Water Rates Review

District of Lake Country

October 2014 (FINAL DRAFT)

Prepared for	Prepared by
LAKE COUNTRY Life. The Okanagan Way.	econics

powered by waterworth™

Table of Contents	Page #
1.0 Introduction	3
2.0 Baseline Water Use	4
3.0 Demand Forecast	14
4.0 Revenue Requirements Forecast	21
5.0 Rate Scenarios	23
6.0 Summary and Recommendations	38
7.0 References	39

Contributors to the Project

Econics would like to thank District staff for assistance and support with this project.

powered by waterworth™

Econics services are delivered using WaterWorth™ v2.6: a proprietary modeling tool that facilitates analysis, forecast and development of rate structures. Find out more on our website at Econics.com.

1.0 Introduction

This report provides a review of water rates and proposes scenarios for new rates to be introduced during a mock billing period in 2016 and to then take effect in a new bylaw for 2017. This project follows from and is a part of the broader universal metering project currently underway. Objectives for the metering project have been identified as follows:

1. Reduced water consumption (WMP-25%)
2. Environmental stewardship
3. Better equipped to deal with water shortages
4. Increased chances at receiving senior level government grants for infrastructure projects
5. Reduced cost for future infrastructure
6. Pay for what you use billing structure
7. Cross connection control

2.0 DISTRICT OF LAKE COUNTRY BASELINE

2.1 CUSTOMER CATEGORIES
2.2 POPULATION
2.3 SERVICES AND ACCOUNTS
2.4 BILLABLE DEMAND
2.5 MONTHLY DEMAND MODEL
2.6 RESIDENTIAL PER CAPITA DEMAND
2.7 REVENUES
2.8 PERFORMANCE

2.1 Customer Categories

Customer Category Name	Description
Single Family Residential	A service connection to a dwelling where water used for domestic purposes by A SINGLE domestic unit. May include a legal secondary or accessory suite. Includes bare land stratas and other stratas where each unit has its own meter.
Single Family Strata Residential	A service connection serving one or more dwellings where water used for domestic purposes IS SHARED by more than one domestic unit. May include condominium apartments, duplexes and row housing. Metered consumption is apportioned equally among the units for purposes of calculating the billing.
Multifamily Residential	A service connection to a dwelling where water used for domestic purposes IS SHARED by more than one domestic unit. Includes rental housing, housing societies, mobile home parks, and other entities serving multiple domestic units where there is only one owner. A single bill is sent to the entity that owns/manages the building.
ICI	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. Some ICI customers serviced by the Lake Country system are in the jurisdiction of Kelowna. They are treated just like other DLC ICI customers.
Agricultural	The beneficial use of water for purposes of agricultural farming and livestock where the property is recognized as having farm status by BC Assessment. An Agricultural rate is designed on the basis of land area irrigated to ensure sufficient amount of water for irrigation is provided. Policy: a) Specific definition of eligibility for this customer category (BC assessment class 09)
Seasonal Irrigation	Properties that do not have farm status and that have >2 acres of land and an irrigation connection (even though current watering rights may be <2acres) that can potentially be irrigated. Includes gardens, parks, golf courses, cemeteries and other large green spaces.
Vacant	Properties that have service availability at the curb but no use currently on the property. An availability charge is levied to cover costs of maintaining the service connection.
Bulk	Current agreement with City of Kelowna (Carrion Road) to supply water to a subdivision consisting of commercial and domestic use.

2.2 Population

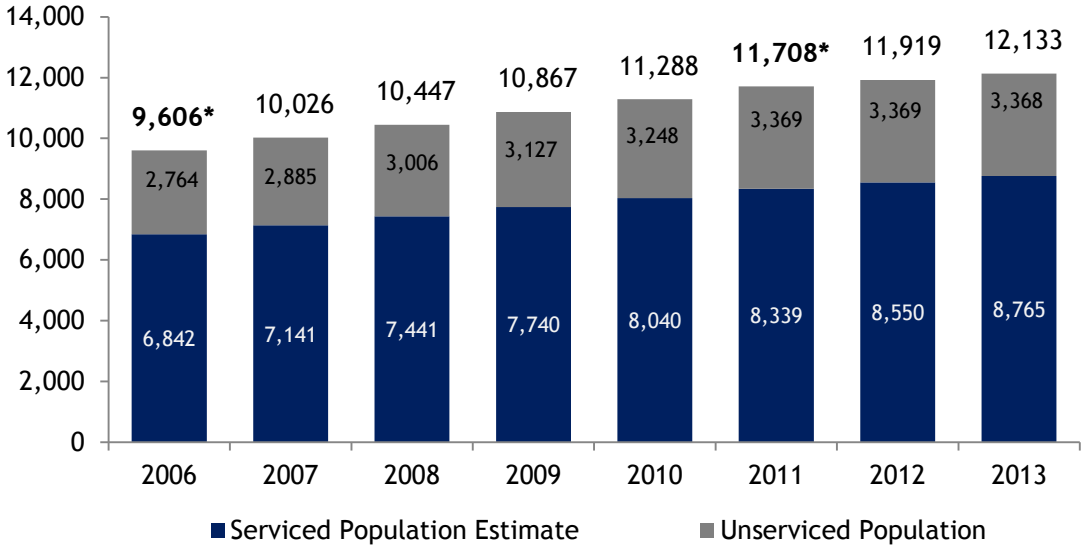
Table 1 below displays the population estimates for each residential customer category that was serviced by the District of Lake Country system in 2013. These were calculated by multiplying the number of domestic units in the water billing data by the dwelling density for each housing type.

Table 1: Customer Category Serviced Population Estimates 2013

Customer Category	Domestic Units	Density	Suites	Density	Serviced Population
Single Family	683	2.34	120	1.70	1,805
Single Family Strata	505	2.00			1,010
Unmetered Single Family	2,210	2.34	180	1.70	5,486
Multifamily	174	1.70			296
Unmetered Multifamily	99	1.70			168
total	3,671		300		8,765

2.2 Population (Continued)

Figure 1 illustrates both unserviced and serviced population estimates between 2006 and 2013. These were calculated using Statistics Canada Census data for District of Lake Country between 2006 and 2011. Starting in 2012, a 1.8% growth rate is applied to the total population, however, new population are added only to the serviced population figure.



* Statistics Canada Census Population for District of Lake Country (including unserviced population)

Figure 1: Estimated Serviced Population and Total Population (2006-2013)

Note that for the purpose of this report, the unserviced population in District of Lake Country remains constant starting in 2011, at about 3,370, representing about 28% of total 2013 population.

2.3 Services and Accounts

Table 2 below provides a breakdown of the metered and unmetered customers and shows metered and estimated consumption for each customer category for 2013. These are accompanied by metrics indicating per unit pricing and per capita water demand. Customers with the largest consumption include: Unmetered Agriculture, Unmetered Single Family and Unmetered Seasonal Irrigation. Customers contributing the most towards revenues include metered and unmetered Single Family and Commercial.

Table 2: Customer Category Water Usage and Pricing (2013)

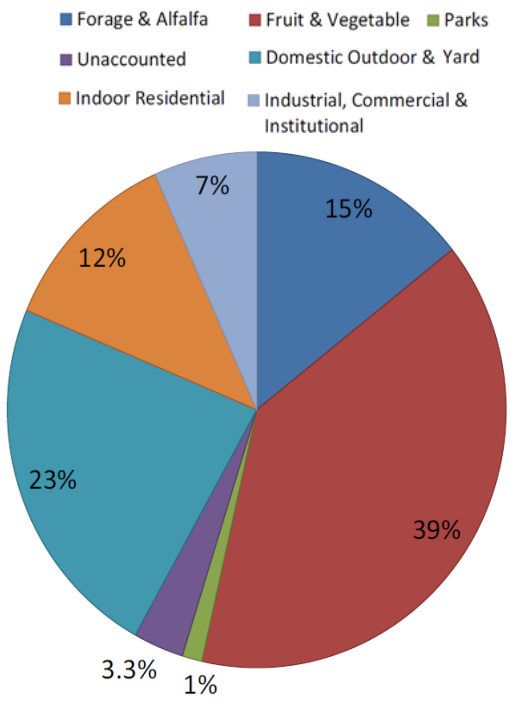
Customer Category	# of Accounts	Period 32 Metered	Period 33 Metered	Total Usage	Sum of Bills	$/m3	L/Person/ Day
Single Family	683	91,546	196,484	288,030	398,378	1.38	430
Single Family Strata	505	36,293	49,107	85,400	255,590	2.99	232
Multifamily	5	10,248	12,200	22,448	76,703	3.42	208
Commercial	73	80,863	81,780	162,643	102,709	0.63	
Unmetered Single Family	2,082			1,311,580	1,327,555	1.01	658
Unmetered Multifamily	4			12,772	58,799	4.60	209
Unmetered Commercial	92			429,168	175,440	0.41	
Unmetered Agriculture	352			4,649,945	204,584	0.04	
Fire Protection	17				13,500		
Bulk	1	6,053	6,053	12,106	22,200	1.83	
Metered Seasonal Irr.	3	7,042	7,977	15,019	10,925	0.73	
Unmetered Seasonal Irr.	183			1,186,337	54,330	0.05	
Vacant	264				22,510		
Non- Revenue Water (NRW)				278,997			
Total	4264	232,045	353,601	8,454,445	2,723,222		

