Municipality of West Elgin Drinking Water System

Rate Report

Sharratt Water Management Ltd.
Sustainable Water Management Specialists

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1 EXECUTIVE SUMMARY

The Municipality retained the services of Sharratt Water Management Ltd to develop water rates and provide a Financial Plan under Ontario Regulation 453/07 for the West Elgin Secondary Water System. The financial plan has been prepared as a two-step process.

1. Sharratt Water Management Ltd. has taken the projected capital renewal dates for all assets out to 2095, the life of the longest assets, and inflated the renewal costs to the date of the projected renewal, and has inflated future operating costs to 2029. Based on these cost projections as well as an estimate of future water use and number of customers, full cost water rates were developed for the system.

2. Financial Plan – This has been based upon the above in accordance with Regulation 453/03 and the Ministry of Environment policy paper. It is set out in a separate report.

1.1 Proposed Water Rates

The current rate is one which has a fixed component that everyone pays bi-monthly, including tenants. Those with meters also pay for water that passes through the meter, based on a volumetric rate per cubic metre. The proposed rates are shown in Table 1. The projection of rates to 2029 is shown in Appendix 3.

Table 1 Proposed Township of West Elgin Proposed Water Rates 2019-2025

Rate	2019	2020	2021	2022	2023	2024	2025
Fixed Rate Bi-Mon	39.79	41.58	43.45	45.41	47.45	49.59	51.37
Variable Rate Inflated $	1.45	1.51	1.58	1.65	1.73	1.81	1.87
Variable Rate 2019$	1.45	1.47	1.49	1.51	1.54	1.56	1.57

The above shows a short version of the proposed rates. The long more detailed version of this rate table is in table 7, page 17. The fixed part is paid by those with the most common .62-inch meters, as well as tenants in buildings, will be $39.79 later in 2019, rising to $51.37 in 2025. The volumetric component of the rate paid by those with meters (excluding tenants) will be $1.45 later in 2019, rising to $1.87 in 2025. This charge will apply to all water that passes through the meter. All costs are in inflated dollars. In constant 2019$, water rates increase from $1.45 in 2019 to $1.57 per cubic metre in 2025, an increase of $.12 per cubic metre over the 7 year period. Water sales are expected to remain constant over future years and the number of customers is projected to stay the same as in 2019. Should more water be sold or more customers be connected, revenues would increase, and future rates could increase less rapidly. Should less water be sold or fewer customers be connected, then sales would be below projections.

2 PROJECT PURPOSE

The Municipality retained the services of Sharratt Water Management Ltd to provide a Financial Plan under Ontario Regulation 453/07 for the West Elgin Water System. The financial plan has been prepared in a two-step process.

1. Component No. 1 has been prepared by Sharratt Water Management Ltd. has developed full cost rates for the system. These rates are set out below.

2. Component No. 2 – has been carried out by SWML. It involves the preparation of a Financial Plan to meet the requirements of Regulation 453/07. It is based on the rate report developed in component 1, above, and is set out in a separate report.

3 BACKGROUND

Setting the water rates involves a number of steps:

1. Development of a near-term 7 year capital and major maintenance plan 2019 to 2025
2. Projection of capital investment needs to replace current aging infrastructure. This has involved a projection of the lifetimes of all current assets to 2095, the life of the longest current asset, and identifying the funds that are needed now to ensure that funds will be available at the time renewal is required for any asset that requires renewal between 2019 and 2095. Some assets with shorter than a 75 year lifetime will be replaced more than once in the next 75 years.
3. Projection of future operating costs, including source protection and lead removal costs to 2029.
4. Estimation of future water use and the number of users paying the fixed component of the water bill to 2029.
5. Developing a fair two-part rate structure that has a fixed component to cover metering and billing charges and a variable change placed on every metre of water sold for 2019-29.
6. Illustrating the future water bills for various classes of customers associated with the proposed rates.
7. Finalizing a recommended water rate valid for the next ten years, that should be reviewed periodically.

4 LEGISLATIVE CONTEXT

There have been a number of legislative initiatives affecting water system management and operations over the past two decades. These commenced with the water borne illness tragedy in Walkerton in 2000. Following this event, the government established a public inquiry to look into the tragedy, chaired by the Honorable Dennis O'Connor. The Inquiry Report recommended a comprehensive approach to the delivery of safe drinking water in Ontario.

The Ministry of Environment (MOE) has responded to the Inquiry recommendations by making legislative changes. One having relevance to the development of rates and financial plans was the passage of the Safe Drinking Water Act, 2002 (SDWA). It requires owners of municipal drinking water systems to apply for and obtain a Municipal Drinking Water License. There are five elements that must be in place in order for the owner of a drinking water system to obtain a license:

1. A Drinking Water Works Permit to establish or alter a drinking-water system;
2. An accepted Operational Plan. The Drinking Water Quality Management Standard (DWQMS) is the standard upon which operational plans are based. The plan documents an operating authority's quality management system (QMS).
3. An Accredited Operating Authority. A third party audit of an operating authority's QMS will be the basis for accreditation.
4. A Permit to Take Water.
5. **A Financial Plan that must be prepared, based on up-to-date rates, and approved in accordance with the prescribed requirements in the Financial Plans Regulation. This requirement is one of the main reasons that this project is being carried out.**

Regulation 453/07 of the Safe Drinking Water Act 2002 was passed in 2007 and contains two key provisions that apply to existing water systems and financial plans:

- *"A person who makes an application under the Act for a municipal drinking water license shall, before making the application, prepare and approve Financial Plans for the system that satisfy the requirements of Reg. 453/07."*

- *"As a condition in a municipal drinking water license that is issued in response to an application made under section 33 of the Act for a municipal drinking water license, the Director shall include a requirement that the owner of the drinking water system, by the later of July 1, 2010 and the date that is six months after the date the first license for the system is issued, prepare and approve Financial Plans for the system that satisfy the requirements prescribed Reg. 453/07."*

Under section 30 of the SDWA, the Financial Plans element of the license program must either be prepared in accordance with the Sustainable Water and Sewage System Act, 2002 (SWSSA) or in accordance with the requirements set by the Minister of the Environment. SWSSA regulations have not been published and SWSSA has terminated. Accordingly, the requirements set by the Minister of Environment apply and the MOE issued guidelines 2007. They apply and are followed in the preparation of this report. The Guidelines set out nine principles to guide the preparation of Financial Plans, and by implication, water rates:

1. *Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system(s) to which they relate.* The owner of the drinking water system must make the Financial Plan available, on request, to members of the public who are served by the drinking water system without charge, publish them on the internet, if one is available, and provide notice to the public of the availability of the document.

