

July 31, 2013

Mr. Dave Brown Water/Irrigation Division Manager City of Yakima 2301 Fruitvale Blvd. Yakima, WA 98902

Draft Report: Modified 2012/2013 Domestic Water System Rate Update

Dear Mr. Brown:

FCS GROUP is pleased to submit our final report for the 2012/2013 Domestic Water System Rate Update for the City of Yakima (City). This letter provides a brief summary of the study objectives, process, finding and conclusions.

BACKGROUND:

In May 2012, the City retained FCS GROUP to update the Domestic Water Rate Study to evaluate Utility capital needs and ongoing operations and maintenance expenses and develop a rate strategy to recover costs for the five-year planning period (2013-2017).

The draft analysis concluded that annual revenue adjustments were necessary over the study period to fund the capital program and address the declining revenue stream. The recommended rate strategy called for three years of 9.0% increases (2013-2015) followed by two years of 3.5% increases (2016-2017). Given the magnitude of proposed increases City management directed staff to research opportunities to reduce costs and mitigate customer impacts. At that point, the study was put on hold to allow staff time for the development of strategies to reduce costs. No increase was implemented for 2013.

The study was re-initiated in May 2013, following receipt of year-end 2012 financial records, customer billing system data, the revised capital program, and the adopted 2013 budget. The analysis was updated to incorporate this new information and develop an updated rate strategy for the five-year period 2014-2018, using 2013 as the baseline for future projections.

We also completed a benchmarking survey to compare relevant performance indicators for the City against comparable agencies using AWWA published criteria. The Technical Memorandum summarizing those results is provided in Appendix A.

This letter report summarizes the key assumptions, findings, and recommendations for the updated rate study. Note that Exhibit numbering is consistent with the original report document for ease of reference. Additional detail can be found in the original comprehensive draft rate study report included as Appendix B.

A. CAPITAL PROGRAM AND FUNDING PLAN

The capital program and funding plan was updated to incorporate completed projects and current estimates for 2013-2018 and the 2012 beginning balance in the capital account. Current bids for the Automated Meter Reading project are about \$4 million below estimates used in the original rate analysis.

Transfers from the operating account were increased from \$650,000 a year to \$750,000 (2014-2018) to help fund capital projects and maintain the minimum balance target.

The City identified \$21.5 million (\$23.1 million in inflated dollars) in capital projects (2013-2018). In addition to the Utility capital resources, \$3.5 million in State Revolving Fund loans are planned for water treatment plant projects in 2013-2014; \$5.0 million in Public Works Trust Fund loans are planned for the automated metering project in 2013-2014; and revenue bond proceeds are assumed at \$3.6 million in 2015 and \$3.2 million in 2017.

Exhibit 3-1 presents the 2013-2018 Capital Improvement Program and **Exhibit 3-2** presents the capital funding plan.

Exhibit 3-1 (Revised): Capital Improvement Program (inflated)

CAPITAL PROGRAM	2013	2014	2015	2016	2017	2018
Leak Detection	\$-	\$ 20,800	\$ 21,632	\$-	\$ 23,397	\$ 24,333
WTP PLC Replacement	250,000	-	-	-	-	-
WTP Lagoon / Electrical service	3,514,800	520,000	-	-	-	-
Intake Flood Repair	1,000,000	520,000	-	-	-	-
Automated Metering Infrastructure	4,500,000	1,560,000	-	-	-	-
Open Gear Vale Replacement	25,000	26,000	27,040	28,122	29,246	30,416
Private Water Main Replacement	175,000	182,000	189,280	196,851	204,725	212,914
Lead-Oakum Joint Line Replacement			2,163,200	2,249,728	2,339,717	2,433,306
Total	\$ 9,464,800	\$ 2,828,800	\$ 2,401,152	\$ 2,474,701	\$ 2,597,086	\$ 3,309,296

Exhibit 3-2 (Revised): Capital Funding Plan

CAPITAL FINANCING PLAN	2013	3 2014	2015 2016	2017 2018
Beginning Fund Balance	\$ 3,829,733	3 \$ 3,523,733	\$ 1,488,933 \$ 3,520,811	\$ 1,840,110 \$ 3,221,175
Connection Charges Direct Funding from Rates	\$ 44,000 600.000) \$ 44,000) 750.000	\$ 44,000 \$ 44,000 750.000 750.000	\$ 44,000 \$ 44,000 750,000 750,000
Net Loan Proceeds Net Bond Proceeds	8,514,800)		3,184,151 -
Total Funding Sources	\$ 9,158,800	0 \$ 794,000	\$ 4,433,030 \$ 794,000	\$ 3,978,151 \$ 794,000
Less: Capital Projects [a]	(\$9,464,800) (\$2,828,800)	(\$2,401,152) (\$2,474,701)	(\$2,597,086) (\$3,309,296)
Fund Balance	\$ 3,523,733	3 \$ 1,488,933	\$ 3,520,811 \$ 1,840,110	\$ 3,221,175 \$ 705,879
Actual % of Assets:	6.5%	6 2.8%	6.5% 3.4%	6.0% 1.3%
Minimum Target Balance [1.0% of assets]: City Established Target Balance:	\$ 540,974 \$750,000	4 \$ 540,974 0 \$750,000	\$ 540,974 \$ 540,974 \$750,000 \$750,000	\$ 540,974 \$ 540,974 \$750,000 \$750,000

[a] Includes an allowance for inflation of 4.0 percent per year.

B. OPERATING FORECAST

The operating forecast was updated to incorporate the adopted 2013 operating budget.

Exhibit 3-3 presents the O&M expense forecast over the study period (excluding utility taxes shown in Exhibit 3-4).

OPERATING & MAINTENANCE EXPENSE	2013	2014	2015	2016	2017	2018
Functional Categories						
Fire Suppression	\$ 305,179	\$ 314,335	\$ 323,765	\$ 333,478	\$ 343,482	\$ 353,787
Fire Suppression Admin	32,395	33,366	34,367	35,398	36,460	37,554
Water Distribution	2,143,889	2,208,206	2,274,452	2,342,686	2,412,966	2,485,355
WTP, Trans & Storage	1,691,494	1,742,239	1,794,506	1,848,341	1,903,792	1,960,905
Water/Irrigation Engineer	59,048	60,819	62,644	64,523	66,459	68,453
Water Administration	1,482,247	1,526,715	1,572,516	1,619,692	1,668,282	1,718,331
Interfund In lieu Utility Tax						
Total O&M Expenses [a]	\$ 5,714,253	\$ 5,885,680	\$ \$ 6,062,251	\$ 6,244,118	\$ 6,431,442	\$ 6,624,385

Exhibit 3-3 (Revised): Operating and Maintenance Forecast

[a] Includes an allowance for inflation of 3.0 percent per year, plus known operational changes; excludes utility taxes.

C. REVENUE NEEDS ASSESSMENT

The revenue requirement analysis was updated to incorporate revised operating and capital related costs, the 2012 actual ending cash balance in the operating account, and 2012 actual rate revenue collections. It is noteworthy that reported 2012 actual rate revenues were significantly higher than originally estimated when using 2011 actual rate revenues as the baseline - about a\$1 million positive impact to the Utility. Based on discussions with City staff, this is the result of resolving issues with meter reads and billing system data where not all customers on the system were being adequately charged.

In addition, this update reversed the previous removal of fire protection costs from rates and the associated increase to the water utility tax in light of Substitute Bill 1512, which as of July 28, 2013 allows re-integration of fire protection costs into water rates. Fire protection costs are again recovered from rates and the utility tax has been reset to 20%.

The Utility averages about \$9.8 million annually in cash obligations over the study period. Average annual revenues (excluding the use of cash reserves) are forecasted at \$9.0 million over the same time period – yielding an average annual deficit of \$0.8 million without rate increases. The proposed rate strategy calls for five years of 4.0% increases (2014-2018). These increases represent the system-wide adjustments necessary to recover total revenue requirements for the Utility. Impacts to individual customer will vary based on meter size and water usage levels, discussed further in Section D – Rate Design.

Note that in addition to proposed rate increases, cash reserves in excess of minimum target levels are used to supplement annual revenue shortfalls to mitigate rate impacts.

Exhibit 3-4 presents the revenue requirement analysis for the study period.

Exhibit 3-4 (Revised): Revenue Requirement and Reserve Analysis

REVENUE REQUIREMENTS SUMMARY	2013	2014	2015	2016	2017	2018
_						
Revenues	^ - - - - - - - - - -	• • • • • • • • •	^ • • • • • • • •	* • • • • • • • •	• • • • • • • •	A a a a a a a a a a a
Water Sales (w/ existing rates)	\$ 8,562,300	\$ 8,583,706	\$ 8,605,165	\$ 8,626,678	\$ 8,648,245	\$ 8,669,866
Other Revenues	395,500	395,500	395,500	395,500	395,500	395,500
Total Revenues	\$ 8,957,800	\$ 8,979,206	\$ 9,000,665	\$ 9,022,178	\$ 9,043,745	\$ 9,065,366
Expenses						
Operating & Maintenance Expenses	\$ 5.714.253	\$ 5.885.680	\$ 6.062.251	\$ 6.244.118	\$ 6.431.442	\$ 6.624.385
Interfund In lieu Utility Tax	1,564,000	1,737,311	1,813,929	1,893,828	1,977,145	2,063,443
Existing Debt Service	556,006	562,896	559,188	555,279	551,169	550,669
New Debt Service	134,074	468,054	628,540	789,025	929,449	1,069,874
Residual Equity Transfers	64,497	64,497	64,497	64,497	64,497	64,497
Transfers to the Capital Fund	600,000	750,000	750,000	750,000	750,000	750,000
Total Expenses	\$ 8,632,829	\$ 9,468,438	\$ 9,878,404	\$10,296,747	\$10,703,702	\$11,122,868
Annual Surplus/(Deficiency)	\$ 324,971	\$ (489,232)	\$ (877,739)	\$(1,274,568)	\$(1,659,956)	\$(2,057,502)
Annual Rate Adjustment	0.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Additional Revenue from Rate Adjustments	\$-	\$ 343,348	\$ 702,182	\$ 1,077,162	\$ 1,468,978	\$ 1,878,352
Net Surplus/(Deficiency) Beginning Fund Balance Cumulative Fund Balance	\$ 324,971 \$ 2,847,073 \$ 3,172,044	\$ (145,884) \$ 3,172,044 \$ 3,026,160	\$ (175,557) \$ 3,026,160 \$ 2,850,603	\$ (197,407) \$ 2,850,603 \$ 2,653,196	\$ (190,978) \$ 2,653,196 \$ 2,462,218	\$ (179,151) \$ 2,462,218 \$ 2,283,067
Actual Days of O&M: Minimum Target Balance [60 days]: City Established Target Balance:	159 \$1, 196, 425 \$1, 000, 000	145 \$1,253,094 \$1,000,000	132 \$1,294,715 \$1,000,000	119 \$1,337,745 \$1,000,000	107 \$1,382,233 \$1,000,000	96 \$1,428,136 \$1,000,000

D. RATE DESIGN

The existing domestic water rate structure consists of a fixed charge increasing by meter size and a uniform volume charge. The same schedule of rates applies to all domestic service customers, with a 1.50 multiplier applied to outside city customers. Private fire services are charged a readiness-to-service charge increasing by line size.

The proposed rates have been developed in accordance with the City's policy to apply the same schedule of rates to all domestic customer classes and to recover an appropriate balance of system costs from the fixed and variable components of the rate structure to maintain revenue stability. Cost recovery under the existing rate structure is about 22% from fixed charges and 78% from volume charges. Industry practice suggests generating closer to 30% from fixed charges and 70% from volume charges to balance revenue stability with a customer's ability to control their water bill through changes in water use.

The proposed rate structure increases the fixed charge cost recovery to 27% - up 5.0% from historical levels. This shift will improve revenue stability without unduly burdening customers with relatively low water usage. We recommend that the City monitor water usage patterns over time to determine if a further increase to the fixed charge component is warranted.

Exhibit 5-1 presents a comparison of existing Utility rates and the proposed five-year schedule of Utility rates (2014-2018).

