B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 **www.bmross.net**

Memo

From: Ryan DeVries
rdevries@bmross.net

To:	Municipality of Bluewater Dave Kester, Manager of Public Works
Re:	Water Works Financial Plan – 2021 to 2027
File #:	20234
Date:	February 2, 2021

1.0 INTRODUCTION

1.1 Overview

On behalf of the Municipality of Bluewater, B. M. Ross and Associates Limited (BMROSS) has prepared a Financial Plan for the Water System in accordance with O. Reg. 453/07. The Plan includes the following basic components:

1. A **full cost analysis** of the provision of water services.
2. A **cost recovery plan,** including a proposal for a **series of revenue increases**.

This memo summarizes the information used and assumptions made in developing the Financial Plan. The Plan complies with O. Reg 453/07.

1.2 Key Legislated Requirements

As identified in the Ontario Ministry of the Environment, Conservation and Parks (MECP) Guidelines[1] for financial planning, achieving financial sustainability in Ontario's municipal water sector is a long-term goal of the Province.

In addition to related municipal operating and financing legislation, the Province has set out, in the Safe Drinking Water Act, 2002 (SDWA), detailed requirements for financial planning related to water works systems.

The key aspects are considered to be as follows:

1. The Financial Plan must apply to a period of at least six years. The first year to which the Financial Plan must apply must be the year in which the drinking water system's existing Municipal Drinking Water License (MDWL) would otherwise expire (i.e. 2021).
2. Amortization costs for existing infrastructure must be identified in the Financial Plan, but there is no requirement to recover those costs.

The current MDWL's for Bluewater expire on August 9, 2021 and a renewal application must be submitted before February 9, 2021 (Varna is an exception with its MDWL set to expire in 2022). As part of the application for renewal of the License the Municipality must prepare and adopt a new Financial Plan. A resolution of Council accepting the plan must accompany the application.

[1] Ministry of the Environment (MOE), "Toward Financially Sustainable Drinking Water and Wastewater Systems", August 2007.

1.3 Relationship to Previous Plans

The most recent Water Financial Plan for the Municipality was completed in 2016 in accordance with O. Reg. 453/07. This plan was used to determine water pricing for 2016 to 2021. Following presentation of several different rate alternatives, council opted to target annual rate increases of 5.7%. That report was reviewed and compared to the actual financial situation for 2019. This summary is provided in Section 5.1.

2.0 METHODOLOGY

2.1 Available Information

Information provided by Bluewater includes;

1. 2017-2019 Capital and Operating Budgets and actual expenditures for the water system.
2. 2020 Capital and Operating Budgets for the water system.
3. Information concerning reserves and debentures for the water system.
4. Water Asset Inventory.
5. Number of customers.
6. 2016-2021 water rates.
7. Other applicable information related to the water system.

2.2 Procedure

The available information listed in Section 2.1 was reviewed for inclusion in the Financial Plan. Existing water assets are listed in Bluewater's asset inventory with historical financial details. The historical financial details were used to calculate the amortization expenses and net book value of the tangible capital assets and are recorded in the Financial Plan. Expenditures and revenues budgeted for 2020 were included with an inflation rate of 2% applied for future years (with some exceptions as noted in Section 4.2.2 and 6.2). Forecasted capital projects were included in the prediction. Revenue requirements and corresponding rate increases are suggested to Bluewater to account for historic under investment and future capital projects.

The Memo concludes with a summary showing the consequences of a 0% rate increase and three additional annual rate increase scenarios:

- A 2.8% annual increase (set rate of replacement to match average weighted life expectancy of the assets).
- A 6.7% annual rate increase (set rate of replacement to match average remaining life expectancy of the assets).
- A 14.9% annual increase (full cost recovery).

3.0 DESCRIPTION OF THE SYSTEM

3.1 General

The Municipality owns four drinking water systems servicing local communities. All four of these systems are currently operated by the Ontario Clean Water Agency (OCWA).

The Municipality's supply and distribution system descriptions are summarized in Table 3.1 below.

Table 3.1
Bluewater Water Supply and Distribution Systems

System Name	Description	No. of Customers in 2020
Bluewater Lakeshore Distribution	Approximately 85 km of watermain, a Booster Pumping Station and a 4,000 m^3 Elevated Tank	2,654
Hensall Distribution	Approximately 11 km of watermain, a 300 m^3 Ground-level Reservoir and Pumping Station and a 455 m^3 Elevated Tank	397
Zurich Drinking Water System	Approximately 7 km of watermain, 2 Ground-Water Well Supplies, a 363 m^3 Ground-level Reservoir and Treatment and Pumping Station	359
Varna Drinking Water System	Approximately 2 km of watermain, 1 Ground-Water Well Supply and a Treatment and Pumping Station	*Included under the Bluewater system
	Total	**3,410**

3.2 Growth Expectations

At the time of the 2016 Water Financial Plan there were 3,219 customers. Currently there are 3,410 which indicates an average annual increase of 38 customers over the previous five years. This growth rate was used in the Financial Plan in projecting revenue in future years.

