October 2012
Gillies Bay Improvement District

Funding Infrastructure Renewal for the Long Term:

Asset Replacement Schedule (ARS)
Annual Contributions for Asset Renewal ($ACFAR)

Prepared for: **Gillies Bay Improvement District**
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Attention: Bridget Andrews, Financial Administrator
Gillies Bay Improvement District
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Gillies Bay, BC V0N 1W2
admin@gillies-bay.ca
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1 October 2012

Dear Ms. Andrews,

Gillies Bay Improvement District
Long Term Infrastructure Funding Requirement

We are pleased to present this report on long term infrastructure funding requirements for the Gillies Bay Improvement District. This report summarizes the results of the analysis undertaken over the past months.

We are very grateful to the staff of the District for the assistance provided during the course of this work.

If you have any questions about the work covered in this document please contact the undersigned. Thank you very much for the opportunity to work on this important project.

Yours truly,

Jean-Pierre Joly
Project Manager

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EXECUTIVE SUMMARY

Organizations that own and operate large-scale infrastructure, such as water transmission, distribution and treatment systems, must ensure the long term sustainable operations and renewal of the physical infrastructure. Large-scale infrastructure is expensive, will have a long life, and is out-of-sight and out-of-mind. In many locations this combination of factors has led to major infrastructure deficits and political challenges as systems age.

This report was completed as part of the project undertaken during the period May through September of 2012 with the Gillies Bay Improvement District (the "District").

The purpose of the project was to assist the District in determining long term infrastructure funding requirements for its water service.

In carrying out work with clients AquaVic has developed a process to help plan the funding of asset renewal and that meets the needs of a wide range of water supply organizations in British Columbia. This process has been refined over a wide range of projects and is now in use by water supply systems in many areas of the province.

The process, which is outlined in this report, will help an organization to establish the practice of fully funding asset renewal for the long term. There are several benefits to doing this, including: responsible stewardship, political support, team collaboration, establishing context for using reserve funds and debt financing, long term rate stability, and inter-generational equity.

The analysis in this report indicates the amount of money that should be contributed each year in order to maintain all tangible assets, including pipes, pumps, reservoirs and other aspects of the infrastructure, in full working order over the long-term. The depiction of Financial Position shows the extent to which money may need to be borrowed to provide for future capital expenditures and the extent to which the current Annual Contributions for Asset Renewal (ACFAR) budget may need to be increased.

These analyses illustrate the challenges faced by the District (and many small water systems) in achieving financial sustainability. Even with aggressive rate increases, these systems will likely be reliant on external funding sources to undertake future capital projects.

In the case of GBID, asset renewal may be sufficiently funded over the next 25 years without the need to borrow. This could be achieved by setting an ACFAR of $130,000, with annual increases of 2% after that. This requires an additional $445/parcel per year (292 parcels). Current parcel tax rates for GBID are $188/parcel. Current tolls are $400 per year for residential connection and $800 per year for commercial and multifamily connection.

A more gradual approach to increasing ACFAR for GBID outlined in scenario 3 is to establish a starting ACFAR of $10,000 and increase this amount by $5,000 per year for 25 years. The total cumulative ACFAR budget over the 25 year time horizon would be $1,75m. While this scenario has a more gradual impact on rates, funds may need to be borrowed for some projects. Borrowing has the disadvantage of introducing interest costs to the rate payers.

Recommendations are provided in this report about the next steps in the planning process. These recommendations include measures to sufficiently fund asset renewal, to reviewing the funding requirements regularly and to enhance the analysis using the results of on-site asset condition assessments.

CONTENTS

Please Note

The information presented in this document was compiled for the purposes stated in this document, and with the understanding that each user accepts full responsibility for the use and application of the document and the information it contains. This document and the information it contains are intended only as a general guide. It is not intended to replace the services of experienced specialists where these services are warranted by specific circumstances.

The asset renewal or replacement schedule develop during this project was based on information from generalized tables showing theoretical estimated service life of typical assets, rather than examination of actual installed assets. Individual asset conditions were not assessed during this project. Assessment by an experienced individual is required when determining whether a specific asset should remain in service or be replaced. Scenarios are intended to be a snap-shot in time. Assumptions should be reviewed from time to time and adjusted as needed. The ARS is not intended to be a long term financial plan itself, nor a capital plan, nor an accurate prediction of when specific assets will fail or be replaced.

AquaVic Water Solutions Inc., its directors, advisors, staff, and contractors, have exercised reasonable skill, care and diligence to assess the information acquired during the preparation of this document, however make no guarantee or warranties as to the accuracy or completeness of this information, and make no representation as to the appropriateness of the use of this document in any particular situation. None of them accepts any liability for any loss, injury, or damage that may be suffered by any person or entity as a result of the use of the document.

1 Introduction

Organizations that own and operate large-scale infrastructure, such as water transmission, distribution and treatment systems, must ensure the long term sustainable operations and renewal of the physical infrastructure. Large-scale infrastructure is expensive, will have a long life, and is out-of-sight and out-of-mind. In many locations this combination of factors has led to major infrastructure deficits and political challenges as systems age. In fact much of the infrastructure in Canada is insufficiently funded for replacement[1]. This has not happened by choice in most areas, but infrastructure ages gradually, and the need for progressive replacement is easily overlooked.

Progressive infrastructure-based organizations are now fully aware of the need for asset management plans. Moreover, the need for long term financial plans is becoming more apparent. Certain types of infrastructure, such as water and wastewater, are largely funded through utility rates. Sustainable delivery of water and wastewater services is therefore highly dependent on well-designed utility rates which recognize the long-term costs of owning and operating infrastructure.

Most local governments in British Columbia embarked several years ago upon the early stages of an asset management program by adopting the accounting procedures known as the PSAB 3150 standard. The results of this work gave information on net book value of assets and the annual depreciation (amortization) of these assets. Completion of this work constituted an important first step towards sustainable operations. The next step, completion of an asset replacement schedule, is a continuation of the PSAB 3150 work, and which includes an asset inventory and the valuation of tangible capital assets.

