Achieving Financially Sustainable Water Services

Van Anda Improvement District

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1.0 Executive Summary

The Van Anda Improvement District (VAID) owns and operates a water utility serving residents on the north side of Texada Island. Provision of these services requires extensive infrastructure that is costly to operate, maintain and replace. For example, major anticipated projects over the next 25 years include replacing the Priest Lake tank (estimated cost $150,000 - $300,000), and approximately 700 meters of pipework (estimated cost $200,000). Longer term projects include replacing all 21 hydrants throughout the system (estimated cost $126,000) by 2045 or sooner, pending the results of condition assessments.

The objective of this project is to improve the long-term financial sustainability of VAID's water services through full-cost accounting. This was achieved through two project phases:

1) determining how much VAID should be directing to the Capital Reserve Fund each year based on the composition and age of existing waterworks assets, and

2) evaluating the adequacy of revenues from existing parcel taxes and water tolls to meet long-term financial obligations related to water service provision, including asset renewal and investment in new capital assets.

Additional benefits of this project included the following:

- generation of an inventory of VAID's waterworks assets,
- insight into near-term capital expenditure needs associated with the renewal of existing assets, and
- a recommended schedule of adjustments to parcel taxes and water tolls to ensure revenues are sufficient to cover anticipated operations and maintenance expenses, asset renewal, and new capital projects expected in the coming years.

1.0 Executive Summary Continued

It was determined that VAID is in relatively good shape with respect to preparing for future capital needs due to the current policy of setting aside 20% of revenues into a capital reserve fund. However, this analysis suggests this annual contribution is shy of achieving long-term (>25 years) financial sustainability. Existing operating revenues from parcel taxes and water tolls were also determined to be insufficient to meet future revenue requirements. The resultant recommendations are as follows:

1) Increase annual Capital Reserve Fund contributions to an amount that approximates the 100-year annual cost of sustainable ownership (ACSO) of $35,894 (in 2015 dollars).
2) Review the asset inventory lists, asset replacement costs, unit costs for pipes, and other assumptions underlying the Infrastructure Funding Requirements Model to refine estimates of long-term revenue requirements for asset renewal.
3) Conduct condition assessments on assets nearing the end of their estimated service life to prioritize and schedule near-term capital expenditures, and refine the above ACSO.
4) Update the Infrastructure Funding Requirements Model on a regular basis to include the addition of new assets and incorporate changes from recommendations 2 and 3 above.
5) Increase all parcel tax and water toll rates by 2% per year beginning in 2017 to generate sufficient revenues for anticipated operations and maintenance expenses, infrastructure replacement costs, and new infrastructure needs.
6) Refine cost estimates for upcoming infrastructure replacement needs (e.g. Priest Lake tank) and new capital projects ('new main loop' service extension and water filtration equipment) to ensure sufficient funds exist, and to avoid the need for VAID to assume debt.
7) Update the Long-term Financial Model on a regular basis to update cost estimates and revenue requirements, and to re-evaluate the annual tax and toll rate increases to ensure they continue to meet VAID's revenue requirements.

2.0 Best Practices

The information in this report is developed using an adaptation of methods and frameworks from several sources, including some key ones shown here. See the references in Section 10.0 for details.

"A board of trustees must make adequate provision in its budget to renew infrastructure when it is required and to raise sufficient funds for that purpose. The board of trustees must establish a reserve fund(s) and those monies must be used only for the specific purpose for which the fund was established."

3.0 Tangible Capital Asset Reporting

With the introduction in 2009 of new reporting requirements as per section 3150 of the Public Sector Accounting Board (PSAB) Handbook, local governments, including improvement districts, are required to report tangible capital assets as assets (versus expenses) in the financial statements.[1] By compiling an asset inventory for VAID, this project also facilitated estimation of the value of VAID's capital assets as well as annual and accumulated depreciation values. These values will provide the basis for reporting on tangible capital assets in future audited financial statements, bringing VAID into compliance with the PSAB 3150 reporting requirements.

Table 1: Tangible Capital Asset Value Calculated from Estimated Asset Replacement Values (2014-2015)

	Dec 31, 2014	Dec 31, 2015
Historic Cost	$857,157	$869,715
Accumulated Depreciation	$287,677	$299,195
Net Value	$569,480	$570,520
Annual Asset Depreciation	$11,393	$11,518

3.1 Annual Asset Depreciation

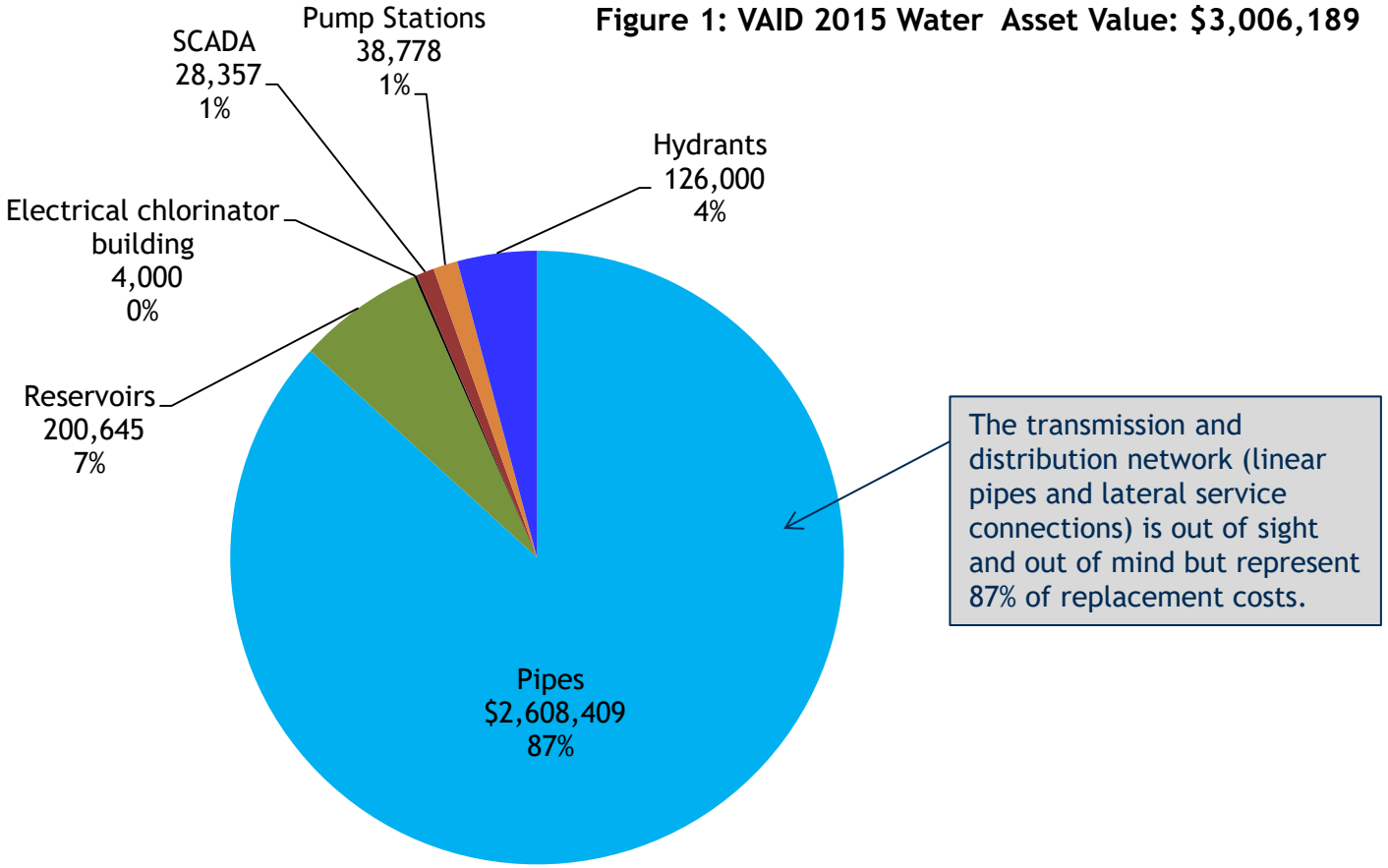
Annual asset depreciation (normally calculated by dividing an asset's historic cost by its estimated service life) is one indicator of the funding requirement for future asset renewal. However, because asset depreciation does not reflect the effects of inflation, technological advancements or changing standards, the result is an amount which is lower than actual future funding requirements.