4.0 FULL COST OF SERVICE

4.1 Cost Components

The full cost of providing water services includes the following major categories[2]:

1. Operating expenses
2. Interest expense
3. Funding for Debt Principal Repayment
4. Amortization of Tangible Capital Assets
5. Funding for Inflation in Asset Costs
6. Funding for Historic Under-investment
7. Funding for Service Enhancements
8. Funding for System Growth

Items 2 and 3 would apply when debt has been, or will be, incurred for capital projects. Items 4 to 6 relate to asset maintenance and replacement. The final two items, 7 and 8, relate to planned capital projects for improvements or growth. In some cases, the improvements may be driven by changing regulations, in other cases the Municipality may initiate the project.

4.2 Operating Expenses

4.2.1 Review of 2020 Water Budget

Budgets and actual expenses for the water system were reviewed for 2018 – 2019. The 2020 budget is believed to reflect the cost of operating the current system. The 2020 anticipated expenses for water works operations are summarized in Table 4.1.

[2] Ministry of the Environment, “Toward Financially Sustainable Drinking Water and Wastewater Systems”, August 2007.

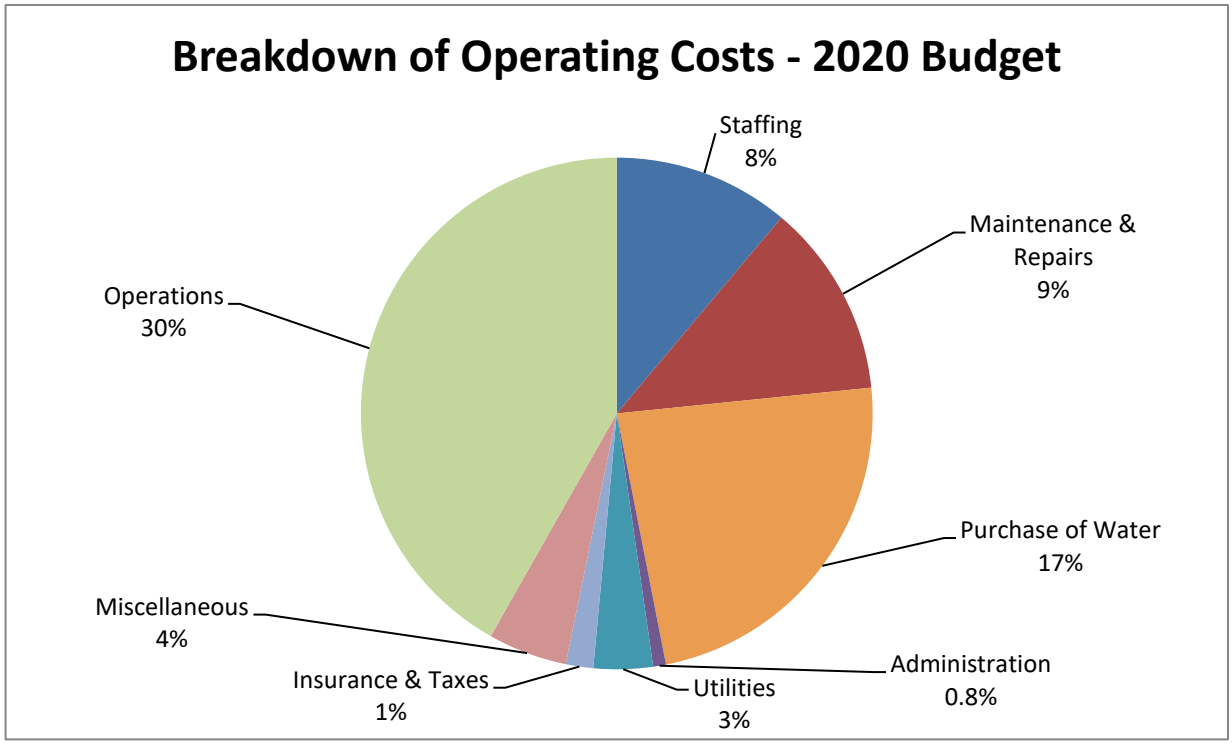
Table 4.1
Bluewater 2020 Water Operations Budget

Item[1.]	2020 ($)	Category[2.]
Wages & Benefits	114,967	Staffing
Intra Municipal Purchases	44,097	Miscellaneous
Advertising/Association	1,144	Administration
Memberships-Staff/Building Site	400	Staffing
Maintenance	13,500	Maintenance & Repairs
Equipment Replacement/New	1,000	Maintenance & Repairs
Grounds Maintenance	100	Maintenance & Repairs
Heating Fuels	1,020	Utilities
Hydro	38,205	Utilities
Insurance	12,685	Insurance & Taxes
Licenses	750	Administration
Materials	45,000	Maintenance & Repairs
Office Supplies	1,052	Administration
Staff Education/Training	1,000	Staffing
Taxes	5,500	Insurance & Taxes
Telephone	5,000	Administration
Tools	500	Administration
Uniforms & Clothing	300	Staffing
Costs awarded/Bad Debt Expenses	5,000	Miscellaneous
Utility Billings-Writeoffs	300	Miscellaneous
Water Consumption Charges	246,756	Purchase of Water
Legal Fees	3,000	Miscellaneous
Equipment Contract Services/Maintenance	34,000	Maintenance & Repairs
Contractor's Expenses	35,000	Maintenance & Repairs
Agreement/Operating	350,533	Operations
OCWA Cost Plus	87,818	Operations
SUB-TOTAL	**$1,048,627**	
Longterm debt charges - Interest Hensall WtrRatpyr	81,281	Interest[3.]
Longterm debt charges - Interest Hensall WtrGFE	331,263	Interest[3.]
Longterm debt charges - Interest Bayfield Water (5-yr)	2,904	Interest[3.]
Longterm debt charges - Interest Bayfield Water (15-yr)	39,195	Interest[3.]
Longterm debt charges - Interest Varna Water (15-yr)	9,328	Interest[3.]
TOTAL	**$1,512,598**	

Note: 1. Grouping provided by Bluewater
2. Category assignments by BMROSS
3. Interest charges are being recovered through charges to the impacted users, they have been left off of Figure 4.1

The above information is presented graphically in Figure 4.1.