AquaVic Water Solutions Inc. has developed services to meet the needs of a wide range of water supply organizations in BC. The process outlined in this paper has been refined over a wide range of projects and is now in use by water supply systems in many areas of the Province.

1.1 Purpose of this Report

This report was completed as part of the project undertaken during the period June 2012 through September of 2012 with the Gillies Bay Improvement District (GBID) (the "District"). The purpose of the project was to assist the District in determining long term infrastructure funding

[1] The latest research shows that there is a growing deficit in water and wastewater infrastructure investment in Canada. See Canada's infrastructure deficit a sad legacy for future generations, Saeed Mirza, Ph.D., Professor Emeritus, Civil Engineering, McGill University. The Canadian Council for Public-Private Partnerships interviewed with Saeed Mirza in February 2009. See http://www.pppcouncil.ca/resources/issues/infrastructure-investment.html

requirements for its water service. This report summarizes the results of the project. This report informs the long term financial planning process. However, it does not in itself constitute a long term financial plan (LTFP), which in its entirety involves many complex interrelated plans, processes and costs, both hard and soft. Infrastructure renewal is just one aspect of a LTFP.

Please note that this report is based on the contents of the District's asset replacement schedules as of September 18, 2012. Asset management is an ongoing and iterative process; the results of infrastructure funding analyses will change as asset inventories are updated or refined.

1.2 Structure of this Report

This report contains the following main sections:

1. **Introduction** (this section) introduces the approach and the concepts involved in determining long term funding requirements for funding infrastructure renewal.
2. **Description of Infrastructure** outlines in broad terms the inventory of infrastructure for the water service.
3. **Analysis & Discussion** summarizes the details of the analysis undertaken during the project and provides discussion on the findings.
4. **Conclusions and Recommendation** are outlined.

1.3 Glossary of Terms

Certain technical terms used in this paper are defined below.

Annual Asset Depreciation (Annual Amortization)

An accounting term; refers to the $amount by which the net value of an asset decreases over a year; normally calculated by dividing the historic cost of the asset by its estimated service life.

Asset Replacement Schedule (ARS)

A software tool; used to analyze and report on certain financial aspects of a tangible capital asset inventory; comprises a database that combines the infrastructure inventory with information such as year installed, estimated service life, and future replacement cost.

Average Annual Asset Funding Requirement (AAFR)

An indicator; refers to a $amount representing the annual average of the total costs of replacing infrastructure over a period of time, typically 25 or 100 years, depending on the specific circumstances in which the utility operates; AAFR assumes future replacement costs in present day dollars and does not include the effects of inflation or costs of borrowing.

Financial Position

An indicator; the term *financial position* is used in this paper to mean the relationship between the long-term expenditures and long-term funding available to support

expenditures. The financial position is calculated by subtracting the cumulative capital costs from the cumulative available funding.

Annual Contributions for Asset Renewal (ACFAR)

An indicator; refers to the $amount budgeted annually, typically from operating revenues, for expenses related to asset replacement. ACFAR takes into consideration the effects of borrowing and inflation, and the use of infrastructure renewal reserve funds.

Tangible Capital Assets (TCA)

An accounting term; the Public Sector Accounting Board (PSAB) distinguishes tangible assets from other types of assets based on specific characteristic. A tangible capital asset must have all of the following characteristics:

- Has use and / or value;
- Is a physical asset used in the delivery of service;
- Has a useful life of more than one year; and,
- Is not bought or sold in the regular course of operation.

1.4 Project Approach and Scope

In carrying out work with clients AquaVic has developed a process to help plan the funding of asset renewal that meets the needs of a wide range of water supply organizations in BC. This process, termed the WaterWorth Process™[2] has been refined over a wide range of projects and is now in use by water supply systems in many areas of the Province. The process involves the concepts discussed in detail in the previous section. The WaterWorth Process™ includes the following steps:

1. Assemble and review information;
2. Update and modernize the asset inventory;
3. Create the *Asset Replacement Schedule*;
4. Evaluate the *Average Annual Asset Funding Requirement* (AAFR);
5. Examine the *Financial Position* to identify potential unfunded asset replacements;
6. Review scenarios including the use of future borrowing;
7. Update long term plan to establish sufficient *Annual Contributions for Asset Renewal* (ACFAR).

The AquaVic approach to developing long term infrastructure renewal funding requirements is explained in greater detail in the following paper*:*

Funding Infrastructure Renewal for the Long Term by AquaVic Water Solutions Inc.

[2] The *WaterWorth Process™* in its entirety consists of the steps outlined above and other methods of review and analysis related to water conservation, usage analysis, long term financial planning and rate setting. Use of the WaterWorth Process™ is facilitated through a suite of integrated Microsoft Excel worksheets.

The project covered by this report involved review of District documentation including Tangible Capital Asset Inventory and Valuation work previously completed, and several phone discussions with staff members to discuss information and ensure that the information provided was correctly interpreted. In other discussions asset replacement models and scenarios were reviewed. Finally this concise covering report was prepared to summarize the work undertaken.

1.5 Benefits to Adopting this Process

The process outlined will help an organization to establish the practice of fully funding asset renewal for the long term. There are several benefits to doing this:

Responsible Stewardship: Organizations that review rates and charges on a regular basis, with a consideration for long term asset renewal, are better able to achieve full-cost pricing and maintain a sustainable operation for the foreseeable future.

Political Support: Elected representatives and management must make challenging financial decisions about the procurement and upgrading of expensive infrastructure. The right decision is not always politically appealing. Organizations that adopt the practice of fully funding asset renewal are better equipped to support the political decision process.

