Water Rate Review 2015
District of Lillooet

June 2015 FINAL

Prepared for	Prepared by
LILLOOET GUARANTEED RUGGED	econics

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Executive Summary

The purpose of this report is to provide a summary of a water rate review undertaken in 2014/15 to implement a volume-based rate structure as part of the universal metering program. The objective of the review is to ensure that the District's residents are charged for water services in a manner that is equitable, affordable, and easy to understand. The resulting rate structure must also contribute to creating sufficient and stable revenue to maintain the water supply system now and into the future, and it should promote working towards shared water conservation goals.

As a result of the metering program and other water conservation initiatives in the District, billable water consumption is forecasted to decline in the short and long term. In particular, the introduction of volume pricing will cause a sharp decline as rate payers adapt to paying for the actual amounts they use. Over time, nominal population growth combined with declining per capita demand (due to ongoing natural uptake of water efficient devices and practices and the District's ongoing conservation efforts) will cause further declines in billable consumption.

Meanwhile, revenue requirements in the short and long term are increasing. Operating costs have increased significantly with the recent commissioning of the new water treatment plant. A look at funding the renewal of ageing infrastructure has also uncovered the need for additional long term funding.

This report proposes a rate structure which meets revenue requirements while compensating for declining billable demand. The proposed structure will generate 70% of revenues from a fixed charge, and 30% from the volume-based charge. Because of the uncertainties associated with transitioning from flat rates to volume-based rates, the rate structure is intentionally designed to be simple. Enhancements to the rate structure (e.g., introducing tiered pricing) can be implemented a few year's down the road, once demand patterns have stabilized.

The proposed rate structure was developed following a cost of service analysis and is designed to be equitable across customer categories - the revenues generated by each customer category are commensurate with their demand characteristics. As demand patterns settle over the next year or two, the cost of service and equity analysis should be revisited.

It is recommended that the District introduce the proposed rate structure following a mock billing period, together with a planned communications strategy in order to give rate payers time to adapt to the new structure. In general, rate payers will find that their cost of water has gone up (largely due to the new treatment plan and the need for infrastructure renewal). They will also find that with some modification to their consumption behaviour, they now have control of the costs of their water services.

Acknowledgements

Econics would like to thank District staff for assistance and support with this project as well as staff from True Engineering.

Analysis in this report was completed using WaterWorth™, a proprietary modeling tool that facilitates water services financial analysis, revenue forecasting and development of rate structures. More information about WaterWorth™ can be found online at www.econics.com.

1.0 OVERVIEW

1.1 INTRODUCTION

1.2 OBJECTIVES OF A RATE REVIEW

1.3 THE REVIEW PROCESS

1.1 Introduction

The District of Lillooet is committed to providing residents and businesses with sufficient and high quality water supplies in a cost effective manner. Recent improvements to the water supply network, including completion of universal metering and commissioning of the new water treatment plant, have created the opportunity and the need to review the current water rate structure. The District contracted Econics to assist with this task.

The purpose of this report is to provide a summary of a water rate review undertaken in 2014/15 to implement a volume-based rate structure as part of the Universal metering program. The objective of the review is to ensure that the District's residents are charged for water services in a manner that is equitable, affordable, and easy to understand. The resulting rate structure must also contribute to creating sufficient and stable revenue to maintain the water supply system now and into the future, and it should promote working towards shared water conservation goals.

The report has seven sections, as follows:

- Part 1 provides an overview of the rate review process;
- Part 2 summarises the current situation with community water use and revenue generation;
- Part 3 forecasts future community water demand;
- Part 4 forecasts future revenue requirements;
- Part 5 summarises the cost of service analysis;
- Part 6 outlines the proposed future rate structure; and,
- Part 7 summaries overall findings and provides recommendations.

A glossary of terminology as well as explanation of the volume units of measure used in the report can be found in Appendix 1.

1.2 Objectives of a Rate Review

When a community undertakes a review of its water service rates, the following objectives are usually motivators.

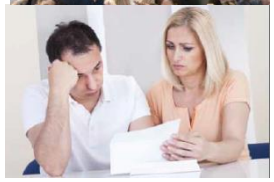
Revenue Sufficiency: first and foremost, a rate structure (combined with other sources of revenue such as developer fees, property taxes, grants and others) must generate sufficient revenue to cover the costs of providing water services, both now and into the future.

Revenue Stability: income from rates needs to be reasonably stable from year to year. Rate structures with a variable component (e.g., consumption charges) give people more control over their costs. However, this results in revenue variability for the service provider, as demand fluctuates over time with variability in climate, the economy, population etc.

Equity & Fairness: people expect to pay for water services in a fair manner. For example, people or customer categories that use less water may reasonably expect to pay less if this means that they are imposing fewer costs on the operation of the system.

Resource Conservation: pricing is one of many ways to encourage residents and businesses to use water more efficiently. In simple terms, if people and businesses are changed more, they will use less, all else being equal.

Public Acceptability: no rate structure will work if the community rejects it. Among other things, this means it must be affordable. Changes also need to be introduced with careful communication. Sufficient time and a smooth transition can allow people to plan for new costs or make fixture or equipment changes in their homes and businesses.



Understandable: a rate structure should be easy to understand. For example, it should empower customers to easily make decisions about how they use water, ideally ones that are in line with the goals of the organization.

1.3 The Review Process

The process of reviewing and setting rates can be described using the analogy of making and eating a pie. The first step is to determine how big the pie should be (that is, how much revenue do you need for the long term?). Next is to determine how to cut the pie into equitable slices (representing the costs imposed on the different customer categories: single family, commercial, etc.). Step 3 is to deal with each individual piece of pie (involving designing a rate structure to achieve the required objectives for each customer category).

	Best Practice	Analogy	Benefits
1	Full Cost Recovery		• Revenue Sufficiency • Long Term Sustainably • Supports Political Stability
2	Establish Cost of Service & Equity		• Establishing Fairness • Public Acceptability
3	Design Rates to Meet Objectives		• Promote Conservation • Reduce Revenue Volatility • Minimize Billing Impacts

2.0 CURRENT SITUATION

2.1 CUSTOMER CATEGORIES
2.2 POPULATION
2.3 CUSTOMER SUMMARY
2.4 CONSUMPTION
2.5 REVENUES
2.6 REVENUE STABILITY
2.7 PERFORMANCE - EQUITY

2.1 Customer Categories

The following list identifies the different customer categories and their definitions.

Customer Category	Definition
Single Family Residential	A service connection to a dwelling where water used for domestic purposes by a single domestic unit (e.g., a house).
Single Family Suite	A service connection to a legal secondary or accessory suite attached to a Single Family Residential dwelling.
Multifamily Residential	A service connection to a dwelling where water used for domestic purposes is shared by more than one domestic unit (e.g., an apartment, a condominium, etc.). This may include rental housing, housing societies, mobile home parks, and other entities serving multiple domestic units where there is only one property owner. A single bill is usually sent to the entity that owns/manages the building.
Commercial, Industrial and Institutional	A service to a property used in a non-domestic activity including commercial, light and heavy industrial, and institutional. Sometimes multiple commercial units/tenants share a single service connection. Billing Commercial customers may be done in one of two ways: a single bill to the entity that owns the building (landlord, strata) or, in some cases, multiple tenant billing is used.

2.2 Population

2.2.1 Historic Population

This graph depicts historical population since 2006 including two census years (2006 and 2011). Population depicted in the graph differentiates between serviced and unserviced populations. Unserviced populations are not connected to the water system. They receive no water utility services, nor are they billed by the municipality.

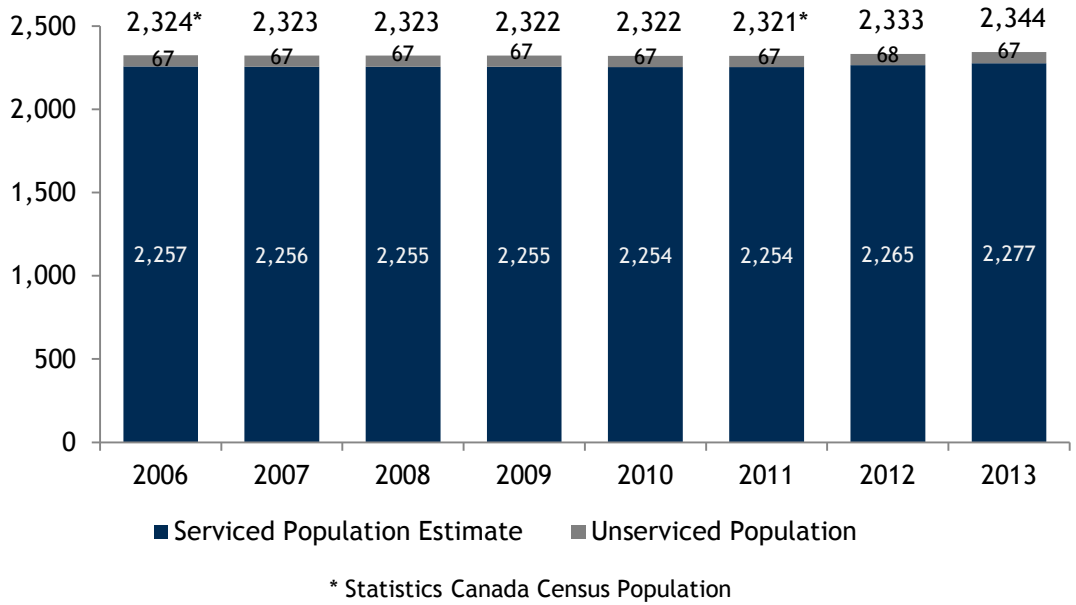


Figure 1: Historic Serviced Population Estimate

Since 2006, change in population has been nominal.