2. *An integrated approach to planning among water, wastewater and storm water systems is desirable given the inherent relationship among these services*. If one entity plans for both water and wastewater, then this arrangement allows owners and operators to make more rational decisions about operations, capital investment and environmental protection – choices that recognize the inter-relationship between water and wastewater services. Many municipalities pay for the costs of wastewater services by levying a surcharge on water rates. This is a valuable linkage, as those who use water will generate equivalent amounts of water. However, the guideline encourages municipalities to structure their accounts to reflect the three separate activity areas: water, wastewater and storm water. Costs are to be computed on a service basis for water and separately for wastewater. Separating fire protection costs from other system costs is desirable. Recovering costs for storm water through a surcharge on water bills does not satisfy the user pay principle.

3. *Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.* This can be done by establishing dedicated reserve funds, in which excess utility revenues above current cash costs and capital expenditures are saved for future utility needs.

4. *Financial planning with midcourse corrections is preferable to planning over the short term, or not planning at all*. It is recommended that utilities, when they undertake capital investment planning, adopt a planning horizon that encompasses the entire life cycle of the asset base. This may not be immediately possible, but in the interim, a planning horizon of at minimum 35 years is desirable.

5. *An asset management planning approach is a key input to the development of a financial plan*. A very useful starting assumption, in preparing capital investment plans is that each asset will need to be replaced at the end of the estimated life that is assigned to it for accounting purposes. The intent of an asset management plan, the rates and accompanying financial plan is to ensure that when assets need to be maintained, rehabilitated or replaced; municipalities are in a financial position to do so.

6. A sustainable level of revenue allows for reliable service that meets or exceeds environmental standards, while providing sufficient resources for future rehabilitation and replacement needs. A sustainable utility is one that can adequately cover current operating costs, maintain and repair its existing asset base, replace assets when appropriate, fund future growth and service enhancements, and account for inflation and changes in technology. Capital expenditures can be funded through user fees, new debt issuance and cash reserves. The use

of debt is limited by the municipality's debt ceiling. Many municipalities wish to avoid the use of debt and, accordingly, need to raise additional revenues from ratepayers today to pay for future investment needs. According to the guidelines, it is a good practice for the funding plan to clearly identify the contribution of various funding sources towards satisfying capital investment plan requirements over the projection periods. A related best practice is for the funding plan to include projected balances for debt and cash reserves in each period of the projection horizon. Additional best practices include:

- Avoiding large fluctuations in rates from year to year
- Keeping debt within a sustainable level
- Avoiding depleting cash reserves or, conversely, building up large cash balances that do not reflect future cash needs

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 rendered.* Rate structures should promote financial sustainability and water conservation. Metering and the use of rates are preferable to cross subsidization using property taxes.

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.* From time to time, it is good practice to review the accuracy of projections in both capital investment and funding plans. The appropriate frequency is likely to be once in 3 to 5 years.

9. *Financial Plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal council*.

This rate report has been prepared in consideration of the various pieces of MOE legislation and regulations and in particular, with the above mentioned MOE guideline document. Achieving financial sustainability in the province's municipal and water and wastewater sector is the long-term goal although financial plans are mandatory only for water systems.

5 WATER SERVICE FINANCING

Municipalities have a number of alternative financing mechanisms available to fund water services:

Development Charges - Such charges are applied to developers and others connecting new non-serviced areas to the existing water and wastewater systems. The growth related costs of building additions to the system can be passed on to these developers or new customers. Existing users are thus spared the capital cost of expanding infrastructure to accommodate new users to the system. The Municipality of West Elgin currently does not utilize a development charges by law.

Connection Charges - Fees are charged to landowners who wish to connect to the system. The fee covers the cost to the water utility associated with installing a water main and a service line or drain from the existing water main or large sewer to the edge of the property line. Some costs may be assessed to cover past infrastructure investments by current users that are not reflected in the water rates. The Municipality of West Elgin charges new users 75% of the cost of service lines to connect new users to the system with 25% provided from the municipal tax base.

Government Grants - The Ontario and Federal governments provide funding on a shared basis with municipalities. The formula is one-third Federal government, one-third Provincial government and one third municipal funding. Grants have been received in the past, to build the water treatment plant, however no grants have been assumed as a funding source from 2019 forward. Should such grants be obtained, they would be used to supplement the reserve.

Reserves - Reserves are set up to deal with unexpected equipment repairs and to ensure that funds are available to renew ageing water and wastewater systems when they reach the end of their expected life at various points in the future. Increasingly, municipalities are carrying out studies to look out many years to identify capital renewal or replacement projects that need to be funded by a reserve. This project assesses the funding that needs to be set aside now and invested in reserves so that current assets can be financed when they reach the end of their life. This speads the cost of renewal over several generations of water users rather than requiring a single generation of ratepayers to pay the full cost when the asset is renewed. The Municipality currently has substantial reserves that will be augmented during the study period and will be used to fund future water capital renewal projects.

Debentures - Money has traditionally been borrowed in the form of debentures to provide upgrades to service existing users. Utilizing debentures and loans allows principal and interest to be recovered over a period from a large cohort of water users, rather than having the full cost burden fall on one group of water users at one time. The Municipality currently has no loans outstanding and none is forecast.

User Fees – Smaller, recurring capital maintenance and renewal projects are often financed out of the annual operating funds of the water system. User fees cover all the costs not covered by other financing approaches.

Most water systems use some or all of the above means. In this project, revenue generation will rely upon user rates, connection fees, reserves and grants, should grants become available.

6 WATER RATE TYPES

There are a number of rate types that are in use in Ontario. These are as follows:

Flat Rate - All users are assessed an annual fee that does not depend on the amount of water used. The vast majority of the Municipality's users are metered and do not pay a flat rate however, tenants in multi-unit premises are charged the fixed portion of the water bill that is a form of flat rate

Decreasing Block - Users pay less per cubic metre as water use increases. This rate provides an economic advantage to large industrial or institutional water users. The Municipality does not use a declining block.

Increasing Block - Users pay more per cubic metre as water use increases. This is sometimes called the conservation rate, as it was designed to encourage large users to be more careful with their water use. The Municipality does not utilize this rate.

Two Part Constant Unit – In this rate type, there is a fixed portion paid by all users and a variable part that is based on the water use. For the variable part, the user pays the same for each cubic metre of water used. This is the rate currently used by the Municipality for both residential and commercial users.

Seasonal Rate – Higher rates in the summer when the system is closest to capacity. This rate is not used in the Municipality.