Leverage PSAB-3150: The practice of fully funding asset renewal leverages any PSAB-3150 work that has been completed. Many organizations put a lot of effort into the PSAB work; using this process recognizes the value of those efforts.

Team Collaboration: Effective infrastructure management requires people from several disciplines to work together. These may include staff from finance, engineering, and public works departments. A commitment to fully fund asset renewal will typically encourage a greater degree of collaboration between staff.

Establish Context for using Reserve Funds and Debt Financing: Owning and renewing large-scale infrastructure over the long term requires careful consideration for the use of reserve funds and debt financing.

Long Term Rate Stability: By following this process, infrastructure managers are better able to minimize impacts of large capital expense fluctuations on customers' billings. This is done by establishing an annual budget that does not change greatly from year-to-year, yet supports long term asset replacement. This eliminates surprises for managers, elected representatives and customers.

Inter-generational Equity: This process will establish and preserve a balance between recovering future asset replacement and renewal costs from both present and future customers. It helps to ensure that later generations are not burdened with unmanageable infrastructure deficits

Prioritize Spending on Engineering Reviews: This process enables an improved ability to prioritize engineering reviews which are undertaken to assess the condition of assets.

2 Description of the Infrastructure

2.1 Infrastructure Overview

The Gillies Bay Improvement District serves a population of approximately 500 residents living in the Gillies Bay community located on Texada Island in the Georgia Straight.

The system serves 212 single family residential homes, 11 multifamily buildings, and 4 commercial buildings. There are a further 65 parcels of land that are not currently connected to the water distribution and have service availability at the curb stop.

The water is treated using sodium hypochlorite. The distribution system consists of water mains ranging in diameter from ¾ inch to 12 inches. The water mains were not constructed at the same time and consist of a variety of materials including asbestos cement and thin wall PVC.

Raw water source	The District's water supply comes from Cranby Lake. A dam and spillway are used to regulate the water level on this shallow lake. From the intake works, water is conveyed by gravity to the chlorinator building.
Water production & treatment	GBID is considering construction of a slow sand filter or other means of filtration along with related improvements to mainline and storage tank.
Storage	Treated water is stored in a 36,000 gallon steel tank reservoir as well as distributed directly to the users.
Distribution	Treated water is distributed through a 9 km network of mains currently of sizes ranging from 100mm to 300mm. Over the next few decades, the distribution network will be upgraded to PVC and HDPE with pipework ranging in size from 150mm to 400mm. See appendix A for more details on the inventory of planned pipework replacement. One portion of the distribution system is pressurized by a pumping station containing 2 duty pumps and a reserve pump. There are about 60 valves throughout the distribution network.
Fire protection	The district maintains 32 fire hydrants.
Services	There are about 220 services in the system. Eleven commercial services are metered.

Item ID	Asset Category	Asset Desc.	Notes	Units	In Service Year	Historic Cost	Condition	Utilization	ESL	Next Replacement Year	Model Replacement Value
1	Source	Intake & Float			1993	100,000			30	2023	20,000
2	Source	Air Release Valve / Conc valve + lid			1993	4,500			20	2013	2,500
3	Source	Spillway mechanical			1960				50	2015	50,000
4	Source	Dam			1960				100	2060	25,000
5	WTP	Building (6,400 sqr meters) Galvanized Steel			2012	100,000			50	2012	100,000
6	WTP	Sodium Hypochlorite			2012				10	2012	5,000
7	WTP	Backup genset generac 8000			2012	3,000			5	2012	3,000
8	SCADA	Mag flowmeter 100mm			2004				10	2014	4,500
9	SCADA	Chlorine analyzer			2006	10,000			10	2016	5,000
10	SCADA	Turbidity analyzer			2006	8,000			10	2016	8,965
11	SCADA	Internet router, camera, UPS			2011				10	2021	1,000
12	SCADA	Micro chem II analyzer			2006				10	2016	5,000
13	SCADA	PH probe			2011				10	2021	150
14	SCADA	Chart recorder			2006	4,000			10	2016	4,483
15	SCADA	Temperature probe			2006				10	2016	150
16	Reservoir	4 foot manhole			2011				100	2111	-
17	Reservoir	Watts check valve			2011	5,000			15	2026	5,100
18	Reservoir	Steel tank: 36k US Gallons			1985	51,782			25	2010	107,218
19	Reservoir	Altitude Valve			2011	5,000			10	2021	5,100
20	Reservoir	tank drain with 100mm valve			1985				50	2035	4,500
21	Reservoir	test hydrant for tank			2010				50	2060	6,800
22	Reservoir	3 gate valve assembly			1960				50	2010	10,000
23	Hydrant	1 hydrant every 2 years		33	2012	1,275			2	2012	6,800
24	Valve	1 valve every two years		60	2012				2	2012	4,500
25	Valve	Air Releave valve		1	2003				20	2023	6,000
26	Pump Station	Dogwood Booster Stn: 8' x 16' bldg			2002	25,000			25	2027	33,213
27	Pump Station	Duty Pump A: Myers 5HP			2002	4,000			15	2017	5,314
28	Pump Station	Duty Pump B: Myers 5HP			2002	4,000			15	2017	5,314
29	Pump Station	Reserve Pump 3/4HP			2011				2	2013	500
30	Pump Station	Pressure tanks		1	2002	400			10	2012	531
31	Pump Station	Pressure tanks		3	2011	1,200			10	2021	1,224
32	Pump Station	Dogwood Booster Stn Plumbing			2011	2,000			5	2016	2,040
33	Service	services - 10 / year		220	2012				1	2012	15,000
34	Meter	3/4" meters		7	1979	60,602			20	1999	350
35	Meter	2" meters		4	1979				20	1999	700
36	Equipment	Universal Hot Tap Kit			2006				25	2031	2,000
37	Equipment	Metal Detector			2000				15	2015	2,000
38	Equipment	Honda trash pump 3"			2006				10	2016	5,000
39	Equipment	Honda Hiflow pump			2006				10	2016	1,200
40	Equipment	Jumping Jack			2006				10	2016	5,000
41	Equipment	Honda weed eater			2012				10	2012	1,000
42	Equipment	subsonic surface leak detector LD-12			2006				20	2026	4,000
43	Equipment	Flow meter			2006				15	2021	2,000
44	Equipment	Honda 5000 inverter generator			2006				10	2016	6,000
45	Equipment	sand blasting booth			2012				10	2012	400
46	Equipment	Air compressor			2006				10	2016	8,000
Total											491,552

2.1.1 Water Distribution Network

GBID has 9 km of water mains. The following figures provide a breakdown of the water distribution network lengths by pipe material, by pipe size and by in-service year.