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	Readiness-To-Service Charge - \$/Bi-Monthly Billing Period [a]										
Matar Cire	Existing					F	Proposed				
Weter Size	2013		2014		2015		2016		2017		2018
3/4"	\$ 15.91	\$	18.24	\$	18.97	\$	19.73	\$	20.51	\$	21.33
1"	\$ 20.09	\$	23.03	\$	23.95	\$	24.91	\$	25.90	\$	26.94
1-1/2"	\$ 31.24	\$	35.81	\$	37.24	\$	38.73	\$	40.28	\$	41.89
2"	\$ 44.67	\$	51.20	\$	53.25	\$	55.38	\$	57.60	\$	59.90
3"	\$ 76.03	\$	87.15	\$	90.64	\$	94.26	\$	98.03	\$	101.95
4"	\$ 120.82	\$	138.49	\$	144.03	\$	149.79	\$	155.78	\$	162.02
6"	\$ 232.70	\$	266.74	\$	277.41	\$	288.50	\$	300.04	\$	312.04
8"	\$ 453.59	\$	519.94	\$	540.73	\$	562.36	\$	584.86	\$	608.25
10"	\$ 680.41	\$	779.93	\$	811.13	\$	843.57	\$	877.32	\$	912.41
12"	\$ 993.82	\$	1,139.18	\$	1,184.75	\$	1,232.14	\$	1,281.43	\$	1,332.68
	1	1		•							
	Volume Charge - \$/ccf [a]										
Commodity	Commodity Evicting Dropood										
Rate	2013		2014		2015	Г	2016		2017		2018
Trate	2010		2014		2010		2010		2011		2010
\$/ccf	\$ 1.51	\$	1.52	\$	1.58	\$	1.65	\$	1.71	\$	1.78
	Pri	iva	te Fire Se	rvi	ces - \$/Bi-	Мо	onthly Peri	od	[a]		
	Existing					F	Proposed				
Line Size	2013		2014		2015		2016		2017		2018
2"	\$6.00	\$	6.24	\$	6.49	\$	6.75	\$	7.02	\$	7.30
3"	\$8.76	\$	9.11	\$	9.47	\$	9.85	\$	10.25	\$	10.66
4"	\$17.54	\$	18.24	\$	18.97	\$	19.73	\$	20.52	\$	21.34
6"	\$51.56	\$	53.62	\$	55.77	\$	58.00	\$	60.32	\$	62.73
8"	\$109.82	\$	114.21	\$	118.78	\$	123.53	\$	128.47	\$	133.61
10"	\$197.46	\$	205.36	\$	213.57	\$	222.12	\$	231.00	\$	240.24
12"	\$319.12	\$	331.88	\$	345.16	\$	358.97	\$	373.33	\$	388.26
			Bul	k V	/ater Rate	e - S	\$/ccf				
	Existing					F	Pronosed				
	2013	-	2014		2015		2016		2017		2018
	2010		2017		2010	-	2010	-	2017		2010
	\$1.51	\$	1.52	\$	1.58	\$	1.65	\$	1.71	\$	1.78
	Da	aily	water met	er r	ental rema	ins	at \$4.00 p	er	day		

Exhibit 5-1 (Revised): Existing & Proposed Water Rates

[a] Outside City rates are 1.50 times inside City rates

Based on the City's billing system information, the residential class uses an average of about 2,200 cubic feet (22 ccf) of water per bi-monthly billing period over the course of a year. The commercial class uses an average of about 10,600 cubic feet (106 ccf) per billing period, and industrial customers average about 32,700 cubic feet (327 ccf) per billing period. Actual water usage will likely vary by customer and by billing period. For example, residential customers typically experience higher than average usage in summer months and lower than average usage in the winter months. As such, the water bill will also vary by customer and by billing period.

Exhibit 5-2 presents a comparison of sample customer water bills under existing rates and the proposed 2014 rates. As shown in the exhibit, a residential customer using 2,200 cubic feet on average per bi-monthly period will experience an average increase of \$2.59 per bi-monthly period.

		Residentia		
Meter	Bi-Mthly	Existing	2014	\$ Change
Size	Usage	Bi-Mthly	Bi-Mthly	from
(inches)	(ccf)	Bill	Bill	Existing
3/4	6	\$24.97	\$27.37	\$2.40
3/4	15	\$38.56	\$41.07	\$2.51
3/4	22	\$49.13	\$51.72	\$2.59
3/4	40	\$76.31	\$79.12	\$2.81
1	50	\$95.59	\$99.13	\$4.35
		Commercia	I	
Meter	Bi-Mthly	Existing	2014	\$ Change
Size	Usage	Bi-Mthly	Bi-Mthly	from
(inches)	(ccf)	Bill	Bill	Existing
3/4	75	\$129.16	\$132.39	\$4.13
3/4	106	\$175.97	\$ 179.57	\$3.60
	000	# 000.00	• • • • • • •	65 0 4
1	200	\$322.09	\$ 327.43	\$5.34
1	300	\$473.09	\$ 479.64	\$6.55
		Industrial		
Meter	Bi-Mthly	Existing	2014	\$ Change
Size	Usage	Bi-Mthly	Bi-Mthly	from
(inches)	(ccf)	Bill	Bill	Existing
0	400	\$405 CT	¢ 000 11	ФТ Т 4
2	100	\$195.67	\$ 203.41	\$1.14
	327	\$538.44	\$ 548.91	\$10.47
2	400	\$648.67	\$ 660.01	\$11.34

Exhibit 5-2 (Revised): Sample Residential Water Bills

E. CONCLUSIONS AND RECOMMENDATIONS

Projections are by nature conjectural and rely on many assumptions regarding growth, water usage, inflations and other factors, and no guarantee as to their ultimate accuracy can be made. We have endeavored to apply the best available estimates of future conditions that affect these findings, and believe the analyses performed in this study provide a reasonable level of assurance with respect to the adequacy of the proposed rates and rate structure. However, regular review of actual financial performance of the Utility should be an integral part of the successful implementation of this study. The next rate study update is anticipated to be completed in 2018.

FCS GROUP and City staff recommends that this study be utilized as support for the adoption of the five-year rate schedule presented herein for years 2014-2018. The study assumes rates will become effective January 1 of each year beginning in 2014.

Please feel free to contact me at 245-867-1802, ext. 241 or <u>karynj@fcsgroup.com</u> if you have questions or comments.

Sincerely,

Kaya Johnson

Karyn Johnson Principal

APPENDIX A

Benchmarking Analysis



Project Memorandum

To: Dave Brown, Water & Irrigation Manager Yakima, Washington

Date: November 15, 2012

From: Karyn Johnson, Principal Tage Aaker, Analyst

RE: City of Yakima Water Utility - Benchmarking Analysis

A. INTRODUCTION

In conjunction with the Domestic Water Rate Study FCS GROUP conducted for the City of Yakima ("City"), a benchmarking analysis was prepared to evaluate the City's water utility performance in comparison to industry benchmarks. Relevant performance indicators were evaluated and compared against the results from an industry benchmarking survey as well as FCS GROUP experience within the industry. This memorandum summarizes the findings and conclusions of our review.

It is important to note that benchmarking results are only a start to the evaluation of utility performance and do not necessarily reflect good or bad performance in all cases. There are many internal and external factors that affect how a specific utility compares to the benchmarking standards provided. Elements to consider when evaluating these results:

- Regional Climate
- Customer Base
- Supply Source
- Local & Regional Regulations
- Density of Population
- Age of Infrastructure
- Treatment Processes
- Organizational Goals

These explanatory factors can have a significant influence on the documented performance of a specific utility. Further analysis with those closely familiar with a utility may reveal additional insight on performance indicators.

It is also important to note that an initial benchmarking analysis provides a snap shot of utility performance for the given year of review. Subsequent, multi-year analyses would allow the City to evaluate utility performance and trends over time in order to make better informed decisions.

Exhibit A-1 presents the suggested benchmarking process.





B. METHODOLOGY

Sources for the utility benchmarks include a publication by the American Water Works Association (AWWA) entitled *Benchmarking Performance Indicators for Water and Wastewater Utilities: Survey Data and Analyses Report (2007)*, as well as FCS GROUP industry knowledge and experience gained through our work with utilities throughout the western United States. Note that the financial data sources and results for the City of Yakima reflect performance for year 2011, which might not be representative of all results reflected in the 2007 AWWA publication, particularly those measures related to current O&M costs.

The AWWA industry survey compiled utility financial and operational information from 180 participants. Participation in the survey was voluntary and information submitted was self-reported by the participating utilities. For performance indicators used within this publication, we referenced the following benchmark categories:

- Utility Service or Operation Type: For the City of Yakima, "Water Operations" was selected. This
 represents survey participants designated as exclusively providing water services. Water Operations was
 selected as the most representative category since the City's water and wastewater services are provided
 through separate and distinct divisions.
- Size of Service Population: This represents the size of the population served by the designated utility service. Yakima's water service population falls within the **"50,001-100,000"** population category.
- Geographical Region: The City of Yakima falls within the "West" region which includes the State of Washington (along with AK, AZ, CA, CO, NM, NV, OR, UT, and WY).

Exhibit B-1 lists the performance indicators selected for this analysis based upon available information and applicability to the City's domestic water system / utility.



Exhibit B-1: Index of Performance Indicators

#	Performance Indicator	#	Performance Indicator
1	Organization Best Practices Index Survey	18	Accounts Receivable Turnover
2	Employee Health & Safety Severity Rate	19	Accounts Receivable Collection Period
3	Training Hours per Employee	20	Current Ratio
4	Customer Accounts per Employee	21	Operating Working Capital
5	MGD of Water Delivered per Employee	22	O&M Coverage Ratio
6	Drinking Water Compliance Rate	23	Debt Coverage Ratio
7	Distribution System Loss / Leakage	24	Customer Service Related Complaints
8	Water Distribution System Integrity	25	Technical Quality Related Complaints
9	O&M Cost per Customer Account	26	Planned Disruptions (< 4 hours) per 1,000 Customers
10	O&M Cost per Million Gallons of Water Distributed	27	Planned Disruptions (4 hours - 12 hours) per 1,000 Customers
11	Direct Cost of Treatment per Million Gallons Distributed	28	Planned Disruptions (>12 hours) per 1,000 Customers
12	Debt to Total Asset Ratio (Debt Ratio)	29	Unplanned Disruptions (< 4 hours) per 1,000 Customers
13	Debt to Equity (Net Asset) Ratio	30	Unplanned Disruptions (4 hours - 12 hours) per 1,000 Customers
14	System Renewal / Replacement Rate (Distribution)	31	Unplanned Disruptions (>12 hours) per 1,000 Customers
15	System Renewal / Replacement Rate (Treatment)	32	Customer Service Cost per Account
16	Return on Assets	33	Monthly cost of using 7,500 gallons (Water - Residential)
17	Return on Fixed Assets		

Results for these indicators are organized into the following categories: Organizational Development, Water Operations, Business & Finance Operations, and Customer Relations.

The analysis calculates a formula-based (or in some cases, subjective) result for the City's water utility for each performance indicator and then assigns a score to each indicator based on how well the City compares to the industry benchmark.

Benchmarks are shown for the bottom quartile, top quartile and median responses from participants. For additional indicators, not included in the AWWA publication, general industry standards are shown. An overall (or average) score is then assigned to the category as a whole, assuming equal weight for each indicator within the category. **Exhibit B-2** presents the scoring system for this exercise.

Exhibit B-2: Scoring System

Scoring Table						
Score	Description					
1	Very Good					
2	Good					
3	Fair					
4	Poor					

In general, the scores are assigned as follows:

- "1 Very Good" results equal to or better than the top quartile;
- "2 Good" results close to the median;
- "3 Fair" results better than the bottom quartile but worse than the median; and
- "4 Poor" results equal to or worse than the bottom quartile.

The intent of the scoring system is to assist the City in identifying areas for further investigation and potential improvement. For example, the City might consider tagging those areas that are scored either "Fair" or "Poor" as priority targets for improvement.



C. SUMMARY OF RESULTS

Exhibit B-1 summarizes the results, including individual scores and an overall score for the category. Additional detail is provided in Section C, including both a numerical and graphical result for each indicator. Note that the bar line in each graphic depicts the range from bottom to top quartile results and the triangle depicts the median result as well as the City's results.

