390 sq.m.
    - Anticipated imperviousness – 50-75%

For properties that do not fit within these ranges, such as estate lots or pre-existing properties, the Township has the option applying the area based rate for any outliers.

The Township has the option of differentiating between developed and undeveloped lots because the realized benefit may be different depending on the land use. For example, undeveloped land that is fallow within the settlement area is still generating stormwater, but at a lower rate than developed land. As such, the option would be to reduce the rate for those lands by a percentage. For the purposes of this report, it is assumed that these lands would be charged at 75% of their developed equivalent cost. Agricultural land that is being actively used would be exempt until such time as it was developed.

Table 8-6 illustrates the alternative approaches that can be considered based on the unit vs. area-based approach. The optimization of the rate structure should consider the actual equivalent lot size when considering both existing and proposed lots.

Table 8-6: Alternative Proposed Stormwater Utility Rate Structure

	Unit Based Rate Structure	Area Based Rate Structure
Annual Expenditures to be recovered	$1.15M	$1.15M
Unit or Area	3263 lots at build out	447 hectares
Annual Cost per unit/area	$353.00 per lot	$2,573 per ha
Annual Cost per equivalent residential lot	$353.00	$193.00 (based on 750 m^2 per equivalent lot)*
Average Monthly Fixed Cost per residence	$29.42	$16.08

* 750 m^2 per lot considers minimum lot size of 450 m^2 plus allowances for municipal right of way.

The unit based structure as detailed above does not address the variability in land uses between larger lots, commercial lots, and high density land uses. The area based structure is a more equitable approach provided that there are considerations for lot configurations with high imperviousness versus low imperviousness. Table 8-7 illustrates the proposed stormwater rate structure including all anticipated zones that would be included within the settlement areas.

Table 8-7: Proposed Stormwater Rate Structure

	Standard	Standard with onsite quality/quantity control
A1 Zone	Cost allocated by Municipal Drainage Act only	
Undeveloped Land (All zones except A1)	$1,929.75 per hectare	
R1 Zone	$16.08 per month	N/A
R2 Zone	$12.06 per month	N/A
R3 Zone	$8.04 per month	N/A
VC Zone	$3,216.25 per hectare	$2,573.00 per hectare
All other Zones	$2,573.00 per hectare*	$2,573.00 per hectare

* for all other zones the imperviousness would be addressed on a case-by-case basis.

8.4 Other Fees

Currently, the Township charges for Private Drain Connections as a fixed fee. In our opinion, while we recognize that this provides cost certainty to individuals making the connection, it does increase the liability to the Township in the event that costs are greater than the fixed fee. Our recommendation is to provide residents with a quotation for the work for single projects with an allowance for contingency and then charge the actual final cost with a 10-15% mark-up to reflect additional costs incurred by the Township. For connections that are part of a development, the tendered price can be used plus the similar mark-up for overhead costs.

9 CLOSURE

9.1 Conclusions

The following conclusions are intended to summarize the findings from this study:

- **Wastewater System:** The estimated annual forecasted expenditures for the wastewater system are $6.85M per year. This is a result of significant capital costs to be invested for the

expansion of the communal wastewater system with the construction of a new wastewater treatment plant in Shedden, servicing both Shedden and Fingal. Although the system is designed to serve several thousand properties, during the initial years, it is expected that a total of approximately 500 properties will be impacted. In this period, the full cost recovery for the system is not be achievable and will need to be completed over time.

- **Water System:** The estimated annual forecasted expenditures for the wastewater system are $3.38M per year. The existing water system currently serves 1,806 properties, and no system expansion has been anticipated. It is expected that the forecasted cost recovery will be reasonable achieved by the forecasted growth.
- **Stormwater System:** The estimated annual forecasted expenditures for the wastewater system are $1.15M per year. This is a significant increase over historical spending, but represents the cost of operation, maintenance and renewal that best reflects long-term risk management. The stormwater area within the residential area is approximately 95% within both Shedden and Fingal, and 20% for Talbotville. There are currently 870 properties within the stormwater system area, and they are expected to increase up to 3263 lots at build out. It is expected that the forecasted cost recovery will be reasonable achieved by the forecasted growth.

9.2 Discussion

The preceding report details a technical assessment of the financial position and requirements in order to achieve cost recovery including the risks to the Township if the anticipated growth either does not materialize or proceeds at a slower rate than currently planned for.

The development of the rate structure to be implemented is a combination of accounting and sales. Accounting in terms of ensuring that the required cost recovery is achieved in a fiscally responsible manner and sales in terms of making the rates affordable and where possible competitive with adjacent municipalities in order to entice new residents and businesses to move into the community. Furthermore, for existing residents that are connected or will be connected to the systems, affordability is also a concern.