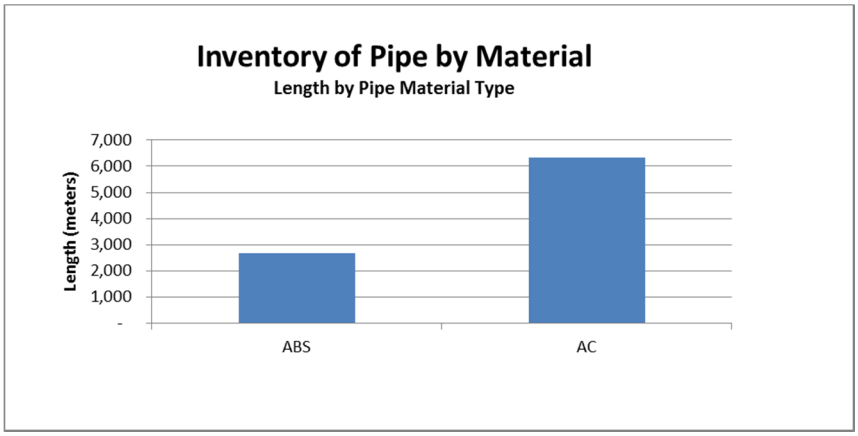


Figure 2-1 Water Distribution Network Breakdown by Material

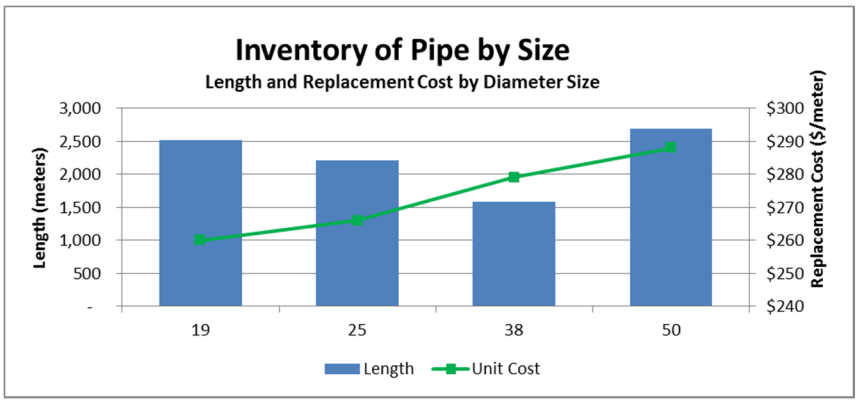


Figure 2-2 Water Distribution Network Breakdown by Size

Figure 2-3 Water Distribution Network Breakdown by In-service Year

N/A

3 Analysis and Discussion

The following section summarizes the results of the work carried out for GBID. It is broken down into the following sub-sections of analysis and discussion.

3.1 Asset Depreciation
3.2 Asset Replacement Schedule
3.3 Average Annual Asset Funding Requirement (AAFR)
3.4 Current and Planned Debt Issues & Liability Servicing Limit
3.5 Current Annual Contributions for Water Asset Renewal (ACFAR) Budget
3.6 **Scenario 1**: Continue with Current ACFAR Budget
3.7 **Scenario 2**: Immediate Increase ACFAR to match AAFR
3.8 **Scenario 3**: Gradual Increase to ACFAR towards AAFR

3.1 Asset Depreciation

The annual depreciation of the net value of the water assets (also called annual amortization) historically reported by the District for PSAB purposes for 2012 is $13,313. In the past, this amount has been used by some water supply systems as an indication of the funding requirement for future asset renewal.

However, it does not reflect the effects of inflation, technological advancements or changing standards. In addition, the asset inventory historically used by the District for PSAB reporting may not account for recent capital works on the system. Therefore, a sufficient annual contribution for funding asset replacement is likely to be greater than the annual asset depreciation.

3.2 Asset Replacement Schedule

An Asset Replacement Schedule (ARS) for the water infrastructure was developed. Anticipated future expenditures for renewing the water distribution network is shown below over a 100 year time horizon.

This graph represents the next replacement of existing pipes.