1. Tangible Capital Assets (TCA) are defined by the Public Sector Accounting Board as a physical asset used in the delivery of service and having a useful life of more than 1 year.

4.0 Asset Inventory

VAID's water infrastructure is summarized in this chart. The total replacement value of the infrastructure and the replacement value of each asset category is shown here in 2015 dollars. This figure is based on a combination of historical costs indexed for inflation (from purchase invoices and estimates) and estimated replacement costs obtained from manufacturers.

Figure 1: VAID 2015 Water Asset Value: $3,006,189



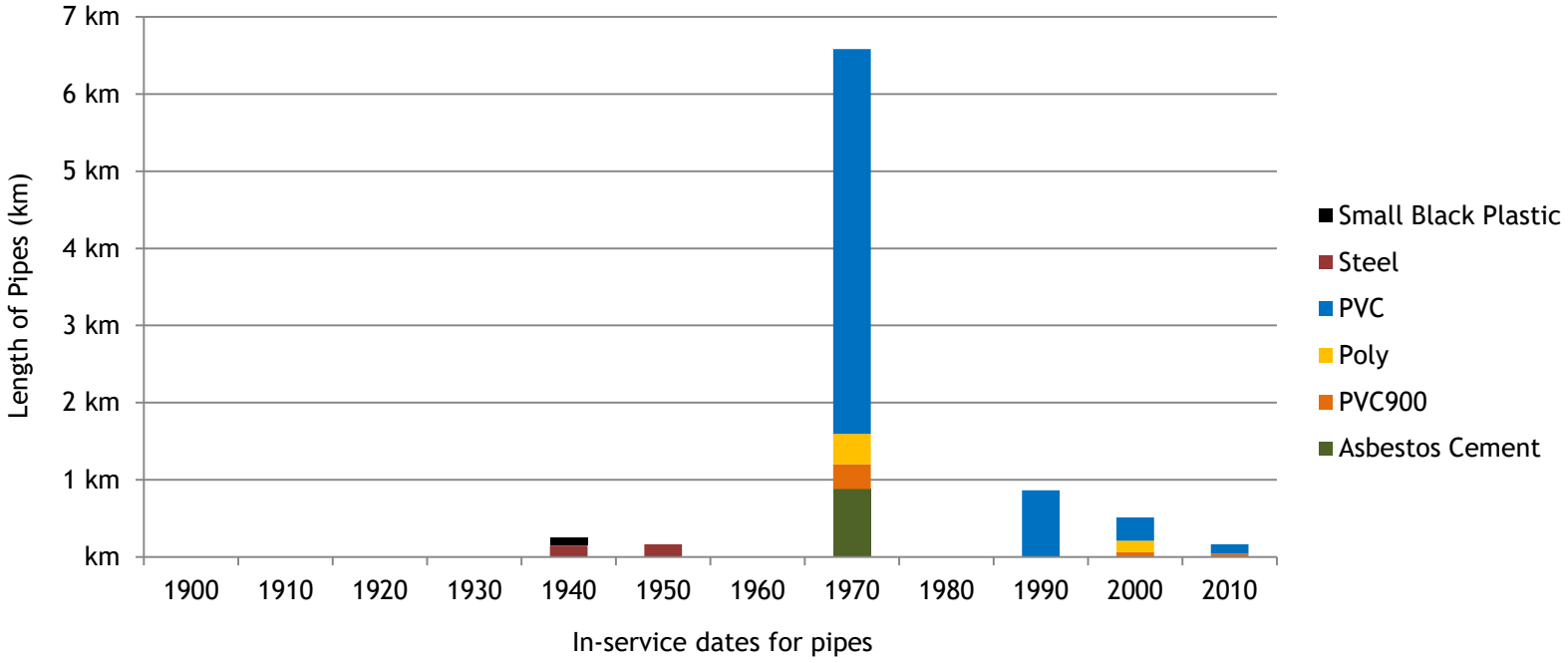
4.0 Asset Inventory (continued)

4.1 Water Transmission and Distribution Network

This chart shows the in-service years and materials of VAID's pipe network. Information was gathered from various sources in order to piece together this picture of the pipe system: a survey map, a hand-drawn map done by a student in 2012, the 2008 water system assessment study by McElhanney, and from anecdotal information provided by staff and trustees.

Of the current pipe work, 19% is made of asbestos cement (assumed to have an estimated service life of 50 years) and approximately 51% is made of polymer of vinyl chloride (PVC) pipe (assumed to have an estimated service life of 80 years). An assumption made in the modelling shown in later figures is that all new pipes are made of PVC.

Figure 2: Pipework Age and Materials (Total 8.5 kms)



5.0 Annual Cost of Sustainable Ownership (ACSO)

Since things wear out over time and with constant use, including water infrastructure, it makes sense that eventually they will need to be replaced. Replacing infrastructure is often very expensive so it is typically desirable to put funds aside during the life of the infrastructure so that funds are available when needed. So a question that infrastructure-based organizations should ask is: *how much should be contributed annually to keep up with the asset wear*?