Thirty (30) homes in East Lillooet do not receive water services accounting for an estimated unserviced population of 67.

2.2.2 Population Calibration

Table 1 tests the validity of data provided by the District by multiplying the number of known domestic units by the estimated dwelling density to derive a population for each of the domestic use categories. Results are quite close to Statistics Canada population estimate, providing confidence in the billing data. Average per-capita demands are also calculated evaluated by dividing the measured annual water use by the estimated populations.

Table 1: Serviced Population Estimates (2013)

	Services		Population		Water Demand	
Customer Category	Total Service Connections	Domestic Units	Density	Population	Annual Water Use (ML)	Average Per Capita Demand (LCD)
Single Family	767	767	2.23	1,710	509	815
SF Suites	14	14	2.23	31	10	875
Multifamily	52	242	2.23	540	56	283
Total	833	1,023		2,281	574	

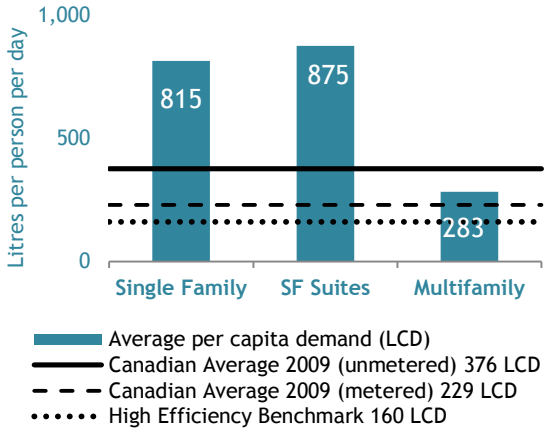


Figure 2: Average Daily Per Capita Demand (2013)

Figure 2 depicts how much water is used in the community in terms of litres per capita per day (LCD). It shows that average demand is relatively high in Lillooet compared to BC and Canadian benchmarks. But this is not surprising for a number of reasons. Most obviously, the District's arid and hot conditions can be expected to lead to higher use, especially in summer. As well, while meters have been installed and initial readings have been taken, this information has not yet been provided to residents, and nor have people been charged based on how much they consume to date.

2.3 Customer Summary

Table 2 below provides a summary of information from the billing system relating to each customer category.

Table 2: Customer Summary (2013)

Customer Category	Total Service Connections	Annual Water Use (m^3)	Variable Revenues	Fixed Revenues	Total Revenues	Average Price ($/$m^3$)	% Revenue Contribution	% Water Consumption	% Total Fixed Revenues	Average Per Capita Demand (LCD)	Average Day Demand (m^3/day)
Single Family	767	508,563		269,984	269,984	$0.53	49.4%	74.8%	100.0%	815	1,392
SF Suites	14	9,966		2,227	2,227	$0.22	0.4%	1.5%	100.0%	875	27
Multifamily	52	55,779		70,989	70,989	$1.27	13.0%	8.2%	100.0%	283	153
CII	124	105,502		86,802	86,802	$0.82	15.9%	15.5%	100.0%	127	289
Parcel & Frontage					116,106		21.3%				
Total	957	679,810	$0	$430,002	$546,108	$0.80	100.00%	100.00%	79%	816	1,861

Note that variable revenues are not quantified here because customers have been charged on a flat rate basis to date.

2.4 Consumption

The pie graph at the right gives a breakdown of annual billable demand by customer category. The bottom graph estimates how this demand may be distributed throughout the year.

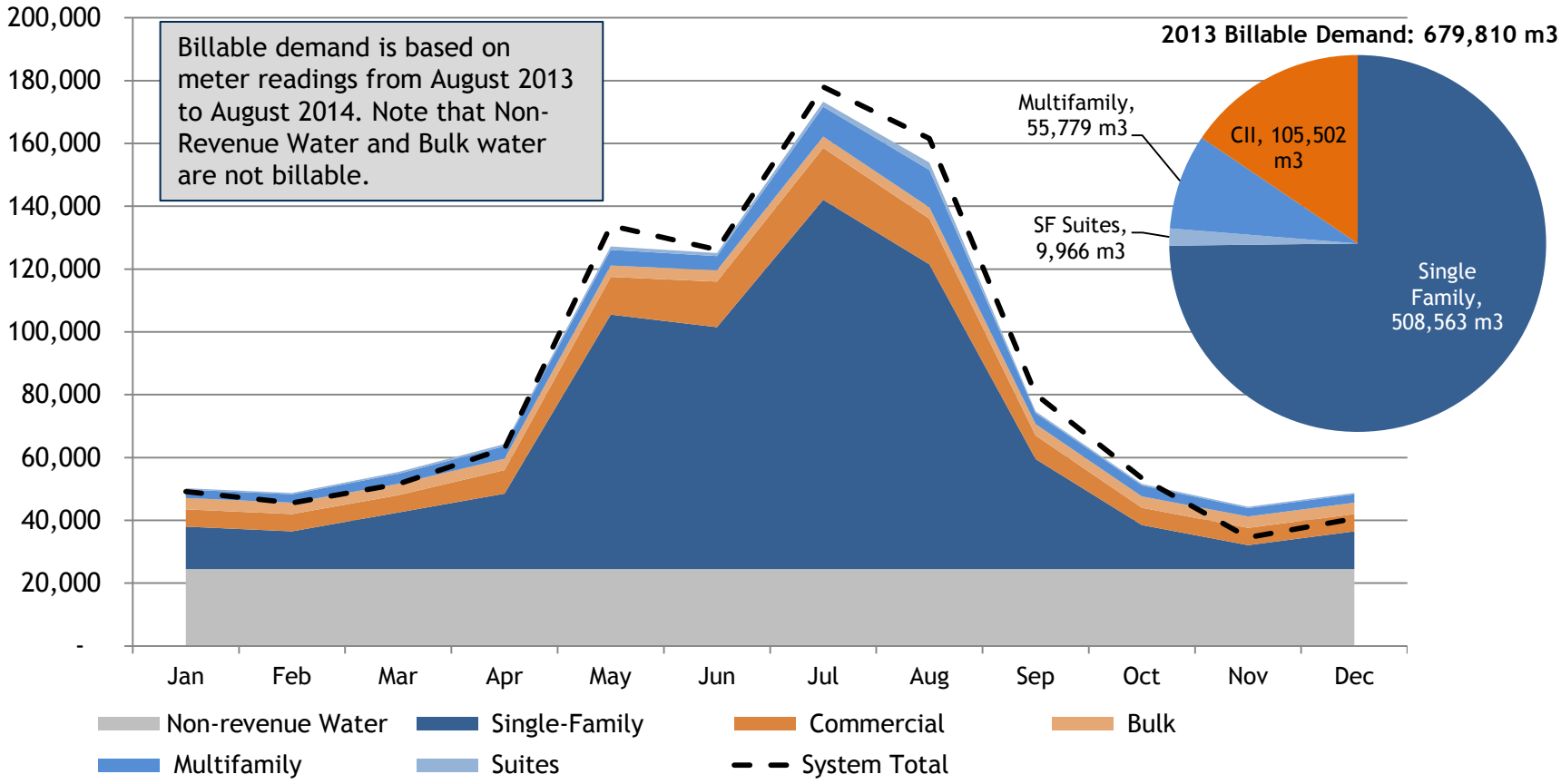


Figure 3: Estimated Billable Demand Compared to Total Production (2013)

2.5 Revenues

The breakdown of revenues from water rates, charges and taxes is shown below.

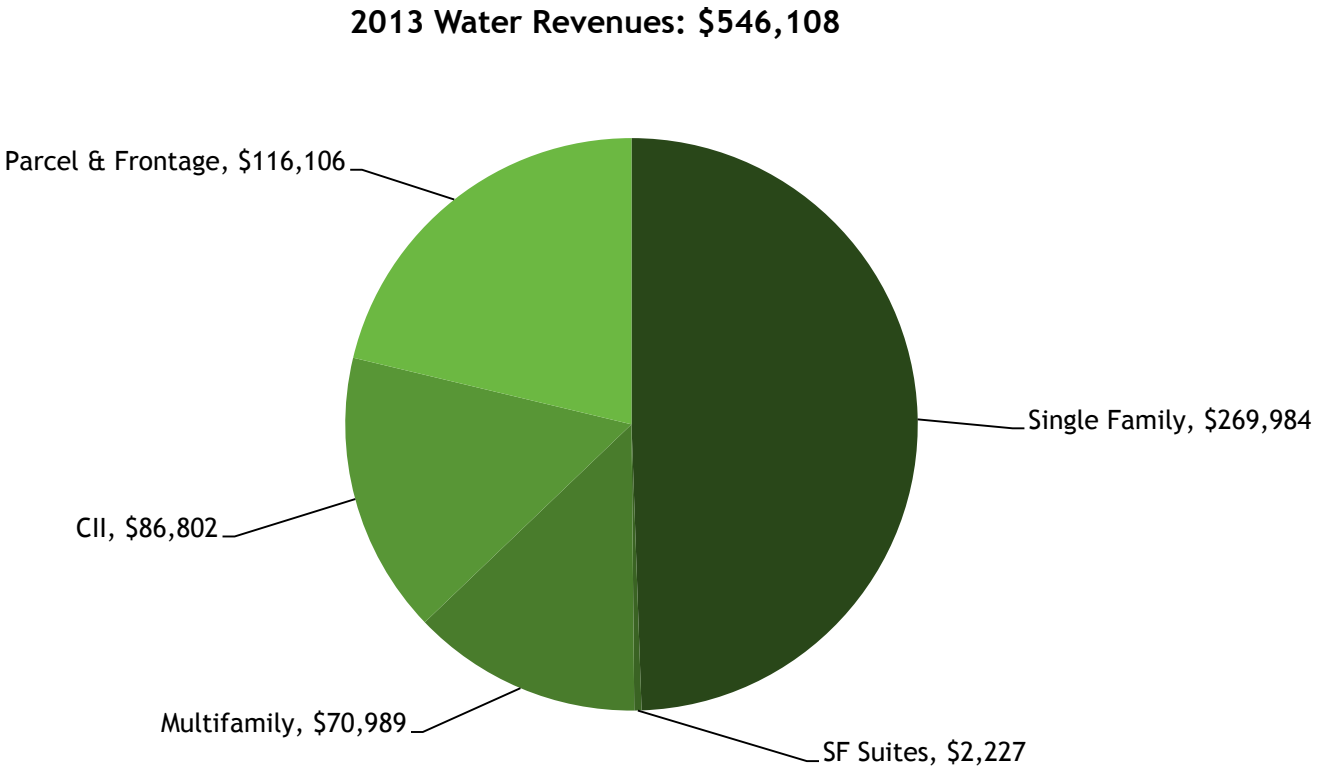


Figure 4: Revenues by Customer Category (2013)