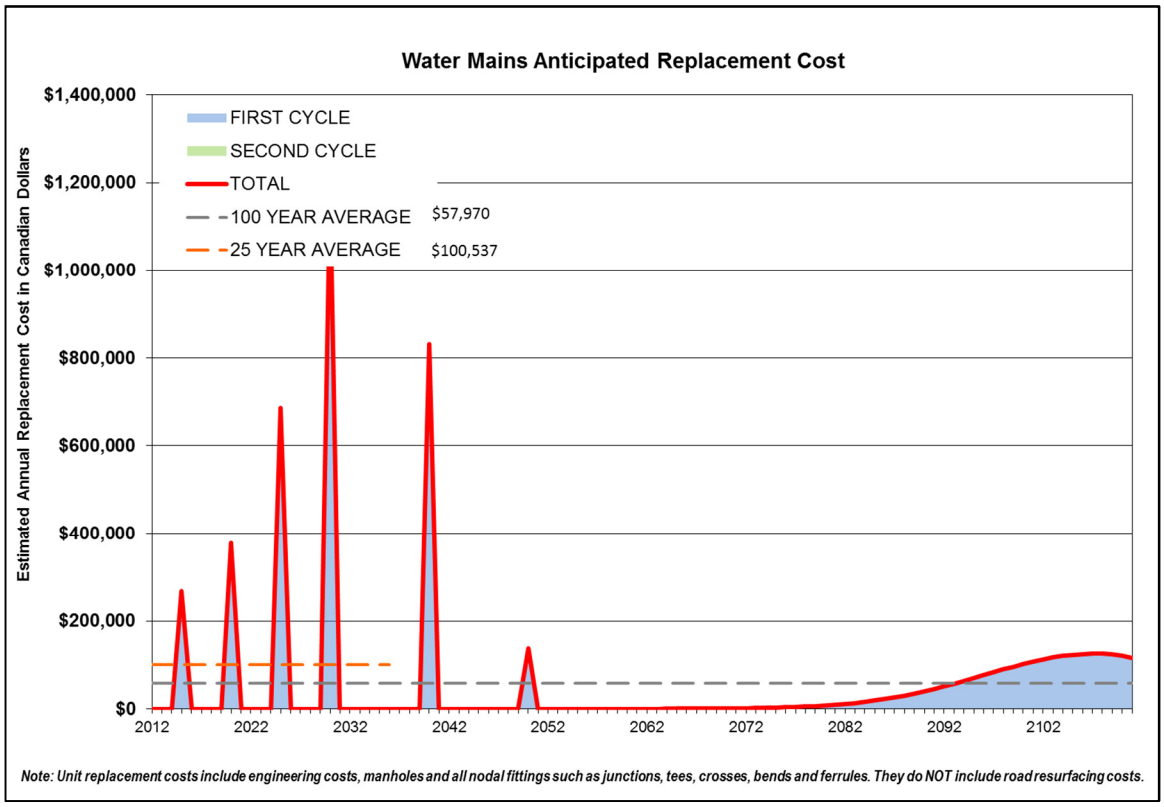


Figure 3-1 –Water Mains Anticipated Replacement Expenditures

The next two figures show replacement costs for all water asset classes for both 25 year and 100 year time horizons. Expenditures are in $2012 and are not adjusted for inflation in these figures.