Assets wear out over time and eventually need to be replaced.

This question can be answered in different ways. Some look to the financial statements to find the annual asset depreciation amount. Although conveniently available in any financial statement, this figure may not accurately answer the question. Asset depreciation and net value of assets are useful for purposes of selling the assets, for example. However, in the case of water infrastructure, worn out assets are typically disposed of and replaced with new assets.

Another coarse approach in determining the costs of *annual asset wear* is to determine the present day replacement value of the assets and take a percentage, say 1% or 2% of that value. Establishing 1% as the average annual wear and tear cost implies that the entire asset base is replaced, on average, every 100 years (every 50 years at 2%). This is easy to calculate if you have present day valuations for the assets. However this method makes a broad assumption about estimated service life (ESL) of assets. In fact, different asset types have different ESLs.

In a more refined approach, instead of aggregating ESL, an asset replacement schedule is developed itemizing each asset along with their specific ESLs. In this way, the replacement time frames for each asset can be accounted for separately. This typically results in a more refined and more accurate model, and is the approach typically used by Econics, including in this report.

See the Econics' white paper referenced on page 16 for a more detailed discussion on the Annual Cost of Sustainable Ownership.

5.0 Annual Cost of Sustainable Ownership (ACSO) Continued

It is useful to think about the average annual cost of replacing infrastructure over a long time period, for instance 25 or 100 years. Knowing this figure enables planning for sufficient contributions for asset replacement. This slide provides an overview of some different methods of determining the ASCO and shows the resulting ASCO produced by each method.

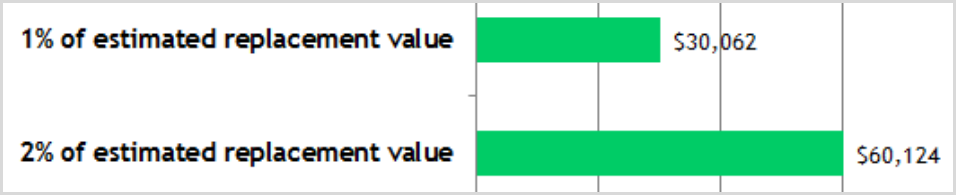
Recall the Annual Asset Depreciation which was discussed earlier in section 3.0:

Sometimes annual depreciation figures are used as a basis for estimating asset replacement requirements.

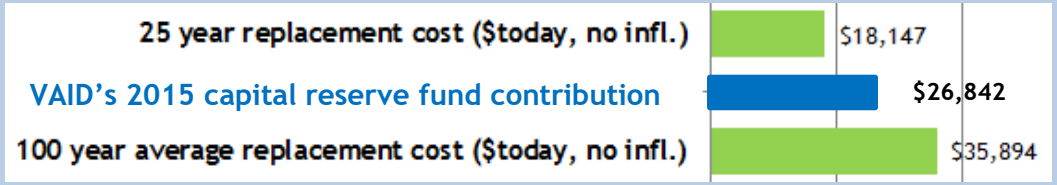
Annual depreciation in 2015 = $11,518

Other methods for calculating this average annual cost include the following:

Calculation based on present-day replacement value. This method sometimes used as a rule-of-thumb.



Econics uses a calculation based on an asset replacement schedule which considers the composition of the assets and their varying estimated service lives to produce a more refined and accurate result.



See Econics' white paper referenced in Section 10.0 for a detailed discussion on Annual Cost of Sustainable Ownership.

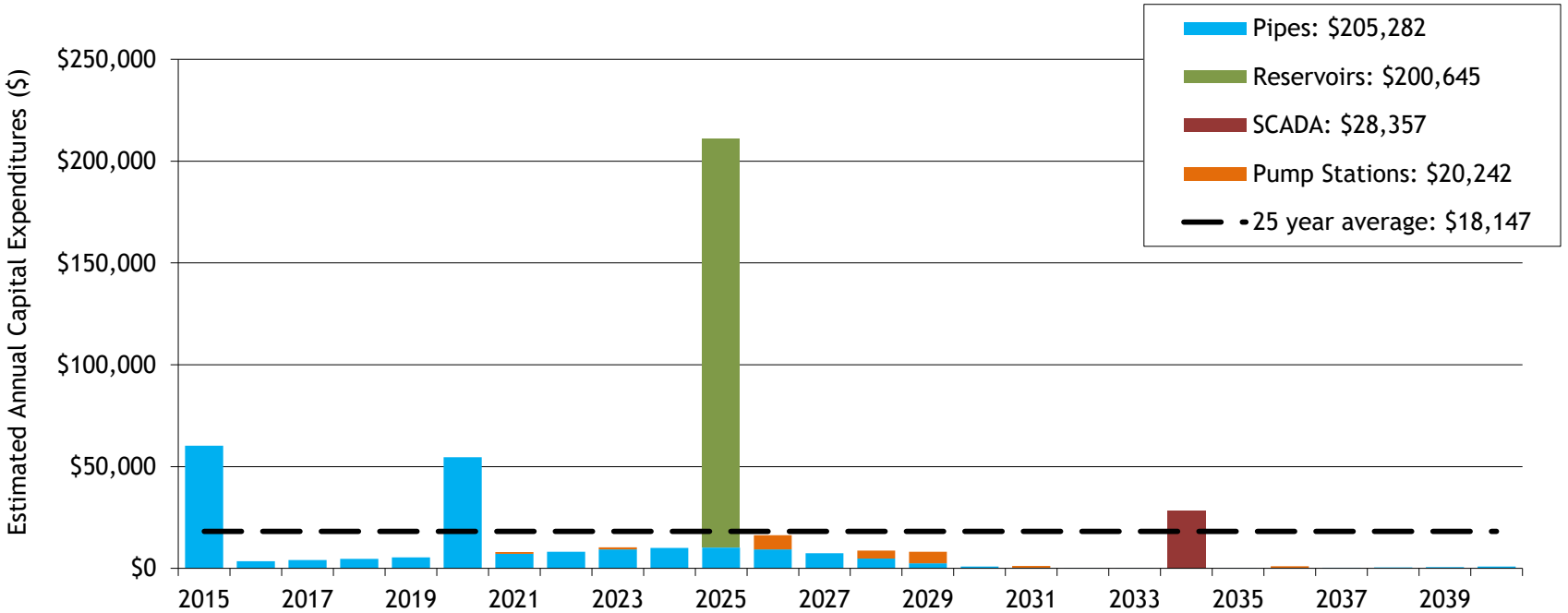
5.0 Annual Cost of Sustainable Ownership (continued)

5.1 Asset Replacement Schedule

This chart summarizes the Asset Replacement Schedule (ARS) for a 25-year period projection of asset replacement. The replacement years are based on the in-service years and estimated service lives of each asset. The average cost over the 25-year period is shown by the dashed line.