2.6 Revenue Stability

Figures below depict the fixed and variable portion of revenues by customer category. A high portion of fixed revenues contributes to greater revenue stability. A high portion of variable revenues contributes to greater conservation as customers have a financial incentive to use less. Variable rates can also be thought of as more equitable because people and business who use water services more efficiently, putting less demand on the system, will pay less. Note, however, that a certain portion of variable revenues can be viewed as being "as good as fixed" because some usage is essentially non-discretionary (e.g., water used for cooking, cleaning, drinking, etc.).

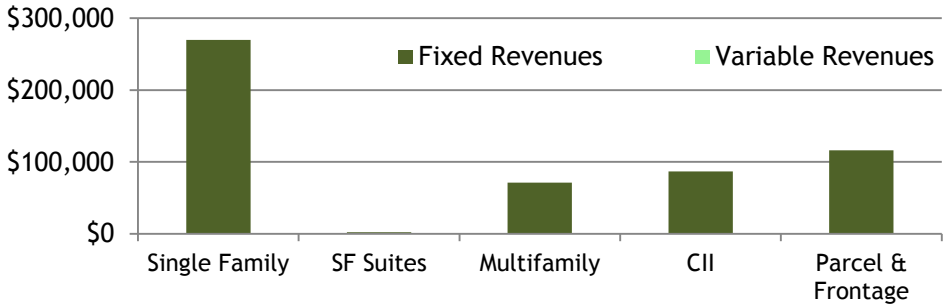


Figure 5: Fixed Revenue By Customer Category

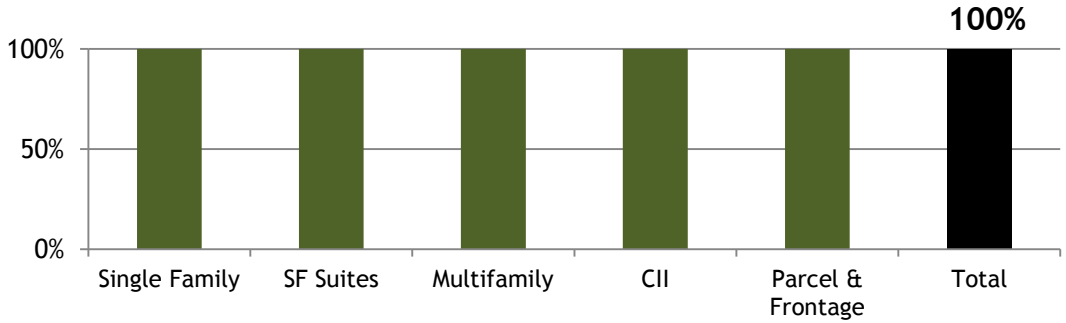


Figure 6: Fixed Revenue as Percent of Total

Rates in Lillooet are currently 100% fixed, but the recent implementation of universal meter allows for introduction of a variable component to the bill in the future.

2.7 Rate Performance - Equity

These figures provide simplified indicators of equity, comparing water demand with revenue contributions and comparing average cost of water to total system average cost.

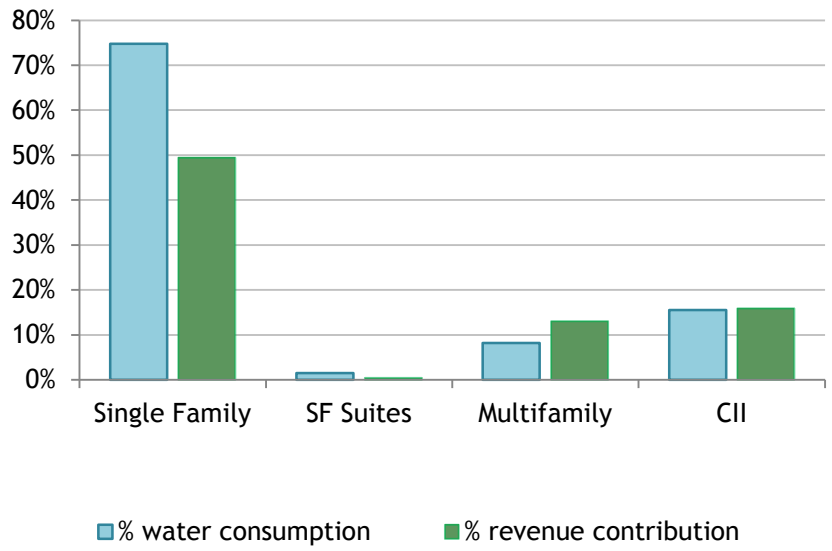


Figure 7: Comparison of Water Use and Revenue Contribution (2013)

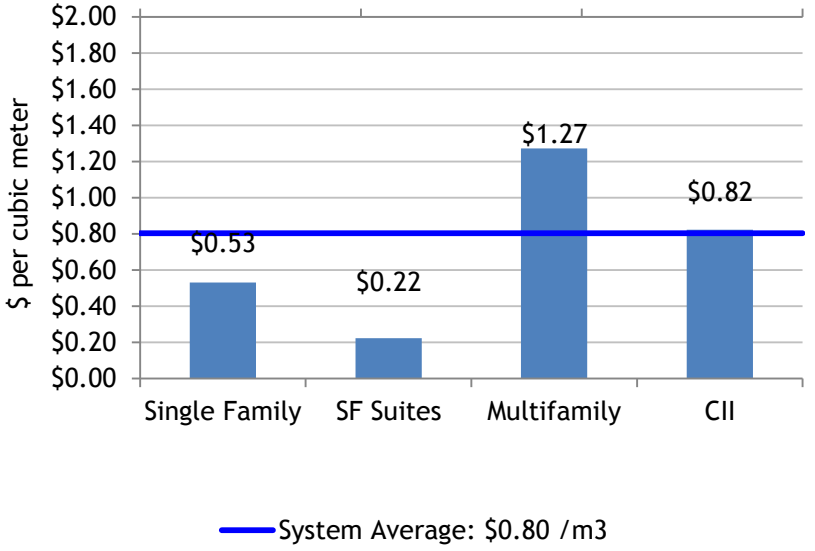


Figure 8: Average Price of Water by Category (2013)

The difference between the percentage of water consumed (blue bar) by a customer category and the percentage of revenue contributed (green bar) may indicate inequities in the price structure.

The average price of water for each customer category is calculated by dividing the revenue collected by the volume of water delivered to customers in that category.

3.0 DEMAND FORECAST

3.1 POPULATION FORECAST

3.2 PER CAPITA DEMAND FORECAST

3.3 TOTAL DEMAND FORECAST

3.1 Population Forecast

Population during the decade 1996 to 2006 had dropped from 2,886 to 2,324 – a significant decline representing about 20% of 1996 population. More recently, population has been essentially stable (see Figure 1, above). The District's Official Community Plan (September 2007) anticipates that, going forward, certain factors will encourage growth in Lillooet, with an annual average of between 0.9% and 1.4%.

However, for purposes of this rate setting analysis, a more conservative approach of assuming zero growth for the next 20 years from the 2013 population of 2,344 has been used. This is conservative because it does not assume that there will be new, additional people to help cover the costs of water services.

The graph to the right shows our resulting assumptions about future population (that is, zero growth).

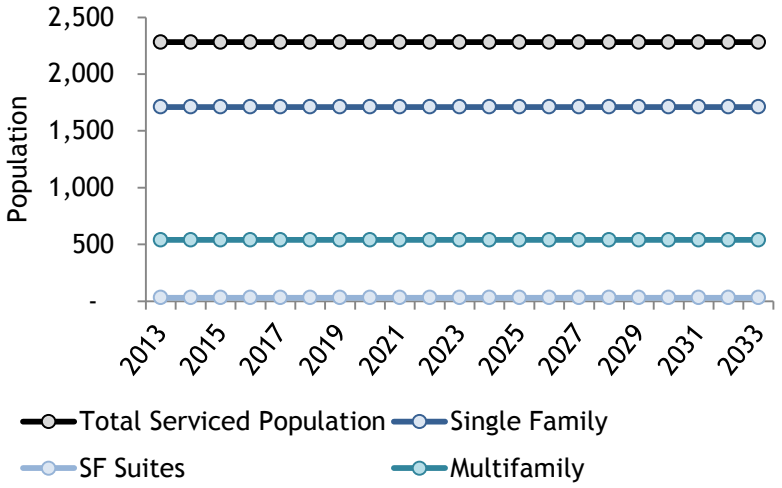


Figure 9: Assumed Serviced Population Forecast for Rate Setting Purposes (2013-2033)

3.2 Per Capita Demand Forecast

Per capita consumption trends in each customer category are modelled below. In most Canadian communities, per capita demand has decreased in recent years as a result of changes in water fixture efficiency, user behaviour, and local regulations. These factors will likely continue to reduce per capita demand although rate of decline will likely diminish over time.