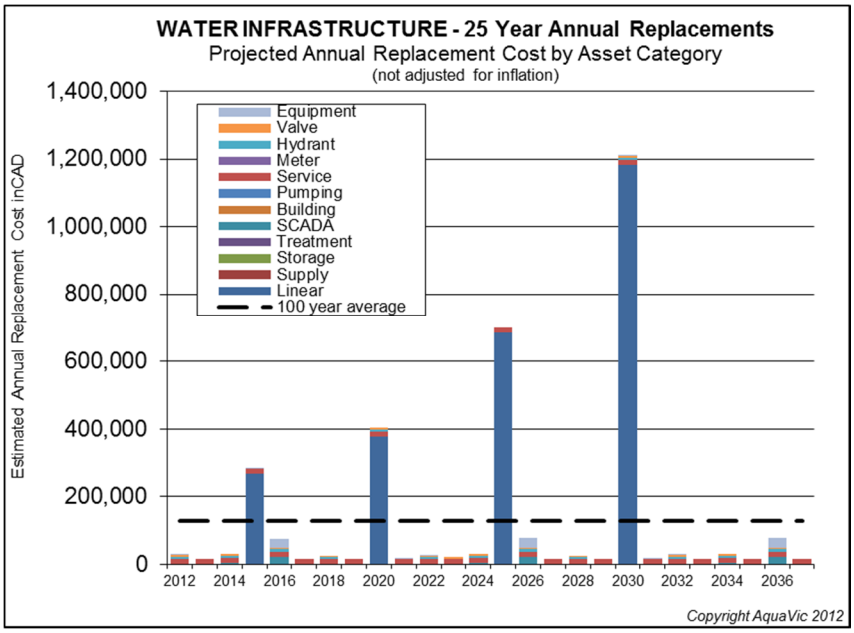


Figure 3-2 –Water Asset Replacement 25 Year Schedule with AAFR $128,993

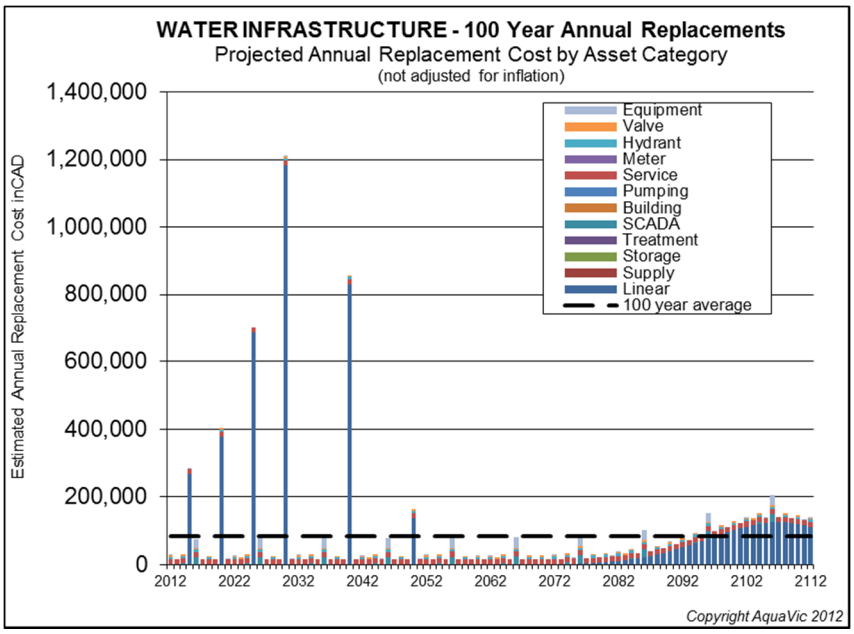


Figure 3-3 –Water Asset Replacement 100 Year Schedule with AAFR $85,655

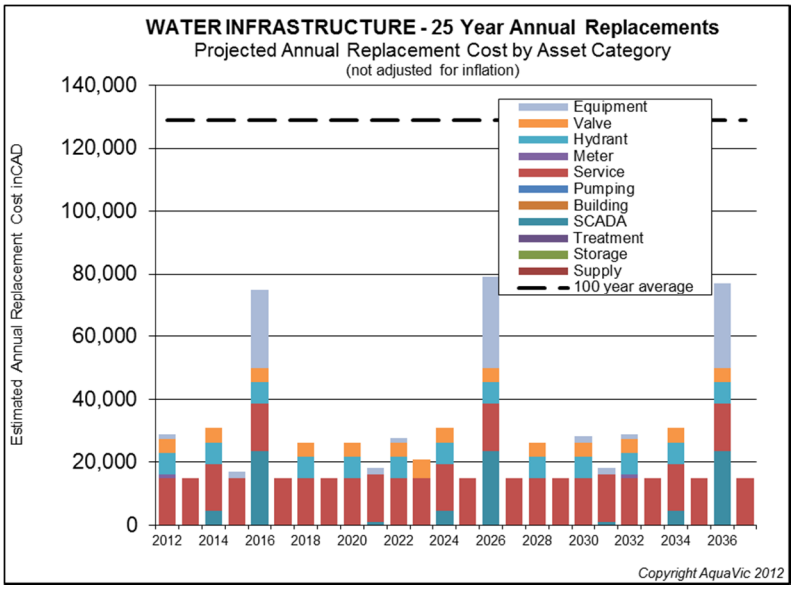


Figure 3-4 –Water Asset Replacement (excluding pipework) 25 Year Schedule with AAFR $128,993

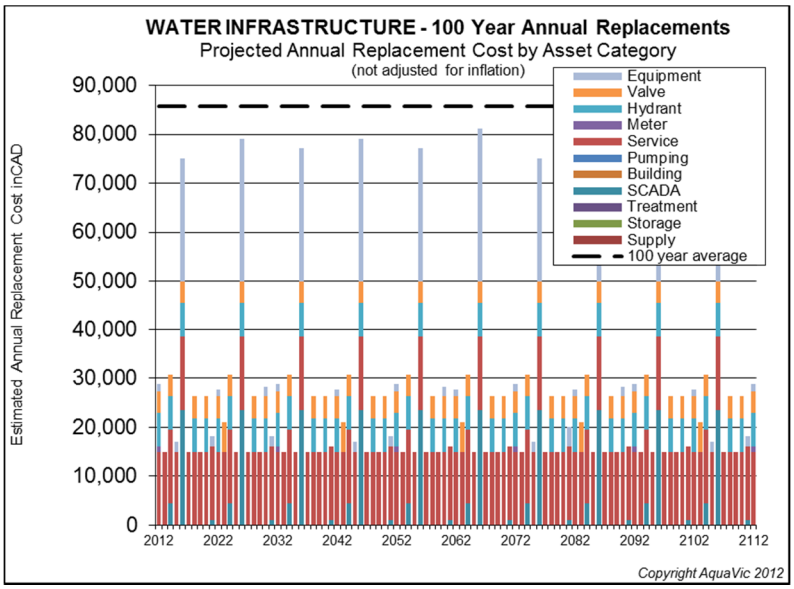


Figure 3-5 –Water Asset Replacement (excluding pipework) 100 Year Schedule with AAFR $85,655

3.3 Average Annual Asset Funding Requirement (AAFR)

The two figures above show the AAFR in 2012$ to be $129,000 or $86,000 depending on looking at a 25 year or 100 year time horizon. This AAFR is the annual average of all the expenditures projected over the respective time horizon. The 25 year AAFR is higher because a large portion of distribution pipework replacement is occurring in the next 25 years.

3.4 Current and Planned Debt Issues & Liability Servicing Limit[3]

The District currently has no debt.

3.5 Current Annual Contribution for Water Asset Renewal (ACFAR) Budget

The District doesn't have a current ACFAR budget.

[3] The Regional District Liabilities Regulation (B.C. Reg. 261/2004) does not limit the annual cost for servicing regional district liabilities. The Municipal Liabilities Regulation (B.C. Reg. 254/2004) was passed by Cabinet and became effective on June 10, 2004. The regulation aims in part to limit the annual cost of servicing financial liabilities to 25% of revenues from the previous year.

3.6 Scenario 1: Continue with no Current Annual Budget

The following figure depicts the results of maintaining the same ACFAR budget of $0. The blue curve below represents the cumulative expenditures including inflation and cost of borrowing. The green curve is missing, representing the fact that there is no budget.

The dashed line shows the financial position dropping at an increasing rate into the negative implying, that the infrastructure renewal is not properly funded for the long term.