The general approach that has been taken is to upfront capital and renewal/reserve contributions as part of a connection fee rather than increasing the fixed and consumption charges. This approach has been selected because it is competitive with comparable costs (e.g. connection charges are set to be generally less than the cost of drilling new well or building septic system) and minimizes the affordability risk on existing users.

The following sections are broken down by service with a discussion of the logic behind the initial recommendations proposed. This is prepared as an independent consultant and is intended as a starting point for discussion with the Township to be finalized prior to presentation to Council.

9.2.1 Water Rate Structure

The water system is existing and does not include any treatment facilities at this time as the water is purchased from the St. Thomas Secondary Water Supply system. The change from the existing rate structure is that full cost recovery includes the asset renewal costs, and non-development related capital upgrades proposed.

The capital charge should be maintained at current levels, and it can be used to reduce capital/asset management renewal monthly cost as indicated. It would be adjusted by approximately 3% based on the type of use as indicated in Section 8.2.2.

The existing basic rate structure for water is as follows:

- Fixed Rate: $43.20 per quarter
- Consumption Charge: $2.87 per m^3

There are other specific rates that will need to be updated as part of this study, but for the purposes of discussion, the base rate will be the primary starting point.

An estimated rate structure based on the current financial position of the Township has been proposed as follows based on a 19mm service:

- Fixed Rate: $56.54 Quarterly
    - Variable rate based on consumption:
        - Low consumption (165 Lpcd): $4.97
        - Average consumption (250 Lpcd): $3.27
        - High consumption (350 Lpcd): $2.33

However, this represents a base rate increase of 30% and consumption charge increase of up to 173%. As more properties connect, the revenue will surpass costs within 4 years if this rate structure were implemented. **As an alternative approach, we would propose the following alternative rate structure to be implemented:**

- **Fixed Rate: $56.54 Quarterly – Phased in over two years starting in 2025 for existing connections.**
- **Variable Rate: $3.20 per m^3 – Phased in over two years starting in 2025 for existing connections.**

This would allow the system to be out of a deficit position within five years and subject to growth and demand would have recovered the deficit incurred by 2037. The rate would be annually adjusted with inflation until the deficits were eliminated and reserves in compliance with asset management requirements.

9.2.2 Wastewater Rate Structure

The wastewater rate structure is in some ways more complex as the Shedden and Fingal systems have yet to be constructed and there is a new plant proposed for Talbotville. The capital cost of that infrastructure should be charged on a connection basis, and our initial review indicates that a minimum charge of $8,500 be levied either through development charges or as a connection charge based on the upper tier funding that has been secured. The current charge per connection is $18,462 and this approach could be continued with a CPI increase for fairness and equity to $19,200 with any surplus funds being used to address the deficit in the capital/asset renewal costs that will occur during the period where the treatment facilities and infrastructure are not adequately subscribed. The current rate is competitive with the cost of a replacement septic system and should be updated annually in accordance with inflation and/or debt servicing costs.

It is important to recognize that both the Talbotville and proposed Shedden WWTP facilities are tertiary treatment facilities that are significantly more complex than the comparable plants in the adjacent municipalities that are either significantly larger or use more passive treatment technologies such as lagoons. As such, a direct cost comparison is not as straightforward as it is with water.

The existing basic rate structure for water is as follows:

- Fixed Rate: $68.22 per quarter ($22.74 per month)

- Consumption Charge: $2.71 per m^3

There are other specific rates that will need to be updated as part of this study, but for the purposes of discussion, the base rate will be the primary starting point.

An estimated rate structure based on the current financial position of the Township has been proposed as follows:

- Fixed Rate: $277.04 Annually (equivalent to $69.26 Quarterly, or $23.08 Monthly)
  - Variable rate based on consumption:
    - Low consumption (165 Lpcd): $6.17
    - Average consumption (250 Lpcd): $4.06
    - High consumption (350 Lpcd): $2.96

However, this represents a base rate increase of 1.5% and consumption charge increase of up to 227%. As more properties connect, the revenue will surpass costs within 5 years if this rate structure were implemented. **As an alternative approach, we would propose the following alternative rate structure to be implemented:**

- **Fixed Rate: $69.26 Quarterly – Phased in immediately for existing connections.**
- **Variable Rate: $4.80 per m^3, (150% of water rate) Phased in over two years starting in 2025 for existing residents.**

This would allow the system to be out of a deficit position within ten years and subject to growth and demand would have recovered the deficit incurred through capital charges for connections. The rate would be annually adjusted with inflation until the deficits were eliminated and reserves in compliance with asset management requirements.

9.2.3 Stormwater Rate Structure

The stormwater rate is a new rate within the community that will cover all costs associated with the management and renewal of stormwater infrastructure within the settlement areas of the three communities. The goal of this approach should be the keep it simple and as equitable as possible.