Conservative Assumptions for Modelling Purposes:
For the purpose of modeling rates, certain assumptions are made conservatively so that a new rate structure will err on the side of generating surplus revenue rather than a shortfall. For example, the demand decreases shown here may occur over a number of years rather than suddenly. These decreases are not shown for the purpose of establishing water conservation goals, but specifically for forecasting revenues in the water rates model. As a result, figures may differ slightly from projections in the recent Water Demand Management Strategy, also prepared by Econics (2015).

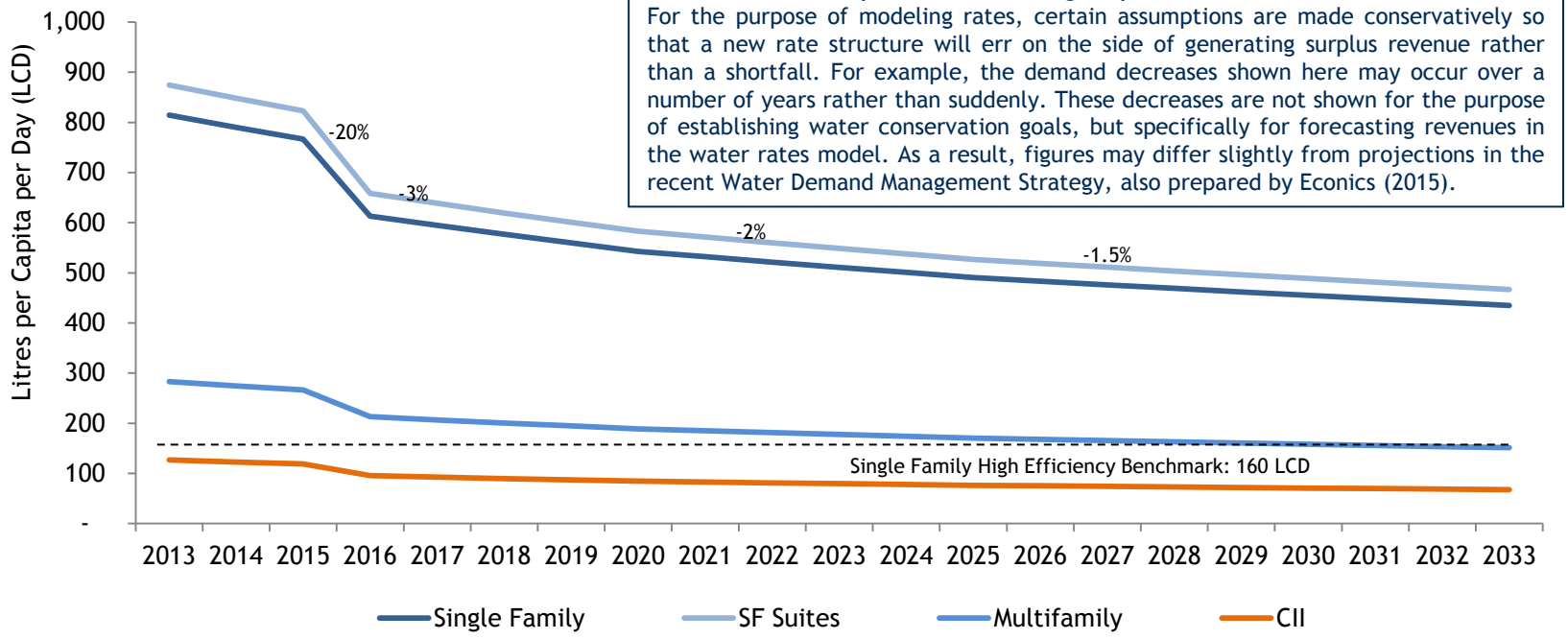


Figure 10: Customer Category per Capita Demand Forecast (2013-2033)

A significant drop in demand is projected in 2016 as a typical response to the introduction of a volumetric rate to a community. Actual responses in other communities that have done the same thing have varied from no change at all to as high as a 40% reduction. As a result, the rates model should be adjusted regularly during the first few years of transition as more meter data is gathered from the community and people begin to respond to the new price signal.

3.3 Total Demand Forecast

The forecasted billable demand shown in the figure below is developed using population and per capita demand forecasts.

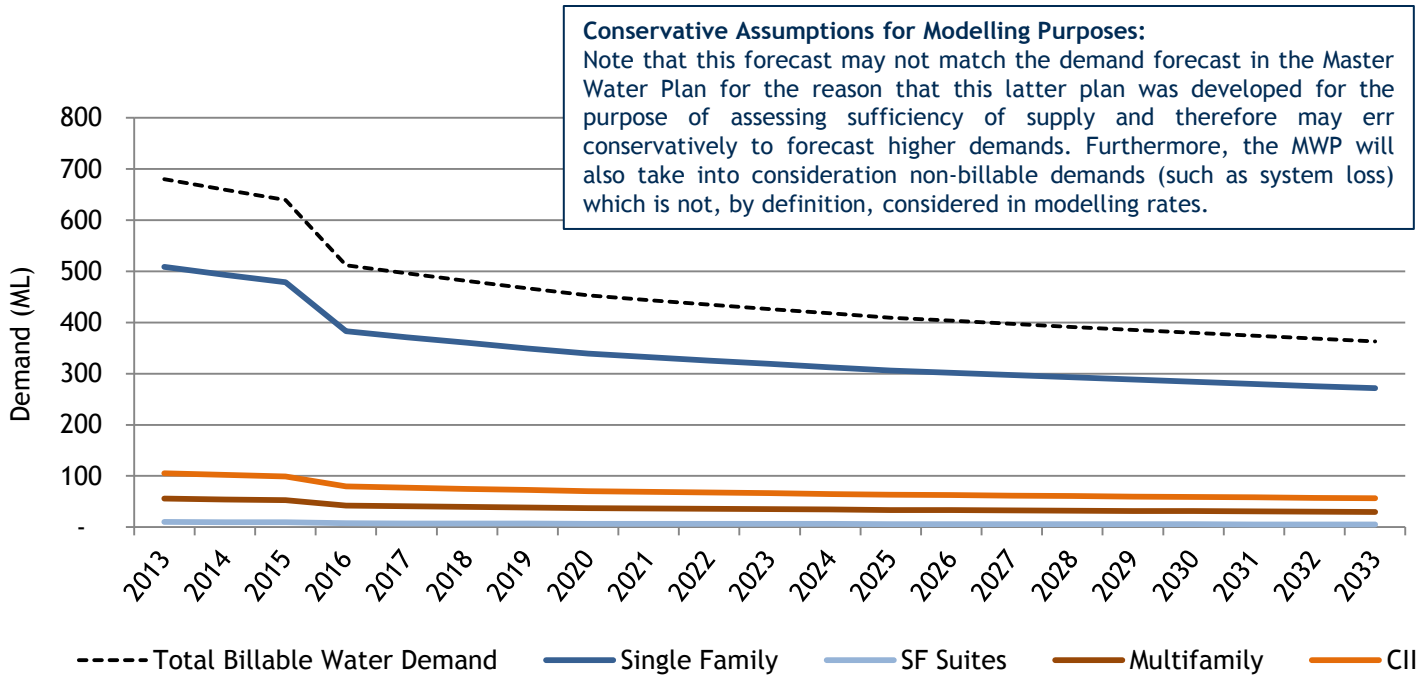


Figure 11: Total Billable Demand Forecast (2013-2033)

For the purposes of modelling rates, demand is expected to decline over the 20 year planning horizon. The largest decline in demand is expected from the Single Family customer category.

4.0 REVENUE REQUIREMENTS FORECAST

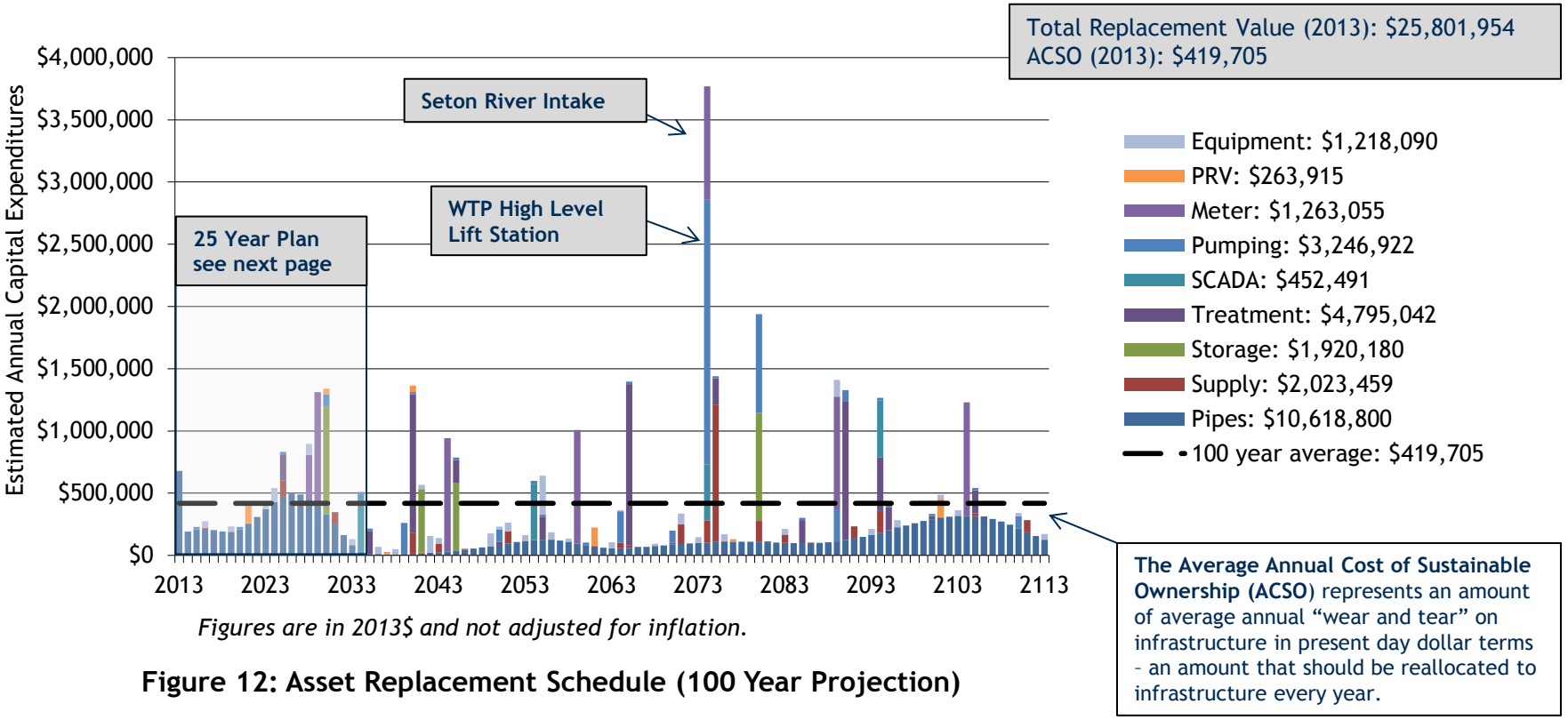
4.1 ANNUAL COST OF SUSTAINABLE OWNERSHIP (ACSO)