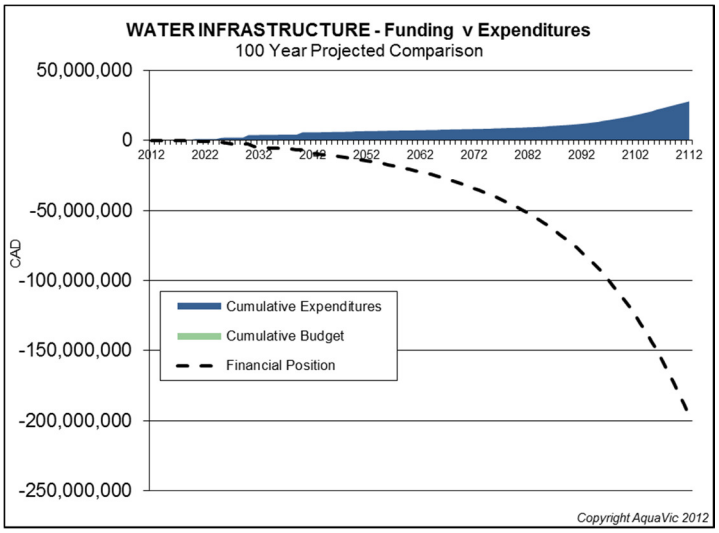


Figure 3-6 –Scenario 1: Continue with Current Water ACFAR Budget Plus 2% Increases

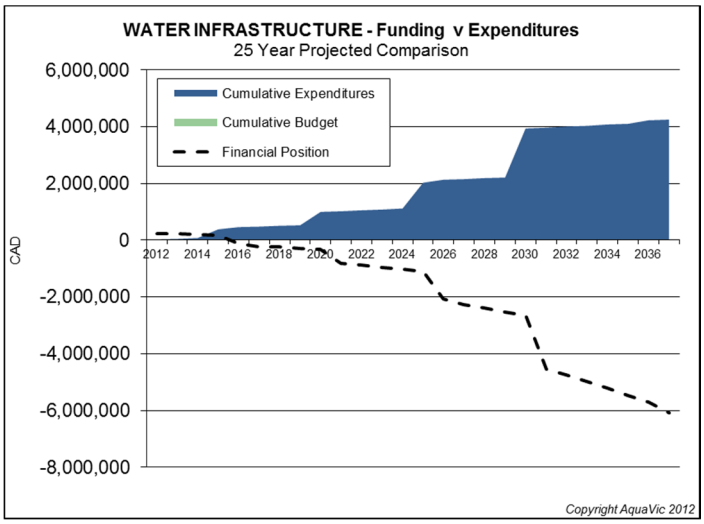
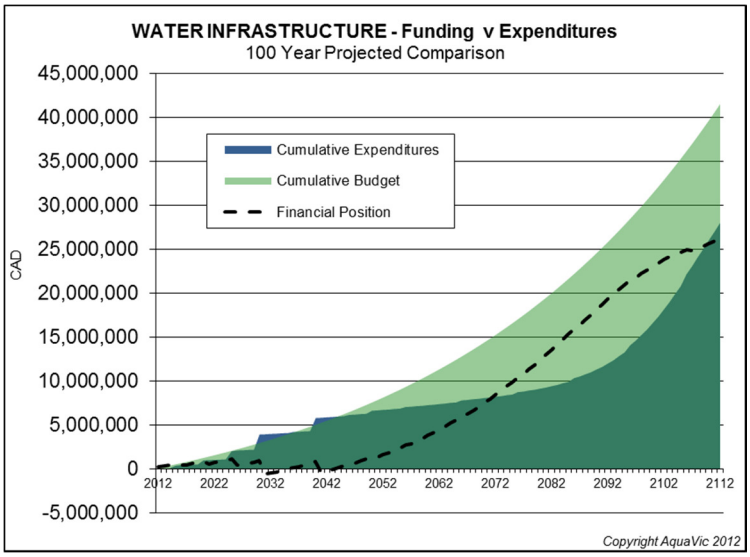


Figure 3-7 –Scenario 1: 25 Year Horizon

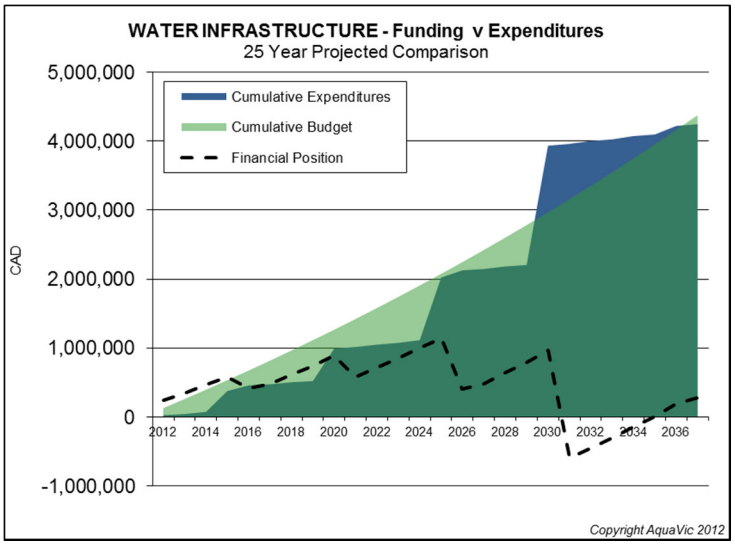
3.7 Scenario 2: Immediate Increase of ACFAR to Match AAFR

The following figure depicts the results of setting ACFAR to $130,000, as recommended by the AAFR analysis (see previous subsections) plus a 2% increase per year to meet inflation. The blue curve below represents the cumulative expenditures including inflation and cost of borrowing. The green curve represents the cumulative ACFAR contributions.



In this scenario, the dashed line indicates that infrastructure renewal is sufficiently funded for the short term.

Figure 3-8 –Scenario 2: ACFAR $130,000 Plus 2% Increases



In this scenario, the District may accumulate as much as $1,000,000 in a reserve fund to be used over the next 20 years for major upgrades to the pipework.