Figure 4.1
Water Works Operational Expenses



4.2.2 Operations Contract

The current operations contract with OCWA represents a significant proportion of the operational costs. The contract is currently set to expire in 2021 and a new contract has yet to be negotiated. We will assume a 3.5% annual increase which matches what has historically occurred (i.e. between 2015 and 2020).

4.3 Interest Expense and Debt Repayment

The Municipality currently has two loans (debentures) related to the Hensall water supply project completed in 2009, two loans (debentures) related to the Bayfield water supply project and one loan (debenture) related to the Varna water system upgrades. Table 4.2 provides a summary of the debt information.

Table 4.2
Summary of Water Works Related Debt

Loan No.	Debenture Date	Maturity Date	Interest Rate (%)	Balance Dec/20[1]
01-2009	March 2009	March 2044	5.52	$5,937,423
02-2009	March 2009	March 2029	5.17	$1,470,683
Bayfield (5-yr)	Feb. 2017	Sept. 2021	1.88	$89,387
Bayfield (15-yr)	Feb. 2017	Sept. 2031	2.96	$1,252,695
Varna (15-yr)	June 2020	Dec. 2034	2.39	$373,599
		Totals		**$9,123,787**

Note: 1. Approximate end of year value

In addition to the above, the 2021-2027 Financial Plan includes provision for future borrowing as follows:

- 2022 – Zurich Transmission Main - $4,600,000 for 20 years at 2.5%
- 2024 – Hensall Water Tower Replacement - $2,429,333 for 20 years at 2.5%

4.4 Amortization of Tangible Capital Assets

Amortization is defined as "*…the accounting process of allocating the cost less the residual value of a tangible capital asset to operating periods as an expense over its useful life in a rational and systematic manner appropriate to its nature and use*."[3]

The current value (sometimes referred to as "net book value") of the asset is; its original cost less depreciation. It can be calculated as, original cost times current age divided by its life expectancy. This is a method traditionally called straight line depreciation.

Using the above approach, the annual Amortization Expense and Net Book Value for the water system, as of 2020, is as follows:

Table 4.3
2020 Net Book Value and Amortization Expense for Water Works

System Component	Amortization Expense (2020)	Net Book Value (2020) [1.]
Distribution Systems	$574,614	$38,421,777
Facilities (wells, storage, pumping)	$ 70,826	$ 3,191,379
Totals	**$645,440**	**$41,613,156**

Note: 1. Start of year

4.5 Reserve Funds

There is one water reserve fund that currently exists for the water works. As of December 31, 2019, there was $3,231,632 in that reserve.

In 2015 the Municipality loaned $600,000 from the Bluewater Water Reserve Fund to assist in financing a loan due for the Zurich Arena. The Water Reserve Fund is being reimbursed with monthly payments totaling $76,602 per year. The amount includes principal and interest at 2% per annum. The debt will be paid in full in 2023.

4.6 Replacement Costs

The replacement cost of the Bluewater Water Systems as of 2020 is considered to be approximately $97.0M. This value increases annually as construction costs increase. The annual increment would be roughly $1.9M (based on inflation in construction costs at approximately 2% per year).

5.0 ANALYSIS OF REVENUE

5.1 2016 Financial Plan

Table 5.1 compares the 2019 predicted financial picture with actual results.

[3] MOE, August 2007

Table 5.1
2016 Financial Plan – Predicted vs Actual for 2019

Item	2019 Predicted	2019 Actual[2.]
Revenue	$1,593,170	$1,453,049
Operating Expenditures	$1,101,453[1.]	$815,061[1.]
Cash Reserves (end of year)	$637,381	$3,231,632
Financial Position	$37,713,358	$35,825,389[3.]

Notes: 1. Excludes interest and amortization
2. Approximate
3. End of 2020

The large difference in the predicted versus actual cash reserves by the end of 2019 is mostly related to the fact that much less capital replacement work occurred between 2017 and 2019 as compared to what was predicted.

5.2 Current Rate Structure and Charges

The current rate structure and rates are set out in Table 5.2. Historical rate increases have been:

	% Increase			
Year	Base Fee	Consumption	Contribution to Reserves	Average[1]
2016	6.25	20	19.5	11.7[2]
2017	2.0	1.7	18.3	5.8
2018	1.9	3.3	16.3	5.9
2019	2.3	1.6	14.7	5.6
2020	1.8	1.6	13.4	5.5
2021	2.2	1.5	13.4	5.7

Notes: 1. Based on 150m^3/yr of water consumption
2. There were no rate increases in 2014 or 2015

Current rates (to 2021) were established in Bylaw No. 49-2016.