Flat rates are commonly utilized in about a tenth of Ontario municipalities that are not metered, and in communities that are only partially metered. Decreasing block rates were formerly very popular as they provided some relief for large users. However, the popularity of this rate type is declining. The management of a system that is reaching capacity and will face expensive expansion often employs increasing block rates. An increasing number of municipalities in Ontario utilizes it. The West Elgin water system is not reaching capacity. The constant unit rate is now the most commonly used rate type. It is proposed that this rate be continued for the West Elgin secondary water system.

7 CURRENT WEST ELGIN 2018-9 WATER RATES

The current water rate is set out below in table 1

Table 2 West Elgin Water System Rates: Effective June 1, 2018 in $:

User Type	Rate
Fixed Service Charge applied to all Water Users-Bi Monthly	38.11
Water Use Charge per Cubic Metre	1.39
Water Station Charge per Cubic Metre	2.78

A two-part rate is utilized by the Municipality for all metered users. This includes a fixed charge applied bi-monthly, to all water users, including tenants in multi-unit buildings. This is paid regardless of the amount of water used. The charge in 2019 is $38.11 every two months ($18.06 per month). The cost of all water that passes through the user's meter is $1.39 per cubic metre. Tenants that do not have a water meter in their premises pay only the service charge of $18.50 per month. The property owner pays the water use charge for the water used by tenants.

8 PROPOSED WATER SYSTEM RATES FOR 2019-2029

The West Elgin Water System purchases its water from the Tri-County Water System. It is a distribution system within the municipality, which includes the two urban centers of Rodney, and West Lorne and is served by an extensive system of water mains and an elevated water tank in Rodney.

8.1 Approach

The water rate setting approach begins by establishing an estimate of capital renewal needs to 2095, the projection of operating costs needs, the determination of water purchases and the number of connections and lastly, computation of rates to 2029.

8.2 Assumptions

- Rate Type — Two part rate – a fixed and a volume based component
- Inflation — Operating 3% per annum with 5% for energy, Capital 3%
- Interest on Investments — 3.0% per annum

8.3 Water System Capital Expenditures

Projected seven year forecast capital renewal and replacement expenditures for 2019 to 2025 are summarized in Table 3. The breakout of capital and major maintenance projects is shown in table 2. Capital are generally the larger projects that are considered assets. Major maintenance are routine and relatively lower cost items required to keep the system running.

Table 3 West Elgin Water System - Projected Capital/Major Maintenance - 2019 to 2025 in Inflated $

	2019	2020	2021	2022	2023	2024	2025
Capital	505,000	875,500	275,834	338,745	292,632	127,520	141,846
Major Maintenance	20,000	23,690	29,705	28,411	25,564	23,056	55,442
Total	525,000	899,190	305,539	367,156	318,196	150,576	197,287

The detailed breakout of the capital and major maintenance costs is shown in table 4. Capital costs are shaded. Major maintenance is everything else.

The total capital and major maintenance projects in the six-year projection include line extensions. While these are an important component of the water system, this type of project does not affect rates, as they are paid for from special user connection charges and contributions from the municipal tax base on a 75/25% basis. A major initiative includes future expenditures for the replacement of cast iron water mains that have reached the end of their life. In addition, the Municipality is replacing the residential water meters that will occur over the next few years. All these and other projects identified in table 4 are proposed to be funded from rates through transfers from the capital reserve fund. The cost of major capital renewal projects from 2019 to 2095 are illustrated in chart 1.