Figure 3: Total Estimated Water Asset Expenditures (25 year-projection)

Figures are in 2015$ and not adjusted for inflation.

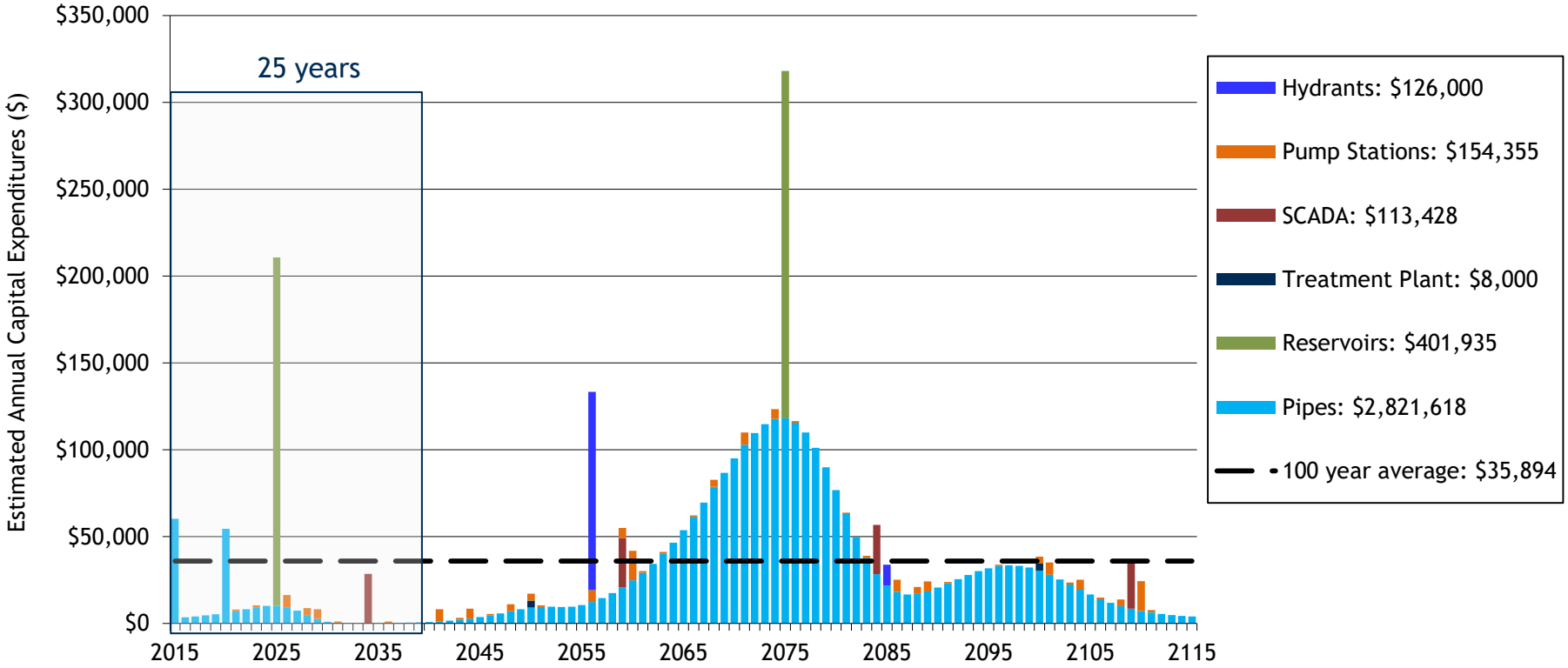


5.0 Annual Cost of Sustainable Ownership (continued)

5.1 Asset Replacement Schedule (continued)

This chart summarizes the Asset Replacement Schedule (ARS) 100-year period projection of asset replacement. The average cost over the 100-year period is shown by the dash line.

Figure 4: Total Estimated Expenditures (100-year projection)