A summary is as follows:

Table 5.2
Water Rate Structure

Component	2021 Charge
Base Fee	$282
Consumption Charge	$0.66/$m^3$ or $92 for non-metered users
Bluewater Reserve Contribution	$211

A typical water customer using 37.5 m^3 per quarter (150 m^3/year) will be paying approximately $592 per year for water.

In addition, customers in Hensall, Bayfield and Varna may be paying a separate capital charge to recover capital debt charges for previous major upgrades (i.e. recover principal and interest for existing debentures).

5.3 Review of Revenue

5.3.1 Method of Charging

As identified in the above rate structure, water works related revenue is generated in three parts as follows:

1. A flat rate per customer charge
2. A volumetric (per m^3) or estimated equivalent flat rate consumption charge.
3. A flat rate, dedicated reserve contribution.

Items 1 and 2 are expected to off-set the system operating expenses. Item 3 is to be used for capital replacement projects.

As noted earlier, in the case of the Hensall, Bluewater Lakeshore (i.e. Bayfield) and Varna systems, there have been recent large scale capital projects for new works. These projects are funded by issuing debentures and charging benefiting properties a specific capital charge. Some customers chose to pay their portion of the fees as one upfront lump sum, whereas others chose to pay a portion of it annually matching the debenture term.

5.3.2 Revenue Breakdown

The 2020 Budget anticipates the following for revenue that is not related to debt recovery:

• Water Billings	=	$1,268,219
• Billings to Reserve	=	$ 631,145
Total	=	$1,899,364

The Water Billings can be further broken down into two components.

• Flat Rate Component	=	$ 936,538
• Volumetric Component	=	$ 331,681
Total	=	$1,268,219

Based on the above, in 2020, the sum of the revenue from the Base Fee + Consumption Charge is approximately 21% greater than operating costs are expected to be (excluding interest and amortization). Interest is funded from separate capital charges. Amortization is theoretically funded through the contributions to the Bluewater Reserve.

Currently the revenue from “Billings to Reserve”, at $631,145 annually, is approximately equivalent to the actual amortization value (see Table 4.3).

6.0 FULL COST PROJECTIONS

6.1 General

O. Reg 453/07 requires that a Financial Plan be developed for a six year period beginning in the year the Municipal Drinking Water Licence is to be renewed (i.e. 2021 to 2026). In this case, the Municipality has opted to develop a seven year plan (i.e. to 2027), since 2021 increases were already established in the previous (i.e. 2016) Plan.

The purpose of this Section is to identify the expected cost of service.

6.2 Assumptions

Assumptions regarding full cost of service for the Plan period are as follows:

1. The starting point for operating expenses was the 2020 Budget.
2. Operating costs, other than those for OCWA, hydro and water purchases, will increase at the rate of 2% per year.
3. Water purchase costs will increase 4% per year.
4. OCWA costs will increase 3.5% per year (matching historical increases).
5. Hydro costs will increase 5% per year.
6. Additional borrowing, with corresponding interest expenses and principal payments as per Section 4.3.
7. Growth, as per section 3.2, will be assumed at 38 new customers per year but average consumptive use is not anticipated to change.

6.3 Funding for Historic Under-Investment

In recent years there have been some infrastructure replacement projects funded from reserves. Historically, neither the amortization expense, nor the inflation of asset costs for tangible capital assets was completely funded each year. To completely fund the replacement of an asset, not only would money have to be set aside today to cover future inflation and amortization, but money would also have to be set aside to cover the inflation and amortization that has already occurred since the asset was first constructed. These costs represent the historic under-investment in the system. There is no legislated requirement to generate a surplus which funds amortization, inflation or historic under-investment. If the total amount is recovered, the full cost of ongoing system replacement could be funded through reserves.

Table 6.1 summarizes the various components of the full cost of replacement including funding for historic under-investment. The values shown in the following table are based on the assumption that items that are overdue for replacement, based on their theoretical useful life, are replaced in 2028. The annual full cost of replacement is calculated assuming $0 in reserves and enough cash must be available in the asset replacement year to pay 100% of the costs of replacement. It should be noted there is currently a total water reserve balance of approximately $3.2M (end of 2019), so part of this allowance has been covered.

Table 6.1
Annual Full Cost of Replacement for Water Works

	2020 Annual Funding Requirements Breakdown [1., 3.]			
System Component	**Amortization Expense**	**Funding for Inflation of Asset Costs**	**Funding for Historic Under Investment**	**Annual Full Cost of Replacement [2.]**
Distribution Systems	$574,614	$713,961	$1,483,640	$2,772,215
Supply and Storage Systems	$ 70,826	$ 82,068	$1,012,188	$1,165,082
Total	**$645,440**	**$796,029**	**$2,495,828**	**$3,937,297**

Notes: 1. Inflation assumed to be 2% per year
2. Assumes $0 reserves in 2020 and enough cash must be available in replacement year to pay 100% of the costs of replacement.
3. Earned interest on reserves = 2% per year.

Amortization Expense is described in Section 4.4 and is calculated by dividing the original cost of the asset over the estimated useful life.