Notes:

- Periods 32 and 33 reflect only metered consumption; these span Oct 1, 2012 to Sept 30, 2013, however are assumed to be 2013 usage
- Total usage equals total 2013 production 8,454,455 less 3.3% non-revenue water
- Unmetered Single Family demand assumed to be 1.5 times the metered Single Family per account demand
- Unmetered Multifamily demand was assumed to be equal to the metered Multifamily per account demand
- Unmetered Commercial demand was calculated such that total Commercial demand equalled 7% of total production
- Unmetered Agriculture demand was calculated as 55% of total water production, as per the Water Master Plan
- Unmetered Seasonal Irrigation was calculated by apportioning the remaining usage so that the usage total added up

2.4 Billable Demand

Below are two breakdowns of water use by each customer category. Figure 2 is from Lake Country's Water Master Plan and Figure 3 was constructed using the 2013 billing data. Although the categories differ slightly between the two figures, the proportions of total water production consumed by each community sector are very similar. The primary difference in the new breakdown is that several new categories were created. Seasonal Irrigation accounts for connections that use large volumes for irrigation but do not have agricultural status. Fire Protection and Vacant lot customers are not graphed as they do not consume water.



Source: District of Lake Country (2012)

Figure 2: Water Master Plan Water use by Category

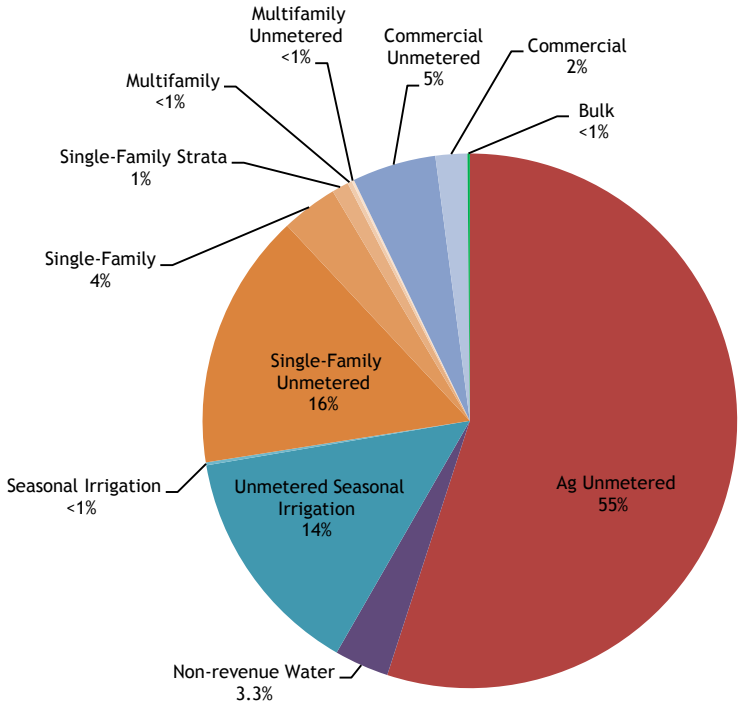


Figure 3: 2013 Water use by Customer Category. Total 2013 Production = 8,454,455 m3

2.5 Monthly Demand Model

Figure 4 below is a model of how metered and estimated consumption presented in Table 2 and Figure 3 may be apportioned on a monthly basis.

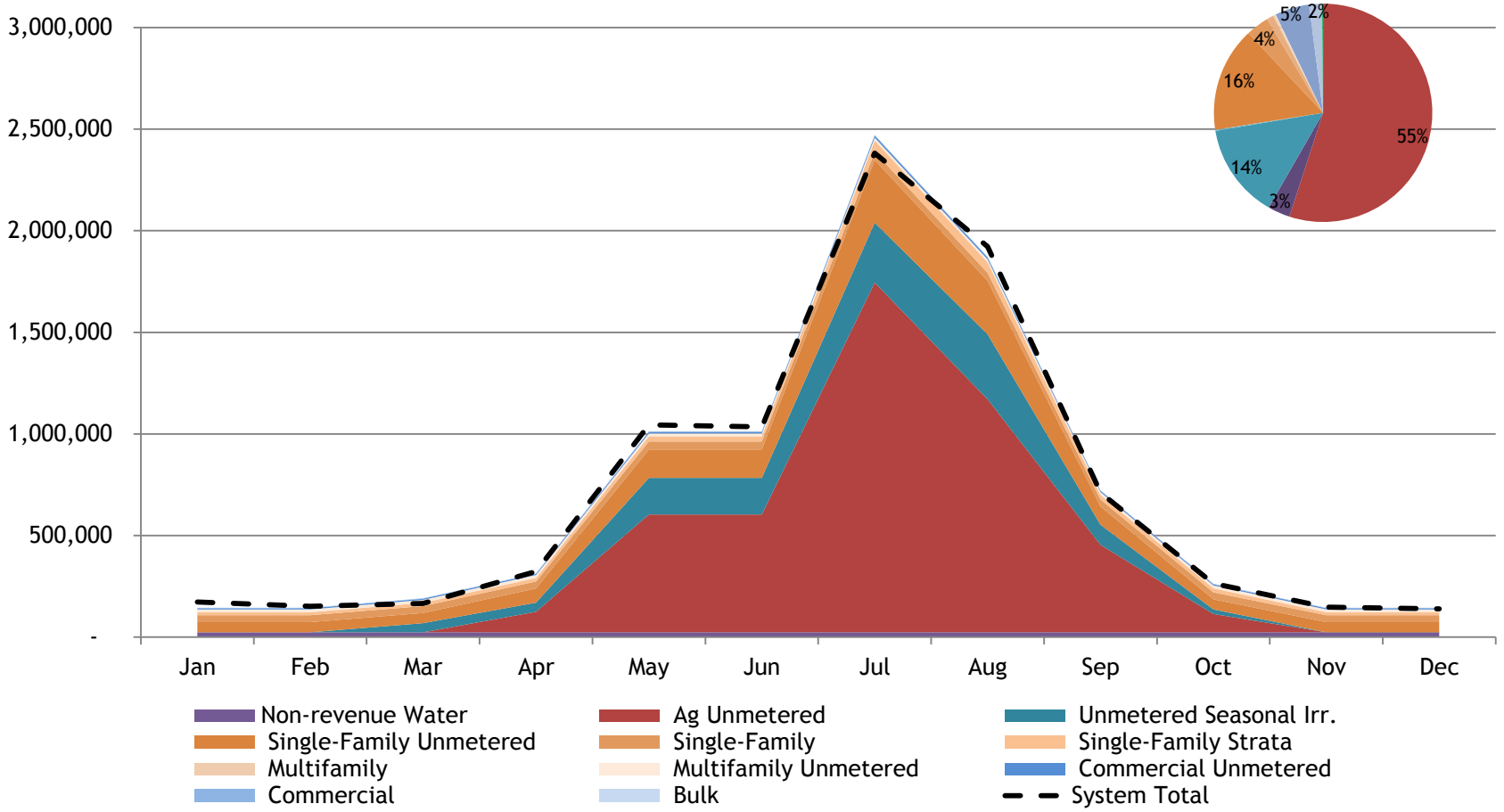


Figure 4: Modelled 2013 Monthly Demand by Customer Category (2013) Compared with Total 2013 Production = 8,454,455 m3

2.6 Residential per Capita Demand

Measuring per capita demand is a widely recognized way to assess the relative efficiency of water use within a community. It enables a community to compare its water use with other communities as shown here.

As to be expected, Multifamily per capita demand is lower than Single Family, and metered users have lower demands than unmetered users in the Single Family sector. Compared to the Canadian metered and unmetered averages , Lake Country's demands are slightly higher for single-family subsectors, which is likely due to the prevalence of outdoor irrigation.