Exhibit B-1:	Performance	Indicator and	l Score l	by Category
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Organizational Developmen	t	Water Operations		Business & Finance Operation	าร	Customer Relations	
Organization Best Practices Index Survey	2	Drinking Water Compliance Rate	1	Debt to Total Asset Ratio (Debt Ratio)	1	Customer Service Related Complaints	4
Employee Health & Safety Severity Rate	3	Distribution System Loss / Leakage	4	Debt to Equity (Net Asset) Ratio	1	Technical Quality Related Complaints	1
Training Hours per Employee	4	Water Distribution System Integrity	1	System Renewal / Replacement Rate (Distribution)	1	Planned Disruptions (< 4 hours) per 1,000 Customers	1
Customer Accounts per Employee	1	O&M Cost per Customer Account	2	System Renewal / Replacement Rate (Treatment)	1	Planned Disruptions (4 hours - 12 hours) per 1,000 Customers	1
MGD of Water Delivered per Employee	1	O&M Cost per Million Gallons of Water Distributed	2	Return on Assets	3	Planned Disruptions (>12 hours) per 1,000 Customers	1
		Direct Cost of Treatment per Million Gallons Distributed	2	Return on Fixed Assets	2	Unplanned Disruptions (< 4 hours) per 1,000 Customers	1
				Accounts Receivable Turnover	1	Unplanned Disruptions (4 hours - 12 hours) per 1,000 Customers	1
				Accounts Receivable Collection Period	1	Unplanned Disruptions (>12 hours) per 1,000 Customers	1
				Current Ratio	1	Customer Service Cost per Account	2
				Operating Working Capital	1	Monthly cost of using 7,500 gallons (Water - Residential)	1
				O&M Coverage Ratio	1		
				Debt Coverage Ratio	1		
Average	2.2		2.0		1.3		1.4

Organizational Development received an overall (average) score of 2.2, indicating "good" performance. Areas warranting further investigation and potential improvement include the Employee Health & Safety Severity Rate and Training Hours per Employee. The score for the Organization Best Practices Index Survey is expected to move toward "very good" following implementation of the Asset Management Program planned for implementation in 2013.

Water Operations received an average score of 2.0, indicating "good" performance. The score for Distribution System Loss is expected to improve with the new Automatic Metering Program currently in progress.

Business & Finance Operations received a score of 1.3, indicating "very good" performance. This is likely the direct result of the financial policies implemented for the water utility more than a decade ago, including regular annual rate adjustments to keep pace with inflation and generate adequate cash for capital spending and maintaining reserves. Improvement to the results for Return on Assets and Return on Fixed Assets could result in a perfect score for this category.

Customer Relations received a score of 1.4, indicating "very good" to "good" performance. All operational/technical indicators within this category received a score of very good, with customer service indicators receiving lower scores. Customer service related complaints, most notably billing error complaints, warrant further investigation for potential improvement.



D. RESULTS OF BENCHMARKING ANALYSIS

ORGANIZATIONAL DEVELOPMENT

1. Organizational Best Practices Index Survey

Description: The purpose of the Best Practices (BP) survey is to summarize a utility's implementation of management programs important to a water utility. Generally, higher values are desirable. Practices are likely to be more formal and extensive in larger utilities.

Exhibit C-1(a): Formula and Comparative Benchmarks

Organization Best Practices Index Survey							
Formula: Results of "Best Practices" Survey (min 7 - max 35 at each							
	utility)						
Yakima Result:	25						
Benchmarks	Bottom Quartile	Top Quartile	Median				
Region: West	22.80	30.00	26.50				
Population Served: 50k- 100k	21.00	30.00	24.50				
Type: Water	20.50	28.80	24.00				

Exhibit C-1(b): Graphical Results



Analysis: Higher values are desirable. The City's result is in line with the median results from the survey. <u>Score: 2 - "Good"</u>. Note: The City plans to implement an asset management program in 2013, at which point, the score would likely move closer to the top quartile with a score of "very good".



2. Employee Health & Safety Severity Rate

Description: Quantifies the rate of employee days lost from work due to illness or injury. Generally, lower values are desirable. Excessive lost workdays affect productivity and can cost utilities in a number of ways. Health care, insurance premiums and overtime can all be adversely impacted by lost work due to injury or health reasons. Indicator measures the rate of days lost per 100 employees per year.

Exhibit C-2(a): Formula and Comparative Benchmarks

Employee Health & Safety Severity Rate									
Formula: 200,000 X (Total Workdays away from Work) ÷ Total Hours									
	worked by								
Days Away (Work Injury & Illness)	13								
Total Hours Worked	62,338								
Yakima Result:	42								

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	88.10	0.10	21.20
Population Served: 50k- 100k	49.40	0.00	5.30
Type: Water	79.00	0.00	12.90

Exhibit C-2(b): Graphical Results



Analysis: Lower values are desirable. The City's result is on the high side, warranting further investigation and potential improvement. <u>Score: 3 - ``Fair''</u>



3. Training Hours per Employee

Description: Measures the quantity of formal training that utility employees are actually completing. This indicator is expressed as the number of formal training hours per employee per year. Generally, higher values are desirable. This measure is intended to reflect the organization's commitment to formal training as a means of improving employee knowledge and skills.

Exhibit C-3(a): Formula and Comparative Benchmarks

Training Hours per Em	ployee	
Formula: Total Qualified Formal Training Hours for All Employees ÷ Total FTEs Worked by Employees During Reporting Period		
Training Hours	384	
Number of FTEs	31.65	
Yakima Result:	12.13	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	14.10	36.10	23.70
Population Served: 50k- 100k	11.80	29.00	20.30
Type: Water	12.10	23.90	15.50

Exhibit C-3(b): Graphical Results



Analysis: Higher values are desirable. The City's result is on the low side, warranting further investigation and potential improvement. <u>Score: 4 - ``Poor''</u>



4. Customer Accounts per Employee

Description: This indicator is intended to measure employee efficiency. Generally, higher values are desirable.

Exhibit C-4(a): Formula and Comparative Benchmarks

Customer Accounts per Employee		
Formula: Nu	umber of Accounts ÷ Number of FTEs	
Number of Accounts	18,700	
Number of FTEs	31.65	
Yakima Result:	591	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	349	635	422
Population Served: 50k- 100k	408	558	473
Type: Water	333	667	456

Exhibit C-4(b): Graphical Results



Analysis: In general, higher values are desirable. The City is on the high side, indicating very efficient water operations. <u>Score: 1 – "Very Good"</u>



5. MGD of Water Delivered per Employee

Description: This indicator is intended to measure employee efficiency. Generally, higher values are desirable.

Exhibit C-5(a): Formula and Comparative Benchmarks

MGD of Water Delivered per Employee		
Formula: Average MGD Delivered ÷ FTEs		
MGD	9.65	
Number of FTEs	31.65	
Yakima Result:	0.30	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.17	0.40	0.26
Population Served: 50k- 100k	0.14	0.29	0.19
Type: Water	0.15	0.33	0.24

Exhibit C-5(b): Graphical Results



Analysis: Higher values are desirable. The City's results are on the high side, indicating very efficient water operations. <u>Score: 1 – "Very Good"</u>



WATER OPERATIONS

6. Drinking Water Compliance Rate

Description: This indicator quantifies the percentage of time each year that a water utility meets all health-related drinking water requirements of the US National Primary Drinking Water Regulations. Higher results are desirable. A compliance rate of 100% is the goal of every utility.

Exhibit C-6(a): Formula and Comparative Benchmark

Drinking Water Compliance Rate		
Formula: Number of Days in Full Compliance ÷ 365 Days		
Days in Full Compliance	365	
Formula Piece #2	365	
Yakima Result:	100%	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	100.0%	100.0%	100.0%
Population Served: 50k- 100k	100.0%	100.0%	100.0%
Type: Water	100.0%	100.0%	100.0%

Exhibit C-6(b): Graphical Results



Analysis: A utility should strive to achieve compliance 100% of the time. The City has met this target. <u>Score: 1 – "Very Good"</u>



7. Distribution System Loss / Leakage (DSL)

Description: This indicator is a measure of the percentage of produced water that fails to reach customers and cannot otherwise be accounted for through authorized usage. Generally higher values are not desirable. Water loss can adversely impact revenue and water use efficiency.

Exhibit 7(a): Formula and Comparative Benchmarks

Distribution System Loss / Leakage	
Formula: [Volume distributed - (volume billed + volume unbilled but authorized) ÷ volume distributed]	
Volume Distributed 3,522,567,974	
Volume Billed & 2,951,690,565 Authorized	
Yakima Result: 16.21%	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	10.4%	3.8%	7.2%
Population Served: 50k- 100k	15.0%	4.0%	8.9%
Type: Water	12.4%	4.9%	8.6%

Exhibit 7(b): Graphical Results



Analysis: Lower values are desirable. The City's result is on the high side. <u>Score: 4 – "Poor"</u>. Note: The City is in the process of installing Automatic Meter Reading (AMR), which should result in lower DSL and an improved score.



8. Water Distribution System Integrity

Description: This indicator is a measure of the condition of the water distribution system, expressed as the total annual number of leaks and pipeline breaks per 100 miles of distribution piping. Generally, higher values are not desirable. Excessive leaks and breaks can result in increased costs due to an increased number of emergency repairs.

Exhibit C-8(a): Formula and Comparative Benchmark

Water Distribution Sys	stem Integrity	
Formula: 100 X (Annual total number of leaks + annual total number of breaks) ÷ Total miles of distribution piping		
Annual Leaks & Breaks	6.0	
Miles of Distribution Piping	300	
Yakima Result:	2.00	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	53.00	15.80	31.20
Population Served: 50k- 100k	69.60	14.80	32.70
Type: Water	56.10	21.70	34.30

Exhibit C-8(b): Graphical Results



Analysis: Lower values are desirable. The City's result is very low, placing better than the top quartile, indicating an effective maintenance and replacement program. <u>Score: 1 – "Very Good"</u>



9. O&M Cost per Customer Account

Description: Generally, higher values are not desirable. Higher O&M costs per customer account may indicate inefficient procedures or may be the result of aging infrastructure. However, this may not always be the case. Higher costs per account may be the desired outcome to improve customer satisfaction or to make up for deferred maintenance practices.

Exhibit C-9(a): Formula and Comparative Benchmarks

O&M Cost per Customer Account			
Formula: Total O&M less depreciation ÷ Total number of customer			
	accounts		
Total O&M (less dep.)	\$5,296,003		
Total Customer Accounts	18,700		
Yakima Result:	\$283		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$443	\$252	\$339
Population Served: 50k- 100k	\$302	\$101	\$161
Type: Water	\$357	\$205	\$272

Exhibit C-9(b): Graphical Results



Analysis: In general, lower values are desirable. The City is in line with the median results of the industry survey. <u>Score: 2 - "Good"</u>



10. O&M Cost per Million Gallons of Water Distributed

Description: Generally, higher values are not desirable. Higher O&M costs per million gallons may indicate inefficient procedures or may be the result of aging infrastructure. However, this may not always be the case. Higher costs per million gallons distributed may be the desired outcome to improve customer satisfaction or to make up for deferred maintenance practices.

Exhibit C-10(a): Formula and Comparative Benchmark

O&M Cost per Million Gallons of Water Distributed				
Formula: Total O&M less depreciation ÷ Volume (in MG) Distributed During the Reporting Period				
Total O&M (less dep.)	\$5,296,003			
Volume Distributed (in MG)	3,523			
Yakima Result:	\$1,503			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$2,509	\$1,163	\$1,608
Population Served: 50k- 100k	\$2,286	\$667	\$1,373
Type: Water	\$2,310	\$1,037	\$1,506

Exhibit C-10(b): Graphical Results



Analysis: Lower values are desirable. The City's results are in line with the median in each category. <u>Score: 2 – "Good"</u>



11. Direct Cost of Treatment per Million Gallons Distributed

Description: Generally, higher values are not desirable. Higher O&M directly attributable to water treatment per million gallons distributed may indicate high staffing levels or increased maintenance due to aging equipment and facilities. However, this may not always be the case. Higher costs may be unavoidable due to the use of more expensive treatment processes.