Figure 1 West Elgin Capital Needs 2019 to 2095 in Inflated $

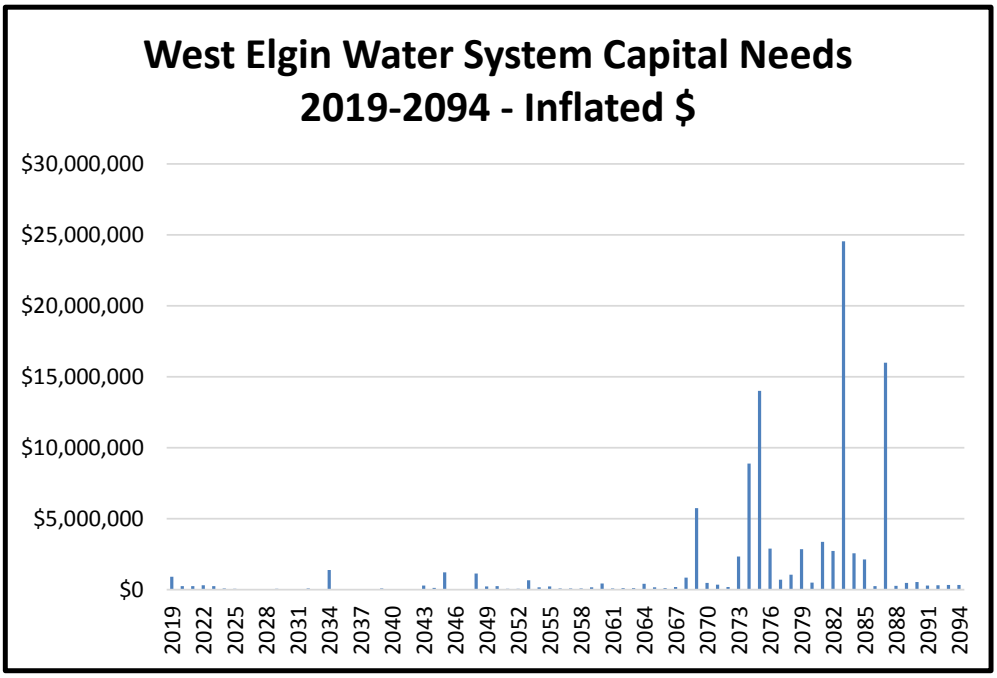


Table 4 Capital and Major Maintenance Projects 2019-2025 Inflated $

Project/Activity Description	2019	2020	2021	2022	2023	2024	2025
RODNEY ELEVATED TANK							
Paint interior and exterior							
Tank Inspection		5,150					4,244
UPS	1,000					1,030	1,061
Chorine Pump Repair					4,244		
Chlorine Board Rebuild					1,061		
Subtotal Rodney Capital Costs	1,000	5,150	-	-	5,305	1,030	5,305
DISTRIBUTION SYSTEM							
Allowance for Future Extensions	50,000	51,500	53,045	54,636	56,275	57,964	59,703
Watermain Replacement Chestnut through Wood	340,000						
Todd Place Waterline Replacement	40,000	556,200					
Repl. Cast Iron Main behind Library		206,000					
Bulk Water Stn Colley/Crinian			159,135				
Replace Water Main Chestnut (Graham to Ridge)				180,300			
Replace Rideout Main (Centre to Dead End)					168,826		
Pocket Colourimeter	1,000					1,159	
Backflow Preventers/Testing							
Household Meters Replacement Program	60,000	61,800	63,654	65,564	67,531	69,556	71,643
AMR Software and handheld	15,000						
Leak Detection Survey				8,742			
Auto Flusher Maintenance	3,000	3,090	3,183	3,278	3,377	3,478	3,582
Valve Repair	5,000	5,150	5,305	5,464	5,628	5,796	5,970
Vehicle Replacement				38,245			
Rechlorination System							
Hydrant Testing	5,000	5,150	5,305	5,464	5,628	5,796	5,970
Fire Flow Testing Hydrant Painting/Maint			10,609				
Spares Inventory Maintenance	5,000	5,150	5,305	5,464	5,628	5,796	5,970
Chlorine Anayzer							10,500
Subtotal Distribution System Capital Costs	524,000	894,040	305,539	367,156	312,891	149,546	163,339
Sub-Total All of Above Costs	525,000	899,190	305,539	367,156	318,196	150,576	168,643
OTHER COSTS - STUDIES, NEW REGULATION							
New regulations/Engineers Reports							
Licensing Requirements (DWQMS and financial plan)							23,340
Operations manual							5,305
Other Major Maintenance							
Subtotal Other costs	-	-	-	-	-	-	28,644
Grand Total - All Costs Inflated $	$525,000	$899,190	$305,539	$367,156	$318,196	$150,576	$197,287
Note: Shaded items - capital All others - Major Maintenance							

The major capital projects affecting rates include the following:

- 2019 to 2023 cast iron water main replacement
- 2019-34 Water meter replacement
- 2034 water tower refurbishment
- 2045-48 water main replacement
- 2053 water main replacement
- 2069 water main replacement

The expenditures appear large however; they are in inflated dollars with an inflation rate projected of 3% per annum. These costs are built into today's rates, and the reserve will accumulate sufficient funds to pay for these projects when the assets reach the end of their life.

8.4 Water Operating Revenue and Expenditure Plan

The summary operating revenue and expenditure plan for the water system for 2015 to 2029 is set out in Table 5

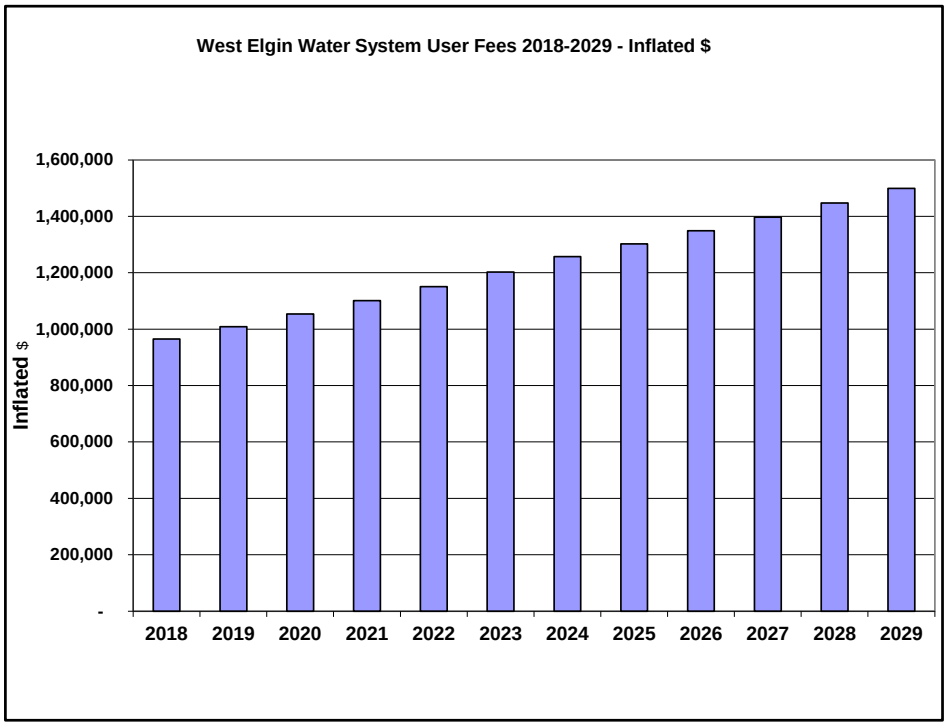
Table 5 Water Operating Revenue and Expenditure Plan 2018-29 Inflated $