Funding for Inflation of Asset Costs is derived from its Annual Allowance, which is the annual amount set aside to replace the asset once it has reached its estimated useful life. It considers that the savings will earn interest and the cost of the asset is increasing due to compounding inflation over the life of the asset. The formula used to calculate the Annual Allowance is:

$$PMT = FV\left[\frac{i}{((1+i)^n - 1}\right]$$

Where:

- PMT = Annual Allowance
- FV = Future Value
- i = annual interest
- n = Estimated Useful Life

The Funding for Inflation of Asset Costs is the Annual Allowance less the Amortization Expense.

Annual Full Cost of Replacement is similar to the Annual Allowance calculation described above, however it assumes that the annual amount set aside was not started in year one. The value for n has been reduced to the Estimated Remaining Life of the asset.

Funding for Historical Under Investment is the Annual Full Cost of Replacement less the Annual Allowance.

In addition to the average amount being transferred to reserves ($695,889), a total of approximately $106,125 has, on average, been put towards replacing water infrastructure during each of the past three years. This is significantly less than the annual full cost of replacement.

The average total weighted life expectancy as expressed in the Water Asset Inventory database of all of the water assets is approximately 87 years. The remaining average life expectancy is 59 years.

The Rate of Replacement has been defined as the current replacement cost of the water assets (i.e. $97.3M) divided by the sum of the average annual capital expenditure on replacement plus the contribution to reserves. Based on the 2017 to 2019 capital expenditures and reserve contributions the current Rate of Replacement is:

$$\text{Rate of Replacement (2020)} = \frac{\text{2020 Replacement Cost}}{\text{Average Capital Investment + Transfer to Reserves}}$$

$$= \frac{\$97,282,812}{\$695,889 + \$106,125}$$

$$= 121 \text{ Years}$$

It is generally recommended to target a replacement rate that is equal to or lower than the remaining average life expectancy (i.e. lower than 59 years).

6.4 Proposed Capital Program

6.4.1 Asset Replacement/Upgrading

For purposes of this Financial Plan and as based on discussions with the Municipality, the capital program for 2021 to 2027 will be as set out in Table 6.2.

Table 6.2
Capital Construction Plan 2021 to 2027

Year	Proposed Works	Cost Allowance
2021	Various watermain replacement projects	$ 400,000
2022	Various watermain replacement projects	$ 408,000
	New Zurich transmission main	$ 6,900,000[1]
2023	Various watermain replacement projects	$ 416,160
	Hensall Main St. Reconstruction	$ 135,000
2024	Various watermain replacement projects	$ 424,483
	Hensall water tower replacement	$ 3,644,000[2]
2025	Various watermain replacement projects	$ 432,973
2026	Various watermain replacement projects	$ 441,632
2027	Various watermain replacement projects	$ 450,465
	Total	**$ 13,652,713**

Notes: 1. & 2. Will be funded through a future debenture and charged in addition to the fee schedule in Section 5.2 to benefitting properties.

7.0 COST RECOVERY

7.1 General

Section 30(2) of the SDWA (2002) requires water system owners to develop a "Cost Recovery Plan". The intent is to create a long-term plan that will ensure adequate funding to operate, maintain and replace infrastructure. This section of the Memo identifies the revenue increase required to achieve the goals of the Plan.

7.2 The Goals of the 2021-2027 Financial Plan

With respect to long term sustainability of the system tangible assets, we note:

- The current Contribution to Reserves plus annual capital investment is approximately 83% of the annual depreciation.
- Current reserves are approximately 3.6% of the replacement value of the assets.
- Asset replacement costs are increasing annually by an estimated $1.9M.
- The current rate of replacement of the tangible assets is 121 years whereas their average remaining life is approximately 59 years.

The required rate increase in the Plan period is dependent on what the Municipality wants to achieve. As discussed in Sections 1.2 and 6.3, the Province has advocated for full cost recovery (i.e. full funding of asset replacement) but there is no legislated requirement to do so.

Possible Options include:

1. A 0% rate increase (the base case).
2. A 2.8% increase (set rate of replacement to match average weighted life expectancy of the assets (i.e. 87 years)).
3. A 6.7% annual rate increase (set rate of replacement to match average remaining life expectancy of the assets (i.e. 59 years)).
4. Full Cost recovery (as per Section 6.3 of this Memo).

7.3 Basis of Comparison

When comparing the effect of each option on the required water rates it is assumed that there would be a series of uniform increases (beginning in the year 2022).

For each option we have considered the following:

- Annual % increase required
- Reserves at end of planning period (2027)
- Financial Position at 2027 (Asset value + Reserves)
- Financial Position change ($ and %)
- Rate of Replacement

7.4 Summary of Results

Table 7.1 A to D, which were attached to the January 27, 2021 memo, provided year by year details of the water system financial position. Table 7.2 summarizes the effect of selecting each option.