4.2 ANNUAL CONTRIBUTIONS FOR ASSET REPLACEMENT (ACFAR)

4.3 GENERAL WATER FUND ANALYSIS

4.1 Annual Cost of Sustainable Ownership

The chart below represents a scenario for replacement of infrastructure over the next 100 years based on current estimated replacement values shown in the legend at the side. The average cost over the 100 year period is represented by the dashed line.

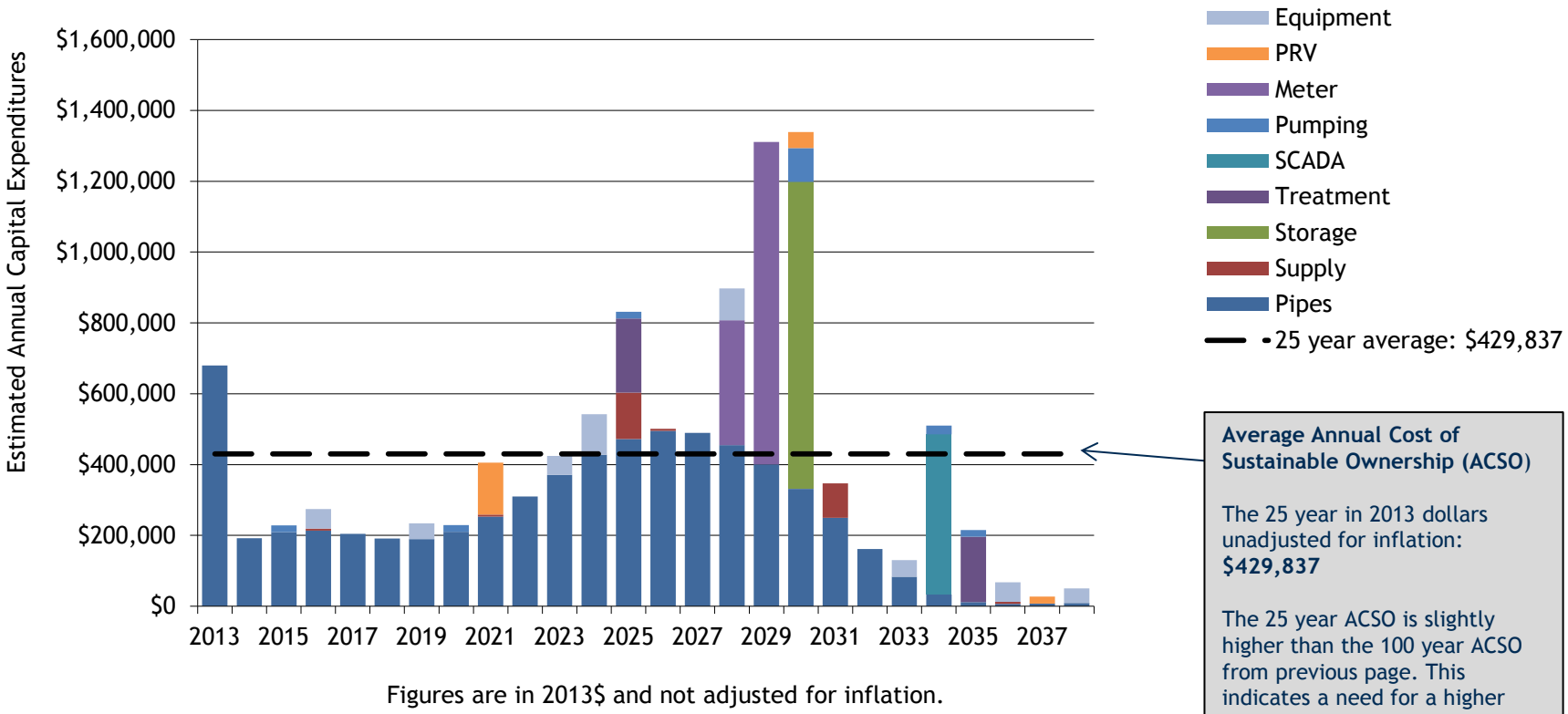


Figures are in 2013$ and not adjusted for inflation.

Figure 12: Asset Replacement Schedule (100 Year Projection)

4.1 Annual Cost of Sustainable Ownership (Continued)

This chart shows the replacement schedule from the previous page zoomed in on the first 25 years.



Figures are in 2013$ and not adjusted for inflation.

Figure 13: Asset Replacement Schedule (25 Year Projection)

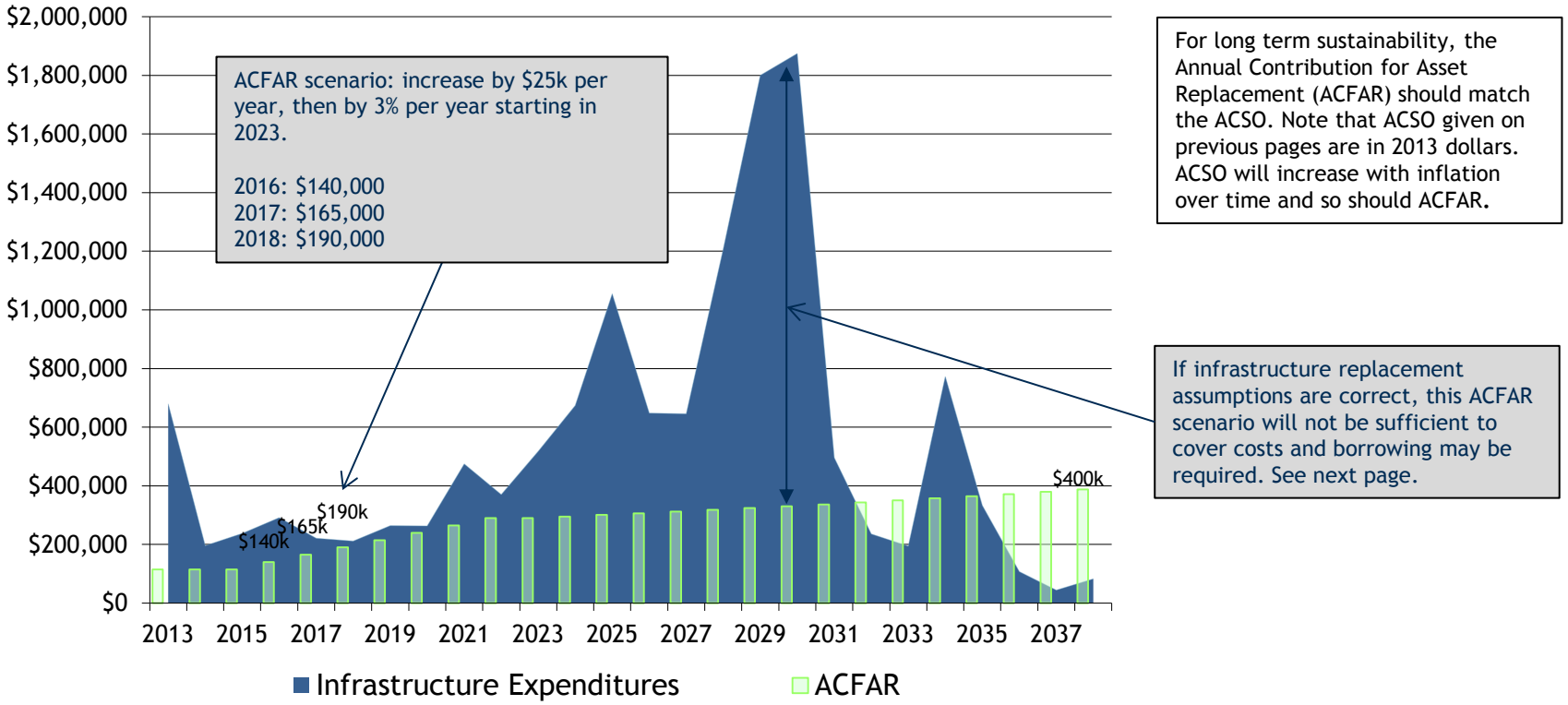
Average Annual Cost of Sustainable Ownership (ACSO)

The 25 year in 2013 dollars unadjusted for inflation: **$429,837**

The 25 year ACSO is slightly higher than the 100 year ACSO from previous page. This indicates a need for a higher ACFAR in the short and medium term (ACFAR is explained on the next page).