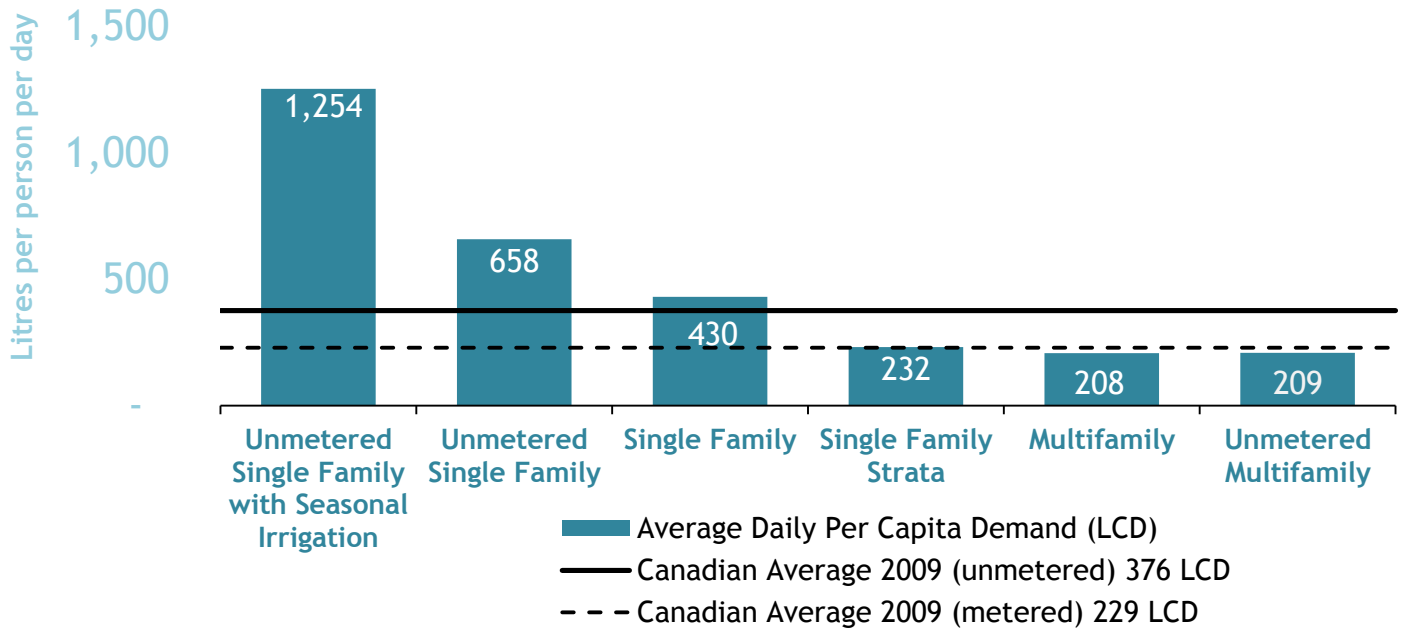


Figure 5: Per Capita Demand of Residential Subsectors (2013)

2.7 Revenues

The total revenues from user rates in 2013 was $2,723,222. The contributions from each customer category are displayed in Figure 6.

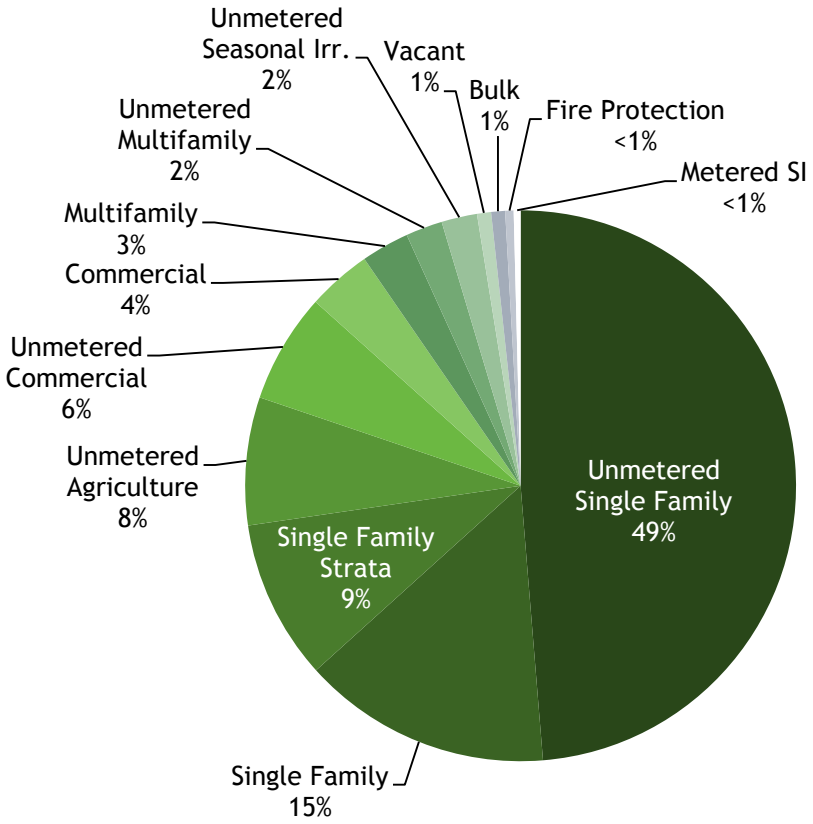


Figure 6: Revenues by Customer Category (2013)

2.8 Performance - Equity

Figures 7 and 8 provide simplified indicators of equity. Figure 7 compares water demand with revenue contribution. Figure 8 compares average cost of water of the categories. Single Family and Multifamily customers are paying the highest average cost of water. For example, Unmetered Single Family accounts for about 16% of total demand and contributes 50% of the total revenue, whereas Unmetered Agriculture accounts for 57% of total demand and contributes 7% of the total revenue.

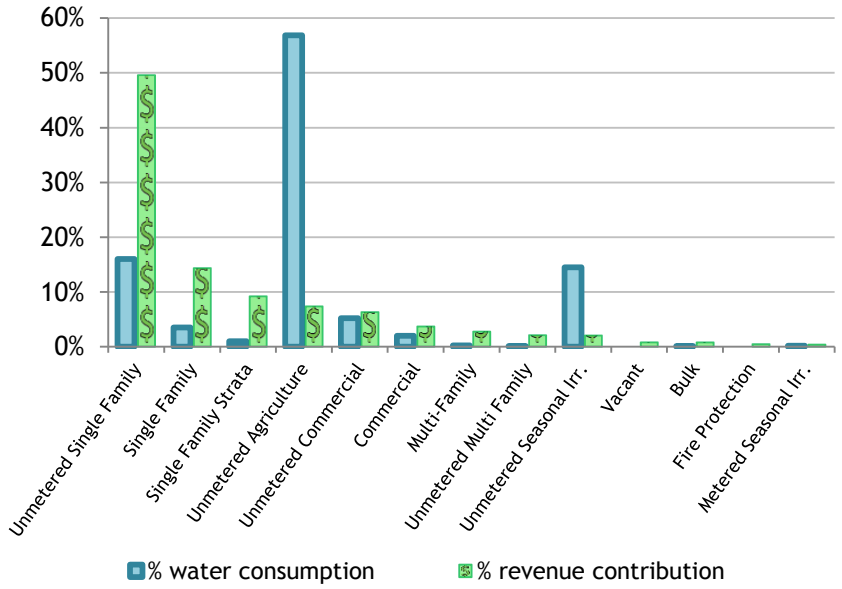


Figure 7: Comparison of Water Use and Revenue Contribution (2013)

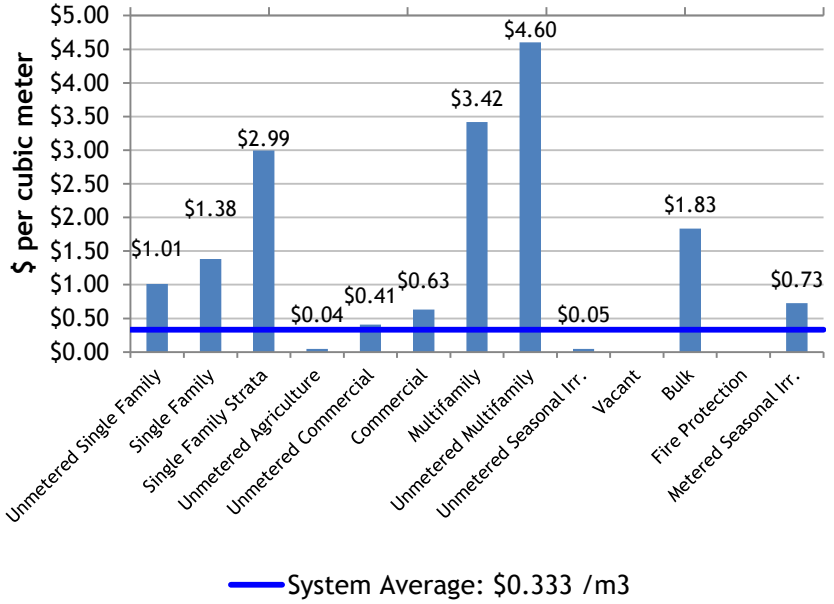


Figure 8: Average Price of Water by Category (2013)

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 sector is calculated by dividing the revenue collected from that sector by the volume of water delivered to customers in that sector.

3.0 DISTRICT OF LAKE COUNTRY PROJECTIONS

3.1 POPULATION FORECAST
3.2 PER CAPITA DEMAND FORECAST
3.3 CUSTOMER AND TOTAL DEMAND FORECAST
3.4 RATIONALE FOR DEMAND DECREASES

3.1 Population Forecast

The forecasted serviced and unserviced populations for District of Lake Country between 2011 and 2036 are displayed in Figure 9. Growth of serviced population determined by growing total District population by 1.8% per annum (9.3% every five years) and applying the new population to serviced population only. Unserviced population growth is assumed to be negligible and shown below as remaining constant. This results in an effective annual growth rate of serviced population of 2.5% eventually decreasing to about 2.2% growth in later decades.