The proposed rate structure based on the current financial position of the Township has been proposed as follows:

- **Area based calculation (based on 750 m^2 per equivalent lot): $48.24 per quarter (16.08 per month).**
- **Undeveloped areas with low imperviousness would be charged at 75% of the standard rate.**
- **Areas with imperviousness over 50% would be charged at 125% of the standard rate.**
- **The standard monthly rate per zone is as follows subject to adjustment based on imperviousness and/or lot area:**
  - **R1 Zone - $16.08 per month per standard lot size range**
  - **R2 Zone - $12.06 per month per standard lot size range**
  - **R3 Zone - $8.04 per month per standard lot size range**
  - **VC Zone - $268.02 per month per hectare (no onsite stormwater management)**
  - **Other Zones - $214.42 per month per hectare (subject to perviousness)**
  - **Undeveloped Land – $160.81 per month per hectare**

This would be invoiced as a line item on the water/wastewater bill either quarterly or monthly; however, for undeveloped lands that are not connected to water or sewer, it would need to be billed separately. As indicated above, consideration for discounting the rate structure for undeveloped lands

should be discussed in order to ensure that the necessary revenue to fund the system operation and renewal while being equitable to all impacted residents.

9.3 Next Steps

This report is intended to satisfy the scope of work defined by the Township. Subject to Township comments and optimization of the report, we would recommend the following next steps:

- Develop a phasing plan for both metering and rate structure course correction.
- Update the water and wastewater by-law to reflect key issues such as connection requirements, metering, and rate structures.

Prepared by

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Process Design Lead

Jamie Witherspoon, P.Eng. LEED AP
President/Project Manager

APPENDIX A

Council Presentation

ONE WATER UTILITY RATE STUDY
COUNCIL PRESENTATION

JAMIE WITHERSPOON, P.ENG., LEED AP, ENV SP – PROJECT MANAGER

FEBRUARY 24, 2025

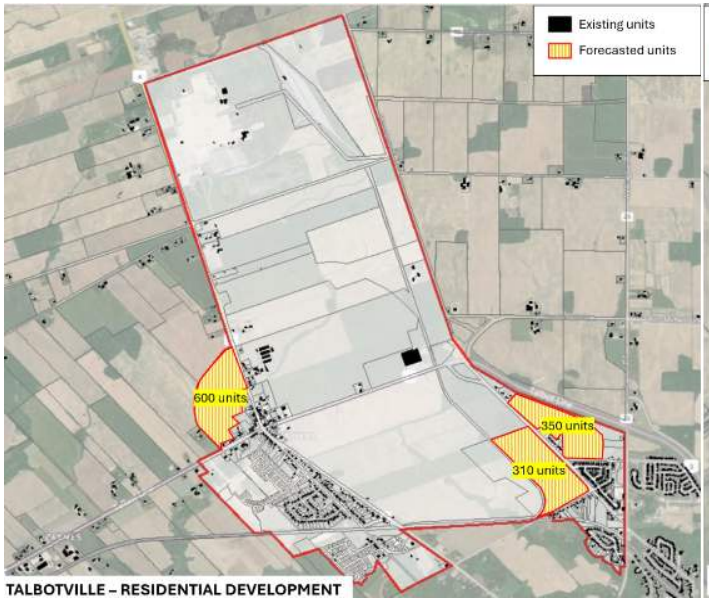
WT INFRASTRUCTURE
PRACTICAL INNOVATION

TOWNSHIP OF
Southwold

STUDY OBJECTIVES

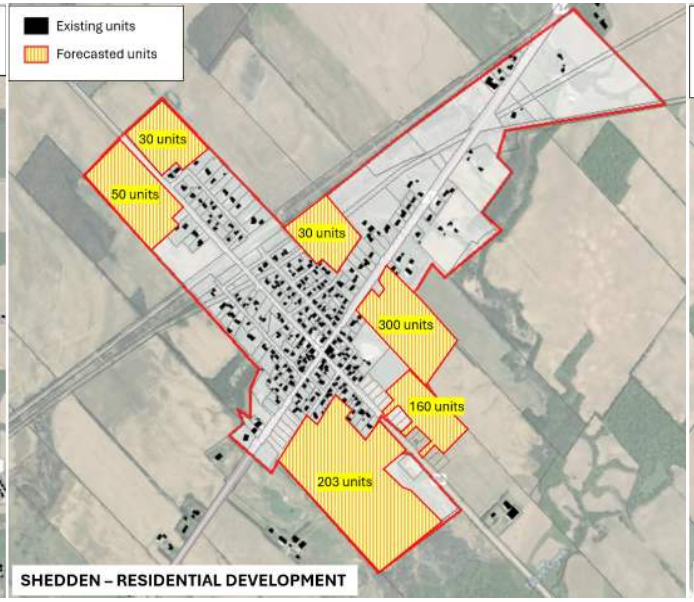
1. Compliance with Sustainable Water and Sewage Systems Act (2002) in terms of full cost recovery.
2. Addressing cost recovery for new wastewater treatment infrastructure in Shedden and Fingal.
3. Providing a more practical approach to managing Municipal Drain and Stormwater Infrastructure costs in settlement areas.
4. Consistency and Equity with User Pay Philosophy.