Table 7.2
Summary of Outcomes for Rate Alternatives

Option No.	Description	% Annual Increase Required	Reserves at 2027	Financial Position (2027)			Rate of Replacement [2.] (Years)
				$	Change[1.]		
					$	%	
	End of 2020 Position	-	$3.5M	$36.1M	-	-	121
1	0% Rate Increase (Status Quo)	0	$7.9M	$46.2M	$10.1M	28	120
2	2.8% Annual Rate Increase (RoR matching average life expectancy)	2.8	$9.2M	$47.6M	$11.5M	32	87
3	6.7% Annual Rate Increase (RoR matching remaining life expectancy)	6.7	$11.3M	$49.7M	$13.6M	38	59
4	Full Cost Recovery as per MECP Definition	14.9	$16.7M	$55.0M	$18.9M	52	31

Notes: 1. Difference between 2020 and 2027.
2. Rate of Replacement in year 2027 based on method described in Section 6.3.

7.5 Rate Structure and Annual Costs

As explained in Section 5.2 the water rate structure has three components:

- A Base Fee
- A Consumption Charge
- A Contribution to Reserves

The first two components are intended to off-set operational costs. The third component is intended to fund current or future asset replacement projects.

The revenue increases identified in Section 7.2 represent a blended increase of the individual increases for all three components. Currently the revenue generated by the Base Fee and consumption charge marginally exceeds forecasted operating costs. Therefore, these components require minor increases in the future. The contribution to Reserves component is required to increase at a greater rate.

Table 7.3 provides a summary of the impact on a typical residential customer, of each revenue increase Option.

Table 7.3
Summary of Annual Charges[1.] for Revenue Options

Option	Description	2020 Rate	Year and Annual Charge[2.]						
			2021[3.]	2022	2023	2024	2025	2026	2027
1	Base Case (0% increase)	$560	$592	$592	$592	$592	$592	$592	$592
2	RoR = Average Life of Assets (2.8% increase)	$560	$592	$609	$626	$644	$662	$681	$700
3	RoR = Average remaining life expectancy (6.7% increase)	$560	$592	$632	$674	$719	$767	$818	$873
3	Full Cost Recovery (14.9% increase)	$560	$592	$680	$781	$897	$1031	$1185	$1362

Notes: 1. Increase to base fee, consumption charge and contribution to reserves may be at different %. Values shown reflect blended rate increase.
2. Annual charges based on a customer using 150 m^3 per year (37.5 m^3 per quarter).
3. Annual charge in 2021 based on previously approved rates.

7.6 Council Selection of a Proposed Rate

The four options identified in Section 7.2 were presented to members of the Municipality of Bluewater's Council on February 1, 2021. Council's preference was Option 2 (i.e. a 2.8% increase in 2022 through 2027). This was carried forward in Table 7.1 attached.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Ryan P. DeVries, P. Eng

Per _____
Ann Gibson, MES, EIT

:es
Encl.

Table 7.1
MUNICIPALITY OF BLUEWATER
2021 - 2027 Financial Plan for Water Works
FINANCIAL PLAN - 045-301A

02-Feb-21

2.8% Revenue Increase (2022 - 2027)

		2021	2022	2023	2024	2025	2026	2027
FINANCIAL POSITION								
Financial assets								
	Cash and cash equivalents	4,199,604	4,977,569	5,655,471	6,461,193	7,322,816	8,242,962	9,224,352
	Zurich arena amount owed	133,547	58,935	-	-	-	-	-
	Total FINANCIAL ASSETS	4,333,151	5,036,503	5,655,471	6,461,193	7,322,816	8,242,962	9,224,352
Liabilities								
	Long-term debt	8,682,647	12,825,667	12,259,325	14,053,091	13,345,556	12,611,584	11,850,056
	Total LIABILITIES	8,682,647	12,825,667	12,259,325	14,053,091	13,345,556	12,611,584	11,850,056
	NET DEBT (Liabilities - Assets)	4,349,497	7,789,163	6,603,854	7,591,898	6,022,740	4,368,622	2,625,704
Non-financial assets (Tangible capital assets)								
	Existing watermain and facilities - book value	41,748,016	41,491,957	48,139,454	47,948,911	51,269,567	50,901,410	50,537,101
	New watermains and facilities - at cost	400,000	7,308,000	551,160	4,068,483	432,973	441,632	450,465
	Less: Loss (gain) of tangible capital assets	-	-	-	-	-	-	-
	Less: Amortization	(656,059)	(660,503)	(741,703)	(747,827)	(801,130)	(805,941)	(810,848)
	Total NON-FINANCIAL ASSETS	41,491,957	48,139,454	47,948,911	51,269,567	50,901,410	50,537,101	50,176,718
	Financial position (Non-Financial assets - Net Debt)	**37,142,461**	**40,350,291**	**41,345,057**	**43,677,670**	**44,878,670**	**46,168,479**	**47,551,014**
Analysis of financial position								
	Equity in tangible capital assets	32,809,310	35,313,788	35,689,586	37,216,477	37,555,854	37,925,517	38,326,662
	Reserves and reserve funds	4,199,604	4,977,569	5,655,471	6,461,193	7,322,816	8,242,962	9,224,352
	General surplus (deficit)	-	-	-	-	-	-	-
	Financial position (from analysis)	**37,008,914**	**40,291,356**	**41,345,057**	**43,677,670**	**44,878,670**	**46,168,479**	**47,551,014**