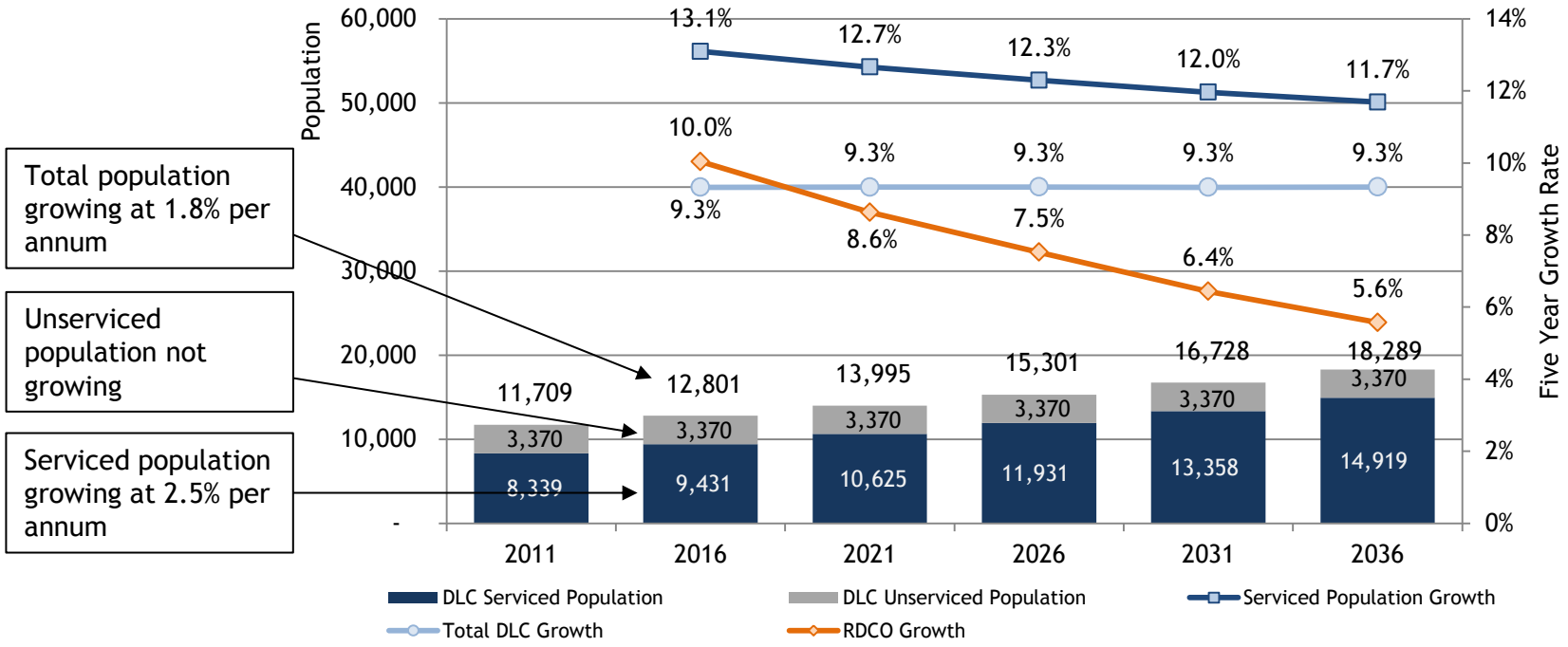


Figure 9: Serviced and Unserviced Forecasted Population for District of Lake Country (2011-2036)

3.2 Per Capita Demand Forecast

Per capita consumption trends in each customer category are shown in Figure 10. Per capita demand has decreased in recent years mainly across residential customer categories as a result of changes in controls such as fixture efficiency, user behaviour change, and local regulations. These factors will likely continue to reduce per capita demand (albeit at a slower rate as time progresses) as demonstrated by the gradually decreasing demands. Unmetered customers are also expected to experience a significant drop in 2017 as they switch from a flat-rate to a volumetric rate structure.

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 several billing cycles 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.

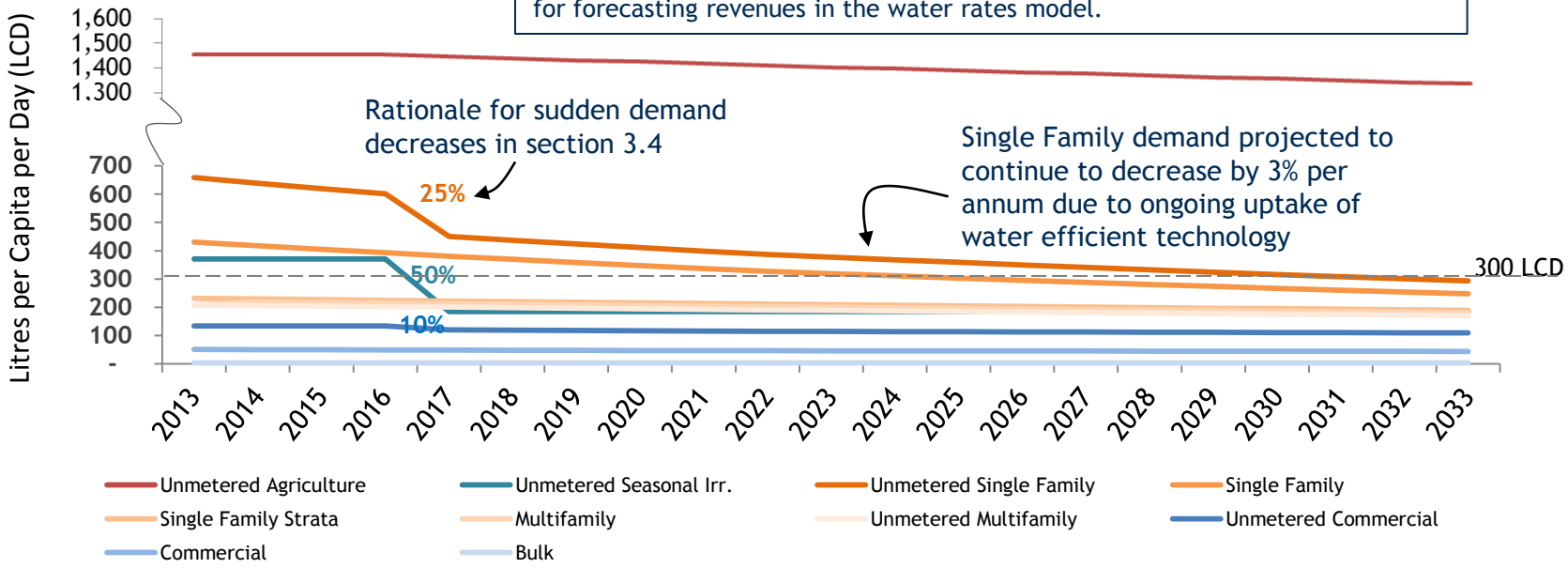


Figure 10: Customer Category per Capita Demand Forecast (2013-2033)

3.3 Customer and Total Demand Forecast

The forecasted billable demand shown in Figure 11 is developed using population forecast (Figure 9) and forecasted daily per capita demands (Figure 10). This illustrates that total system demand is expected to experience a reduction in 2017 due to the implementation of volumetric rates for all customers, and slowly increase thereafter as a result of population growth. This figure is in line with WMP 2030 total annual demand projection of 10,000 ML.