WATER & WASTEWATER SYSTEM SERVICE AREA



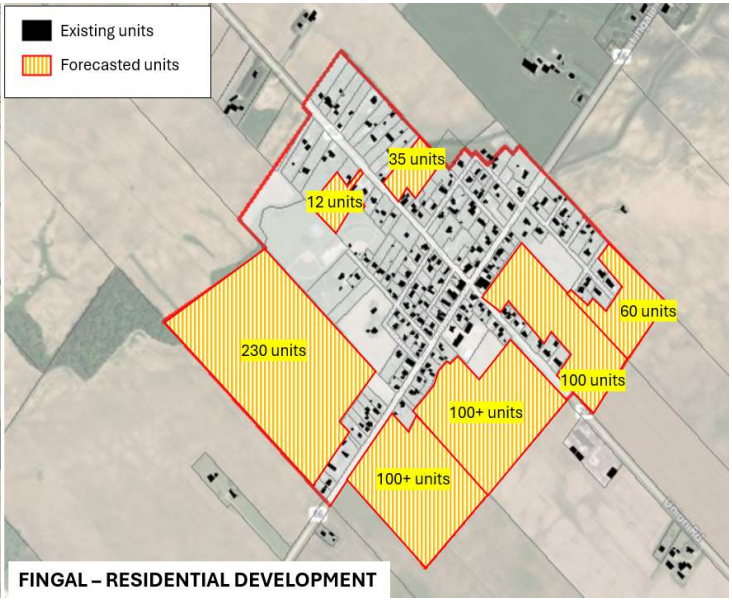
- Talbotville

Forecasting 1260 Additional ERU



- Shedden

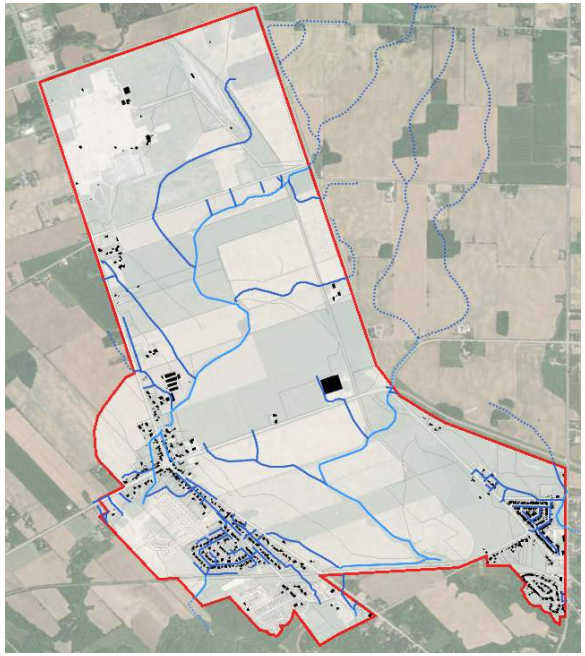
Forecasting 773 Additional ERU



- Fingal

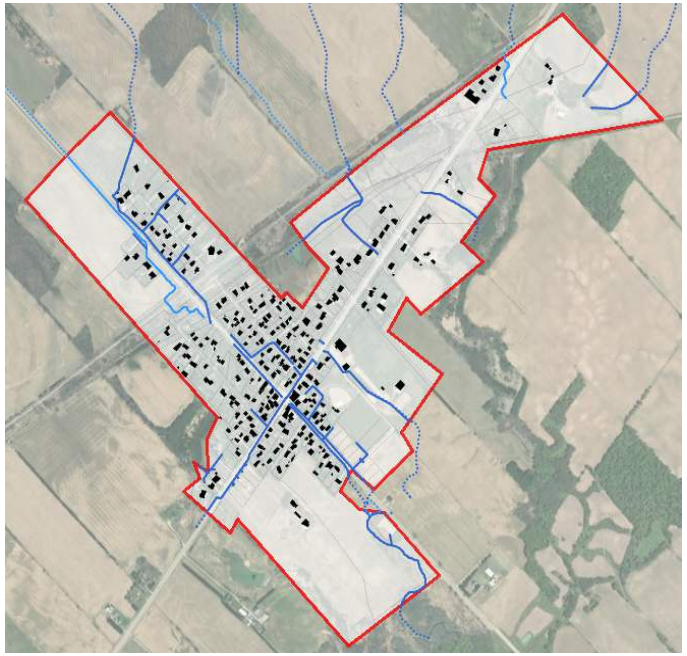
Forecasting 637 Additional ERU

STORMWATER SYSTEM SERVICE AREA – MUNICIPAL DRAINS



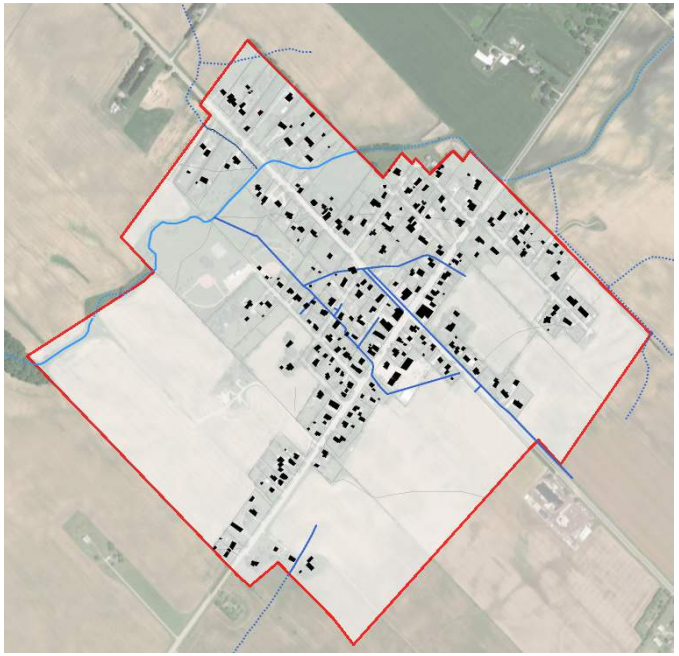
- **Talbotville**

57% of impacted drains are within the settlement area



- **Shedden**

32% of impacted drains are within the settlement area



- **Fingal**

25% of impacted drains are within the settlement area

IMPACTS OF COMMUNITY GROWTH

- **Water**
  - **Current**
    - **Current Connections: 1,806**
    - **Annual Water Consumption – 356,500 m^3**
  - **20-year Design**
    - **Total Connections: 4,809 (+266%)**
    - **Forecast Annual Water Consumption: 818,560 m^3 (+230%)**
- **Wastewater**
  - **Current**
    - **Current Connections: 333**
    - **Annual Wastewater Production – 55,950 m^3**
  - **20-year Design**
    - **Total Connections: 3,263 (+980%)**
    - **Forecast Annual Wastewater Production: 548,200 m^3 (+980%)**

COSTS TO BE RECOVERED

TV0

- **Water**
  - Capital and Asset Renewal - $820,000 Annually
  - Operation and Maintenance - $1,920,000 Annually (includes water purchase)
- **Wastewater**
  - Capital Cost – $14M (to be incurred by 2027)
  - Asset Renewal Costs – 950,000 Annually
  - Operation and Maintenance - $1,250,000 Annually
- **Stormwater**
  - Capital and Asset Renewal - $650,000 Annually
  - Operation and Maintenance Costs - $500,000 Annually

Slide 6

TV0 Should be removed for council?