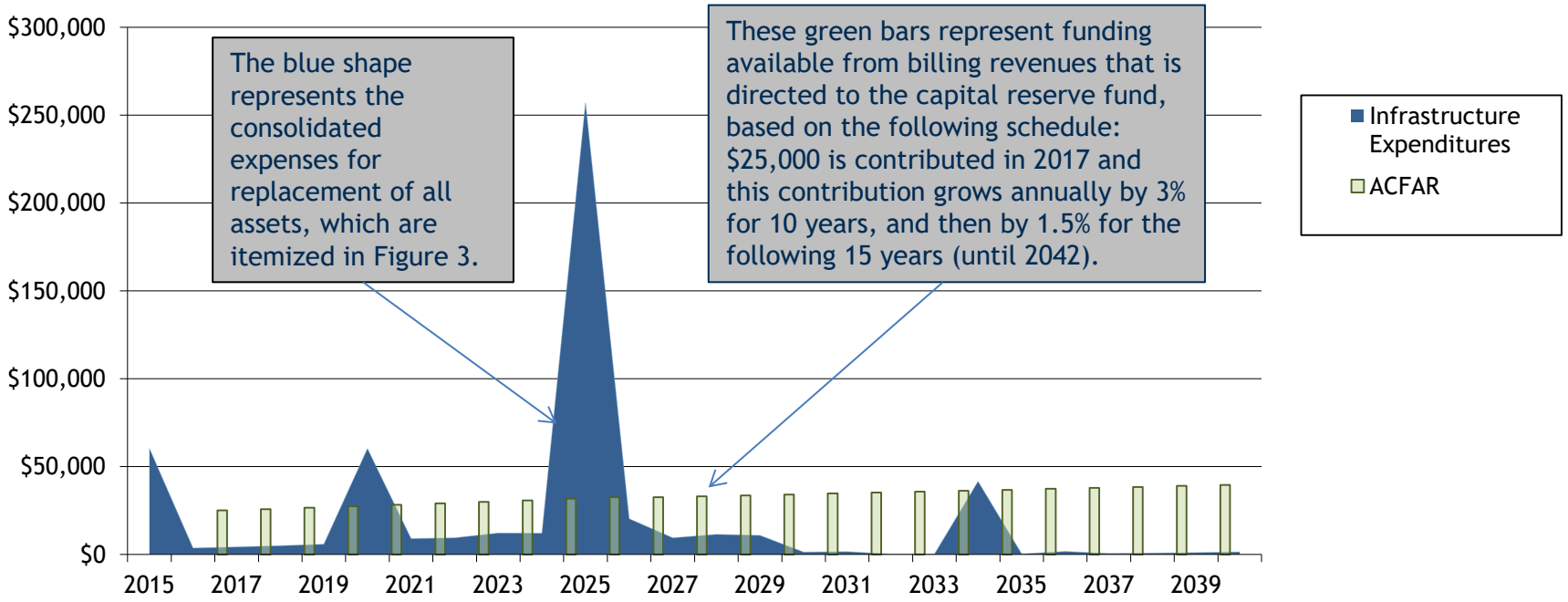


Figures are in 2015$ and not adjusted for inflation

6.0 Annual Contribution for Asset Replacement (ACFAR)

The Annual Contributions for Asset Replacement (ACFAR) refers to the amount of funds allocated annually from operating revenues towards asset replacement. ACSO, described earlier is the theoretical amount to be achieved, whereas ACFAR is the actual amount generated from operations and set aside for asset replacement needs. VAID's current ACFAR (determined by the capital reserve fund policy) is equivalent to 20% of toll and tax revenues, which amounted to $26,842 in 2015. Ideally, for full cost-accounting and long-term sustainability, ACFAR = ACSO. ACFAR funds are used in different ways: some funds are spent annually on asset renewal projects for the year, some portions may be put away into reserve, or some used to service debt associated with past asset replacement projects.

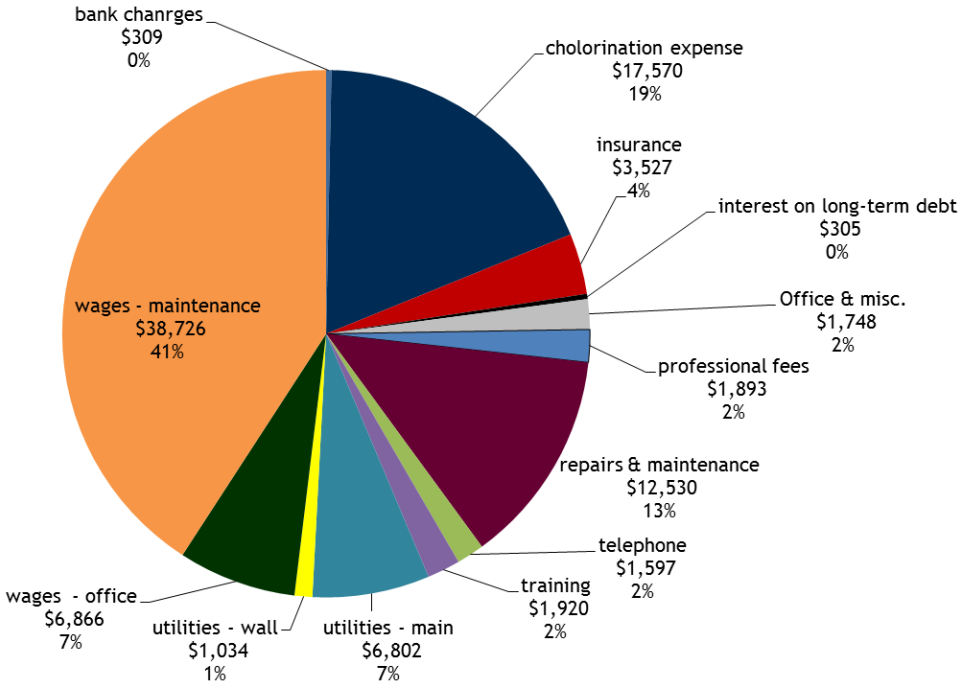
Figure 5: VAID WATER Expenditures and Funding Contributions (25 year projection)



7.0 Operations and Maintenance Expenses

The costs associated with providing water services are significant and include costs to operate the system, administer billing, and maintain essential equipment. These operations and maintenance (O & M) expenses include salaries, office costs, equipment, and electricity costs. With the exception of community fire services, which are accounted for separately, VAID provides only water services. Therefore, all routine (i.e. non-project related costs) incurred in each year can be considered O & M expenses. O & M expenses must also be taken into account to determine what VAID's annual revenue requirements are for providing sustainable water services. The figure below outlines estimated O & M costs for 2016 (approximately $95,000), which are expected to be similar to 2015 actual expenses reported in the audited financial statements. O & M expense projections for 2016 to 2035 are found in Appendix 3.

Figure 7: Estimated 2016 Operations & Maintenance Expenses ($94,827)