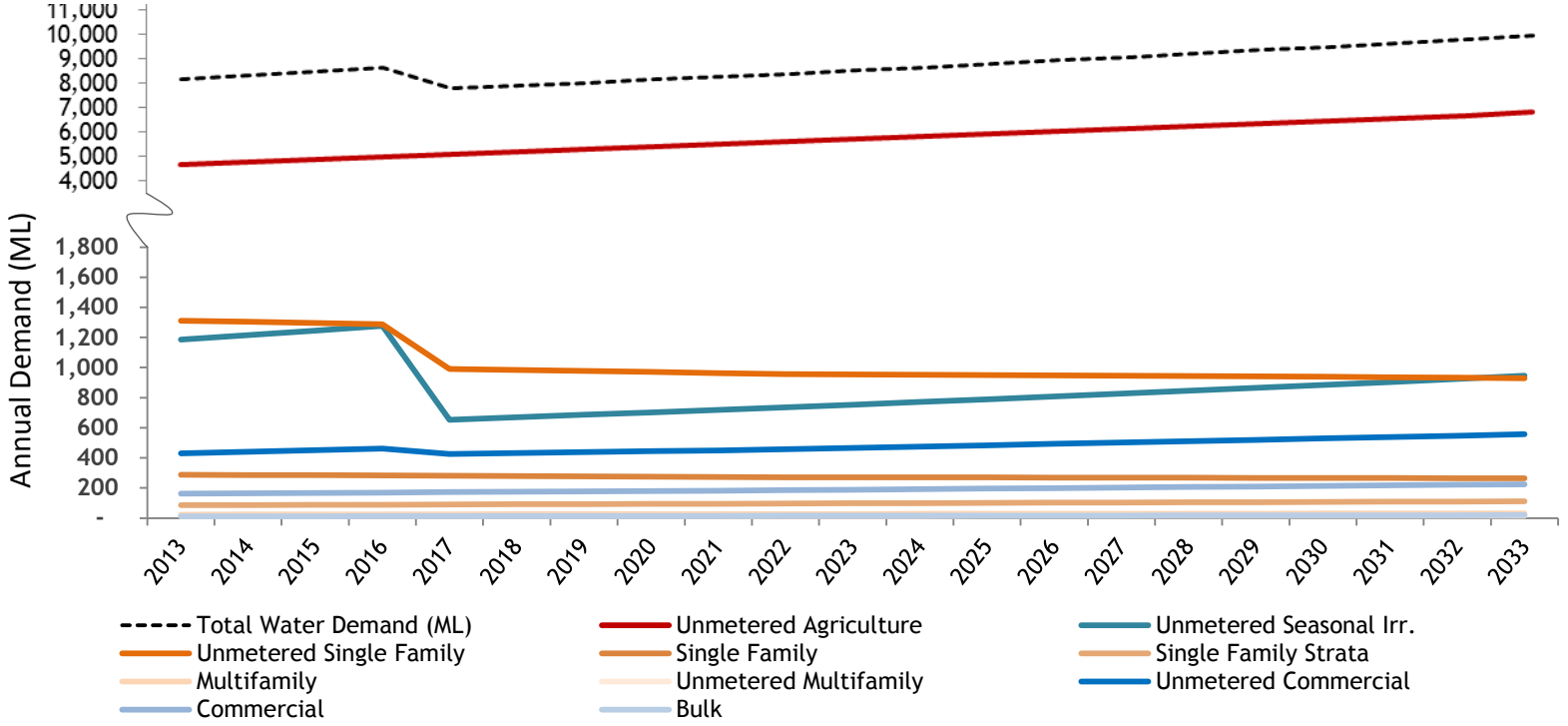


Figure 11: Customer Category and Total Demand Forecast (2013-2033)

* Response to volumetric pricing is likely to happen over several billing cycles spanning through 1 or 2 years and may not actually happen all at once as shown in the model. The model is purposely being conservative.

3.4 Rationale for Demand Decreases

The following subsections discuss the rationale for the amount of decrease in demand modeled due to response by customers to introduction of volume based pricing.

3.4.1 Unmetered Agricultural

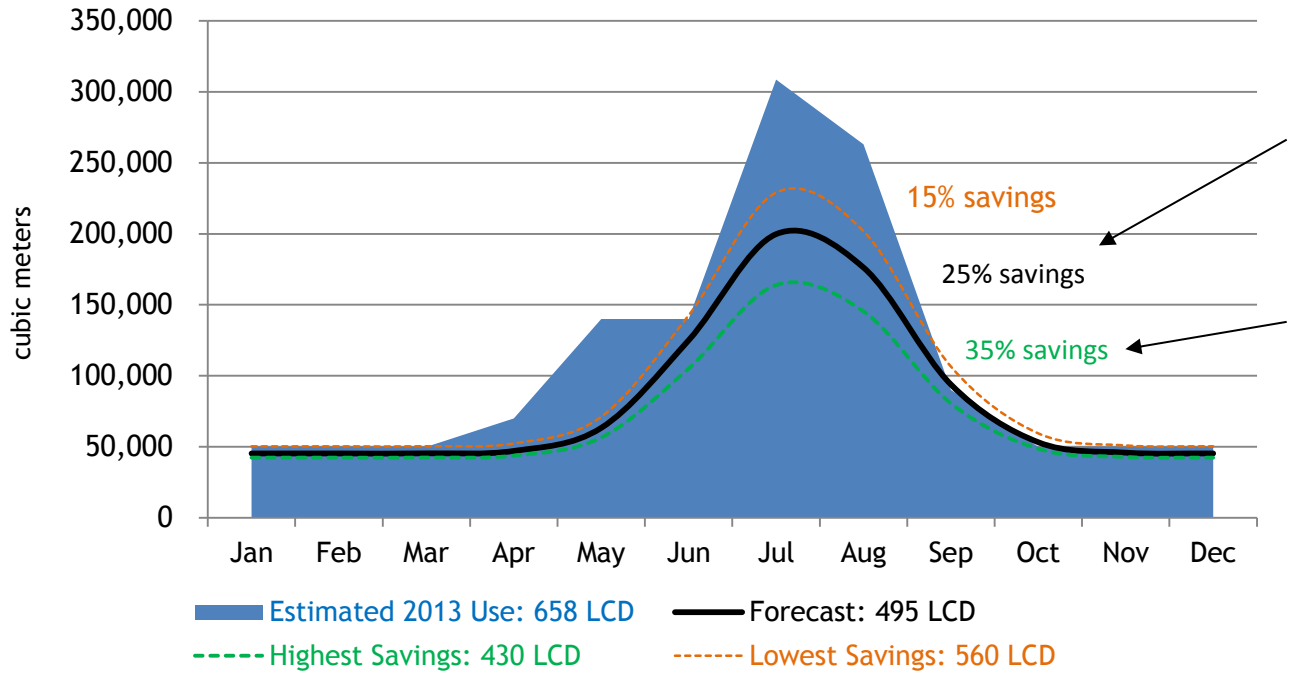
Some decrease in agricultural demand is expected over time especially if the rate structure changes from a flat rate to a volume-based rate. The rationale for the amount of decrease is as follows:

- Current estimates in MWP suggest that agricultural water use accounts for 55% of total water production: equal to about 4,650 ML. (see table 2)
- There are 352 agricultural accounts collectively representing 2,461 acres of land with farm status as classified by BC Assessment.
- Ongoing improvements in farming practices should result in reductions in water consumption.

3.4 Rationale for Demand Decreases (continued)

3.4.2 Unmetered Single Family Monthly Demand Forecast

Figure 12 shows current estimated demand for unmetered Single Family residential customers in the blue shaded area. The solid black line shows what this demand curve would look like in the future given a 25% decrease. This decrease is almost entirely applied to the seasonal component of the demand. A small, almost negligible change is applied to the winter (indoor fixed) demand. This model informs the assumptions for the overall LCD reductions and total demand projections on pages 16 and 17.



For purpose of forecasting future demand, a 25% savings rate is used as a response to the volumetric pricing. This is a common experience for most communities introducing metering to residential customers.

A 35% savings would result in 430 LCD - equivalent to the per capita demand of the currently metered Single Family customers. However, because the unmetered Single Family customers typically have larger lots and older homes, it is more likely that there will be a 25% savings than a 35% savings.

Figure 12: Estimated Single Family 2017 Demand and Savings Forecasts

3.4 Rationale for Demand Decreases (continued)

3.4.3 Unmetered Seasonal Irrigation

Up to a 50% decrease is expected based on observations at the Regional District of Central Okanagan and District of Lake Country estimates.

3.4.4 Unmetered Commercial Demand

Based on observations in other jurisdictions, a 10% decrease in commercial demand forecasted.

Notes:

- Due to broad variance in size and types of ICI customers it is difficult to estimate and analyze consumption patterns for unmetered commercial customers.
- Because this customer category represents a small amount of water use, any inaccuracies in predicting savings will not have a significant impact on revenues.
- Commercial customers typically don't have as high an elastic response to pricing as do residential customers. This may be explained by suggesting that there may not be as much discretionary commercial water use as there is discretionary residential water use.

4.0 REVENUE REQUIREMENTS FORECAST

4.0 Revenue Requirements

This figure shows the projected revenue requirements referenced directly from the Water Master Plan Total Rate Revenue (projected). The proposed increases to revenues for the next few years are shown in the table.

Figure 13: Projected Revenues from User Fees.