Tiziana Venditto, 2025-01-28T14:13:42.196

EXISTING RATE STRUCTURE

- **Water System**
  - Average cost per connection: $873 per year
  - Total Revenue (Current): $2,287,213
  - Connection Charges – vary by location and type - $5,342 to $32,629 (most include physical service pipe)
- **Wastewater System**
  - Average cost per connection: $463 per year.
  - Total Revenue (Current): $283,772
  - Connection Charges – vary by type - $13,274 to $28,609+ (includes physical service pipe)
- **Stormwater System**
  - Average cost per connection: $ -
  - Total Revenue (Current): $ -
  - Connection Charge – No capital contribution just cost of physical service pipe - $2,000 to actual cost
  - Why include stormwater?
    - Municipal drain maintenance requires assessment of all lands impacted
    - Development growth will add new infrastructure with high O&M costs over its lifespan.

TV0

PROPOSED RATE STRUCTURE - WATER

- **Connection Charge – New Connections**
  - Varies by location to promote development in settlements vs. strip development.
  - Urban/Development - $5,400 to $10,350 depending on size
  - Rural - $10,800 to $20,700 depending on size
  - Physical Service Pipe – Charged at cost plus Township Overhead

Base Rate (Fixed)	Current Fixed Water Rate (2024)	Proposed Fixed Water Rate
Annual Fixed Rate	$172.80	**$226.17 (31% increase)**
Quarterly Rate Equivalent	$43.20	**$56.54**
Monthly Rate Equivalent	$14.40	**$18.85**

- **Metered Rate**
  - $3.20 per cubic metre (11.2% increase)
- **Council has option of phasing in rate over a period to minimize impact.**
- **Implementation Strategy is to increase by CPI annually.**