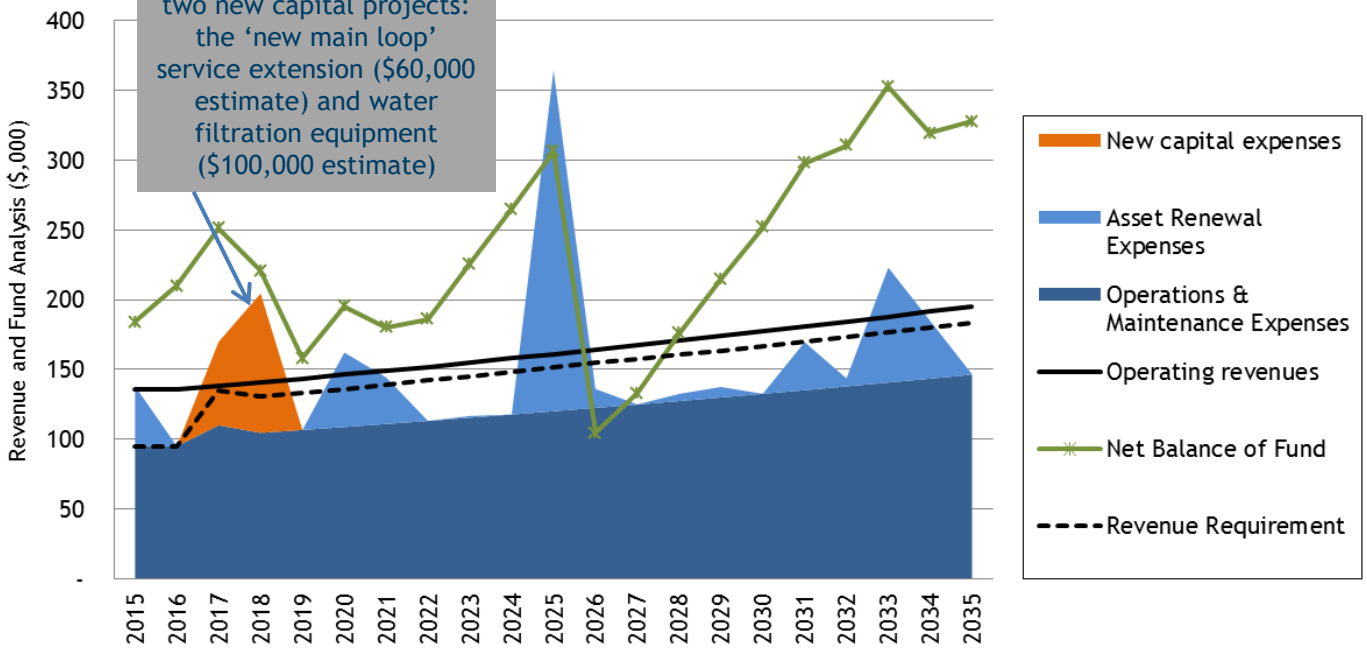


8.0 Revenue and Fund Analysis

By combining all of VAID's annual expenses (O&M costs + capital reserve fund contributions + new capital projects), annual revenue requirements were determined (identified by the dotted black line). To ensure enough revenue is generated annually to meet these requirements, various rate increase scenarios were applied to both the parcel taxes and water tolls. The solid black line below represents operating revenues if 2% annual increases are applied to both parcel taxes and non-metered water tolls beginning in 2017, which appears to be sufficient to meet VAID's estimated revenue requirement. The green line represents the difference between projected expenses and projected revenues. In other words, it is the projected financial position of VAID, and takes into account existing operating funds and the capital reserve fund balance. Appendix 4 outlines annual parcel tax and water toll rates at the 2% annual rate increase schedule.

Represents the cost of two new capital projects: the 'new main loop' service extension ($60,000 estimate) and water filtration equipment ($100,000 estimate)

Figure 8: Revenue and Net Fund Analysis



An across-the-board 2% annual increase is likely to provide a buffer to ensure sufficient funds (without incurring debt) for replacing the Priest Lake tank and the replacement of any pipes or hydrants that reach the end of their useful life before their expected date of replacement.

9.0 Recommendations

The recommendations from this infrastructure requirements analysis exercise are the following:

1) Increase Capital Reserve Fund contributions to an amount that approximates the 100-year annual sustainable cost of ownership (ACSO) of $35,894 (2015$). The recommended contribution schedule in this model is $25,000 in 2017, to grow by 3% per year for 10 years, and then by 1.5% for 15 years (until 2042).
2) Review the asset inventory lists, asset replacement costs, unit costs for pipes, and other assumptions underlying the data in the model (see Appendices 1 and 2) to refine estimates of long-term revenue requirements for capital expenditures.
3) Conduct condition assessments on assets nearing the end of their estimated service life to prioritize and schedule near-term capital expenditures and refine the ACSO estimate above.
4) Update the Infrastructure Funding Requirements Model on a regular basis to include the addition of new assets and incorporate changes from recommendations 2 and 3 above.

The compilation of an asset inventory and estimation of annual and accumulated depreciation values from capital assets were byproducts of this analysis. It is further recommended that VAID maintain and continue to refine the asset inventory to inform capital expenditure planning, and that the values identified in Section 3 be shared with VAID's accountant to ensure compliance with tangible capital asset reporting requirements in future audited financial statements.

9.0 Recommendations continued

The recommendations from the long-term financial modelling exercise are the following:

5) Increase all parcel tax and non-metered water toll rates by 2% per year beginning in 2017 to generate sufficient revenues for anticipated O &M expenses, infrastructure replacement costs, and new infrastructure needs.
6) Refine cost estimates for upcoming infrastructure replacement needs (e.g. Priest Lake tank) and new capital projects ('new main loop' service extension and water filtration equipment) to ensure sufficient funds exist, and to avoid the need for VAID to assume debt.
7) Update the Long-term Financial Model on a regular basis to update cost estimates and revenue requirements, and to re-evaluate the annual rate increases to ensure they continue to meet VAID's revenue requirements.

10.0 References

BC Ministry (2006). Improvement District Manual. British Columbia Ministry of Community Services, Victoria, BC, March 2006.

BC Ministry (2009). Improvement District Trustee's Handbook. British Columbia Ministry of Community Development, Victoria, BC, 2009.

Opus (2011). Guide for Using the Asset Management BC Roadmap. Opus International Consultants (Canada) Limited 2011

Infraguide (2005). Decision Making and Investment Planning: Managing Infrastructure Assets. Federation of Canadian Municipalities and National Research Council, Ottawa, ON, October 2005.

Econics (2013). Funding Infrastructure Replacement for the Long Term: Developing an Asset Replacement Schedule (ARS) and Establishing an Annual Contribution for Asset Renewal (ACFAR). November 2013. See Appendix A.

McElhanney Consulting Services. (2008). Van Anda Improvement District Water System Assessment Study Report.

11.0 Glossary of Terms and Acronyms

Annual Asset Depreciation (Annual Amortisation) - The amount the net value of an asset decreases each year; normally calculated by dividing the historic cost by the estimated service life. Does not factor inflation.

Annual Contribution for Asset Replacement (ACFAR) - ACFAR refers to the amount of funds allocated annually from operating revenues towards asset replacement: spent on projects that year, put away into reserve; or used to service debt associated with past asset replacement projects. Increasingly, ACFAR is becoming a budgeted line item rather than based on unplanned revenue surpluses.

Annual Cost of Sustainable Ownership (ACSO) - ACSO is the average annual cost of replacing infrastructure over a long time period, say 25 or 100 years. ACSO is given in today's dollars and therefore does not consider inflation. ACSO therefore increases over time and should be recalculated periodically.

Asbestos Cement (AC) – a pipe material with an estimated service life of 50 years in this model.

Asset Liability - Assets currently overdue for replacement based on theoretical estimated service life.

Asset Replacement Schedule (ARS) - A forward looking method that considers in-service year, estimated service life and current replacement value of assets to estimate extent of future anticipated capital expenditures.

Asset wear and tear - A concept that is meant to imply that assets wear down every year and it is therefore logical that the beneficiaries of the assets repay the dollar value of that *wearing down*.

Estimate Service Life (ESL) - refers to the number of years an asset or group of assets is expected to remain in service before being replaced. This value may change over time from its original estimate to reflect assets that are wearing out more quickly than anticipated, or lasting longer than originally expected.

11.0 Glossary of Terms and Acronyms(continued)

Financial Position - The term *financial position* is used in this report 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 expenditures from the cumulative available funding. If the financial position is positive, then there are surplus funds available in reserve. A negative financial position implies borrowing.

Infrastructure Deficit - An infrastructure deficit exists if the average annual contributions towards asset replacement are not sufficient to meet the annual average cost of sustainable ownership.

In-Service Year (ISL) - The first year in which a new asset is operational.

Polyvinyl Chloride - a common pipe material with an estimated service life of 100 years in this model.

SFR - single family residential.

Supervisory Control and Data Acquisition (SCADA) - electronic monitoring devices, commonly used to help monitor and control water treatment processes.