		Actual	Projected										
		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
	Revenues												
1	User Fees	(965,192)	(1,008,625)	(1,054,014)	(1,101,444)	(1,151,009)	(1,202,805)	(1,256,931)	- 1,302,055	- 1,348,798	- 1,397,220	- 1,447,380	- 1,499,341
2	Reserve Interest	-	(32,220)	(52,408)	(30,171)	(25,588)	(19,469)	(15,109)	(16,141)	(16,133)	(17,851)	(19,848)	(22,144)
3	Miscellaneous	(14,103)	(14,000)	(15,000)	(16,000)	(17,000)	(18,000)	(19,000)	- 19,570	- 20,157	- 20,762	- 21,385	- 22,026
4	Sun Life Shares	-	-	-	-	-	-	-	-	-	-	-	-
5	Coin Station	-	-	-	-	-	-	-	-	-	-	-	-
6	New Services	(14,000)	(14,000)	(14,000)	(14,000)	(14,000)	(14,000)	(14,000)	- 14,420	- 14,853	- 15,298	- 15,757	- 16,230
7	Late Payment Charges	(14,825)	(14,000)	(14,500)	(15,500)	(16,000)	(16,500)	(17,000)	- 17,510	- 18,035	- 18,576	- 19,134	- 19,708
8	Disconnection Charge	(9,750)	(9,000)	(10,000)	(10,000)	(10,000)	(10,000)	(10,000)	- 10,300	- 10,609	- 10,927	- 11,255	- 11,593
9	Stock Materials Sold	(12,018)	(12,000)	(12,500)	(13,000)	(13,500)	(14,000)	(14,500)	- 14,935	- 15,383	- 15,845	- 16,320	- 16,809
10	Service Call	-	-	-	-	-	-	-	-	-	-	-	-
11	Water Line Extension Payments		(50,000)	(51,500)	(53,045)	(54,636)	(56,275)	(57,964)	(59,703)				
12	Waterline Capital Payment	(6,593)	(10,000)	(15,000)	(15,000)	(15,000)	(15,000)	(15,000)	- 15,450		-	-	-
14	Grant Revenue	-	-	-	-	-	-	-					
15	Total Revenues	(1,036,481)	(1,163,845)	(1,238,922)	(1,268,160)	(1,316,734)	(1,366,050)	(1,419,503)	(1,470,084)	(1,443,968)	(1,496,480)	(1,551,079)	(1,607,851)
12													
13	**Expenditures**												
14	Cost of Water	484,484	506,286	529,069	552,877	577,757	603,756	630,925	650,988	671,689	693,049	715,088	737,828
15	Water Station	-	-	-	-	-	-	-	-	-	-	-	-
16	Mains Repair	38,968	40,000	40,000	40,000	40,000	40,000	40,000	41,200	42,436	43,709	45,020	46,371
17	Hydrant Repair	5,293	5,000	5,000	5,000	5,000	5,000	5,000	5,150	5,305	5,464	5,628	5,796
18	Services	-	-	-	-	-	-	-	-	-	-	-	-
19	General Administration	-	-	-	-	-	-	-	-	-	-	-	-
20	Office Supplies	1,289	1,600	1,600	1,600	1,600	1,600	1,600	1,648	1,697	1,748	1,801	1,855
21	Billing and Collecting	8,551	12,000	12,240	12,485	12,734	12,989	13,249	13,646	14,056	14,478	14,912	15,359
22	Bad Debts	-	500	500	500	500	500	500	515	530	546	563	580
23	Phones	2,250	2,500	2,500	2,500	2,500	2,500	2,500	2,575	2,652	2,732	2,814	2,898
24	Utilities	8,763	9,000	17,645	18,292	18,941	19,593	20,246	21,258	22,321	23,437	24,609	25,840
25	Postage	9,500	9,500	9,975	10,474	10,997	11,547	12,125	12,488	12,863	13,249	13,646	14,056
26	Janitorial Supplies	111	200	200	200	200	200	200	206	212	219	225	232
27	Uniforms	1,043	1,000	1,000	1,000	1,000	1,000	1,000	1,030	1,061	1,093	1,126	1,159
28	Small Tools/Safety	4,666	5,000	5,000	5,000	5,000	5,000	5,000	5,150	5,305	5,464	5,628	5,796
29	Vehicle Expense	3,436	5,000	5,000	5,000	5,000	5,000	5,000	5,150	5,305	5,464	5,628	5,796
30	Water Testing	10,443	14,332	14,618	14,911	15,209	15,513	15,823	16,298	16,787	17,291	17,809	18,344
31	Rodney Tower	-	-	-	-	-	-	-	-	-	-	-	-
32	Minor Repairs and Maintenance	14,573	16,000	16,000	16,000	16,000	16,000	16,000	16,480	16,974	17,484	18,008	18,548
33	Bad Debts	-	-	-	-	-	-	-	-	-	-	-	-
34	Materials/Inventory	13,006	30,000	31,000	32,000	33,000	34,000	35,000	36,050	37,132	38,245	39,393	40,575
35	Audit	-	1,000	1,000	1,000	1,000	1,000	1,000	1,030	1,061	1,093	1,126	1,159
36	Meters	6,601	-	-	-	-	-	-	-	-	-	-	-
37	Operating Contract	139,919	156,867	159,220	161,609	166,457	171,451	176,595	181,892	187,349	192,970	198,759	204,721
38	Misc Water	-	-	-	-	-	-	-	-	-	-	-	-
39	Part Time Labour	-	-	-	-	-	-	-	-	-	-	-	-
40	Labour and Benefits	150,339	205,674	209,708	213,822	218,018	222,299	226,665	233,465	240,469	247,683	255,113	262,766
41	Legal	712	2,000	2,000	2,000	2,000	2,000	2,000	2,060	2,122	2,185	2,251	2,319
42	Advertising	112	200	200	200	200	200	200	206	212	219	225	232
43	Software License	5,618	6,000	6,300	6,615	6,946	7,293	7,658	7,887	8,124	8,368	8,619	8,877
44	Insurance	8,779	9,332	10,265	11,292	12,421	13,663	15,029	15,480	15,944	16,423	16,915	17,423
45	Taxes	873	900	950	1,000	1,050	1,100	1,200	1,236	1,273	1,311	1,351	1,391
46	Operations Total Expenditures	919,331	1,039,891	1,080,990	1,115,376	1,153,531	1,193,203	1,234,514	1,273,090	1,312,879	1,353,921	1,396,255	1,439,922
47													
48	**Revenues Less Operating Expenses**	(117,150)	(123,954)	(157,932)	(152,784)	(163,203)	(172,846)	(184,990)	(196,994)	(131,089)	(142,559)	(154,824)	(167,929)
49													
52	Capital		525,000	899,190	305,539	367,156	318,196	150,576	197,287	73,792	76,006	78,286	113,496
53													
54	Capital Renewal Reserve Fund	(117,150)	(401,046)	(741,258)	(152,755)	(203,953)	(145,350)	34,413	(294)	57,296	66,552	76,537	54,433
56													
57	Net	-	-	-	-	-	-	-	-	-	-	-	-

User fees are shown in line 1 of table 5 and revenues from all sources, including user fees, are summarized in line 15. Operating expenditures are summarized in line 46. All surpluses of revenues over expenditures are transferred to the reserve. This contribution is shown in line 54.

8.4.1 User Fee Requirements

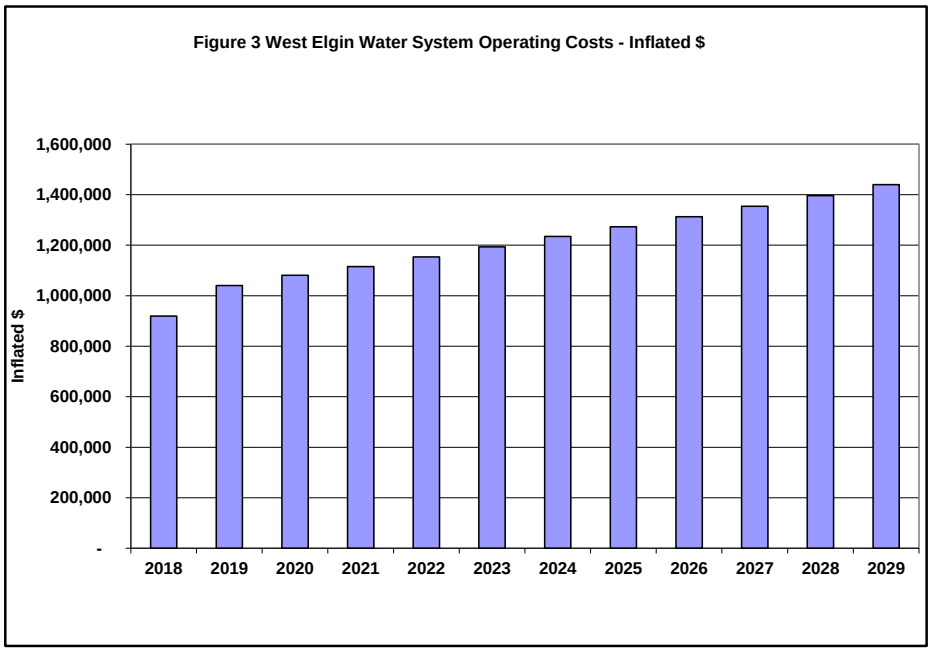
User fees, set out in line 1 of table 5, are shown in figure 2 below:



User fees are projected to increase by 4.5% per annum including inflation until 2024, and then 4% per annum thereafter, including 3% inflation per year. This increase is due to replacement of older obsolete water lines now, replacement of water meters and additional water line replacement beginning again in 2040s. The rates and reserve balances need to be reviewed every year and a study be done every 5 years in accordance with Ontario Regulation 453/07.

8.4.2 Operating Expenses

Future operating expenditures are summarized in line 46 in Table 4, and illustrated in figure 3



Operating costs rose in 2018 and 2019 due to increases in labour costs and some smaller costs that were added such as legal, software licences and insurance. Operating costs after 2019 are inflated at 3% per annum, the projected level of inflation.

8.4.3 Source Water Protection

No further expenditures are planned at this time.

8.4.4 Lead Abatement

The system has no lead so that no abatement expenditures are necessary.

8.4.5 Debt

As of December 31, 2019, there was no debt on the system. No new long-term debt is anticipated in the 2019 to 2095 period however, a loan will be needed in the 2083-2092 period. The projected capital costs are proposed to be financed exclusively by contributions from the Municipality's current and future reserve fund. Should government grants be obtained, they would be placed in the reserve fund and help offset future rate increases. This reliance on reserves is in keeping with the Municipality's past pay-as-you-go philosophy governing water infrastructure funding.

8.4.6 Reserve Funds

The projected water reserve fund is shown in table 6:

Table 6 West Elgin Projected Reserve Fund 2019-25 Inflated $

		2019	2020	2021	2022	2023	2024	2025
Water Line Extension		50,000	51,500	53,045	54,636	56,275	57,964	59,703
Rate Payer and Tax Revenues		50,000	51,500	53,045	54,636	56,275	57,964	59,703
Capital 6 Year Projection		$505,000	$875,500	$275,834	$338,745	$292,632	$127,520	$141,846
Major Maintenance - 6 Year Projection		$20,000	$23,690	$29,705	$28,411	$25,564	$23,056	$55,442
Long Term Capital Renewal 2026-93		$0	$0	$0	$0	$0	$0	
Government Grants		$0	$0	$0	$0	$0	$0	$0
Total Capital		$525,000	$899,190	$305,539	$367,156	$318,196	$150,576	$197,287
Opening Reserves		$2,147,995	$1,746,949	$1,005,691	$852,936	$648,982	$503,633	$538,046
Reserves from Operations		-$401,046	-$741,258	-$152,755	-$203,953	-$145,350	$34,413	-$294
Reserve Value at Year End	**$2,147,995**	**$1,746,949**	**$1,005,691**	**$852,936**	**$648,982**	**$503,633**	**$538,046**	**$537,752**

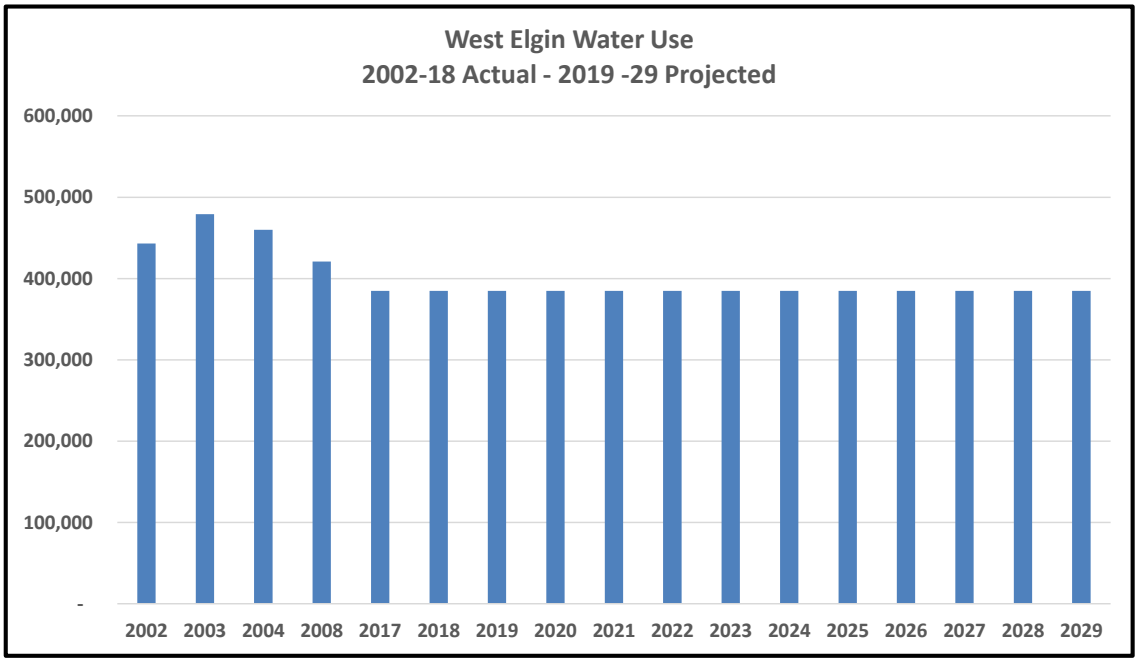
The reserve, with annual contributions, will be sufficient to cover all currently projected major maintenance and capital renewal and replacement costs until 2095, the time horizon of this study. The reserve balances to 2095 are set out in Appendix 1.

8.5 West Elgin Water Sales/Number of Users

8.5.1 Water Purchases/Sales

Water purchases for 2002-2008 and projected for 2017-2020 are set out in Figure 4:

Figure 4 Water Usage 2002-2008, 2017-2018 and projected for 2019-2029 in M3



Overall, water purchases in 2018 to 2029 are projected to be lower than 2008, and much lower than 2002-2004. The decline no doubt may be partly to do with the closure, for renovation, of the 401-service centre, ten years ago, and the use of highly water efficient fixtures when it reopened. This is a substantial decline; however, this decline is also consistent with a general pattern of lower water use across the Province. Looking forward, water use should remain constant or decline somewhat.