Slide 8

TV0 AA: I would like to see the Urban Fee be worded specifically for scenarios where the developer/applicant is completing construction works at their cost (ie subdivision, apartments, commercial), limiting the fee to the reserve contribution. And all other connections use the $16k number, even for in-town severances.
Tiziana Venditto, 2025-01-27T21:30:11.436

PROPOSED RATE STRUCTURE - WASTEWATER

- **Connection Charge – New Connections**
  - Varies by type of connection size
  - Standard Single Family Dwelling - $19,200
  - Other connections vary from $13,500 to $29,100+
  - Physical Service Pipe – Charged at cost plus Township Overhead

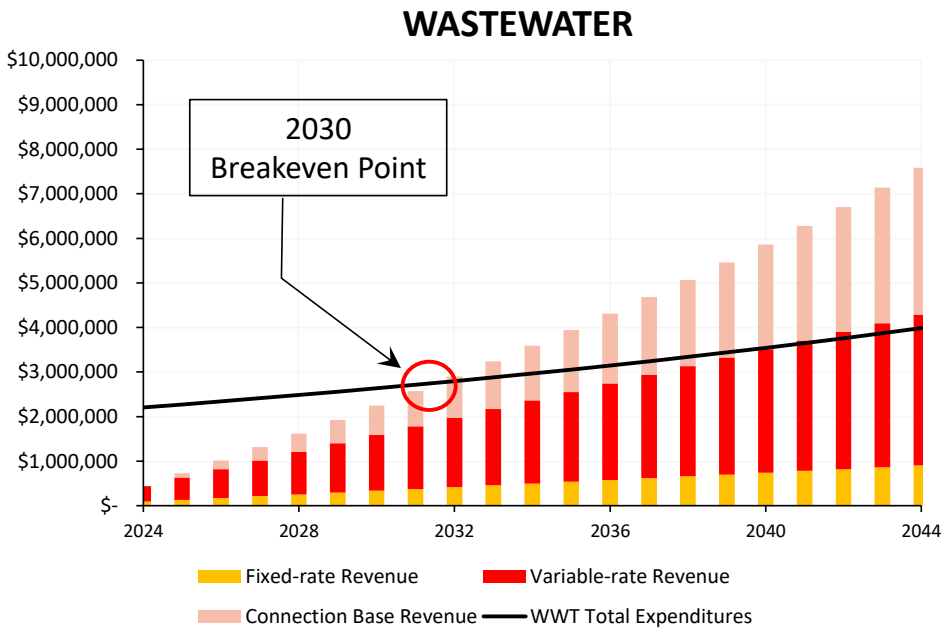
Base Rate (Fixed)	Current Fixed Wastewater Rate (2024)	Proposed Fixed wastewater Rate
Annual Fixed Rate	$272.88	**$277.04 (+1.5%)**
Quarterly Rate Equivalent	$68.22	**$69.26**
Monthly Rate Equivalent	$22.74	**$23.09**

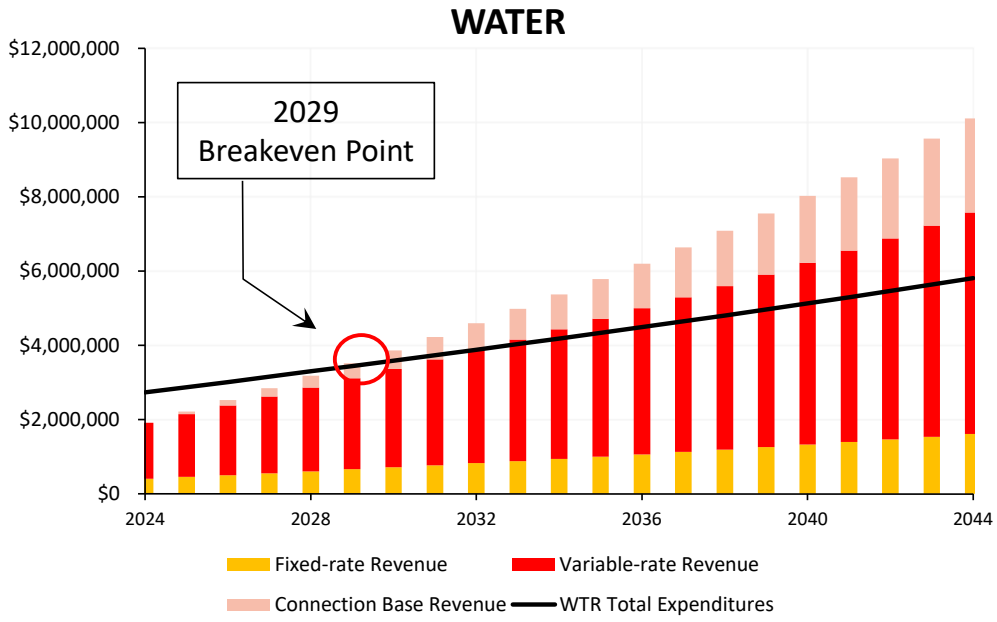
- **Metered Rate**
  - $4.80 per cubic metre (77% increase)
- **Council has option of phasing in rate over a period to minimize impact.**
- **Implementation Strategy is to increase by CPI annually.**