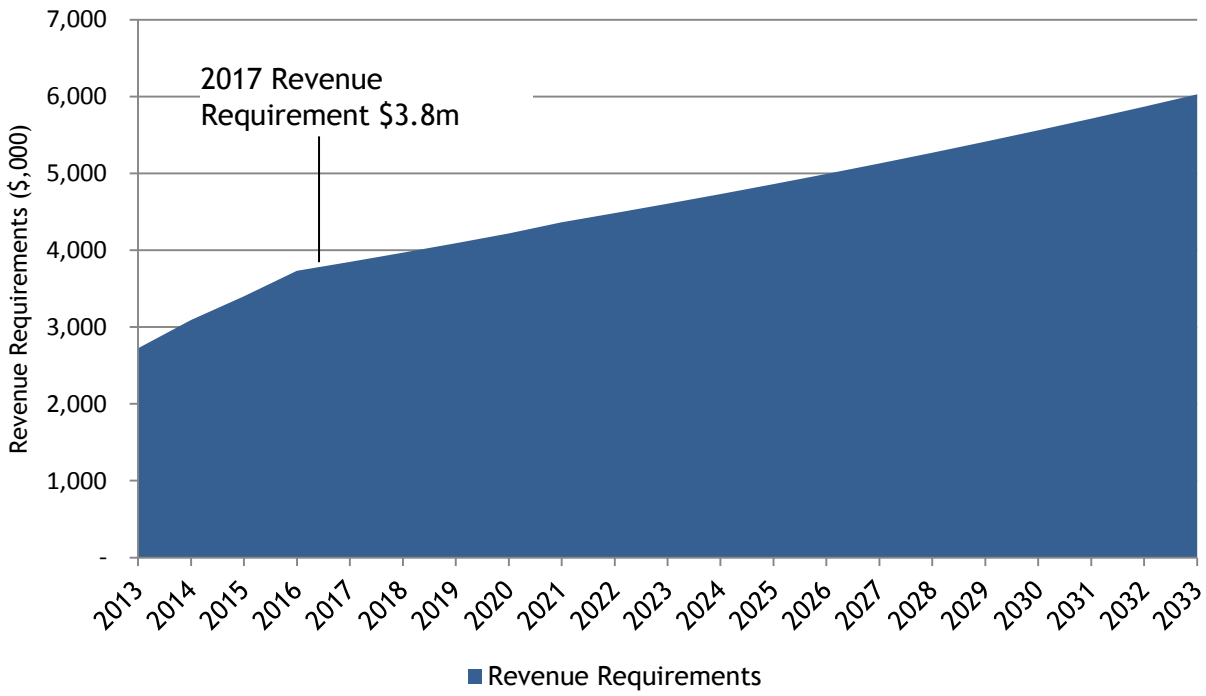


Table 3: Projected Annual Increases to Revenues from User Fees

Year	Revenue Increase
2014	13.5%
2015	10.0%
2016	9.75%
2017	3.11%
2018	3.11%
2019	3.11%

5.0 Rate Structure Scenarios

(Proposed rates for 2016 mock billing period)

- **5.1 SCENARIO 1 - single variable rate**
- **5.2 SCENARIO 2 – lower seasonal irrigation variable rate**
- **5.3 SCENARIO 3 – no variable rate for seasonal irrigation**

*note: fixed rate components under each scenario remains the same; only the variable portions are different from scenario.

5.0 Rate Structure Scenarios

5.1 Scenario 1 – single variable rate

Seasonal irrigation variable rate ($0.60/m3) is consistent with residential and commercial customer categories.

Table 4: Scenario 1 Proposed 2017 Rates

Customer Category	Fixed Component	Variable Component
Single Family (including bare land stratas)	$468 / year	$0.60/m3
Multifamily (including other stratas)	$374.40 / unit / year (based on 80% Single Family rate)	$0.60/m3
Commercial	Based on meter/service size (see Table 5)	$0.60/m3
Agricultural	$100 / acre / year (will increase to $120 by 2021)	
Bulk	$22,200 / year	
Seasonal Irrigation	$150 / year	$0.60/m3
Vacant	$100 / lot / year	

Table 5: Proposed Schedule of Fixed Charge by Meter/connection size Commercial customers for all Scenarios

	Meter/ Service Connection Size			Water Meter Equivalency (ME) Ratios		
Typical Customers	Imperial	Metric	# Meters and Services	CWWA/AWWA Recommended ME Ratios	Proposed ME Ratios	Proposed 2017 Annual Charge Rate
Sm. Commercial	5/8"	16 mm	95	1.0	1.0	$ 468.00
	3/4"	19 mm		1.5	1.0	$ 468.00
	1"	25 mm	9	2.5	1.0	$ 468.00
Med. Commercial Industrial	1.5"	38 mm	30	5.0	2.2	$ 1,020.00
	2"	50 mm	23	8.0	2.7	$ 1,260.00
	3"	75 mm	7	15.0	3.3	$ 1,560.00
Industrial & Bulk	4"	100 mm	0	25.0	4.1	$ 1,920.00
	6"	150 mm	0	50.0	5.1	$ 2,400.00
	8"	200 mm	1	80.0	6.4	$ 3,000.00
	10"	250 mm		115.0	8.3	$ 3,900.00
total			165			

Table 6: Sample Bills for Scenario 1 (single variable rate)

Customer Category	Average Day Demand (Litres per capita per day)	2016 Mock Bill (or 2017 Actual Bill)*	2016 Actual Billing based on flat charge	Difference with new structure
Single Family Low consumption	400 LCD (~365 m3/year)	$468 + $219 = $687	$735	Paying $48 / year less
Average consumption	500 LCD (~456 m3/year)	$468 + 274 = $742	$735	Paying $7 / year more
High consumption	900 LCD (~821 m3/year)	$468 + $492 = $960	$735	Paying $225 / year more
Multifamily	208 LCD (~130 m3/year)	$374 + $78 = $452	$735	Paying $283 / year less

* Intention is for new rate structure to be presented in a mock billing during 2016 with the same rate structure to be approved in a bylaw to take effect in 2017.

SCENARIO 1

SINGLE VARIABLE RATE

Table 7: Scenario 1 (single variable rate)

Fixed and Variable Revenues by Category

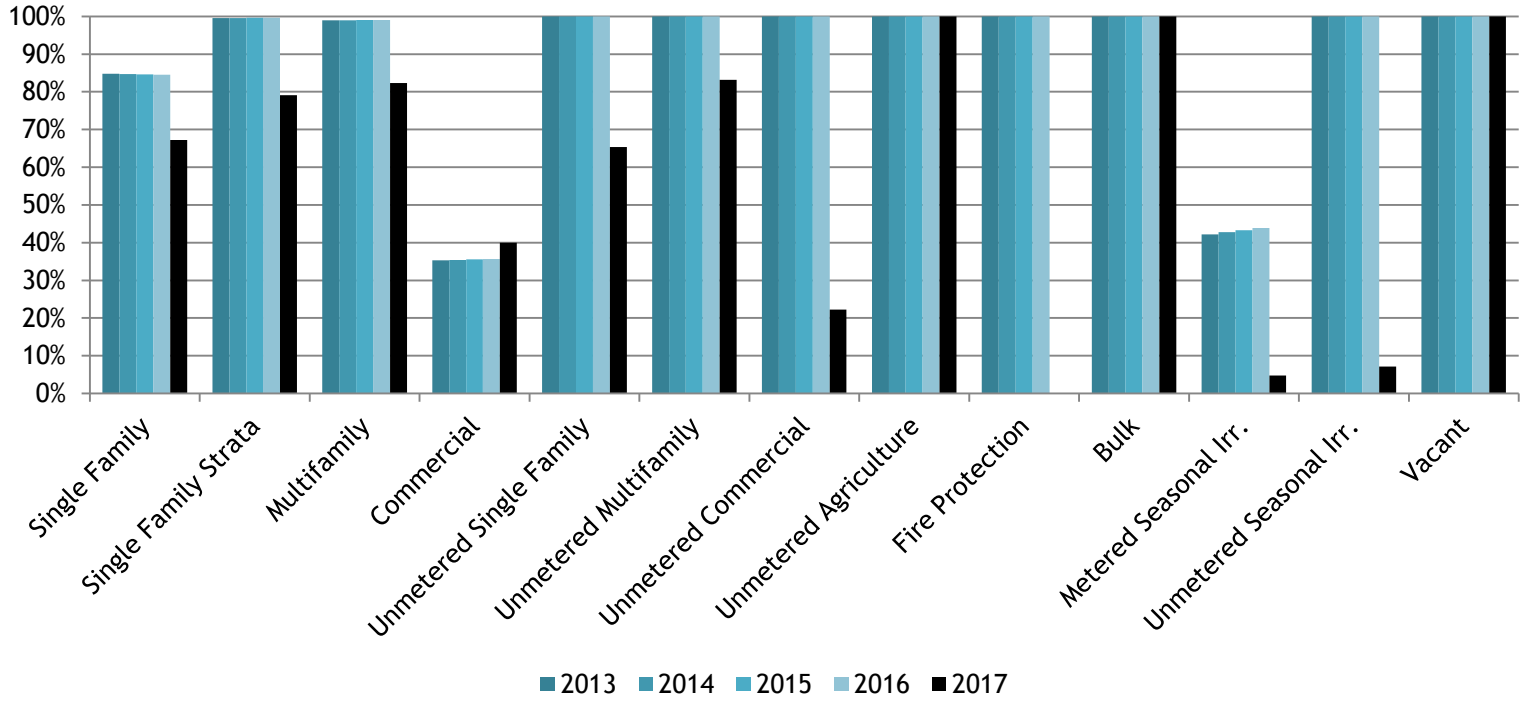
Customer Class	2016	2017
Single Family	558,360	521,042
Single Family Strata	356,761	262,705
Multifamily	107,013	86,983
Commercial	142,032	164,625
Unmetered Single Family	1,853,366	1,734,103
Unmetered Multifamily	82,088	48,996
Unmetered Commercial	244,927	316,376
Unmetered Agriculture	237,315	251,040
Fire Protection	17,514	0
Bulk	22,200	22,200
Metered Seasonal Irr.	14,675	10,418
Unmetered Seasonal Irr.	75,849	422,513
Vacant	26,400	26,400
	3,738,498	3,867,401

Analysis provided for comparison purposes: unmetered categories will be metered by 2017; this table shows how those categories currently unmetered will be affected by the change

Customer Class		2016	2017
Single Family	fixed	471,757	352,391
	variable	86,602	168,651
Single Family Strata	fixed	355,326	208,442
	variable	1,435	54,263
Multifamily	fixed	105,962	71,820
	variable	1,051	15,163
Commercial	fixed	50,619	61,308
	variable	91,413	103,317
Unmetered Single Family	fixed	1,853,366	1,140,239
	variable	0	593,864
Unmetered Multifamily	fixed	82,088	40,863
	variable	0	8,133
Unmetered Commercial	fixed	244,927	60,864
	variable	0	255,512
Unmetered Agriculture	fixed	237,315	251,040
	variable	0	0
Fire Protection	fixed	17,514	0
	variable	0	0
Bulk	fixed	22,200	22,200
	variable	0	0
Metered Seasonal Irr.	fixed	6,436	496
	variable	8,238	9,922
Unmetered Seasonal Irr.	fixed	75,849	30,262
	variable	0	392,251
Vacant	fixed	26,400	26,400
	variable	0	0
	Total fixed	3,549,759	2,266,325
	Total variable	188,739	1,601,076
	Total	3,738,498	3,867,401

This figure shows the percentage of revenues that are generated from fixed charges. Revenues from the largest category, Single Family, are at about 65%. Overall revenues for the District from fixed charges are at about 60%.