8.5.2 Projected Number of Connections

The number distribution of current and projected connections is set out in Table 6.

Table 6 Number of Fixed Charge Payment Users 2019-2029

Total Fixed Charge Payment Users											
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Meters Paying Fixed Charge	1715	1715	1715	1715	1715	1715	1715	1715	1715	1715	1715
Tenants Paying Fixed Charge	160	160	160	160	160	160	160	160	160	160	160
Seasonal - Connected June-Oct Only	27	27	27	27	27	27	27	27	27	27	27
Total Off Peak	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875	1875
Total Peak	1902	1902	1902	1902	1902	1902	1902	1902	1902	1902	1902

The Municipality has 1,902 users in 2019. There were 1,905 in 2009. There has been no growth. The current 1,902 includes 1,715 users with meters, 160 users who are tenants in buildings with meters who pay the fixed monthly charge, and 27 seasonal users from June-October who disconnect for the rest of the year. It is projected that the number of users paying the fixed charge will remain constant for the next few years.

8.6 Proposed Water Rate

Rates are calculated by considering the user fee revenue requirements, the future water use, and the future number of people paying the fixed monthly charge.

In this option, the current rate structure with a fixed component and a variable component is utilized, with tenants paying the fixed charge. The proposed rates are shown in Table 7.

Table 7 West Elgin Proposed Water Rates 2018-2025 Inflated $

	2019	2020	2021	2022	2023	2024	2025
Revenue Needed from Water Sales	1,008,625	1,054,014	1,101,444	1,151,009	1,202,805	1,256,931	1,302,055
Fixed Portion of Water Sales	450,856	471,144	492,346	514,501	537,654	561,848	582,018
Bi Monthly Fixed Cost by Meter Size							
Meter Size							
Flat Rate	39.79	41.58	43.45	45.41	47.45	49.59	51.37
0.62	39.79	41.58	43.45	45.41	47.45	49.59	51.37
0.75	39.79	41.58	43.45	45.41	47.45	49.59	51.37
1	55.71	58.21	60.83	63.57	66.43	69.42	71.91
1.5	71.62	74.84	78.21	81.73	85.41	89.25	92.46
2	115.39	120.58	126.01	131.68	137.60	143.80	148.96
2.5	278.53	291.06	304.16	317.85	332.15	347.10	359.56
3	437.69	457.38	477.96	499.47	521.95	545.44	565.02
4	557.05	582.12	608.32	635.69	664.30	694.19	719.11
6	835.58	873.18	912.48	953.54	996.45	1,041.29	1,078.67
Cost per Unit							
Variable Rate							
Variable Revenue Needed	557,770	582,870	609,099	636,508	665,151	695,083	720,036
Water Sold in M3	384,838	384,838	384,838	384,838	384,838	384,838	384,838
Cost per M3 Infl $	1.45	1.51	1.58	1.65	1.73	1.81	1.87
Cost per M3 2019$	1.45	1.47	1.49	1.51	1.54	1.56	1.57

The fixed charges will increase by about 4.5% per annum until 2024 and 4% thereafter that includes 3% inflation for capital costs in the future and 3% for future operating costs. The fixed bi-monthly rate is proposed to be $39.79 for the latter part of 2019. The variable rate would be $1.45 in 2019 and would increase at the same rate as for the fixed cost as the inflation costs are the same. If inflation were removed from these projections, the cost per cubic metre would rise 12 cents from $1.45 in 2019 to $1.57 in 2025. The proposed rates from 2019 to 2029 are set out in appendix 3.

The revenues generated by this proposed rate structure for 2019-2029 are set out in Appendix 2.

8.7 Sample Water Bills for Various User Groups

The bills for the current rate structure with the fixed component and a variable component is utilized from 2019 to 2025, with tenants paying the bi-monthly fixed charge. A projected bi-monthly water bill for various types of water users is set out in Table 8.

Table 8 West Elgin Hypothetical Water User Bi-Monthly Projected Water Bills 2019-25

User Category - Bi Monthly Bill	2019	2020	2021	2022	2023	2024	2025
Renters	39.79	41.58	43.45	45.41	47.45	49.59	51.37
Single Person Using 16 M3/bi-mo	63.95	66.82	69.83	72.97	76.26	79.69	82.55
Family Using 60 M3/bi mo	126.75	132.46	138.42	144.64	151.15	157.96	163.63
Business Using 200M/bi-mo	329.66	344.50	360.00	376.20	393.13	410.82	425.57

A number of hypothetical user groups were selected to determine the impacts of the proposed rate in this option. For tenants with no meter, they would pay $39.79 every two months later in 2019, and this would rise to $51.37 bi-monthly by 2025. For a metered residential customer such as a single person or a frugal senior using a 16 cubic metres every two months, the 2019 bi-monthly bill will be $63.95, rising to $82.55 in 2025. For a family using 50 cubic metres every two months, the 2019 water bill would be $126.75 in later 2019, rising to $163.63 in 2025. A medium sized restaurant, such as Tim Hortons, would see a bill every two months of $329 in 2019 and $425 in 2025.