Exhibit C-11(a): Formula and Comparative Benchmark

Direct Cost of Treatment per Million Gallons Distributed				
Formula: Total Direct O&M Costs for Water Treatment ÷ Volume (in MG)				
Distributed During the Reporting Period				
Treatment Cost	\$900,750			
Total Volume Processed (MG)	3,523			
Yakima Result:	\$256			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$558	\$75	\$234
Population Served: 50k- 100k	\$660	\$130	\$353
Type: Water	\$550	\$100	\$322

Exhibit C-11(b): Graphical Results



Analysis: Lower values are desirable. The City's results are in line with the median in each category. <u>Score: 2 – "Good"</u>



BUSINESS & FINANCE OPERATIONS

12. Debt to Total Asset Ratio (Debt Ratio)

Description: This indicator quantifies the utility's level of indebtedness. Generally, the higher the ratio, the more dependent the utility is on debt financing. A higher dependence on debt can cause larger long-term costs for interest repayments when compared with cash financing capital. Lower values are generally desirable.

Exhibit C-12(a): Formula and Comparative Benchmark

Debt to Total Asset Ratio (Debt Ratio)			
Formula: Total Liabilities ÷ Total Assets			
Total Liabilities	\$6,358,342		
Total Assets	\$40,041,390		
Yakima Result:	15.9%		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	42.1%	18.1%	28.0%
Population Served: 50k- 100k	28.9%	21.4%	26.9%
Type: Water	43.3%	20.7%	28.6%

Exhibit C-12(b): Graphical Results



Analysis: Lower values are generally desirable. The City's results score better than the top quartile. <u>Score: 1 – "Very Good"</u>



13. Debt to Equity (Net Asset) Ratio

Description: This ratio gives insight into a utility's equity-liability relationship in terms of funded capital assets. The lower the percentage, the less leveraged a utility is, which can imply more potential to fund future projects fully with debt. A ratio of 1.5 (60% debt / 40% equity) is a generally accepted industry target.

	Exhibit	C-13(a):	Formula	and Com	parative	Benchmark
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Debt to Equity (Net Asset) Ratio				
Formula: Total Current & Non-Current Borrowed Debt ÷ Net Assets.				
Total Borrowed Debt	\$5,608,215			
Net Assets	\$33,683,048			
Yakima Result:	0.17 to 1	(14% debt /	86% equity)	
Benchmarks		FCS	GROUP Experience	
Generally Accepted Debt / Equity Ratio			1.50	
Yakima			0.17	
Benchmarks		FCS	GROUP Experience	
Generally Accepted Debt Target			60.0%	
Yakima			14.3%	

Exhibit C-13(b): Graphical Results



Analysis: Lower values are generally desirable. The City's results are well below the generally accepted targets, indicating the potential to fund additional capital projects with debt while still maintaining a healthy capital structure. <u>Score: 1 – "Very Good"</u>



14. System Renewal / Replacement Rate (Distribution)

Description: This indicator quantifies the rate at which the utility is meeting its individual need for infrastructure renewal or replacement. Generally, higher values are desirable. This indicator measures the degree to which a water utility is replacing its distribution system infrastructure. This indicator creates a theoretical annual funding target, and then divides actual capital expenditures over this "target" to arrive at the replacement rate. For example, if total replacement costs for the distribution system were \$500 (with 50 year asset life), and the utility averages \$5 in annual expenditures, then the result would be fifty percent [$$5 \div (\$500 \div 50 \text{ years})$].

System Renewal / Replacement Rate (Distribution)				
Formula: 100 X (Total Actual Expenditures for R&R for each Asset Class) ÷ Total Present Worth of R&R Needs for Each Asset Group				
Total Annual Actual Expenditures	\$230,513	Note: 3-year Actual Average		
R&R Needs	\$1,280,543	(Total Group Replacement Cost ÷ Weighted Asset Life)		
Yakima Result:	18%			

Exhibit C-14(a): Formula and Comparative Benchmark

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.8%	8.6%	2.0%
Population Served: 50k- 100k	1.9%	22.5%	4.3%
Type: Water	1.3%	6.4%	2.5%

Exhibit C-14(b): Graphical Results



Analysis: In general, higher values are desirable. The City places above or near the top quartile depending upon the comparative benchmark. <u>Score: 1 - "Very Good"</u>



15. System Renewal / Replacement Rate (Treatment)

Description: This indicator quantifies the rate at which the utility is meeting its individual need for infrastructure renewal or replacement. Generally, higher values are desirable. This indicator measures the degree to which a water utility is replacing its treatment infrastructure.

Exhibit C-15(a): Formula and Comparative Benchmark

System Renewal / Replacement Rate (Treatment)			
Formula: 100 X (Total Ac	tual Expendit	ures for R&R for each Asset Class) ÷	
Total Present We	orth of R&R N	Needs for Each Asset Group	
Total Annual Actual Expenditures	\$131,273	Note: 3-year Actual Average	
R&R Needs	\$375,937	(Total Group Replacement Cost ÷ Weighted Asset Life)	
Yakima Result:	35%		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	2.1%	15.1%	3.4%
Population Served: 50k- 100k	1.7%	5.0%	2.9%
Type: Water	1.7%	7.7%	3.2%

Exhibit C-15(b): Graphical Results



Analysis: In general, higher values are desirable. The City places above the top quartile for all comparative benchmarks. <u>Score: 1 - "Very Good"</u>



16. Return on Assets

Description: In general, utilities are seeking a higher return on asset ratio performance where possible. This indicator is a measure of a utility's financial effectiveness.

Exhibit C-16(a): Formula and Comparative Benchmark

Return on Assets			
Formula: Net Income ÷ Total Assets			
Net Income	\$690,580		
Total Assets	\$40,041,390		
Yakima Result:	1.72%		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.90%	4.30%	2.30%
Population Served: 50k- 100k	1.10%	5.30%	2.40%
Type: Water	0.90%	3.60%	2.60%

Exhibit C-16(b): Graphical Results



Analysis: Higher values are desirable. The City's result places it below the median benchmarks, but above the bottom quartile in each category, warranting further investigation and potential improvement. <u>Score: 3 – "Fair"</u>.



17. Return on Fixed Assets

Description: In general, this value indicates whether the utility is earning sufficient net operating income (before any non-operating revenues & expenses) as a return on its investment in capital assets to equal or exceed its weighted cost of capital for the reporting period. A return equal to or greater than the entity's average cost of capital is a prudent financial objective. The City's estimated weighted average cost of capital (WACC) is 1.48% based on debt issues from its 2011 CAFR.

Exhibit C-17(a): Formula and Comparative Benchmark

Return on Fixed Asse	Return on Fixed Assets			
Formula: Net Operatir	ng Income ÷ Tot	al Net Plant-in-Service (less dep.)		
Net Operating Income	\$483,532			
Total Plant-in-Service	\$33,302,999	Net of depreciation. Excl. Intangibles and Unamortized		
Yakima Result:	1.45%			
City of Yakima		FCS GROUP Experience		
Yakima's Estimated Weighted Cost of Capital		1.48%		

Exhibit C-17(b): Graphical Results



Analysis: In general, a utility would want to have a return that exceeds its weighted average cost of capital. The City's result approximately equals its WACC, but does not exceed it. <u>Score: 2 – "Good"</u>



18. Accounts Receivable Turnover

Description: In general, higher values are desirable. A result of greater than 12 is very good. Less than 12 can be okay if it is explained by bi-monthly billing cycles or some other lag creating factor. Otherwise, a lower ratio may suggest that a utility should assess their collection results against policies in relation to customer accounts and average collections per period.



Accounts Receivable Turnover			
Formula: An	Formula: Annual Billings ÷ End of Year A/R Balance		
Annual Billings	\$6,792,444		
End of Year A/R Balance	\$113,552		
Yakima Result:	59.82		
Benchmarks		FCS GROUP Experience	
Industry Benchmark		12	

Exhibit C-18(b): Graphical Results



Analysis: Higher values are desirable. The City's result significantly exceeds the industry benchmark, indicating an efficient billing and collection operation. <u>Score: 1 – "Very Good"</u>



19. Accounts Receivable Collection Period

Description: This indicator measures the number of days from when a customer is billed to when the payment is received by the Utility. In general, lower values are desirable. Less than 30 days improves cash flow from operations and the ability for a utility to meet short-term obligations, after working capital is depleted.

	Exhibit	C-19(a):	Formula	and Com	parative	Benchmark
--	---------	----------	---------	---------	----------	-----------

Accounts Receivable Collection Period			
Formula: 365 days ÷ Accounts Receivable Turnover			
Formula Piece #1	365 days		
Accounts Receivable Turnover	59.82		
Yakima Result:	6.10		
Benchmarks		FCS GROUP Experience	
Industry Benchmark		30	

Exhibit C-19(b): Graphical Results



Analysis: Lower values are desirable. The City's result significantly exceeds the industry benchmark, indicating an efficient billing and collection operation. <u>Score: 1 – "Very Good"</u>



20. Current Ratio

Description: In general, higher values are desirable. This is a liquidity ratio and a ratio of 2:1 is good to excellent. Generally, a consistent ratio of greater than 1:1 indicates that the utility can pay its current operating obligations without borrowing working capital.



Current Ratio				
Formula:	Formula: Current Assets ÷ Current Liabilities			
Current Assets	\$6,141,072			
Current Liabilities	\$1,173,114			
Yakima Result:	5.23			
Benchmarks		FCS GROUP Experience		
Industry Benchmark		2		

Exhibit C-20(b): Graphical Results



Analysis: Higher values are desirable. The City's results are much higher than the targeted benchmark, indicating that the utility can pay its current operating obligations with current assets, avoiding the use of working capital reserves. <u>Score: 1 – "Very Good"</u>



21. Operating Working Capital

Description: Today, Financial Advisors and rating agencies would like to see up to 180 days of total unrestricted cash, cash equivalents and longer term forms of liquidity, of which 30-90 days could be working capital. Try to achieve a positive number sufficient to cover at least 30-45 days of expense. Up to 90 days may be prudent depending on the volatility of revenue. In general, this indicator shows how much cash plus current assets a utility has on hand, to make up for any short-term variances in service revenue, to cover current liabilities. We cannot assure that "unrestricted" assets are all actually available for working capital, but that is the general assumption.

Exhibit C-21(a): Formula and Comparative Benchmark

Operating Working C	Operating Working Capital			
Formula: [(Current Assets - Current Liabilities (not devoted to debt or capital projects)) ÷ Operating Expenses (less dep.)] X 365 days				
Current Assets	\$6,141,072			
Current Liabilities (less Debt portion)	\$728,265			
Operating Expenses	\$5,296,003			
Yakima Result:	373 days			
Benchmarks		FCS GROUP Experience		
Industry Benchmark		90 days		

Exhibit C-21(b): Graphical Results



Analysis: Higher values are desirable. The City's result significantly exceeds the targeted benchmark, indicating that current cash and cash equivalents on hand can act as a buffer against short-term variances in revenues and/or expenses. Score 1 - ``Very Good''



22. O&M Coverage Ratio

Description: This ratio shows how operating revenues compare to operating expenses. A utility should strive to be above 1.0, which would mean that operating expenses are being covered by operating revenues, and operating expenses are not being paid for with non-operating revenues such as interest income or capital connection charges. Less than 1.0 will not ultimately lead to a healthy financial trend over the long run, especially during periods of negative non-operating income.

Exhibit C-22(a): Formula and Comparative Benchmark

O&M Coverage Ratio			
Formula: Total Opera	ting Revenues	+ Operating Expenses (incl dep.)	
Total Operating Revenues	\$6,887,220		
Total Operating Expenses (incl. dep.)	\$6,403,688		
Yakima Result:	1.08		
Benchmarks		FCS GROUP Experience	
Industry Benchmark		1 00	

Exhibit C-22(b): Graphical Results



Analysis: A utility should strive to be above 1.0, implying that operating revenues can cover operating expenditures (including depreciation). The City's result is above the industry benchmark. <u>Score: 1 – "Very Good"</u>



23. Debt Coverage Ratio

Description: In general, higher values are desirable. The Debt Service Coverage (DSC) ratio is an indicator that measures the average amount of net operating income available to pay annual debt service. Yakima's most recent debt issuance has a debt service coverage requirement of 1.25 times annual debt service; current internal policy is 2.0. The DSC is essentially an instantaneous measurement of estimated cash income generating performance. It is considered in rate making as a critical factor and driver in projecting needed annual rate revenue requirements.