Figure 14: Scenario 1 (single variable rate) percent of fixed revenues



This figure shows the total revenues generated by each category in 2017. Under Scenario 1 cost responsibility is being shifted from Single Family customers to Commercial, Seasonal Irrigation and Vacant lots.

Figure 15: Scenario 1 (single variable rate) Total Revenues

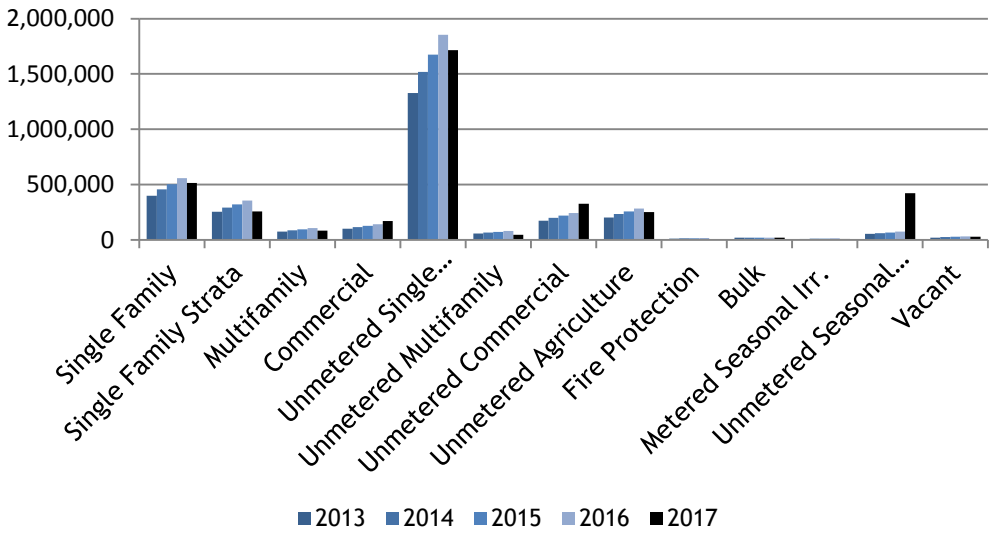
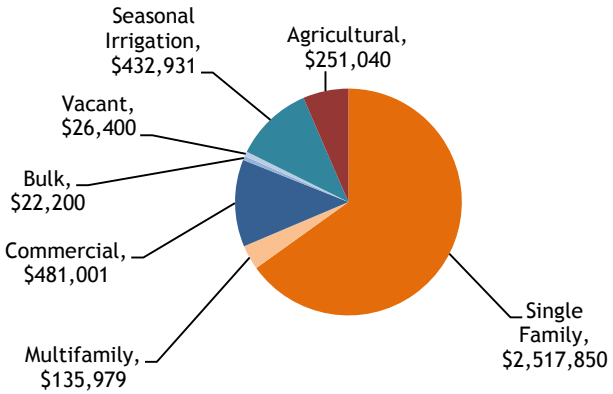


Figure 16: Scenario 1 – Total Revenues for 2017: $3,86m



5.0 Rate Structure Scenarios

5.2 Scenario 2 – lower seasonal irrigation variable rate

If the seasonal irrigation variable rate is lowered by half to $0.30/m3 then residential and commercial customers rate needs to be increased to $0.70/m3.

Table 8: Scenario 2 Proposed 2017 Rates

Customer Category	Fixed Component	Variable Component
Single Family (including bare land stratas)	$468 / year	$0.70/m3
Multifamily (including other stratas)	$374.40 / unit / year (based on 80% of Single Family)	$0.70/m3
Commercial	Based on meter/service size (see Table 5)	$0.70/m3
Agricultural	$100 / acre / year (increase to $120 by 2021)	
Bulk	$22,200 / year	
Seasonal Irrigation	$150 / year	$0.30/m3
Vacant	$100 / lot / year	

Table 9: Sample Bills for Scenario 2 (lower SI variable rate)

Customer Category	Average Day Demand (Litres per capita per day)	2016 Mock Bill (or 2017 Actual Bill)*	2016 Actual Billing based on flat charge	Difference with new structure
Single Family Low consumption	400 LCD (~365 m3/year)	$468 + $256 = $724	$735	Paying $11 / year less
Average consumption	500 LCD (~456 m3/year)	$468 + 319 = $787	$735	Paying $52 / year more
High consumption	900 LCD (~821 m3/year)	$468 + $575 = $1,043	$735	Paying $308 / year more
Multifamily	208 LCD (~130 m3/year)	$374 + $91 = $465	$735	Paying $270 / year less

* Intention is for new rate structure to be presented in a mock billing during 2016 with the same rate structure to be approved in a bylaw to take effect in 2017.

SCENARIO 2

LOWER SI VARIABLE RATE

Table 10: Scenario 2 (lower SI variable rate)

Fixed and Variable Revenues by Category

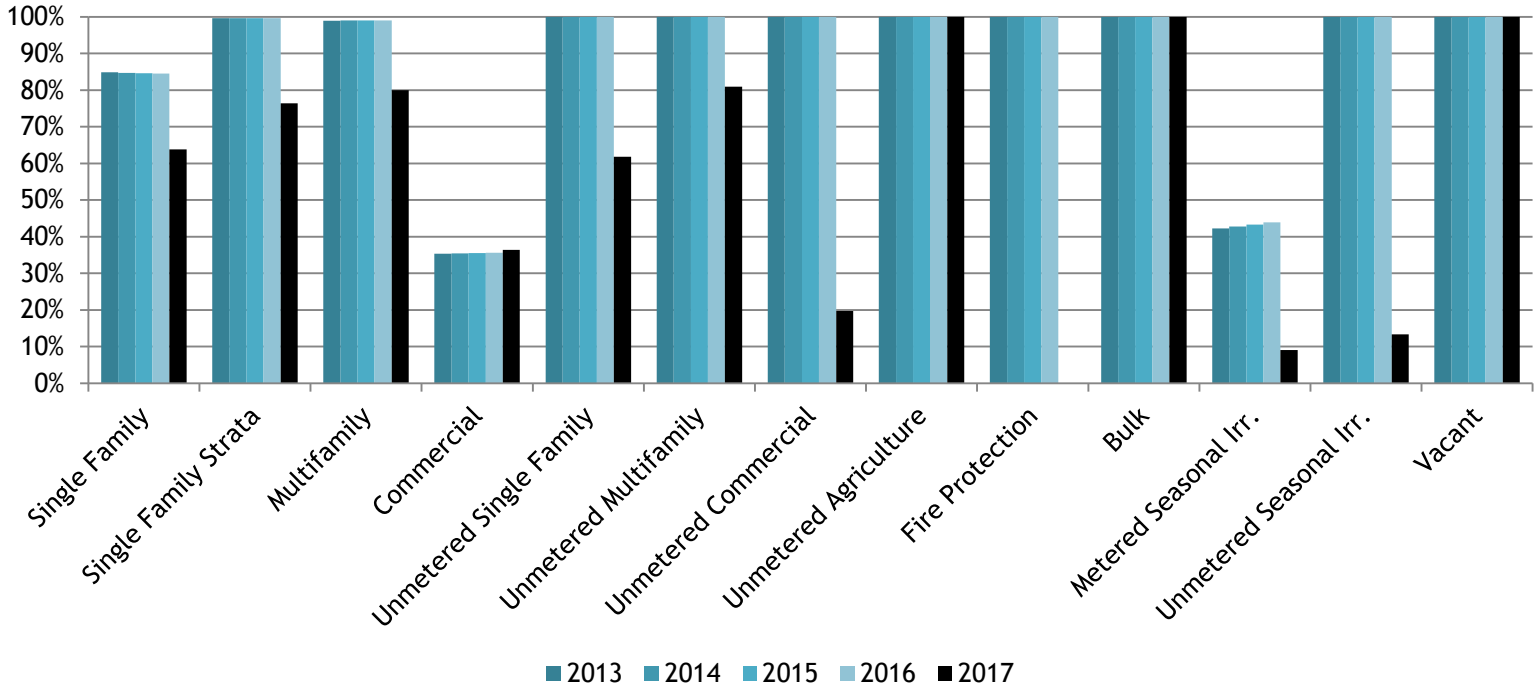
Customer Class	2016	2017
Single Family	558,360	549,150
Single Family Strata	356,761	271,749
Multifamily	107,013	89,510
Commercial	142,032	181,844
Unmetered Single Family	1,853,366	1,833,081
Unmetered Multifamily	82,088	50,352
Unmetered Commercial	244,927	358,961
Unmetered Agriculture	237,315	251,040
Fire Protection	17,514	0
Bulk	22,200	22,200
Metered Seasonal Irr.	14,675	5,457
Unmetered Seasonal Irr.	75,849	226,388
Vacant	26,400	26,400
	3,738,498	3,866,132