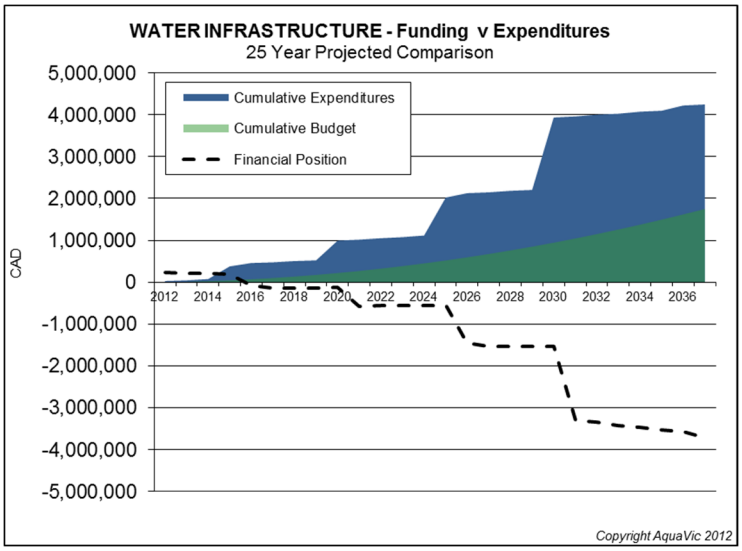
The cumulative 25 year budget in this scenario is $4,16m.

Figure 3-9 – Scenario 2: 25 Year Horizon

Assumptions: ACFAR starts at $130,000 and increases by 2%. Inflation is on average 2% per annum, cost of borrowing is on average 4% per annum and return on investment is on average 1.5% per annum.

3.8 Scenario 3: Gradual Increases to Water ACFAR Budget

The following figure depicts the results of starting an ACFAR of $10,000 in 2012 and increasing ACFAR by 5,000 per year for 25 years up to $135,000, followed by 2% increases beyond that.



In this scenario, GBID may need to borrow over the next 25 year period. Borrowing will introduce additional costs – interest.

The cumulative 25 year budget in this scenario is $1,75m

Figure 3-10 – Scenario 3: 25 Year Horizon ACFAR $10,000 Plus $5,000 increase per annum

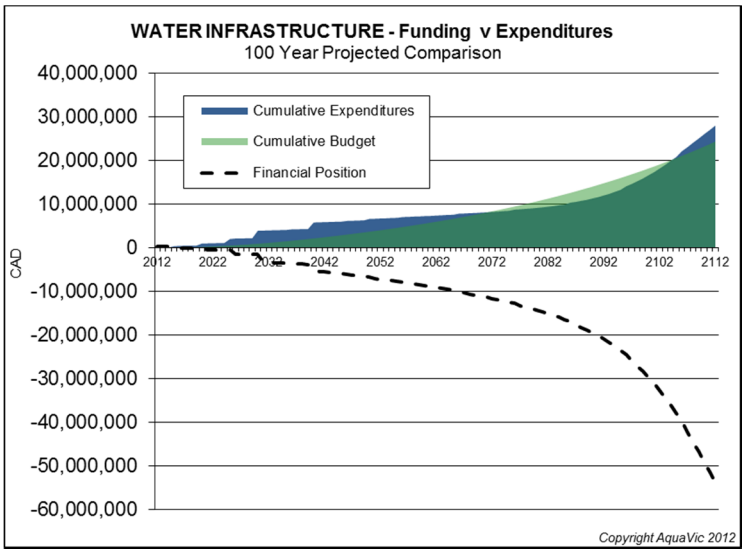


Figure 3-11 –Scenario 3: 100 Year ACFAR

Assumptions: ACFAR starts at $10,000 for 2013, and increases by $5,000 per year for 25 years to $135,000. Then ACFAR increases by 2% per year after that. Inflation is on average 2% per annum, cost of borrowing is on average 5% per annum and return on investment is on average 1.5% per annum.

4 Conclusions & recommendations

4.1 Conclusions

The analysis outlined in this report indicates the amount of money that should be contributed each year in order to maintain all tangible assets, including pipes, pumps, reservoirs and other aspects of the infrastructure, in full working order over the long-term. The depiction of Financial Position shows the extent to which money may need to be borrowed to provide for future capital expenditures, and to which the current ACFAR budget may need to be increased.

The analysis illustrates the challenges faced by the District (and many other water purveyors) in achieving financial sustainability. Even with aggressive rate increases, these systems will likely be reliant on external funding sources to undertake future capital projects.

In the case of GBID, asset renewal may be sufficiently funded over the next 25 years without the need to borrow. This could be achieved by setting an ACFAR of $130,000, with annual increases of 2% after that. This requires an additional $445/parcel per year (292 parcels). Current parcel tax rates for GBID are $188/parcel. Current tolls are $400 per year for residential connection and $800 per year for commercial and multifamily connection.

A more gradual approach to increasing ACFAR for GBID outlined in scenario 3 is to establish a starting ACFAR of $10,000 and increase this amount by $5,000 per year for 25 years. The total cumulative ACFAR budget over the 25 year time horizon would be $1,75m. While this scenario has a more gradual impact on rates, funds may need to be borrowed for some projects. Borrowing has the disadvantage of introducing interest costs to the rate payers.

4.2 Recommendations

The following recommendations cover next steps in the effective management of infrastructure assets by GBID. These recommendations include measures to sufficiently fund asset renewal, to reviewing the funding requirements regularly and to enhance the analysis using the results of on-site asset condition assessments.

1. Incorporate the analysis from this report into the Long Term Financial Plan for GBID.

2. Incorporate a budget line item in the five year financial plan to represent ACFAR.

3. As part of an ongoing Asset Management Program, the District should review the condition (what shape are they in?) and utilization (how much wear and tear are they subjected to?) of water assets. In addition, the District should continue refining the asset inventory where assumptions have been made regarding asset specifications, in-service years or replacement costs.

4. Incorporate condition and utilization information into the ARS and update Estimated Service Life (ESL) of assets to more accurately reflect reality.

5. Review the ARS and the ACFAR analysis regularly and compare with previous analyses to note progress made in achieving sustainable long term infrastructure renewal.

6. Develop a plan to communicate to the rate payers the need for asset replacement and why increases to revenues are required to sustain the current levels of service. Emphasize to the public that more aggressive increases to revenues in the short term will minimize and may eliminate the need for borrowing and the associated costs of borrowing.