2.00

Exhibit	C-23(a):	Formula	and Cor	nparative	Benchmark
	()-				

Debt Coverage Ratio)	
Formula: Net Revenu	e ÷ Period Inte	erest and Principal (Only Revenue
	Bond	ls)
Total Operating Revenue	\$6,887,220	
Total Operating Expenses (less dep.)	\$5,296,003	
Water: City Taxes	\$951,037	From Trial Balance Report
Net Revenue	\$2,542,254	Rev Exp. (Excludes dep. & city taxes)
Period Principal	\$170,000	Revenue Bond P&I Only from Debt Schedule
Period Interest	\$67,793	
Yakima Result:	10.69	
Benchmarks		FCS GROUP Experience

Exhibit C-23(b): Graphical Results

Internal Policy



Analysis: Higher values are desirable. The City's result is much higher than both its contractual requirement and internal target. <u>Score: 1 – "Very Good"</u>



CUSTOMER RELATIONS

Region: West

Type: Water

100k

Population Served: 50k-

24. Customer Service Related Complaints

Description: This indicator measures the complaint rate experienced by the utility associated with customer service, expressed as complaints per 1,000 customer accounts. Generally, lower values are desirable. The number of complaints is a good measure of customer service. This indicator may include complaints about an employee's helpfulness, timeliness, personal appearance, adhering traffic laws while driving, customer bills etc.

3.0

3.0

5.0

Customer Service	Related Compla	aints	
Formula: 1,000 X Nu	Imber of Customer Active Water A	Service Comple Accounts	aints ÷ Number of
Customer Service Complaints	e 538 s		
Accounts	s 18,700		
Yakima Result	:: 28.77		
Benchmarks	Bottom Quartile	Top Quartile	Median

0.6

0.6

0.9

9.9

8.2

14.5

Exhibit C-24(a): Formula and Comparative Benchmark

Customer Service Related Complaints					
3. 3. 3.	; ;				
2000 (1 2)	;				
ints pe) 5				

Analysis: Lower values are desirable. The City's results are higher than the bottom quartile, warranting further investigation and potential improvement. <u>Score: 4 - ``Poor''</u>. Note: there were 538 complaints in the reporting period, with 401 of them (75%) related to billing errors. The City's utility billing is a centralized service combined for water, wastewater, and refuse; and thus, beyond the scope of authority for the water utility. Total complaints were included in the results to provide an "apples to apples" comparison with the survey participants. Excluding the billing related complaints improves the result to 7.3, somewhat better than the bottom quartile.


25. Technical Quality Related Complaints

Description: This indicator measures the complaint rate experienced by the utility associated with technical quality, expressed as complaints per 1,000 customer accounts. Generally, lower values are desirable. This indicator represents complaints related to water quality, color, odor, pressure, etc.

Exhibit C-25(a): Formula and Comparative Benchmark

Technical Quality Related Complaints			
Formula: 1,000 X Number of Technical Quality Complaints ÷ Number of			
	Active Water Accounts		
Technical Quality Complaints	28		
Accounts	18,700		
Yakima Result:	1.50		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	10.0	1.9	5.0
Population Served: 50k- 100k	28.3	1.3	3.9
Type: Water	11.2	1.9	4.4

Exhibit C-25(b): Graphical Results





26. Planned Disruptions (< 4 hours) per 1,000 Customers

Disruption Indicator Summary (Following 6 indicators): Maintenance and repair work that results in water outages or substantially reduced water pressure disrupts customer plans, brings customer complaints, and diminishes goodwill toward the utility. Large numbers and proportions of unplanned disruptions likely reflect on distribution system inadequacies. Outages of long durations may be indicative of poor repair practices. These indicators are separated between planned and unplanned disruptions as well as by duration. ***Note:** An assumption is made relating to the formula: it is assumed that the number of Customers Experiencing Disruptions equates to number of disruptions.

Description: This indicator quantifies the number of planned water outages experienced by utility customers for duration less than 4 hours. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable.

Exhibit C-26(a): Formula and Comparative Benchmark

Planned Disruptions (< 4 hours) per 1,000 Customers				
Formula: 1,000 X N	umber of Custom	ers Experiencing	g Disruptions* ÷	
Num	ber of Active Cus	tomer Accounts		
Disruptions (<4 h)	20			
Accounts	18,700			
Yakima Result	1.07			
Benchmarks	Bottom Quartile	Top Quartile	Median	
Region: West	21.40	0.67	5.00	
Population Served: 50k- 100k	19.60	0.28	1.31	
Type: Water	16.49	1.21	4.10	

Exhibit C-26(b): Graphical Results





27. Planned Disruptions (4 - 12 hours) per 1,000 Customers

Description: This indicator quantifies the number of planned water outages experienced by utility customers for duration between 4 and 12 hours. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable.

Exhibit C-27(a): Formula and Comparative Benchmark

Planned Disruptions (4 hours - 12 hours) per 1,000 Customers				
Formula: 1,000 X Num	Formula: 1,000 X Number of Customers Experiencing Disruptions* ÷			
Numbe	r of Active	Customer Accounts		
Disruptions (4 h - 12 h)	1			
Accounts	18,700			
Yakima Result:	0.05			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	5.20	0.18	1.00
Population Served: 50k- 100k	1.12	0.06	0.31
Type: Water	3.51	0.17	0.77

Exhibit C-27(b): Graphical Results





28. Planned Disruptions (>12 hours) per 1,000 Customers

Description: This indicator quantifies the number of planned water outages experienced by utility customers for duration longer than 12 hours. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable.

Exhibit C-28(a): Formula and Comparative Benchmark

Planned Disruptions (>12 hours) per 1,000 Customers				
Formula: 1,000 X Num	Formula: 1,000 X Number of Customers Experiencing Disruptions* ÷			
Numbe	r of Active	Customer Accounts		
Disruptions (>12 h)	0			
Accounts	18,700			
Vakima Dagultu	0.00			
fakima Result: 0.00				

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.36	0.00	0.00
Population Served: 50k- 100k	0.13	0.00	0.00
Type: Water	0.12	0.00	0.00

Exhibit C-28(b): Graphical Results





29. Unplanned Disruptions (< 4 hours) per 1,000 Customers

Description: This indicator quantifies the number of unplanned water outages experienced by utility customers for duration less than 4 hours. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable.

Exhibit C-29(a): Formula and Comparative Benchmark

Unplanned Disruptions (< 4 hours) per 1,000 Customers			
Formula: 1,000 X Number of Customers Experiencing Disruptions* ÷			
Number of Active Customer Accounts			
Disruptions (<4 h)	5		
Accounts	18,700		
Yakima Result:	0.27		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	5.00	0.50	1.98
Population Served: 100k	50k- 5.00	0.80	2.01
Type: Water	9.10	0.89	2.83

Exhibit C-29(b): Graphical Results





30. Unplanned Disruptions (4 - 12 hours) per 1,000 Customers

Description: This indicator quantifies the number of unplanned water outages experienced by utility customers for duration between 4 and 12 hours. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable.

Exhibit C-30(a): Formula and Comparative Benchmark

Unplanned Disruption	ns (4 hours - 12 hours) per 1,000 Customers			
Formula: 1,000 * Numbe	Formula: 1,000 * Number of Customers Experiencing Disruptions* ÷ Number			
С	f Active Customer Accounts			
Disruptions (4 h - 12 h)	1			
Accounts	18,700			
Yakima Result:	0.05			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	1.79	0.14	0.50
Population Served: 50k- 100k	0.96	0.12	0.38
Type: Water	3.22	0.13	0.98

Exhibit C-30(b): Graphical Results





31. Unplanned Disruptions (>12 hours) per 1,000 Customers

Description: This indicator quantifies the number of unplanned water outages experienced by utility customers for duration over 12 hours. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable.

Exhibit C-31(a): Formula and Comparative Benchmark

Unplanned Disruptions (>12 hours) per 1,000 Customers			
Formula: 1,000 X Number of Customers Experiencing Disruptions* ÷			
Number of Active Customer Accounts			
Disruptions (>12 h)	0		
Accounts	18,700		
Yakima Result:	0.00		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.17	0.00	0.00
Population Served: 50k- 100k	0.21	0.00	0.00
Type: Water	0.20	0.00	0.00

Exhibit C-31(b): Graphical Results





32. Customer Service Cost per Account

Description: This indictor measures the amount of resources a utility applies to its customer service program. Generally, lower values are desirable. The indicator is expressed as the cost of managing a single customer account for one year. When viewed alone, it quantifies resource efficiency. Viewing in conjunction with other indicators, it can help clarify performance. For example, a utility with high numbers of customer complaints and lower customer service costs might be sacrificing effectiveness and yet appear as efficient.

Exhibit C-32(a): Formula and Comparative Benchmark

Customer Service Cost per Account						
Formula: Total Custo	omer Service Cost	t ÷ Total Number	of Active Water			
	Account	ts				
Allocable Customer Service Costs	\$576,232					
Total Accounts	18,700					
Yakima Result:	\$30.81					
Benchmarks	Bottom Quartile	Top Quartile	Median			
Region: West	\$58.64	\$24 92	\$38.82			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$58.64	\$24.92	\$38.82
Population Served: 50k- 100k	\$42.63	\$22.80	\$34.47
Type: Water	\$50.69	\$19.33	\$30.22

Exhibit C-32(b): Graphical Results



Analysis: Lower values are desirable. The City's results are slightly better than overall benchmark medians. <u>Score: 2 - "Good"</u>



33. Monthly Cost of Using 7,500 gallons (Water – Residential)

Description: Allows for a utility to compare the residential cost of water service with a large sample of the industry. In general, lower values are desirable. Each utility is unique, however, and different circumstances may be the cause of a specific result.

Exhibit C-33(a): Formula and Comparative Benchmark

Monthly cost of using 7,500 gallons (Water - Residential)						
Formula: Calculated value of a monthly bill based upon 7,500 gallons or about 10 ccfs						
Fixed	\$5.52					
Volume	\$14.44					
Yakima Result:	\$19.96					

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$33.84	\$21.77	\$27.75
Population Served: 50k- 100k	\$28.69	\$20.89	\$23.77
Type: Water	\$32.04	\$21.44	\$26.41

Exhibit C-33(b): Graphical Results



Analysis: In general, lower values are desirable. The City's results are significantly lower than those of the top quartile. <u>Score: 1 – "Very Good"</u>



APPENDIX: BENCHMARK MODEL



Benchmarking Analysis

Yakima

City of

Description	Figure	Source
2011 Total Water Accounts	18,700	Dave Brown Email (10/23)
Total Water Produced & Purchased	3,522,567,974 gallons	Water Use Efficiency Annual Performance Report - 2011
Authorized Consumption	2,951,690,565 gallons	Water Use Efficiency Annual Performance Report - 2011
Volume Distributed (MG)	3,523 (MG)	Formula: Gallons of water delivered in 2011 ÷ 1,000,000
Average MGD	9.65 (MG)	Formula: Millions of gallons of water delivered in 2011 ÷ 365 days
Water	31.65 FTEs	Dave Brown Email (10/23)
Miles of Water Distribution Pipe	300	Dave Brown Email (10/23)
Annual Leaks in Year of 2008-2009 Study	6	Dave Brown Email (10/23) Averaged the "5-7" leaks per year
Population served	~ 65,000	
2011 Total Workdays Away (Work Injury / Illness)	13 days	Dave Brown Email (10/26)
2011 Total Work Hours of Employees	62,338 hours	Dave Brown Email (10/26)
Direct Cost Allocated to Water Treatment	\$900,750	Dave Brown Email (10/26)
Customer Service Complaints	538	Dave Brown Email (10/26)
Technical Quality Complaints	28	Dave Brown Email (10/26)
Customer Service Costs	\$576,232	Dave Brown Email (10/26)
Training Hours	384	Dave Brown Email (10/26)
Number of Days in Full Compliance	365 days	Dave Brown Email (10/26) (Zero days out of Violation = 365 days in compliance)
Disruptions		
Planned Disruptions (<4 hours)	20	Dave Brown Email (10/26)
Planned Disruptions (4 hours - 12 hours)	1	Dave Brown Email (10/26)
Planned Disruptions (>12 hours)	0	Dave Brown Email (10/26)
Unplanned Disruptions (<4 hours)	5	Dave Brown Email (10/26)
Unplanned Disruptions (4 hours - 12 hours)	1	Dave Brown Email (10/26)
Unplanned Disruptions (>12 hours)	0	Dave Brown Email (10/26)
System Renewal / Replacement		
Distribution		
Present Worth of Replacement Needs	\$ 61,854,517	Note: Data for these calculations were derived from the City's 2009-2011 actual capital expenditures
Weighted Book Life of Assets	48.30	as well as the City's fixed asset records.
Annual Replacement Target	\$ 1,280,543	
3 - Year Average Actual Expenditures	\$ 230,513	
Treatment		
Present Worth of Replacement Needs	\$ 12,847,480	
Weighted Book Life of Assets	34.17	
Annual Replacement Target	\$ 375,937	m
3 - Year Average Actual Expenditures	\$ 131,273	