Analysis provided for comparison purposes: unmetered categories will be metered by 2017; this table shows how those categories currently unmetered will be affected by the change

Customer Class		2016	2017
Single Family	fixed	471,757	352,391
	variable	86,602	196,759
Single Family Strata	fixed	355,326	208,442
	variable	1,435	63,307
Multifamily	fixed	105,962	71,820
	variable	1,051	17,690
Commercial	fixed	50,619	61,308
	variable	91,413	120,536
Unmetered Single Family	fixed	1,853,366	1,140,239
	variable	0	692,841
Unmetered Multifamily	fixed	82,088	40,863
	variable	0	9,489
Unmetered Commercial	fixed	244,927	60,864
	variable	0	298,097
Unmetered Agriculture	fixed	237,315	251,040
	variable	0	0
Fire Protection	fixed	17,514	0
	variable	0	0
Bulk	fixed	22,200	22,200
	variable	0	0
Metered Seasonal Irr.	fixed	6,436	496
	variable	8,238	4,961
Unmetered Seasonal Irr.	fixed	75,849	30,262
	variable	0	196,125
Vacant	fixed	26,400	26,400
	variable	0	0
	Total fixed	3,549,759	2,266,325
	Total variable	188,739	1,599,807
	Total	3,738,498	3,866,132

This figure shows the percentage of revenues that are generated from fixed charges. Revenues from the largest category, Single Family, are at about 63%. Overall revenues for the District from fixed charges are at about 60%.

Figure 17: Scenario 2 (lower SI variable rate) percent of fixed revenues



5.0 Rate Structure Scenarios

5.1 Scenario 2 – lower seasonal irrigation variable rate

This figure shows the total revenues generated by each category in 2017. Under Scenario 1 cost responsibility is being shifted from Single Family customers to Commercial, Seasonal Irrigation and Vacant lots.

Figure 18: Scenario 2 (lower SI variable rate) Total Revenues

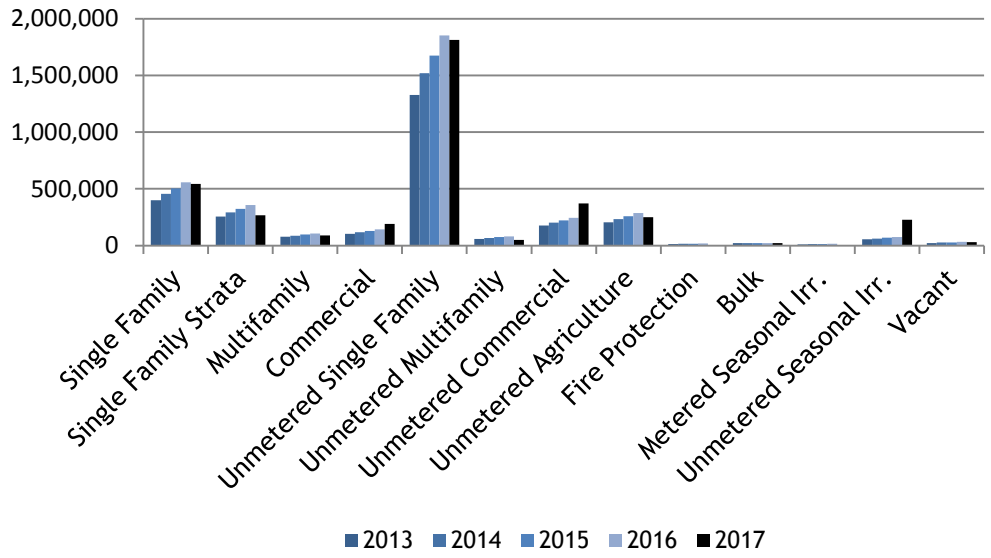
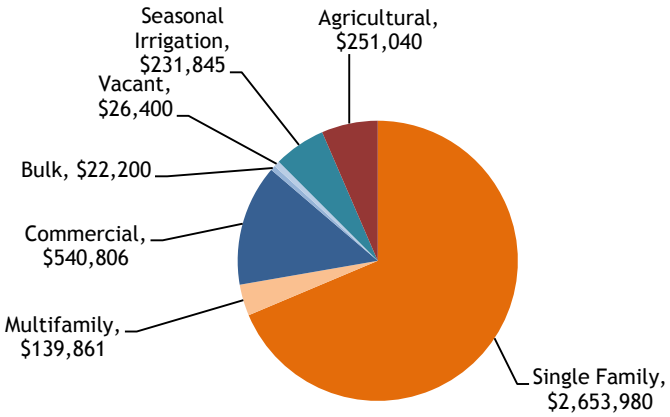


Figure 19: Scenario 1 – Total Revenues for 2017: $3,86m



5.0 Rate Structure Scenarios

5.3 Scenario 3 – no variable rate for seasonal irrigation

If the Seasonal Irrigation customers pay the same as Agricultural, with no variable rate, then residential and commercial customers variable rate needs to be increased to $0.78/m3.

Table 11: Scenario 3 Proposed 2017 Rates

Customer Category	Fixed Component	Variable Component
Single Family (including bare land stratas)	$468 / year	$0.78/m3
Multifamily (including other stratas)	$374.40 / unit / year (based on 80% of Single Family)	$0.78/m3
Commercial	Based on meter/service size (see Table 5)	$0.78/m3
Agricultural	$100 / acre / year (increase to $120 by 2021)	
Bulk	$22,200 / year	
Seasonal Irrigation	$100 / acre / year **or** $100 / parcel / year	$0.00
Vacant	$100 / lot / year	

SCENARIO 3

NO VARIABLE RATE FOR SI

Table 12: Sample Bills for Scenario 3 (no variable rate for SI)

Customer Category	Average Day Demand (Litres per capita per day)	2016 Mock Bill (or 2017 Actual Bill)*	2016 Actual Billing based on flat charge	Difference with new structure
Single Family Low consumption	400 LCD (~365 m3/year)	$468 + $285 = $753	$735	Paying $18 / year more
Average consumption	500 LCD (~456 m3/year)	$468 + 356 = $824	$735	Paying $89 / year more
High consumption	900 LCD (~821 m3/year)	$468 + $640 = $1,108	$735	Paying $373 / year more
Multifamily	208 LCD (~130 m3/year)	$374 + $101 = $475	$735	Paying $260/ year less

* Intention is for new rate structure to be presented in a mock billing during 2016 with the same rate structure to be approved in a bylaw to take effect in 2017.

Table 13: Comparison of Scenarios

Customer Category	Average Day Demand (Litres per capita per day)	Scenario 1 Single Variable Rate	Scenario 2 Lower SI Variable Rate	Scenario 3 No Variable Rate for SI
Single Family Low consumption	400 LCD (~365 m3/year)	$687	$724	$753
Average consumption	500 LCD (~456 m3/year)	$742	$787	$824
High consumption	900 LCD (~821 m3/year)	$960	$1,043	$1,108
Multifamily	208 LCD (~130 m3/year)	$452	$465	$475

6.0 Summary and Recommendations

Findings

- Analysis indicated current inequitable rate structures. Proposed rate structures achieve equitable distribution of cost responsibility.
- Maintaining a high degree of fixed revenues (60%) will reduce risk of revenue shortages during universal metering transition.
- This analysis is consistent and builds on the Master Water Plan.

Recommendations

- Adopt the customer categories as proposed.
- Monitor variable rate from commercial perspective to ensure cost recovery including fire protection.
- While scenario 1 will have the greatest impact in achieving the goal of reducing demand by 25%, it could result in big impacts on seasonal irrigation customers. Therefore it is recommended the District consider adopting scenario 2 as the preferred option. It is recommended the District monitor demands to ensure water conservation objectives are being met. If not, the District can adjust rate structures in subsequent years as required.

7.0 References

District of Lake Country (2010). Official Community Plan (2010-2030). Pp.33-34.

District of Lake Country. (2012). Water Master Plan.

Regional District of Central Okanagan (2013). Regional Growth Strategy – DRAFT.