Tangible Capital Assets (TCA) - Defined by the Public Sector Accounting Board as a physical asset used in the delivery of service and having a useful life of more than 1 year.

Appendix 1: Non-linear Asset Inventory and Assumptions

A list of the non-linear assets provided by VAID staff and included in the modelling is below, along with assumptions about estimated service lives, based on the direction of VAID personnel in some cases, or guidelines published by the BC Ministry of Community, Sport, and Cultural Development in others. The 'model replacement values' for item IDs 5,7,8,9 were obtained from VAID staff. Otherwise the replacement values are based on indexed historic costs obtained from purchase invoices, and an industry standard unit cost of $6,000 is used for hydrants.

Item ID	Asset Category	Asset Desc.	Notes	Qty	Unit Cost	In Service Year	Historic Co	Base ESL	Next Replacement Year	Model Replacement Valu
1	Pumping	Pump at tank	Grundfos model #96860195, 110V	1		2011	768	5	2021	849
2	Pumping	Pump at Wall street	Grundfos pumphead, baldor motor (in	1		2013	1,049	20	2023	1,102
3	Pumping	Lake well pump	plevger model	1		2014	5,560	15	2029	5,684
3A	Pumping	Lake well pump	plevger model	1		2011	5,560	15	2026	6,145
5	Pumping	chlorine pumps	Flex-pro peristaltic meteirng pump	2		2008		20	2028	3,915
6	Pumping	generator	caterpillar generator (model D 30-8)	1		2010	14,994	50	2060	17,083
7	SCADA	chlorinator control system & turbidity meter		1		2009	24,241	25	2034	28,357
8	Storage	Wall St. pump house tanks	Monarch (Model M 302)	3		1982		43	2025	645
9	Storage	Priest Lake tank - wood stave	45,000 gallons	1		1975		50	2025	200,000
10	Hydrant	hydrants		19	6,000.00	1976		80	2056	114,000
11	Hydrant	Wall Street hydrants		2	6,000.00	1985		100	2085	12,000
12	Treatment	Electrical chlorinator building				2000		50	2050	4,000
13	Pumping	Wall Street pumphouse (building)				2000		50	2050	4,000
Total	13						52,172			397,780

Appendix 2: Pipe Asset Inventory and Assumptions

This inventory of pipe assets was pieced together using a scaled map, a hand-drawn map from a student employed by VAID in 2012, an overview of the pipe system from the 2008 Water System Assessment study completed by McElhanney, and anecdotal information provided by VAID personnel.

Item ID	Description	Qty	Unit Cost	Type	Diameter Today	In Service Year	Model ESL	Next Replace-ment Yea	Model Replacement Valu
1	From storage tank to Legion parking lot	1540.0	327	PVC	200	1975	100	2075	503,580
2	Prospect St up to intersection of Para and Nicholas	486.5	311	AC	150	1975	100	2075	151,302
4	Columbia Street to Doherty residence, 3708 smelter Ave blue linie follows Gracemere St to	574.0	299	PVC	100	1975	100	2075	171,626
5	Sellentin St. down to Sturt Bay, incl. portion of main close to colburn	280.0	299	PVC	100	1975	100	2075	83,720
6	Credit Union (2601 Gillies Bay Rd purple line) to the Hotel (1108 Gillies Bay Rd)	385.0	311	PVC	150	1970	100	2070	119,735
7	Alladin to Copper Queen St until Van Anda Ave	500.0	299	PVC	100	1976	100	2076	149,500
7A	Alladin to the end of Wall St	1000.0	299	PVC	100	1976	100	2076	299,000
9	From Colburn to ball field on Marble Bay (903 Main, Firehall, 1402 Marble Bay, 1	150.0	288	ST	50	1942	80	2002	43,200
10	From Prospect up Van Anda to Columbia	100.0	311	AC	150	1975	100	2075	31,100
10A	Ken Behan, Rachkowski, Jocko's Dorothy	100.0	288	USER	50	1942	75	2017	28,800
11	Bob Gordon's off Smelter up Bleewett servicing Grayson's and their rental (3802	168.0	288	ST	50	1950	80	2020	48,384
12	from the Round House (1515 Para St) to Gable's (410 Para St)	63.0	299	PVC	100	1991	100	2091	18,837
13	Gables(410 Para St) to Beaumont's (1501 Para St)	42.0	299	PVC900	100	2015	100	2115	12,558
14	Upgrade along Nicholas Avenue servicing McIsaac's, Beauregard's, Campbell's & H	63.0	299	PVC900	100	2005	100	2105	18,837
17	From old Ron Arnold house (2201 Van Anda to Judy Ferguson (2204 Midas), also	150.0	288	POLY	50	2000	50	2050	43,200
18	Hotel upgrade (1108 Gillies Bay Rd pink line) through Mike Cragg's property (110	126.0	311	PVC	150	2010	100	2110	39,186
19	Second crossing Prospect to Copper Queen to Columbia	300.0	311	PVC	150	2000	100	2100	93,300
20	Smelter up Gracemere, supplying old Lafarge	84.0	288	POLY	50	1975	50	2025	24,192
22	Loyal Avenue off Alladin supplies Rairie, trailer, Pickeron to the end of Loyal Ave	112.0	266	POLY	25	1975	100	2075	29,792
23	Short segment under Legion just west of Gilles Bay Rd	28.0	299	PVC900	100	1975	100	2075	8,372
24	**Line heading South from intersection of Volunteer/Gadet**	294.0	327	PVC900	200	1975	100	**2075**	**96,138**
25	From Prospect up Van Anda to Dunsmuir, back of Credit Union	200.0	299	PVC	100	1975	100	2075	59,800
28	From Stewart down Colburn, down Main St alley to Para	294.0	299	AC	100	1975	100	2075	87,906
29	Up Colburn to Waterman, down Waterman to Earl	154.0	311	PVC	150	1975	100	2075	47,894
30	From Earl to Colburn	200.0	288	POLY	50	1975	50	2025	57,600
31	Storage Tank to RCMP house on old Priest Lake Road	800.0	288	PVC	50	1996	100	2096	230,400
32	Pumphouse to the Tank	250.0	311	PVC	150	1975	100	2075	77,750
33	Water feed into lake (from well case into lake)	100.0	327	PVC	200	1975	100	2075	32,700
Total		8544							2,608,409

Appendix 3: 2015 (Actual) and 2016-2035 (Projected) O&M Expenses

The table below outlines actual 2015 operations and maintenance expenses and projections for 2016 – 2035. The 2016 O&M estimates are identical to actual 2015 figures, and anticipated 2017 O&M expenses were determined through discussions with VAID personnel. A 2% annual increase in all O&M expenses was applied for each subsequent year. These figures are the basis for future O&M expenses used in the long-term financial model.