Benchmarking Analysis 2011 CAFR Data

Statement of Net Position **#974 WATER** Assets Current Assets Cash & Equity Pool Investments 1,214,008 Deposits w/ Fiscal Agent/Trustee Receivables: Accounts/Taxes (Net) 113,552 Other Receivables Due from Other Gov. Units Inventories 204,512 Investments, at Amortized Cost 4,609,000 [a] Total Current Assets 6,141,072 Noncurrent Assets Restricted Assets Cash 362.249 Investments 173,614 Land Buildings 8,548,449 Other Improvements 42,294,730 Machinery & Equipment 2,858,730 (23,919,400) Accumulated Depreciation 3,346,876 Construction in Progress Intangibles 221,830 Unamortized Debt Issue Costs 13,240 Total Noncurrent Assets 33,900,318 Total Assets 40,041,390 Liabilities Current Liabilities 171,777 Warrants/Accounts Payable Wages/Benefits Payable 211,785 Compensated Absences Payable 219,923 Claims an judgments Payable Accrued Payables 19,571 Deposits Payable 105,209 Current Portion of Long-term Debt 269,849 Restricted Payables Current Portion LT Debt 175,000 Total Current Liabilities 1,173,114 Noncurrent Liabilities Bonds Payable 1,210,000 Unamortized Bond Discount/Premium 52,111 Deferred Amount on Debt Refunding Loans Payable - Long-Term (30,249 3,953,366 Total Noncurrent Liabilities 5,185,228 6,358,342 Total Liabilities Net Position Invested in Capital Assets Net of Related Debt (a Restricted for Debt Service 27,888,421 362,249 Unrestricted 5,432,378 33,683,048 Total Net Position Check

Revenue, Expenses, Changes in Fund	d Net Position
	#974 WATER
Operating Revenues	
Charges for Services	6 792 44
Charges for Insurance	0,702,11
Employer Contributions	
Employee Contributions	
Other Operating Revenues	94,77
Total Operating Revenues	6,887,22
Operating Expenses	
Operations and Maintenance	1,985,52
Administration/Overhead	1,903,15
Taxes	1,407,32
Depreciation/Amortization	1,107,68
Other Benefits	
Total Operating Expenses	6,403,68
Operating Income (Loss)	483,53
Non-Operating Revenues (Expenses)	
Operating Grants/Subsidies	
Interest Revenue	1,54
Other Non-Operating Revenues	10,98
Interest Expense	(89,95
Amortization of Bond Payment Discount	(2,87
Gain (Loss) on Capital Assets Disposition	
Non-Operating Revenues Net of Expenses	(80,30
Income (Loss) before Contributions	403,23
Capital Contributions	409,34
Transfers In	
Transfers (Out)	(121,99
Change in Net Position	690,58
Total Net Position January 1	32,713,50
Prior Period Adjustments	278,96
Total Net Position - December 31	33.683.04

Check

[a] Investment Securities (Pg. 36 CAFR)

Benchmarking Analysis 2011 CAFR, p76,78

Issue Description	Interest	Out	standing	% of Total
PW-03-027 Naches River Water Treatment Plt Impr	0.50%	\$	1,616,700	29%
SRF-04-65104-037 - Naches River Water Treatment Filter Rehab	0.50%		649,444	12%
PC08-951-051 - New Water Well	0.50%		1,946,670	35%
L11000008 - Wastewater Energy Efficiency Project	0.50%		36,856	1%
Water Revenue Bonds (2008 Refunding of 1998) [a]	4.50%		1,385,000	25%
		\$	5,634,670	

Estimated Weighted Average Cost of Capital

1.48%

[a] The 2011 CAFR cited the rate as "4.0 - 5.0%", so the midpoint was assumed.

Benchmarking Analysis Index

Table for Report

#	Performance Indicator	#	Performance Indicator
1	Organization Best Practices Index Survey	18	Accounts Receivable Turnover
2	Employee Health & Safety Severity Rate	19	Accounts Receivable Collection Period
3	Training Hours per Employee	20	Current Ratio
4	Customer Accounts per Employee	21	Operating Working Capital
5	MGD of Water Delivered per Employee	22	O&M Coverage Ratio
6	Drinking Water Compliance Rate	23	Debt Coverage Ratio
7	Distribution System Loss / Leakage	24	Customer Service Related Complaints
8	Water Distribution System Integrity	25	Technical Quality Related Complaints
9	O&M Cost per Customer Account	26	Planned Disruptions (< 4 hours) per 1,000 Customers
10	O&M Cost per Million Gallons of Water Distributed	27	Planned Disruptions (4 hours - 12 hours) per 1,000 Customers
11	Direct Cost of Treatment per Million Gallons Distributed	28	Planned Disruptions (>12 hours) per 1,000 Customers
12	Debt to Total Asset Ratio (Debt Ratio)	29	Unplanned Disruptions (< 4 hours) per 1,000 Customers
13	Debt to Equity (Net Asset) Ratio	30	Unplanned Disruptions (4 hours - 12 hours) per 1,000 Customers
14	System Renewal / Replacement Rate (Distribution)	31	Unplanned Disruptions (>12 hours) per 1,000 Customers
15	System Renewal / Replacement Rate (Treatment)	32	Customer Service Cost per Account
16	Return on Assets	33	Monthly cost of using 7,500 gallons (Water - Residential)
17	Return on Fixed Assets		

Benchmarking Analysis Color-Coded Tables

Total Score Check: Check O.K.

#	Organizational Development		Water Operations		Business & Finance Operation	s	Customer Relations	
1	Organization Best Practices Index Survey	2	Drinking Water Compliance Rate	1	Debt to Total Asset Ratio (Debt Ratio)	1	Customer Service Related Complaints	4
2	Employee Health & Safety Severity Rate	3	Distribution System Loss / Leakage	4	Debt to Equity (Net Asset) Ratio	1	Technical Quality Related Complaints	1
3	Training Hours per Employee	4	Water Distribution System Integrity	1	System Renewal / Replacement Rate (Distribution)	1	Planned Disruptions (< 4 hours) per 1,000 Customers	1
4	Customer Accounts per Employee	1	O&M Cost per Customer Account	2	System Renewal / Replacement Rate (Treatment)	1	Planned Disruptions (4 hours - 12 hours) per 1,000 Customers	1
5	MGD of Water Delivered per Employee	1	O&M Cost per Million Gallons of Water Distributed	2	Return on Assets	3	Planned Disruptions (>12 hours) per 1,000 Customers	1
6			Direct Cost of Treatment per Million Gallons Distributed	2	Return on Fixed Assets	2	Unplanned Disruptions (< 4 hours) per 1,000 Customers	1
7					Accounts Receivable Turnover	1	Unplanned Disruptions (4 hours - 12 hours) per 1,000 Customers	1
8					Accounts Receivable Collection Period	1	Unplanned Disruptions (>12 hours) per 1,000 Customers	1
9					Current Ratio	1	Customer Service Cost per Account	2
10					Operating Working Capital	1	Monthly cost of using 7,500 gallons (Water - Residential)	1
11					O&M Coverage Ratio	1		
12					Debt Coverage Ratio	1		
	Average	2.2		2.0		1.3		1.4



Benchmarking Analysis

Solutions-Oriented Consulting

Organizational Development

1 Organization Best Practices Index Survey

Formula: Results of "Best Practices" Survey (min 7 - max 35 at each utility)

25

Yakima Result:

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	22.80	30.00	26.50
Population Served: 50k- 100k	21.00	30.00	24.50
Type: Water	20.50	28.80	24.00

Performance Indicator Description:

To summarize a utility's implementation of management programs important to a water utility. Generally, higher values are desirable. Practices are likely to be more formal and extensive in larger utilities. Note: Asset Management Program scheduled to be installed 2013 in Yakima, which would increase their BMP Survey score once installed.



Score: 2 "Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Organizational Development

2	Employee Health & Safety Severity Rate								
	Formula: 200,000 X (Total Workdays away from Work) ÷ Total Hours Worked								
	by All Employees								
	Days Away (Work Injury & Illness) 13								
	Total Hours Worked	62,338							
	Yakima Result:	42							

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	88.10	0.10	21.20
Population Served: 50k- 100k	49.40	0.00	5.30
Type: Water	79.00	0.00	12.90

Performance Indicator Description:

Quantifies the rate of employee days lost from work due to illness or injury. Generally, lower values are desirable. Excessive lost workdays affect productivity and can cost utilities in a number of ways. Health care, insurance premiums, and overtime can all be adversely impacted by lost work due to injury or health reasons. Indicator measures the rate of days lost per 100 employee-years of work.



Score:

3

"Fair"

Benchmarking Analysis

Solutions-Oriented Consulting

Organizational Development

3	Training Hours per Emplo	oyee
	Formula: Total Qualified F FTEs Worked by	ormal Training Hours for All Employees ÷ Total Employees During Reporting Period
	Training Hours	384
	Number of FTEs	31.65
	Yakima Result:	12.13

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	14.10	36.10	23.70
Population Served: 50k- 100k	11.80	29.00	20.30
Type: Water	12.10	23.90	15.50

Performance Indicator Description:

Measures the quantity of formal training that utility employees are actually completing. This indicator is expressed as the number of formal training hours per employee per year. Generally, higher values are desirable. This measure is intended to reflect the organization's commitment to formal training as a means of improving employee knowledge and skills.



Score:

4

"Poor"

Benchmarking Analysis

Solutions-Oriented Consulting

Organizational Development

4	Customer Accounts per Employee		
	Formula: Nu	Imber of Accounts + Number of FTEs	
	Number of Accounts	18,700	
	Number of FTEs	31.65	
	Yakima Result:	591	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	349	635	422
Population Served: 50k- 100k	408	558	473
Type: Water	333	667	456

Performance Indicator Description:

This indicator is intended to measure employee efficiency. Generally, higher values are desirable.



Benchmarking Analysis

Solutions-Oriented Consulting

Organizational Development

5	MGD of Water Delivere	ed per Employee	
	Formula: Average MGD Delivered + FTEs		
	MGD	9.65	
	MOD	0.00	
	Number of FTEs	31.65	
	Yakima Result:	0.30	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.17	0.40	0.26
Population Served: 50k- 100k	0.14	0.29	0.19
Type: Water	0.15	0.33	0.24

Performance Indicator Description:

This indicator is intended to measure employee efficiency. Generally, higher values are desirable.



Score:

1

PREPARED BY FCS GROUP

425-867-1802

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Water Operations

6	Drinking Water Compliar	nce Rate
	Formula: Number	of Days in Full Compliance ÷ 365 Days
	Days in Full Compliance	365
	Formula Piece #2	365
	Yakima Result:	100%

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	100.0%	100.0%	100.0%
Population Served: 50k- 100k	100.0%	100.0%	100.0%
Type: Water	100.0%	100.0%	100.0%

Performance Indicator Description:

This indicator quantifies the percentage of time each year that a water utility meets all health-related drinking water requirements of the UW National Primary Drinking Water Regulations. Higher results are desirable. A compliance rate of 100% is the goal of every utility.



Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Water Operations

7	Distribution System Loss / Leakage				
	Formula: [Volume distributed - (volume billed + volume unbilled but				
	authorized) ÷ volume distributed]				
	Volume Distributed	3,522,567,974			
	Volume Billed & Authorized	2,951,690,565			
	Yakima Result:	16.21%			
	Benchmarks	Bottom Quartile	Top Quartile	Median	
	Region: West	10.4%	3.8%	7.2%	
	Population Served: 50k- 100k	15.0%	4.0%	8.9%	
	Type: Water	12.4%	4.9%	8.6%	

Performance Indicator Description:

This indicator is a measure of the percentage of produced water that fails to reach customers and cannot otherwise be accounted for through authorized usage. Generally higher values are not desirable. Water loss can adversely impact revenue and water use efficiency, Note per Yakima staff: Once Automatic Meter Reading (AMR) is implemented, high DSL will be corrected.



Benchmarking Analysis

Solutions-Oriented Consulting

Water Operations

8	Water Distribution System Integrity			
	Formula: 100 X (Annual total number of leaks + annual total number of			
	breaks) ÷	Total miles of distribution piping		
	Annual Leaks & Breaks	6.0		
	Miles of Distribution Piping	300		
	Yakima Result:	2.00		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	53.00	15.80	31.20
Population Served: 50k- 100k	69.60	14.80	32.70
Type: Water	56.10	21.70	34.30

Performance Indicator Description:

This indicator is a measure of the condition of the water distribution system, expressed as the total annual number of leaks and pipeline breaks per 100 miles of distribution piping. Generally, higher values are not desirable. Excessive leaks and breaks can result in increased costs due to an increased number of emergency repairs.



Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Water Operations

9	O&M Cost per Customer Account					
	Formula: Total O&M les	ss depreciation ÷	Total number o	f customer accounts		
	Total O&M (less dep.)	\$5,296,003				
	Total Customer Accounts	18,700				
	Yakima Result:	\$283				
	Benchmarks	Bottom Quartile	Top Quartile	Median		

Benchmarks	Bottom Quartile	Top Quantile	Median
Region: West	\$443	\$252	\$339
Population Served: 50k- 100k	\$302	\$101	\$161
Type: Water	\$357	\$205	\$272

Performance Indicator Description:

Generally, higher values are not desirable. Higher O&M costs per customer account may indicate inefficient procedures or may be the result of aging infrastructure. However, this may not always be the case. Higher costs per account may be the desired outcome to improve customer satisfaction or to make up for deferred maintenance practices.



Score: 2 "Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Water Operations

O&M Cost per Million Gallons of Water Distributed Formula: Total O&M less depreciation ÷ Volume (in MG) Distributed During the Reporting Period Total O&M (less dep.) \$5,296,003 Volume Distributed (in MG) 3,523 Yakima Result: \$1,503

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$2,509	\$1,163	\$1,608
Population Served: 50k- 100k	\$2,286	\$667	\$1,373
Type: Water	\$2,310	\$1,037	\$1,506

Performance Indicator Description:

Generally, higher values are not desirable. Higher O&M costs per million gallons may indicate inefficient procedures or may be the result of aging infrastructure. However, this may not always be the case. Higher costs per account may be the desired outcome to improve customer satisfaction or to make up for deferred maintenance practices.



Score:

2

"Good"

Benchmarking Analysis

Solutions-Oriented Consulting

100k

Type: Water

Water Operations

Direct Cost of Treatment per Million Gallons Distributed

Score:

2

"Good"

Formula: Total Direct O&M Costs for Water Treatment ÷ Volume (in MG) Distributed During the Reporting Period					
Treatment Cost	\$900,750				
Total Volume Processed (MG)	3,523				
Yakima Result:	\$256				
Benchmarks	Bottom Quartile	Top Quartile	Median		
Region: West	\$558	\$75	\$234		
Population Served: 50k-	\$660	\$130	\$353		

\$550

11 Direct Cost of Treatment per Million Gallons Distributed

Performance Indicator Description:

Generally, higher values are not desirable. Higher O&M directly attributable to water treatment per million gallons distributed may indicate high staffing levels or increased maintenance due to aging equipment and facilities. However, this may not always be the case. Higher costs may be unavoidable due to the use of more expensive treatment processes.

\$100

\$322

City of Yakima Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

12	Debt to Total Asset Ratio (Debt Ratio)						
	Formula: Total Liabilities + Total Assets						
	Total Liabilities	\$6,358,342					
	Total Assets	\$40,041,390					
	Yakima Result:	15.9%					
	Benchmarks	Bottom Quartile	Top Quartile	Me			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	42.1%	18.1%	28.0%
Population Served: 50k- 100k	28.9%	21.4%	26.9%
Type: Water	43.3%	20.7%	28.6%

Performance Indicator Description:

This indicator quantifies the utility's level of indebtedness. Generally, the higher the calculated ratio, the more dependent the utility is on debt financing. Many utilities use this indicator as an internal measure of performance. Lower values are generally desirable.

Debt to Total Asset Ratio (Debt Ratio)

Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

13	Debt to Equity (Net Asset) Ratio				
	Formula: Total Current & Non-Current Borrowed Debt + Net Assets.				
	Total Borrowed Debt	\$5,608,215			
	Net Assets	\$33,683,048			
	Yakima Result:	0.17 to 1	(14% debt /	86% equity)	
	Benchmarks		FCS	GROUP Experience	Э
	Generally Accepted Debt / Equity Ratio Yakima Benchmarks Generally Accepted Debt Target		1.50 0.17		
			FCS	GROUP Experience	е
				60.0%	
	Yakima			14.3%	





Performance Indicator Description:

This ratio gives insight into a utility's equity-liability relationship in terms of funded capital assets. The lower the percentage, the less leveraged a utility is, which can imply more potential to fund future projects fully with debt. A ratio of 1.5 (60% debt / 40% equity) is a generally accepted industry target.

City of Yakima

City of Yakima Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

14 System Renewal / Replacement Rate (Distribution) Formula: 100 X (Total Actual Expenditures for R&R for each Asset Class) ÷ Total Present Worth of R&R Needs for Each Asset Group

Total Annual Actual Expenditures	\$230,513	Note: 3-year Actual Average
R&R Needs	\$1,280,543	(Total Group Replacement Cost ÷ Weighted Asset Life)
Yakima Result:	18%	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.8%	8.6%	2.0%
Population Served: 50k- 100k	1.9%	22.5%	4.3%
Type: Water	1.3%	6.4%	2.5%

Performance Indicator Description:

This indicator quantifies the rate at which the utility is meeting its individual need for infrastructure renewal or replacement. Generally, higher values are desirable. This indicator measures the degree to which a water utility is replacing its infrastructure of its distribution system.



City of Yakima Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

15 System Renewal / Replacement Rate (Treatment) Formula: 100 X (Total Actual Expenditures for R&R for each Asset Class) ÷ Total Present Worth of R&P Needs for Each Asset Group

Yakima Result:	35%			
R&R Needs	\$375,937	(Total Group Replacement Cost ÷ Weighted Asset Life)		
Total Annual Actual Expenditures	\$131,273	Note: 3-year Actual Average		
Total Present Worth of R&R Needs for Each Asset Group				

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	2.1%	15.1%	3.4%
Population Served: 50k- 100k	1.7%	5.0%	2.9%
Type: Water	1.7%	7.7%	3.2%

Performance Indicator Description:

This indicator quantifies the rate at which the utility is meeting its individual need for infrastructure renewal or replacement. Generally, higher values are desirable. This indicator measures the degree to which a water utility is replacing its treatment infrastructure.



Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

16

Business & Finance Operations

Return on Assets					
Formula: Net Income ÷ Total Assets					
Net Income	\$690,580				
Total Assets	\$40,041,390				
Yakima Result:	1.72%				
Benchmarks	Bottom Quartile	Top Quartile	Media		
Region: West	0.90%	4.30%	2.30%		

Region: west	0.90%	4.30%	2.30%
Population Served: 50k- 100k	1.10%	5.30%	2.40%
Type: Water	0.90%	3.60%	2.60%

Performance Indicator Description:

In general, utilities are seeking a higher return on asset ratio performance where possible. This indicator is a measure of a utility's financial effectiveness.



Score:

3

"Fair"

Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

17	Return on Fixed Assets						
	Formula: Net Operating Income ÷ Total Net Plant-in-Service (less dep.)						
	Net Operating Income	\$483,532					
	Total Plant-in-Service	\$33,302,999	Net of depreciation. Excl. Intangibles and Unamortized				
	Yakima Result:	1.45%					
	City of Yakima		FCS GROUP Experience				

Capital	1.48%

Performance Indicator Description:

A return equal to or greater than average costs of capital is a prudent financial objective. City of Yakima's estimated weighted cost of capital is 1.48% based on debt issues from its 2011 CAFR.



Score: 2 "Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

 Accounts Receivable Turnover

 Formula: Annual Billings ÷ End of Year A/R Balance

 Annual Billings
 \$6,792,444

 End of Year A/R
Balance
 \$113,552

 Yakima Result:
 59.82

 Benchmarks
 FCS GROUP Experience

 Industry Benchmark
 12

Performance Indicator Description:

In general, higher values are desirable. Greater than 12 is very good. Less than 12 can be okay if it is explained by bi-monthly billing cycles or some other lag creating factor.



Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

 Accounts Receivable Collection Period

 Formula: 365 days ÷ Accounts Receivable Turnover

 Formula Piece #1
 365 days

 Accounts Receivable
 59.82

 Turnover
 59.82

 Yakima Result:
 6.10

 Benchmarks
 FCS GROUP Experience

 Industry Benchmark
 30

Performance Indicator Description:

In general, lower values are desirable. Less than 30 days improves cash flow from operations and the ability for a utility to meet short-term obligations, after working capital is depleted.



Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

20 Current Ratio Formula: Current Assets ÷ Current Liabilities Current Assets \$6,141,072 Current Liabilities \$1,173,114 Yakima Result: 5.23 Benchmarks FCS GROUP Experience Industry Benchmark 2

Performance Indicator Description:

In general, higher values are desirable. This is a liquidity ratio and a ratio of 2:1 is good to excellent. Generally, a consistent ratio of greater than 1:1 indicates that the utility can pay its current operating obligations without borrowing working capital.



City of Yakima Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

21	Operating Working Capital					
	Formula: [(Current Assets - Current Liabilities (not devoted to debt or capital projects)) ÷ Operating Expenses (less dep.)] X 365 days					
	Current Assets	\$6,141,072				
	Current Liabilities (less Debt portion)	\$728,265				
	Operating Expenses	\$5,296,003				
	Yakima Result:	373 days				
	Development					
	Benchmarks	FCS GROUP Experience				
	Industry Benchmark	90 days				

Performance Indicator Description:

Try to achieve a positive number sufficient to cover at least 30-45 days of expense. Up to 90 days may be prudent depending on the volatility of revenue.



Score:

1

"Very Good"
Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations



Performance Indicator Description:

Greater that 1.0 is a sign of good fiscal operating results in that reporting period. Less than 1.0 is a red flag that the period financial performance is lagging. This ratio ignores dependence on non-operating revenue and expense performance.



Score: 1 "Very Good"

City of Yakima Benchmarking Analysis

Solutions-Oriented Consulting

Business & Finance Operations

23	Debt Coverage Ratio		
	Formula: Net Revenue ÷ Total Operating Revenue Total Operating Expenses (less dep.)	Period Interest \$6,887,220 \$5,296,003	and Principal (Only Revenue Bonds)
	Water: City Taxes	\$951,037	From Trial Balance Report
	Net Revenue	\$2,542,254	Rev Exp. (Excludes dep. & city taxes)
	Period Principal	\$170,000	Revenue Bond P&I Only from Debt Schedule
	Period Interest	\$67,793	
	Yakima Result:	10.69	

Benchmarks	FCS GROUP Experience
Internal Policy	2.00

Performance Indicator Description:

In general, higher values are desirable. The Debt Service Coverage (DSC) ratio is an indicator that measures the average amount of net operating income available to pay annual debt service.