APPENDIX 1 WEST ELGIN WATER CAPITAL RENEWAL RESERVE 2019 – 2095 INFLATED $

	2019	2020	2021	2022	2023	2024	2025	2026	2027
Opening Reserves	2,147,995	1,746,949	1,005,691	852,936	648,982	503,633	538,046	537,752	595,048
Reserves from (to) Operations	(401,046)	(741,258)	(152,755)	(203,953)	(145,350)	34,413	(294)	57,296	66,552
Reserve Value at Year End	1,746,949	1,005,691	852,936	648,982	503,633	538,046	537,752	595,048	661,601
	2028	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**
Opening Reserves	661,601	738,138	792,571	890,454	1,000,747	1,058,012	1,193,933	75,942	301,662
Reserves from (to) Operations	76,537	54,433	97,883	110,293	57,265	135,921	(1,117,991)	225,720	247,831
Reserve Value at Year End	738,138	792,571	890,454	1,000,747	1,058,012	1,193,933	75,942	301,662	549,492
	2037	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**
Opening Reserves	549,492	820,864	1,117,283	1,396,176	1,746,213	2,126,277	2,538,219	2,731,849	3,128,206
Reserves from (to) Operations	271,372	296,420	278,892	350,037	380,064	411,942	193,630	396,357	(2,875,323)
Reserve Value at Year End	820,864	1,117,283	1,396,176	1,746,213	2,126,277	2,538,219	2,731,849	3,128,206	252,883
	2046	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**	**2054**
Opening Reserves	252,883	700,877	1,188,189	628,162	999,750	1,387,810	2,012,014	2,687,485	2,830,795
Reserves from (to) Operations	447,994	487,312	(560,027)	371,588	388,060	624,204	675,471	143,310	665,249
Reserve Value at Year End	700,877	1,188,189	628,162	999,750	1,387,810	2,012,014	2,687,485	2,830,795	3,496,045
	2055	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**
Opening Reserves	3,496,045	4,163,320	5,049,205	6,002,401	7,026,777	8,046,632	8,880,174	10,130,524	11,469,171
Reserves from (to) Operations	667,275	885,885	953,196	1,024,376	1,019,856	833,541	1,250,350	1,338,647	1,431,861
Reserve Value at Year End	4,163,320	5,049,205	6,002,401	7,026,777	8,046,632	8,880,174	10,130,524	11,469,171	12,901,032
	2064	**2065**	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**
Opening Reserves	12,901,032	14,120,027	15,691,670	17,423,927	19,206,195	20,449,584	16,909,819	13,943,898	15,742,304
Reserves from (to) Operations	1,218,995	1,571,643	1,732,256	1,782,268	1,243,389	(3,539,764)	(2,965,921)	1,798,406	2,120,072
Reserve Value at Year End	14,120,027	15,691,670	17,423,927	19,206,195	20,449,584	16,909,819	13,943,898	15,742,304	17,862,376
	2073	**2074**	**2075**	**2076**	**2077**	**2078**	**2079**	**2080**	**2081**
Opening Reserves	17,862,376	17,982,389	16,737,648	5,327,475	4,791,256	6,537,067	8,082,252	7,998,871	10,383,626
Reserves from (to) Operations	120,013	(1,244,741)	(11,410,174)	(536,219)	1,745,811	1,545,185	(83,381)	2,384,755	(304,311)
Reserve Value at Year End	17,982,389	16,737,648	5,327,475	4,791,256	6,537,067	8,082,252	7,998,871	10,383,626	10,079,315
	2082	**2083**	**2084**	**2085**	**2086**	**2087**	**2088**	**2089**	**2090**
Opening Reserves	10,079,315	10,534,098	(10,666,130)	(10,391,556)	(9,541,629)	(6,624,883)	(19,209,301)	(16,284,725)	(13,307,729)
Reserves from (to) Operations	454,783	(21,200,228)	274,574	849,927	2,916,746	(12,584,418)	2,924,576	2,976,996	3,167,127
Reserve Value at Year End	10,534,098	(10,666,130)	(10,391,556)	(9,541,629)	(6,624,883)	(19,209,301)	(16,284,725)	(13,307,729)	(10,140,602)
	2091	**2092**	**2093**	**2094**	**2095**				
Opening Reserves	(10,140,602)	(6,449,147)	(2,468,184)	1,818,338	(2,776,928)				
Reserves from (to) Operations	3,691,455	3,980,963	4,286,522	(4,595,266)	4,672,772				
Reserve Value at Year End	(6,449,147)	(2,468,184)	1,818,338	(2,776,928)	1,895,844				

APPENDIX 2 REVENUE GENERATED FROM RATES AND RATE PROJECTION 2019-2029 INFLATED $

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Fixed Revenues	450,856	471,144	492,346	514,501	537,654	561,848	582,018	602,913	624,557	646,979	670,206
Fix Rev Need	450,856	471,144	492,346	514,501	537,654	561,848	582,018	602,913	624,557	646,979	670,206
Variable Charge	557,770	582,870	609,099	636,508	665,151	695,083	720,036	745,886	772,663	800,401	829,136
Variable Rev Need	557,770	582,870	609,099	636,508	665,151	695,083	720,036	745,886	772,663	800,401	829,136
Total Revenues	1,008,625	1,054,014	1,101,444	1,151,009	1,202,805	1,256,931	1,302,055	1,348,798	1,397,220	1,447,380	1,499,341
Actual Rev Need	1,008,625	1,054,014	1,101,444	1,151,009	1,202,805	1,256,931	1,302,055	1,348,798	1,397,220	1,447,380	1,499,341

APPENDIX 3 PROPOSED WEST ELGIN WATER RATES 2019-2029 INFLATED $

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenue Needed from Water Sales	1,008,625	1,054,014	1,101,444	1,151,009	1,202,805	1,256,931	1,302,055	$1,348,798	$1,397,220	$1,447,380	$1,499,341
Fixed Portion of Water Sales	450,856	471,144	492,346	514,501	537,654	561,848	582,018	$602,913	$624,557	$646,979	$670,206
Bi Monthly Fixed Cost by Meter Size											
Meter Size											
Flat Rate	39.79	41.58	43.45	45.41	47.45	49.59	51.37	$53.21	$55.12	$57.10	$59.15
0.62	39.79	41.58	43.45	45.41	47.45	49.59	51.37	$53.21	$55.12	$57.10	$59.15
0.75	39.79	41.58	43.45	45.41	47.45	49.59	51.37	$53.21	$55.12	$57.10	$59.15
1	55.71	58.21	60.83	63.57	66.43	69.42	71.91	$74.49	$77.17	$79.94	$82.81
1.5	71.62	74.84	78.21	81.73	85.41	89.25	92.46	$95.78	$99.21	$102.78	$106.47
2	115.39	120.58	126.01	131.68	137.60	143.80	148.96	$154.31	$159.85	$165.58	$171.53
2.5	278.53	291.06	304.16	317.85	332.15	347.10	359.56	$372.46	$385.84	$399.69	$414.04
3	437.69	457.38	477.96	499.47	521.95	545.44	565.02	$585.30	$606.31	$628.08	$650.63
4	557.05	582.12	608.32	635.69	664.30	694.19	719.11	$744.93	$771.67	$799.37	$828.07
6	835.58	873.18	912.48	953.54	996.45	1,041.29	1,078.67	$1,117.39	$1,157.51	$1,199.06	$1,242.11
Cost per Unit											
Variable Rate											
Variable Revenue Needed	557,770	582,870	609,099	636,508	665,151	695,083	720,036	$745,886	$772,663	$800,401	$829,136
Water Sold in M3	384,838	384,838	384,838	384,838	384,838	384,838	384,838	384,838	384,838	384,838	384,838
Cost per M3 Infl $	1.45	1.51	1.58	1.65	1.73	1.81	1.87	$1.94	$2.01	$2.08	$2.15