Item	2015 (actual)	$2,016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
bank chanrges	309	309	350	357	364	371	379	386	394	402	410	418	427	435	444	453	462	471	480	490	500
cholorination expense	17,570	17,570	18,000	18,360	18,727	19,102	19,484	19,873	20,271	20,676	21,090	21,512	21,942	22,381	22,828	23,285	23,751	24,226	24,710	25,204	25,708
consulting	-	-	7,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
insurance	3,527	3,527	3,600	3,672	3,745	3,820	3,897	3,975	4,054	4,135	4,218	4,302	4,388	4,476	4,566	4,657	4,750	4,845	4,942	5,041	5,142
interest on debt	305	305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office & misc.	1,748	1,748	1,750	1,785	1,821	1,857	1,894	1,932	1,971	2,010	2,050	2,091	2,133	2,176	2,219	2,264	2,309	2,355	2,402	2,450	2,499
professional fees	1,893	1,893	4,500	4,590	4,682	4,775	4,871	4,968	5,068	5,169	5,272	5,378	5,485	5,595	5,707	5,821	5,938	6,056	6,178	6,301	6,427
repairs & maintenance	12,530	12,530	12,500	12,750	13,005	13,265	13,530	13,801	14,077	14,359	14,646	14,939	15,237	15,542	15,853	16,170	16,493	16,823	17,160	17,503	17,853
telephone	1,597	1,597	1,000	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219	1,243	1,268	1,294	1,319	1,346	1,373	1,400	1,428
training	1,920	1,920	2,500	2,550	2,601	2,653	2,706	2,760	2,815	2,872	2,929	2,988	3,047	3,108	3,171	3,234	3,299	3,365	3,432	3,501	3,571
utilities - main	6,802	6,802	7,000	7,140	7,283	7,428	7,577	7,729	7,883	8,041	8,202	8,366	8,533	8,704	8,878	9,055	9,236	9,421	9,609	9,802	9,998
utilities - wall	1,034	1,034	1,200	1,224	1,248	1,273	1,299	1,325	1,351	1,378	1,406	1,434	1,463	1,492	1,522	1,552	1,583	1,615	1,647	1,680	1,714
wages - office	6,866	6,866	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	11,951	12,190	12,434	12,682	12,936	13,195	13,459	13,728	14,002	14,282
wages - maintenance	38,726	38,726	40,000	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804	48,760	49,735	50,730	51,744	52,779	53,835	54,911	56,010	57,130
Total	**$ 94,827**	**$94,827**	**$109,900**	**$ 104,448**	**$ 106,537**	**$ 108,668**	**$ 110,841**	**$ 113,058**	**$ 115,319**	**$ 117,625**	**$ 119,978**	**$ 122,377**	**$ 124,825**	**$ 127,322**	**$ 129,868**	**$132,465**	**$ 135,115**	**$ 137,817**	**$140,573**	**$ 143,385**	**$ 146,252**

Appendix 4: 2015-2035 Parcel Taxes and Water Tolls With Annual Adjustments

The table below outlines annual rates and associated VAID revenues if all parcel tax and water toll categories are increased by 2% annually from 2017 to 2035.

Annual Rate Increases Year	2015	2016	2.0% 2017	2.0% 2018	2.0% 2019	2.0% 2020	2.0% 2021	2.0% 2022	2.0% 2023	2.0% 2024	2.0% 2025	2.0% 2026	2.0% 2027	2.0% 2028	2.0% 2029	2.0% 2030	2.0% 2031	2.0% 2032	2.0% 2033	2.0% 2034	2.0% 2035
Parcel Tax A	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307
Rate	119	119	121	124	126	129	131	134	136	139	142	145	148	151	154	157	160	163	166	170	173
Subtotal	36,472	36,472	37,201	37,945	38,704	39,478	40,268	41,073	41,894	42,732	43,587	44,459	45,348	46,255	47,180	48,124	49,086	50,068	51,069	52,090	53,132
Parcel Tax B	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Rate	163	163	167	170	173	177	180	184	188	191	195	199	203	207	211	216	220	224	229	233	238
Subtotal	8,168	8,168	8,331	8,497	8,667	8,841	9,018	9,198	9,382	9,570	9,761	9,956	10,155	10,358	10,566	10,777	10,992	11,212	11,436	11,665	11,899
Parcel Tax C	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Rate	356	356	364	371	378	386	393	401	409	418	426	434	443	452	461	470	480	489	499	509	519
Subtotal	4,990	4,990	5,089	5,191	5,295	5,401	5,509	5,619	5,731	5,846	5,963	6,082	6,204	6,328	6,455	6,584	6,715	6,850	6,987	7,126	7,269
Parcel Tax D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rate	683	683	697	711	725	739	754	769	785	800	816	833	849	866	884	901	919	938	957	976	995
Subtotal	683	683	697	711	725	739	754	769	785	800	816	833	849	866	884	901	919	938	957	976	995
Water Toll - SFR/Com.	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192
Rate	348	348	354	362	369	376	384	391	399	407	415	424	432	441	450	459	468	477	487	496	506
Subtotal	66,720	66,720	68,054	69,415	70,804	72,220	73,664	75,138	76,640	78,173	79,737	81,331	82,958	84,617	86,309	88,036	89,796	91,592	93,424	95,293	97,198
Water Toll - Rental	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Rate	174	174	177	181	184	188	192	196	200	204	208	212	216	220	225	229	234	239	243	248	253
Subtotal	5,213	5,213	5,317	5,423	5,532	5,642	5,755	5,870	5,988	6,107	6,229	6,354	6,481	6,611	6,743	6,878	7,015	7,156	7,299	7,445	7,594
Water Toll - Institutional	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Rate	480	480	490	499	509	520	530	541	551	562	574	585	597	609	621	633	646	659	672	686	699
Subtotal	3,360	3,360	3,427	3,496	3,566	3,637	3,710	3,784	3,860	3,937	4,016	4,096	4,178	4,261	4,347	4,433	4,522	4,613	4,705	4,799	4,895
Water Toll - School	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rate	5,663	5,663	5,776	5,891	6,009	6,129	6,252	6,377	6,504	6,635	6,767	6,903	7,041	7,181	7,325	7,472	7,621	7,773	7,929	8,087	8,249
Subtotal	5,663	5,663	5,776	5,891	6,009	6,129	6,252	6,377	6,504	6,635	6,767	6,903	7,041	7,181	7,325	7,472	7,621	7,773	7,929	8,087	8,249
Total Revenues	131,267	131,267	133,892	136,570	139,301	142,087	144,929	147,828	150,784	153,800	156,876	160,013	163,214	166,478	169,808	173,204	176,668	180,201	183,805	187,481	191,231