PROPOSED RATE STRUCTURE - STORMWATER

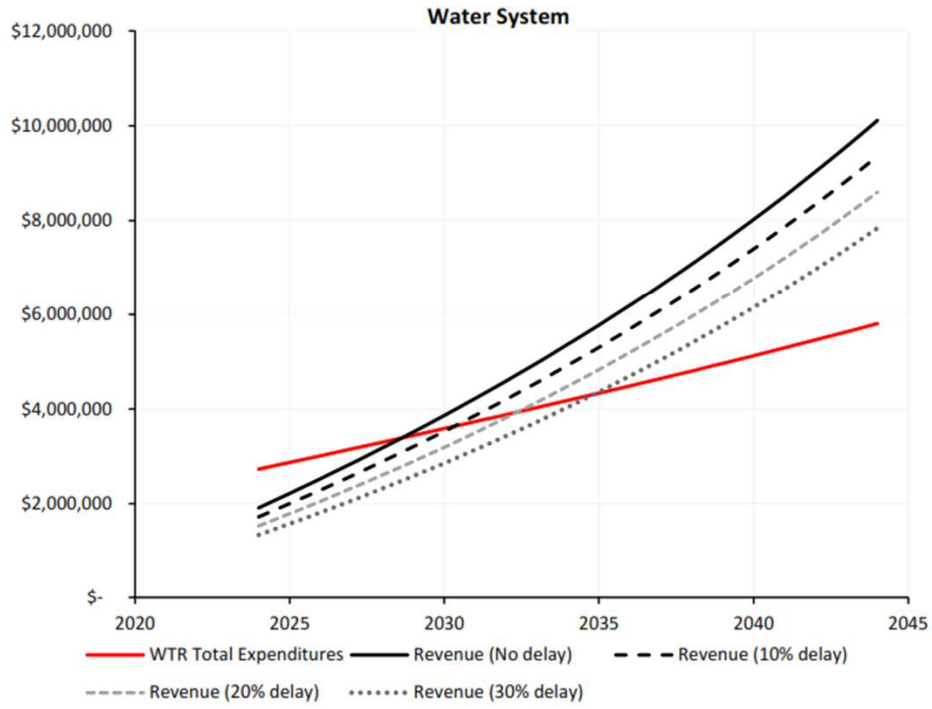
	Unit Based Rate Structure	Area Based Rate Structure
Annual Expenditures to be recovered	$1.15M	$1.15M
Unit or Area	3263 lots at build out	447 hectares
Annual Cost per unit/area	$353.00 per lot	$2,573 per ha
Annual Cost per equivalent residential lot	$353.00	$193.00 (based on 750 m^2 per equivalent lot)*
Monthly Fixed Cost per residence	$29.42	$16.08