4.2 Annual Contribution for Asset Replacement (ACFAR)

This chart shows a scenario for Annual Contributions for Asset Replacement (ACFAR) over the next 25 year period. Note that unlike the figure in previous page, expenditures shown here are adjusted for inflation at 2% annually.

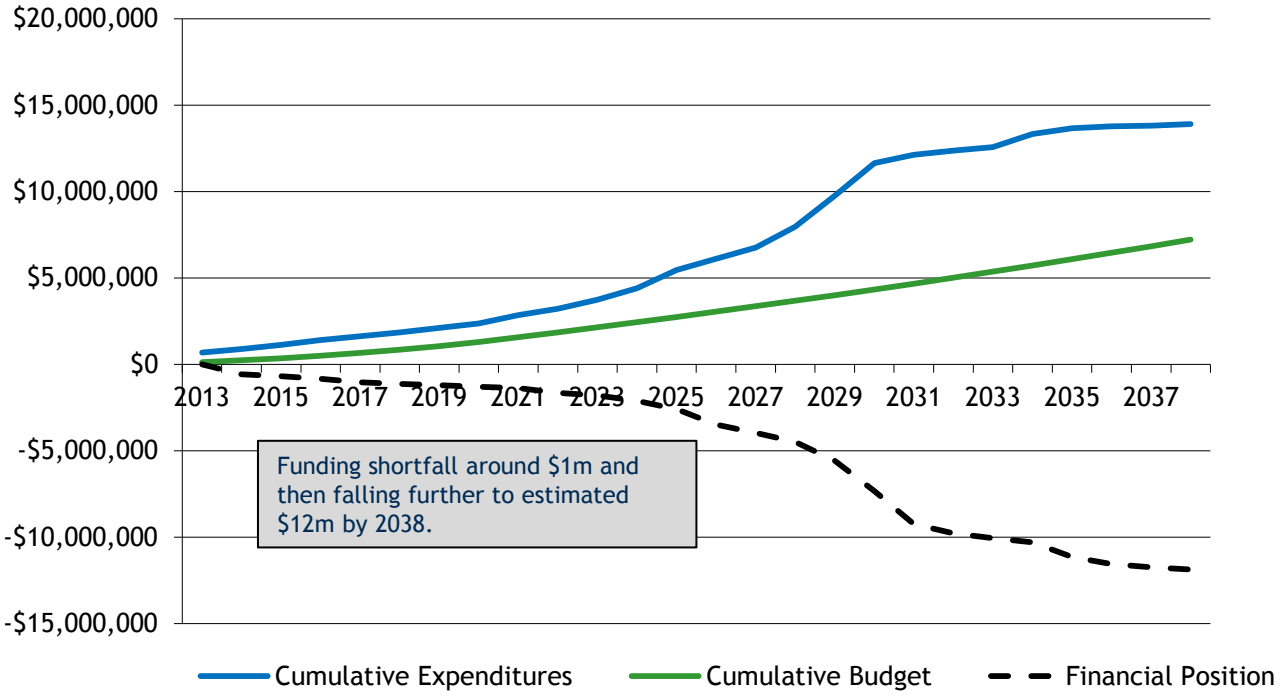


Figures are adjusted for inflation.

Figure 14: Annual Contributions for Asset Replacement (25 Year Scenario)

4.2 Annual Contribution for Asset Replacement (continued)

This chart compares projected infrastructure expenditures with available budget (ACFAR). The dashed line represents the financial position, or net fund balance. **A financial position falling below zero implies insufficiency funding, or the need to borrow funds, or the need to defer the infrastructure expenditures.**



ACFAR contributions may need to be increased more aggressively in short term to develop sufficient infrastructure replacement budget.

Asset replacement values and estimated service life of assets should be reviewed regularly and adjusted to ensure replacement schedule is an accurate reflection of reality.

Figures are adjusted for inflation.

Figure 15: Financial Position Projection (25 Year)

4.3 General Water Fund Analysis

This chart summarizes revenues, grants, developer contributions, operating expenses, asset renewal and future capital project costs over the next 20 years. The model assumes increases to water rates as shown in the accompanying table below. Note that this is an example scenario and not a recommended course of action.

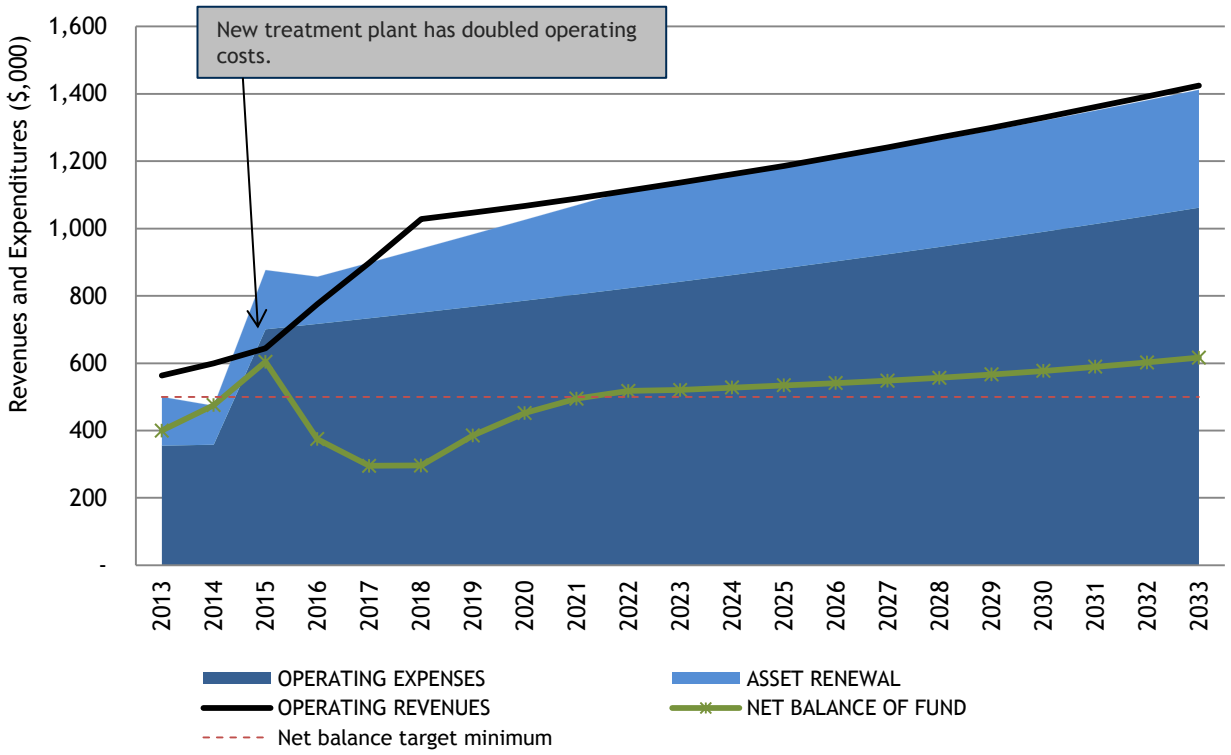


Figure 16: Revenues and Expenditures (20 Year Projection)

Table 3: Example Scenario - Annual Increases to Water Rates & Taxes

Year	Increase to User Fees	Increase to Taxes
2016	+20%	2%
2017	New Rates	2%
2018	+18%	2%
2019	+2.8%	2%
2020	+2.8%	2%
2021	+2.8%	2%

ACFAR increasing to $140k starting in 2016, and growing to $350k by 2033.

Net balance target minimum (surplus carried over year to year for contingencies) set to $500k.

Fund balance starting $400k in 2016 and drops as low as $300k by 2018 and returns to minimum target ($500k) by 2023.

5.0 COST OF SERVICE

5.1 LEVELS OF SERVICE
5.2 COSTS OF SERVICE
5.3 APPORTIONING UNITS OF SERVICE
5.4 COST ALLOCATION

5.1 Levels of Service

Water services can be subdivided into subset Service Components as shown in the table below. The Level of Service provided through each component is described in the table and the Units of Service shown. The costs apportioned to each Service Component is shown and the total adds up to the total expected revenues for the year. The Cost of Service divided by the Units of Service gives the Unit Cost of Service. Unit Costs are applied to each customer category commensurate with the portion of Units of Service "consumed" by the category. More information is provided on subsequent pages.

Table 4: Levels of Service (Based on 2016 Projection)

Service Components	Level of Service Description	Units of Service	Cost of Service	Unit Cost of Service
Administration	Administrative including: management, planning, call support, & billing	957 billed accounts	$137,561	$143.74 per bill
Service Connections	Connection-based costs including meter maintenance	1,609 equivalent meters	$19,465	$12.10 per equiv. meters
Base Service	Basic operations: supply, treatment, storage, and distribution	511,707 m^3	$420,734	$0.82 per m^3
Max Day Extra Capacity	Costs associated with peak-period demand	1,682 m^3/day	$95,166	$56.57 per m^3/day
Total Cost			$672,926	

5.2 Cost of Service

The cost of service is re-calculated separately for each year throughout the 20 year time horizon so that inflation as wells as projected changes in demand are taken into consideration.