		2021	2022	2023	2024	2025	2026	2027
FINANCIAL OPERATIONS								
REVENUE								
5510	Repairs/Maintenance Recoveries	5,000	5,000	5,000	5,000	5,000	5,000	5,000
5520	Hook-up Charges	15,000	15,000	15,000	15,000	15,000	15,000	15,000
5526	Water Billings	1,313,688	1,365,355	1,418,885	1,474,342	1,531,792	1,591,304	1,652,948
5534	Water Permit	1,600	1,600	1,600	1,600	1,600	1,600	1,600
5538	Disconnect/Reconnect	4,250	4,250	4,250	4,250	4,250	4,250	4,250
5540	Water Penalty & Interest Earned	17,439	17,439	17,439	17,439	17,439	17,439	17,439
5590	Billings to Reserve	727,528	756,141	785,787	816,499	848,316	881,274	915,412
	Total REVENUE	**2,084,505**	**2,164,785**	**2,247,960**	**2,334,130**	**2,423,397**	**2,515,867**	**2,611,649**
EXPENSES								
	Wages & Benefits	117,266	119,612	122,004	124,444	126,933	129,472	132,061
6004	Intra Municipal Purchases	44,979	45,879	46,796	47,732	48,687	49,660	50,654
6302	Advertising/Association	1,167	1,190	1,214	1,238	1,263	1,288	1,314
6306	Memberships-Staff/Building/Site	408	416	424	433	442	450	459
6312	Maintenance	13,770	14,045	14,326	14,613	14,905	15,203	15,507
6339	Equipment Replacement/New	1,020	1,040	1,061	1,082	1,104	1,126	1,149
6344	Grounds Maintenance	102	104	106	108	110	113	115
6346	Heating Fuels	1,040	1,061	1,082	1,104	1,126	1,149	1,172
6348	Hydro	40,115	42,121	44,227	46,438	48,760	51,198	53,758
6350	Insurance	12,939	13,197	13,461	13,731	14,005	14,285	14,571
6351	Licenses	765	780	796	812	828	845	862
6352	Materials	45,900	46,818	47,754	48,709	49,684	50,677	51,691
6360	Office Supplies	1,073	1,095	1,116	1,139	1,161	1,185	1,208
6364	Postage & Box Rentals	-	-	-	-	-	-	-
6368	Rentals	-	-	-	-	-	-	-
6370	Staff Education/Training	1,020	1,040	1,061	1,082	1,104	1,126	1,149
6372	Taxes	5,610	5,722	5,837	5,953	6,072	6,194	6,318
6374	Telephone	5,100	5,202	5,306	5,412	5,520	5,631	5,743
6376	Tools	510	520	531	541	552	563	574
6378	Travel	-	-	-	-	-	-	-
6380	Uniforms & Clothing	306	312	318	325	331	338	345
6305	Costs Awarded/Bad Debt Expenses	5,100	5,202	5,306	5,412	5,520	5,631	5,743
6313	Utility Billings-Writeoffs	306	312	318	325	331	338	345
8334	Water Consumption Charges	256,626	266,891	277,567	288,670	300,216	312,225	324,714
8810	Depreciation Expense	-	-	-	-	-	-	-
6401	Legal Fees	3,060	3,121	3,184	3,247	3,312	3,378	3,446
6402	Equipment Contract Services/Maintenance	34,680	35,374	36,081	36,803	37,539	38,290	39,055

6404	Professional/Engineering Fees	3,300	3,366	3,433	3,502	3,572	3,643	3,716
6405	Contractor's Expenses	35,700	36,414	37,142	37,885	38,643	39,416	40,204
6460	Agreement/Operating	362,802	375,500	388,642	402,245	416,323	430,895	445,976
6462	OCWA Cost Plus	89,574	91,366	93,193	95,057	96,958	98,897	100,875
	Subtotal Operating Expense	***1,084,239***	***1,117,702***	***1,152,290***	***1,188,043***	***1,225,004***	***1,263,216***	***1,302,724***
	Loss (gain) on disposal of tangible capital assets	-	-	-	-	-	-	-
	Ammortization-Distribution	581,725	586,170	667,370	673,494	678,210	683,021	687,928
	Ammortization-Treatment	74,334	74,334	74,334	74,334	122,920	122,920	122,920
	Total EXPENSES	**1,740,297**	**1,778,205**	**1,893,993**	**1,935,870**	**2,026,134**	**2,069,157**	**2,113,573**
	Net Revenue (Deficit) for the year	**344,208**	**386,580**	**353,968**	**398,260**	**397,263**	**446,710**	**498,076**