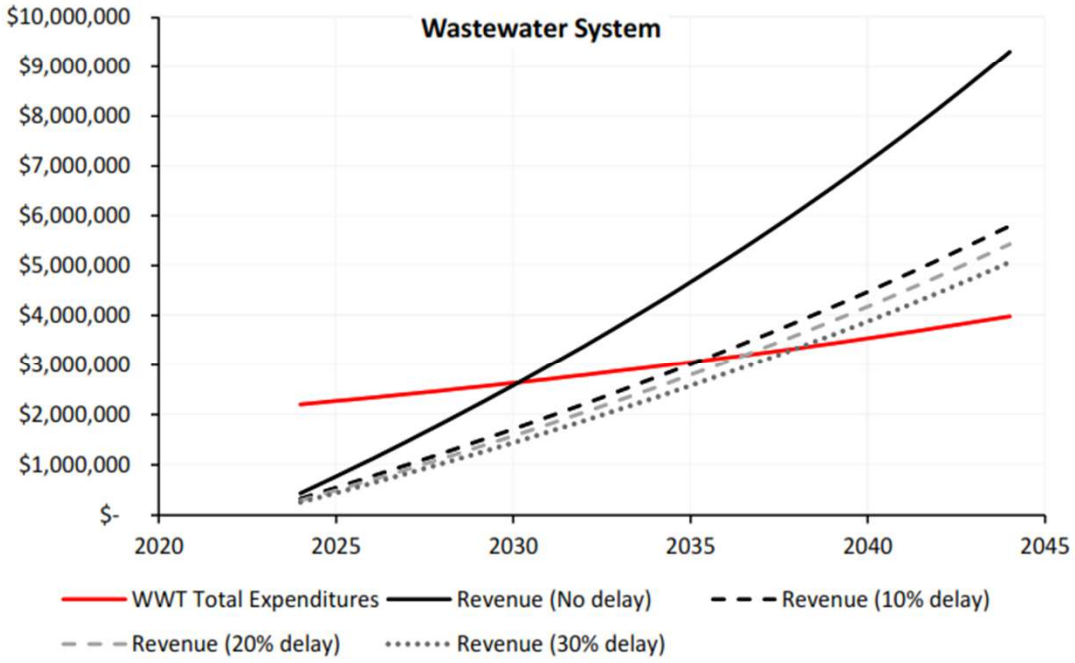
FORECAST COST RECOVERY MODEL



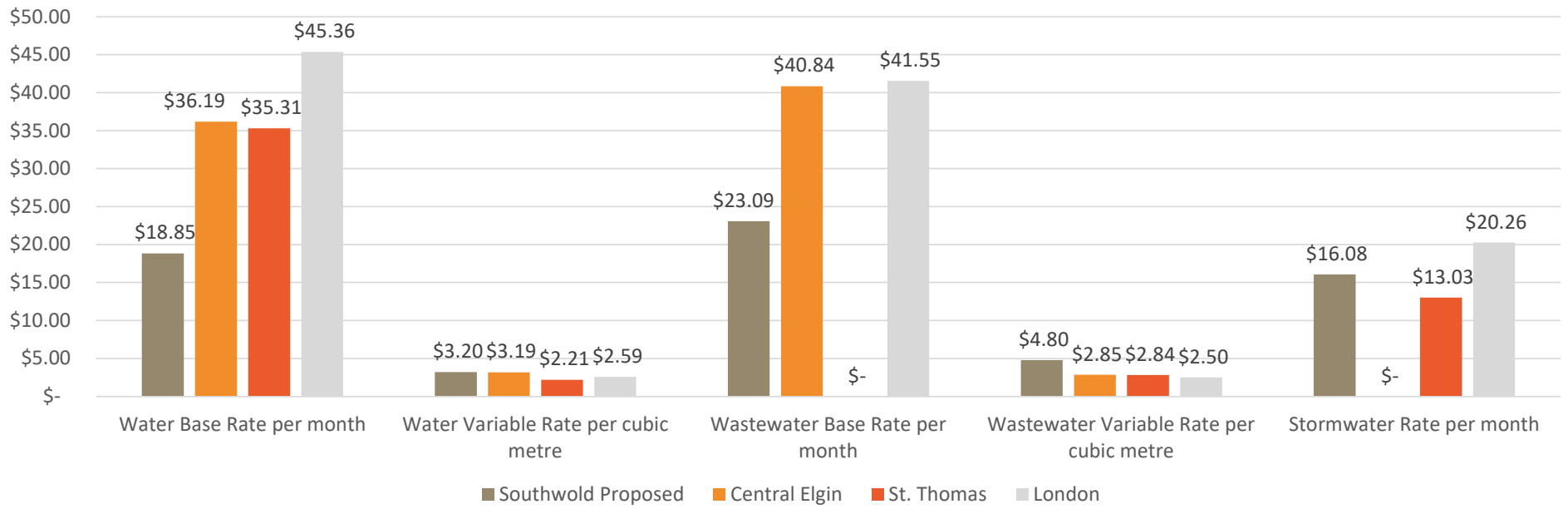


RISK OF DEVELOPMENT DELAY





COMPARABLE RATE STRUCTURES



OPTIONS

1. Proceed with the rate structure as recommended.
2. Proceed with the rate structure recommended phased over two to three years to minimize the impact on existing residents.
3. Increase the base charge for both wastewater and water to be more consistent with adjacent municipalities and lower the variable rate.
   - Water
     - Base Rate: $35.00 per month (increase of 143% over existing rate structure)
     - Variable Rate: $2.51 per cubic metre (reduction of 13% less than existing rate structure)
   - Wastewater
     - Base Rate: $40.00 per month (increase of 65% over existing rate structure)
     - Variable Rate: $3.26 per cubic meter (increase of 20% over existing rate structure)

SUMMARY

- Full Cost Recovery is a requirement for all water/wastewater systems in Ontario.
- Growing communities require large capital investments without the immediate users to pay for them.
- Recommended rate strategy
  - Rate structure is designed for predictable CPI increases and will allow for periodic rate freezes in the event of adverse economic conditions.
  - Capital Charges that are competitive with cost of private servicing (well and septic installation) that cover both immediate capital and contribution to asset renewal.
  - Base Rate Charge that are not significantly varied from current rates.
  - Variable costs that are reflective of full cost recovery, but provide users with opportunity to manage their costs through conservation.
- Integrating stormwater into the rate structure funds critical infrastructure renewal and eliminates unexpected fees for drainage works.

THANK YOU FOR YOUR TIME AND ATTENTION. QUESTIONS?

JAMIE WITHERSPOON, P.ENG. – PRESIDENT

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