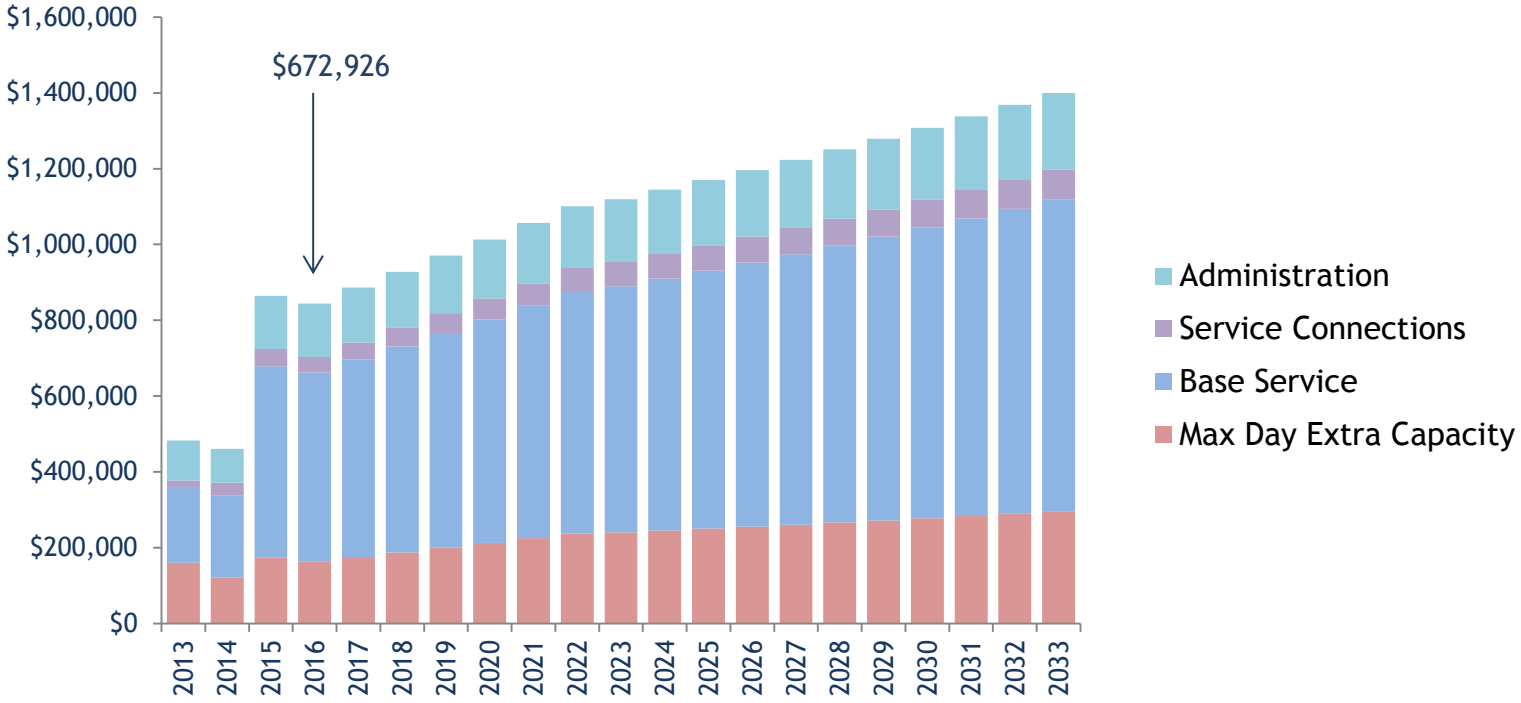
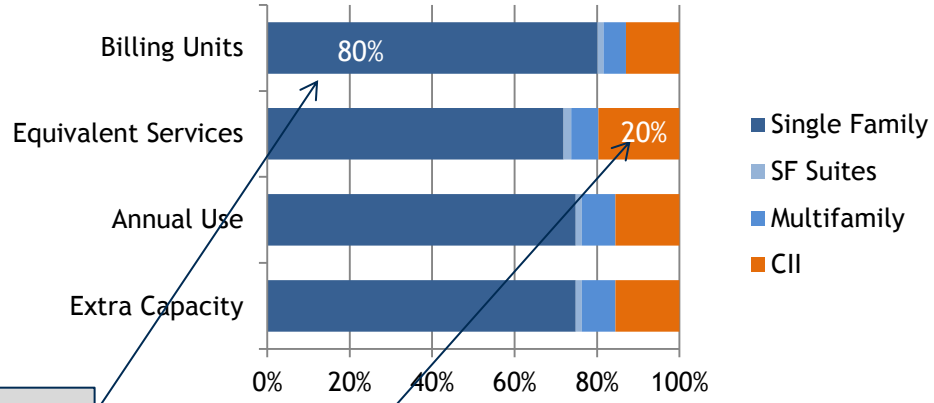


Figure 17: Cost of Service Components Over 20 Years

5.3 Apportioning Units of Service

The Units of Service shown in the table at the left are "consumed" in varying amounts by the different customer categories. The chart at the right shows the proportion of "consumption" by each customer category.

Service Components	Units of Service
Administration	957 billed accounts
Service Connections	1,609 equivalent meters
Base Service	511,707 m^3
Max Day Extra Capacity	1,682 m^3/day



Because there are a disproportionately greater number of Single Family accounts than other accounts, Single Family customers are responsible for 80% of Administrative costs.

CII customers collectively tend to have larger meters. They are responsible for about 20% of connection based costs.

Figure 18: Units of Service (Based on 2016 Projection) Apportioned to Customer Categories Based on Demand Characteristics

5.4 Cost Allocations

The portion of total Cost of Service allocated to each customer category is determined by "multiplying" a 20 year projection of total Cost of Service to the apportioned Units of Service "consumed".

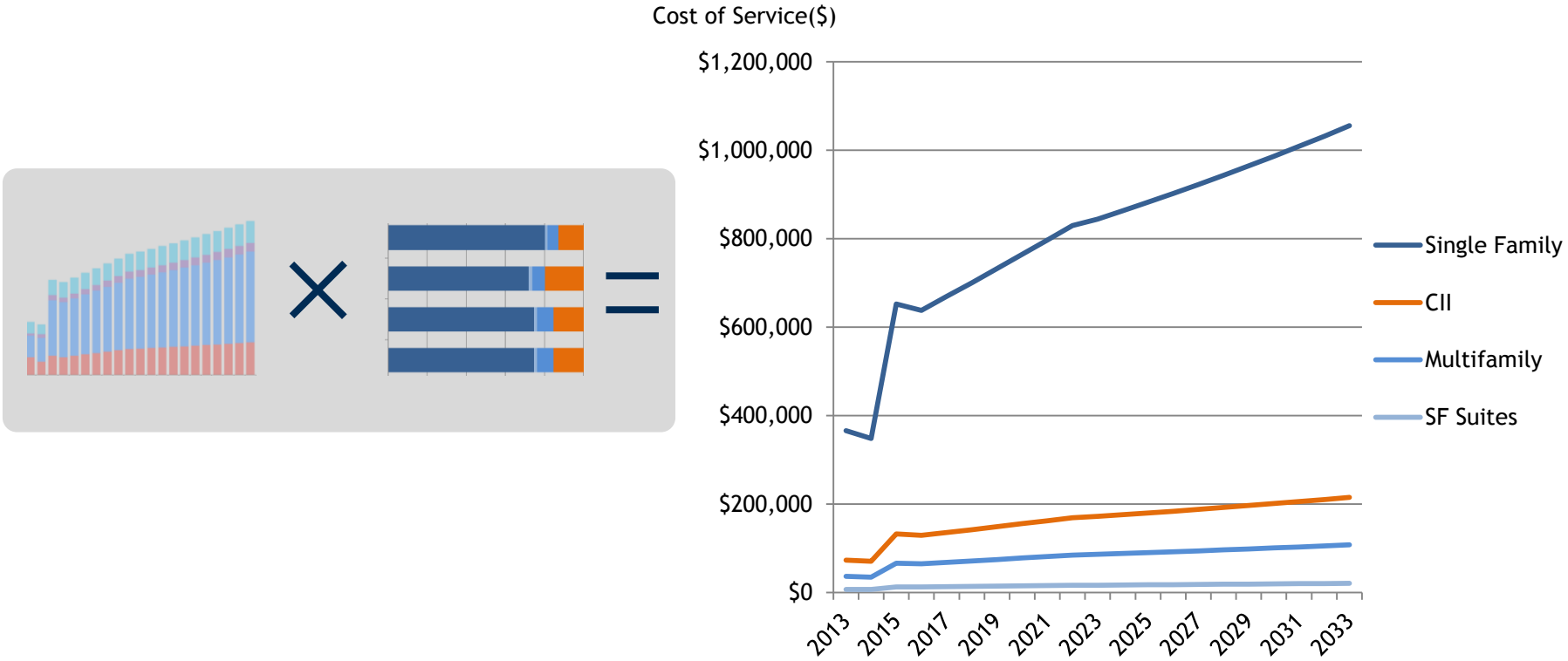


Figure 19: Allocation of 20 Year Costs to Customer Categories

6.0 PROPOSED RATE STRUCTURE

6.1 RATE SCHEDULE
6.2 EQUITY ANALYSIS
6.3 BILLING EXAMPLES

6.1 Rate Schedule

The following table outlines a proposed new rate schedule.

Table 5: Rate Schedule (2017-2018)

	2017		2018
Single Family			
Monthly Fixed Charge	$42.00	18%	$49.56
Additional Charge for Suite	$13.80	18%	$16.28
Variable Charge ($/m^3)	$0.49	18%	$0.58
Multifamily			
Monthly Fixed Charge (per unit)	$13.80	18%	$16.28
Variable Charge ($/m^3)	$0.49	18%	$0.58
Commercial			
Monthly Fixed Charge			
3/4"	$31.50	18%	$37.17
1"	$52.50	18%	$61.95
1.5"	$105.00	18%	$123.90
2"	$168.00	18%	$198.24
Variable Charge ($/m^3)	$0.49	18%	$0.58
Parcel and Frontage Taxes			
North Lillooet Parcel Tax ($/year)	$170.34	2%	$173.75
Central Lillooet Frontage Tax ($/foot/year)	$1.33	2%	$1.35

6.2 Equity Analysis

The figure below shows the average cost of water service for each customer category. The green bars represent the true average cost in the year 2018. The purple bars represent the actual average cost created by the proposed rate schedule for each year leading up to 2018.