		2021	2022	2023	2024	2025	2026	2027
CASH FLOW								
Operating Transactions								
	Net revenue (deficit) for the year	344,208	386,580	353,968	398,260	397,263	446,710	498,076
	Add back (deduct) non-cash expense:	-	-	-	-	-	-	-
	Add back Loss (gain) on disposal of tangible capital	-	-	-	-	-	-	-
	Add back Amortization of Capital Assets	656,059	660,503	741,703	747,827	801,130	805,941	810,848
	Total OPERATING TRANSACTIONS	1,000,266	1,047,083	1,095,671	1,146,087	1,198,393	1,252,651	1,308,925
Capital Transactions								
	Various Watermain Replacement Projects	(400,000)	(408,000)	(416,160)	(424,483)	(432,973)	(441,632)	(450,465)
	Zurich Transmission Watermain	-	(6,900,000)	-	-	-	-	-
	Hensall Main St. Reconstruction	-	-	(135,000)	-	-	-	-
	Hensall Water Tower Replacement	-	-	-	(3,644,000)	-	-	-
	Equipment Replacement	-	-	-	-	-	-	-
	Total CAPITAL TRANSACTIONS	(400,000)	(7,308,000)	(551,160)	(4,068,483)	(432,973)	(441,632)	(450,465)
Investing transactions								
	Proceeds from portfolio investments	52,071	62,994	74,664	84,832	96,918	109,842	123,644
	Purchase of portfolio investments	-	-	-	-	-	-	-
	Total INVESTING TRANSACTIONS	52,071	62,994	74,664	84,832	96,918	109,842	123,644
Financing transactions								
	New Zurich Tranmission Main Debenture	-	4,600,000	-	-	-	-	-
	Zurich debenture recoveries	-	2,446,839	293,677	293,677	293,677	293,677	293,677
	Longterm debt charges - Principal (Zurich)	-	(89,339)	(182,041)	(186,621)	(191,315)	(196,128)	(201,062)
	Longterm debt charges - Interest Zurich	-	(57,500)	(111,636)	(107,056)	(102,362)	(97,549)	(92,615)
	New Hensall Water Tower Debenture	-	-	-	2,429,333	-	-	-
	Water Tower debenture recoveries	-	-	-	1,292,215	155,095	155,095	155,095
	Longterm debt charges - Principal (Hensall WT)	-	-	-	(47,181)	(96,139)	(98,557)	(101,037)
	Longterm debt charges - Interest Hensall WT	-	-	-	(30,367)	(58,957)	(56,538)	(54,059)
	Bayfield Water Debenture (5-yr) Recovery	90,642	-	-	-	-	-	-
	Longterm debt charges - Interest Bayfield (5-yr)	(1,256)	-	-	-	-	-	-
	Longterm debt charges - Principal (Bayfield 5-yr)	(89,387)	-	-	-	-	-	-
	Bayfield Water Debenture (15-yr) Recovery	134,259	134,259	134,259	134,259	134,259	134,259	134,259
	Longterm debt charges - Interest Bayfield (15-yr)	(36,361)	(33,441)	(30,435)	(27,339)	(24,151)	(20,868)	(17,486)
	Longterm debt charges - Principal (Bayfield 15-yr)	(97,898)	(100,817)	(103,824)	(106,920)	(110,108)	(113,391)	(116,772)
	Varna Water Debenture (15-yr) Recovery	31,556	31,556	31,556	31,556	31,556	31,556	31,556
	Longterm debt charges - Interest Varna (15-yr)	(8,794)	(8,247)	(7,686)	(7,112)	(6,524)	(5,923)	(5,306)
	Longterm debt charges - Principal (Varna 15-yr)	(22,762)	(23,310)	(23,870)	(24,444)	(25,032)	(25,634)	(26,250)
	Repayment of Zurich Arena Bank Loan	76,602	76,602	59,443	-	-	-	-
5112	OSTAR Grants	25,001	25,001	25,001	25,001	25,001	25,001	25,001
5114	CWWF Funding Grants - Provincial	-	-	-	-	-	-	-
5214	CWWF Funding Grants - Federal	-	-	-	-	-	-	-
4169	Hensall Waterline Recovery (WtrRatpyr + wtrGFE)	606,132	606,132	606,132	606,132	606,132	606,132	606,132
6230	Longterm debt charges - Interest Hensall WtrRatpyr	(74,225)	(66,800)	(58,987)	(50,764)	(42,111)	(33,004)	(23,420)
	Longterm debt charges - Principal Hensall WtrRatpy	(141,781)	(149,206)	(157,019)	(165,242)	(173,896)	(183,002)	(192,586)
6231	Longterm debt charges - Interest Hensall WtrGFE	(326,530)	(321,532)	(316,254)	(310,681)	(304,796)	(298,582)	(292,020)
	Longterm debt charges - Principal Hensall WtrGFE	(89,311)	(94,309)	(99,587)	(105,160)	(111,045)	(117,259)	(123,821)
	Total FINANCING TRANSACTIONS	75,888	6,975,888	58,729	3,643,286	(714)	(714)	(714)
							1,361,778	1,431,855
	Net Cash Receipts (Payments) for the year	**728,225**	**777,965**	**677,903**	**805,721**	**861,623**	**920,146**	**981,390**
	Cash at beginning of year	**3,471,379**	**4,199,604**	**4,977,569**	**5,655,471**	**6,461,193**	**7,322,816**	**8,242,962**
	Cash at end of year	**4,199,604**	**4,977,569**	**5,655,471**	**6,461,193**	**7,322,816**	**8,242,962**	**9,224,352**

Notes:

1. Financial plan assumes expenses increase at 2% per year (except hydro at 5%, LHPWSS consumption at 4% and OCWA Agreement at 3.5%).
2. Operations agreement with OCWA is set to expire in 2021 and a new agreement has yet to be negotiated.
3. Future debentures were assumed for the Zurich Transmission Main (beginning mid-2022) and the Hensall Water Tower project (beginning mid-2024). Debentures were assumed for 20 years at 2.5% interest. It was also assumed that 1/3 of the funding required would be recovered by lump sum payment in the first year and the remaining 2/3rds (+ interest) would be recovered by regular payments over 20 years.