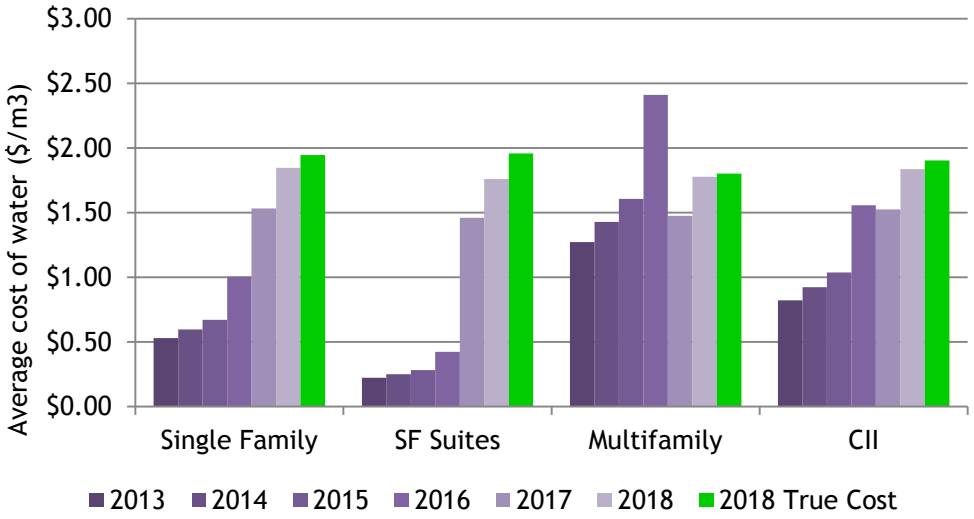


Figure 20: Equity Analysis

With this structure, the District would be on track to achieve rate equity by 2018. Note the slightly lower average true cost for Multifamily and CII. This is due to the fact that "economies of scale" are associated with larger users.

6.3 Billing Examples

The expected changes to the average customer bill are indicated below. This analysis assumes that "mock billing" will take place in 2016 and the new rate structure will be implemented in 2017. Mock bills are ones that show what costs would be under the new rate structure, but continue to actually charge based on the old one. Typically this is done for a year or so, and helps residents clearly understand the new system. It also gives them time to make changes that will help control costs in the future. For example, they may choose to replace inefficient appliances and fixtures in their homes, reduce how much they irrigate outdoors or replace outdated equipment in their businesses. If they do so during the mock billing period, their costs will be lower when the new rate actually kicks in.

Table 6: Average Customer Bills

	Avg. per capita demand (LCD)	Total annual usage (m3/year)	Total Charge 2017
Single Family			
Low consumer	200	163	$584
Mid consumer	470	383	$692
High consumer	750	610	$803
Multifamily			
Mobile home park - low (per unit)	80	65	$197
Mobile home park - high (per unit)	175	142	$235
Apartment - low (per unit)	80	65	$197
Apartment - low (per unit)	175	142	$235
Commercial			
Retail store with 3/4"		75	$452
Larger business with 2"		2000	$2,996

7.0 Findings and Recommendations

7.1 Findings

7.2 Recommendations

7.1 Findings

The following lists some key findings in this report:

1. Population has not changed significantly in past years, a trend that is expected to continue.
2. Current per capita demand is quite high as measured from preliminary meter readings. This is normal for an unmetered community, especially one with a hot and dry climate.
3. Revenue contributions from the multifamily customer category appears to be disproportionately high, and single family residential contributions disproportionately low.
4. Demand will likely decline sharply over the first several billing cycles when volume-based rates take effect. Overall billable demand is likely to decline from the current 650 ML per year to as low as 400 ML per year over the next 10 years. This will be due to a combination of factors including the move to volume pricing, other water conservation measures the District will implement, and natural replacement of older water-using fixtures and appliances in homes and businesses with the more efficient models that now dominate the market.
5. Commissioning of the new treatment plant has significantly increased the District's operations and maintenance costs.
6. The District's water infrastructure has an estimated $25.8m replacement value. A 100-year asset replacement schedule indicates that the Annual Cost of Sustainable Ownership (ACSO) is about $420,000. This implies a 61-year estimated service life for the system as an aggregate whole.
7. Recent Annual Contributions for Asset Replacement (ACFAR) have been about $115,000, amounting to only 27% of the $420,000 ACSO.

7.2 Recommendations

The following lists some recommendations that emerge from this report:

1. With meters now in place and the meter reading process started, the District should endeavor to adopt a volume-based rate at earliest convenience, preferably starting with a mock billing period to get the community accustomed to the new rate structure before it actually takes effect.
2. The rate structure proposed in this report is designed to achieve the following key objectives:
   - keep the rate structure simple (single volume rate applied to all categories) so it is easily understood by the community,
   - Introduce the community to volume-based charges so they can begin to control their consumption and therefore costs, but at a relatively low per-unit rate initially,
   - ensure a high proportion of fixed revenues to mitigate uncertainties during transition.
3. The frequency of reading meters and issuing bills does not need to be the same:
   - monthly meter reading is recommended to provide the best level of information throughout the year to help with system loss and demand management,
   - at minimum, a quarterly billing frequency is recommended* to give customers sufficient information about their consumption patterns to make informed decisions about changing behaviour (noting that more frequent billing (e.g., monthly or bi-monthly) is generally considered best practice from a conservation point of view.
4. Note that the transition from fixed rates to volume rates may cause a one-time cash flow delay. Current rates are prepaid for the year which means revenues are generated prior to customers consuming water. Under the new rate structure, about 30% of the revenues (the volume-based component) will be billed after consumption not prior to consumption; meaning, receipt of those funds will be delayed by one billing period. The District should ensure that it reviews its operating budget for this transition year in anticipation of this funding delay.

*Note: the fixed portion of the rate structure is given as a monthly amount to give the billing frequency flexibility. For example, if a quarterly billing frequency is chosen, the base charge would be multiplied by three; for semi-annual, multiplied by six…

7.2 Recommendations (continued)

5. It is important in the first few years to continue regular metering and track demand patterns as they change (typically on an average decline) to ensure rates are adjusted in response to maintain sufficient revenues.
6. As demand patterns settle, the rate structure should be revisited and adjusted to continue to ensure equity between customer categories and to promote further conservation: for example, introducing inclining and/or seasonal block rate structures or increasing the variable component (which will encourage conservation and reduce amount of fixed revenues).
7. The assumptions on which ACSO is calculated should be reviewed regularly. This includes the estimated service life of assets, unit cost for pipe replacement and other pricing assumptions. A system loss management program should include leak detection and condition assessment activities on assets to gain a better understanding of the remaining life of certain assets. Special attention should be paid to those assets that are already nearing the latter stages of service life. Maintaining a confidence in ACSO accuracy will help to support the rationale for increasing ACFAR to meet ACSO.
8. The District should maintain and keep current its 20 year Long Term Financial Model (LTFM) so that decision makers are well-informed of the long term financial health of the water utility.
9. Capital planning activities regarding both new assets and asset renewal should continue to be linked with the Long Term Financial Model to ensure accuracy of the overall financial picture.

Appendix 1: Terminology

Definitions for some technical terms and acronyms used in this report.

Cost of Service: this term means how much it costs to deliver a service, and more specifically, how much it costs to deliver the service to a particular group of customers.

Cost Responsibility Redistribution: this term means making adjustments to rates and charges so that one customer category will pay less while another category will pay more. The net effect on overall revenues is typically nil.

Full Cost Recovery: this term means that the sources of revenues to the service are fully covering the costs of owning, maintaining and operating the service, particularly the costs of renewing infrastructure.

LCD: Litres per capita per day. This unit is used to measure consumption on a per person basis. While overall demand may be increasing with population, the LCD is typically decreasing as water efficiencies are gained.

Meter Equivalency Ratio: a numerical comparison of different meter sizes with the smallest available meter typically having a value of 1 and larger meters being equivalent to so many base meters. Eg: a 2" meter is equivalent to 8 5/8" meters. CWWA and AWWA provide guidelines for Meter Equivalency ratios.

Water Volume Measures Used in This Report

The illustrations below are provided to help readers understand how much water is in the standard units of measure employed in this report

The Cubic Meter

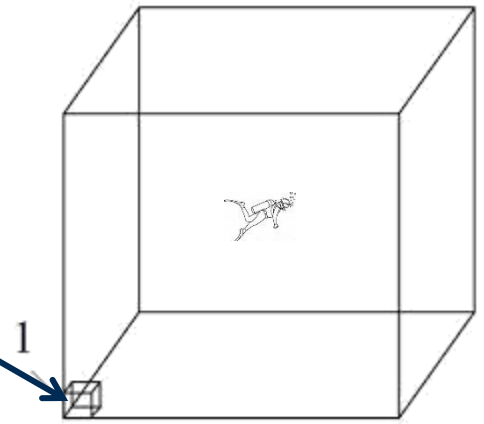
1,000 Litres = 1 cubic meter (m^3)

These 5 rain barrels add up to about a cubic meter

Five bath tubs full of water is about equal to a cubic meter.

One Megalitre

1,000 cubic meters



Olympic Size Pool

2.5 ML = 2,500 m^3 or 2.5 million Litres