Score: 1 "Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

24	Customer Service Related Complaints			
	Formula: 1,000 X Number of Customer Service Complaints + Number of			
	Active Water Accounts			
	Customer Service Complaints	538		
	Accounts	18,700		
	Yakima Result:	28.77		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	9.9	0.6	3.0
Population Served: 50k- 100k	8.2	0.6	3.0
Type: Water	14.5	0.9	5.0

Performance Indicator Description:

This indicator measures the complaint rate experienced by the utility (complaints associated with customer service). It is expressed as complaints per 1,000 customer accounts. Generally, lower values are desirable. The number of complaints is a good measure of customer service.



Score:

4

"Poor"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

25	Technical Quality Related Complaints			
	Formula: 1,000 X Number of Technical Quality Complaints ÷ Number of Active			
		Water Accounts		
	Technical Quality Complaints	28		
	Accounts	18,700		
	Yakima Result:	1.50		

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	10.0	1.9	5.0
Population Served: 50k- 100k	28.3	1.3	3.9
Type: Water	11.2	1.9	4.4
Yakima			1.5

Performance Indicator Description:

This indicator measures the complaint rate experienced by the utility (complaints associated with technical quality). It is expressed as complaints per 1,000 customer accounts. Generally, lower values are desirable. The number of complaints is a good measure of customer service.



Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

26 Planned Disruptions (< 4 hours) per 1,000 Customers</td> Formula: 1,000 X Number of Customers Experiencing Disruptions* ÷ Number of Active Customer Accounts Disruptions (<4 h)</td> 20 Accounts 18,700 Yakima Result: 1.07

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	21.40	0.67	5.00
Population Served: 50k- 100k	19.60	0.28	1.31
Type: Water	16.49	1.21	4.10

Performance Indicator Description:

This indicator quantifies the number of water outages experienced by utility customers. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable. *Note: Assumption is number of Customers Experiencing Disruptions equates to number of disruptions.

Score: 1 "Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

Score: 1 "Very Good"

27	Planned Disruptions (4 hours - 12 hours) per 1,000 Customers				
	Formula: 1,000 X Numb	er of Customers E	xperiencing Disru	otions* ÷ Number	
		of Active Custome	er Accounts		
	Disruptions (4 h - 12 h)	1			
	Accounts	18,700			
	Yakima Result:	0.05			
1					
	Renchmarke	Rottom Quartila	Ton Quartila	Median	

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	5.20	0.18	1.00
Population Served: 50k- 100k	1.12	0.06	0.31
Type: Water	3.51	0.17	0.77

Performance Indicator Description:

This indicator quantifies the number of water outages experienced by utility customers. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable. *Note: Assumption is number of Customers Experiencing Disruptions equates to number of disruptions.

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

28 Planned Disruptions (>12 hours) per 1,000 Customers Formula: 1,000 X Number of Customers Experiencing Disruptions* + Number of Active Customer Accounts Disruptions (>12 h) 0 Accounts 18,700 Yakima Result: 0.00

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.36	0.00	0.00
Population Served: 50k- 100k	0.13	0.00	0.00
Type: Water	0.12	0.00	0.00

Performance Indicator Description:

This indicator quantifies the number of water outages experienced by utility customers. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable. *Note: Assumption is number of Customers Experiencing Disruptions equates to number of disruptions.

Score:

1

425-867-1802

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

29	Unplanned Disruptions (< 4 hours) per 1,000 Customers				
	Formula: 1,000 X Number of Customers Experiencing Disruptions* ÷ Number				
	of Active Customer Accounts				
	Disruptions (<4 h)	5			
	Accounts	18,700			
	Yakima Result:	0.27			

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	5.00	0.50	1.98
Population Served: 50k- 100k	5.00	0.80	2.01
Type: Water	9.10	0.89	2.83

Performance Indicator Description:

This indicator quantifies the number of water outages experienced by utility customers. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable. *Note: Assumption is number of Customers Experiencing Disruptions equates to number of disruptions.

Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

Score: 1 "Very Good"

30	Unplanned Disruptions	(4 hours - 12 hours) per 1,000 Customers										
	Formula: 1,000 * Number of Customers Experiencing Disruptions* ÷ Number											
	of Active Customer Accounts											
	Disruptions (4 h - 12 h)	1										
	Accounts	18,700										
	Yakima Result:	0.05										

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	1.79	0.14	0.50
Population Served: 50k- 100k	0.96	0.12	0.38
Type: Water	3.22	0.13	0.98

Performance Indicator Description:

This indicator quantifies the number of water outages experienced by utility customers. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable. *Note: Assumption is number of Customers Experiencing Disruptions equates to number of disruptions.

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

31	Unplanned Disruptions (>12 hours) per 1,000 Customers											
	Formula: 1,000 X Number of Customers Experiencing Disruptions* + Number											
	of Active Customer Accounts											
	Disruptions (>12 h)	0										
	Accounts	18,700										
	Yakima Result:	0.00										

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	0.17	0.00	0.00
Population Served: 50k- 100k	0.21	0.00	0.00
Type: Water	0.20	0.00	0.00

Performance Indicator Description:

This indicator quantifies the number of water outages experienced by utility customers. It is expressed as the number of customers experiencing disruptions per 1,000 customer accounts per year. Generally, lower values are desirable. *Note: Assumption is number of Customers Experiencing Disruptions equates to number of disruptions.

Score:

1

"Very Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

32	Customer Service Cost per Account										
	Formula: Total Customer Service Cost + Total Number of Active Water										
Accounts											
	Allocable Customer Service Costs	\$576,232									
	Total Accounts	18,700									
	Yakima Result:	\$30.81									

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$58.64	\$24.92	\$38.82
Population Served: 50k- 100k	\$42.63	\$22.80	\$34.47
Type: Water	\$50.69	\$19.33	\$30.22

Performance Indicator Description:

This indictor measures the amount of resources a utility applies to its customer service program. Generally, lower values are desirable. The indicator is expressed as the cost of managing a single customer account for one year. When viewed alone, it quantifies resource efficiency. Viewing in conjunction with other indicators, it can help clarify performance. For example, a utility with high numbers of customer complaints and lower customer service costs might be sacrificing effectiveness and yet appear as efficient.

Score: 2 "Good"

Benchmarking Analysis

Solutions-Oriented Consulting

Customer Relations

Score: 1 "Very Good"

33	Monthly cost of using 7,500 gallons (Water - Residential)											
	Formula: Calculated value of a monthly bill based upon 7,500 gallons or about											
	10 ccfs.											
	Fixed	\$5.52										
	Volume	\$14.44										
	Yakima Result:	\$19.96										

Benchmarks	Bottom Quartile	Top Quartile	Median
Region: West	\$33.84	\$21.77	\$27.75
Population Served: 50k- 100k	\$28.69	\$20.89	\$23.77
Type: Water	\$32.04	\$21.44	\$26.41

Performance Indicator Description:

Allows for a utility to compare the residential cost of water service with a large sample of the industry. In general, lower values are desirable. Each utility is unique, however, and different circumstances may be the cause of a specific result.

APPENDIX B

Comprehensive 2012 Draft Rate Study Report

DOMESTIC WATER SYSTEM 2012 RATE UPDATE

Prepared For The

Yakima, Washington

CONSULTING SERVICES PROVIDED BY:

7525 166th Ave. NE, Suite D-215 • Redmond, Washington 98052 (425) 867-1802 • fax (425) 867-1937 • www.fcsgroup.com

October 18, 2012

October 18, 2012

Mr. Dave Brown Water/Irrigation Division Manager City of Yakima 2301 Fruitvale Blvd. Yakima, WA 98902

Draft Report: 2012 Domestic Water System Rate Update

Dear Mr. Brown:

FCS GROUP is pleased to submit our report for the 2012 Domestic Water System Rate Update for the City of Yakima (City). This letter provides a brief summary of the study objectives, finding and conclusions.

A. STUDY OBJECTIVES AND APPROACH:

The 2012 Domestic Water System Rate Update involved a review of previously established Utility financial policies, development of a capital funding plan for the Capital Improvement Program, an update of annual revenue needs, and a schedule of proposed rates for years 2013 through 2017. An update of Utility connection charges and a Utility performance benchmarking analysis are currently underway and will be provided under separate cover by year-end 2012.

The methods used in this study follow general industry guidelines for developing utility rates – rates must generate enough revenue to maintain self-supporting and financially viable utilities without undue discrimination toward or against any customer. In compliance with the Washington State Supreme Court Ruling (*Lane vs. Seattle*), this study removes fire protection-related costs from general service water rates; and, as allowed by the Court, increases the water utility tax as necessary to recover those costs from the City's General Fund.

B. SUMMARY OF KEY ASSUMPTIONS AND FINDINGS

Key study assumptions and findings are highlighted below. Additional detail is provided throughout the study report:

- This study continues the financial policies established in the City's previous Utility rate studies updated to reflect current conditions. The Utility is well within industry best practices for debt-to-equity ratios, debt coverage policies, system reinvestment funding, and cash reserves. Maintaining sufficient operating reserves over the study period will require rate adjustments as proposed herein.
- The City has identified \$23.9 million (inflated dollars) in projects over the next five years consisting of replacement and rehabilitation projects necessary to sustain viable operation of the system, as well as supply and treatment projects

necessary to comply with state and federal regulations and ensure the public health and safety of the community. In addition to the use of direct rate-funding and cash reserves, \$8.5 million in approved low-interest loans and \$8.6 million in new revenue bond proceeds will be used to fund identified capital projects.

- New annual debt service payments reach \$1.1 million by the end of the study period, which when added to the existing debt burden of \$0.6 million, totals \$1.7 million in debt service payments.
- Operating and maintenance (O&M) expenses (excluding utility taxes) are assumed to increase at inflationary levels from \$5.5 million to \$6.4 million over study period.
- Fire protection costs of \$317,433 were identified for removal from general service water rates (Washington State Supreme Court Ruling *Lane vs. Seattle*). The reduction in water rates for fire protection cost removal is offset by an increase to the water utility tax. The Utility is made whole by receiving payment from the General Fund to recover the fire protection costs, and the General Fund is made whole by receiving the incremental revenue generated from the increased water utility tax. The current utility tax rate is 20.0 percent of revenues, increasing to 23.9% assuming recovery of fire protection costs from this tax.
- Water sales revenue have been steadily declining over past few years, down about 17% over the last five years - due to a combination of water conservation efforts, economic conditions, and weather patterns. This pattern is expected to continue for this study period. Assuming nominal customer growth, revenue under existing rates is assumed to increase from \$7.5 million to \$7.8 million over the study period.
- Study findings concluded that annual revenue adjustments are necessary over the study period to fund the capital program and address the declining revenue stream. The recommended rate strategy calls for three years of 9.0% increases (2013-2015) followed by two years of 3.5% increases (2016-2017). For 2013, this results in an increase to the average residential customer bi-monthly water bill of \$4.06, or about \$24 over the course of the year (assuming a 3/4-inch meter and 2,200 cubic feet per bill).
- Rates were designed to recover a slightly higher amount of revenue from the fixed charge portion of the rate structure to maintain rate stability in light of current economic conditions and changing water demands. Proposed rates recover about 25% from fixed charges (up from about 22% currently). The detailed schedule of rates and sample typical bills are presented on Pages 20-21 of the study report.

C. Conclusions and Recommendations

The proposed rates presented herein are designed to generate the revenues necessary to fund the capital program, cover forecasted ongoing annual expenditures, and meet cash reserve targets. FCS GROUP and City staff recommends that City Council approve the five-year schedule of proposed rates presented herein. The study assumes adoption in

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January 2013, with implementation of rates effective January 1, 2013, and January 1 of each subsequent year in the study period.

Of special note, the City has been successful in maintaining some of the lowest water rates in the area, while continuously improving its level of service. The City has undertaken a variety of Utility organizational, operational, and financial studies to promote water system sustainability and sound fiscal management practices - including strategic business plans, comprehensive system plans, and regular rate and charge studies. Since 1998, the City Council has adopted a rolling five-year schedule of water rates to fund its current five-year capital program, ongoing operations, and special program incentives. The City Council should be commended for this proactive approach to fiscal management. Regular review of actual financial performance of the Utility should be an integral part of the successful implementation of this study.

As always, it has been a pleasure working with you and the City and hope to be of continued service in the future.

Sincerely,

Karyn Johnson Principal

FCS GROUP

A. Background B. Study Objectives C. Methodology D. Report Organization 2. FINANCIAL POLICIES A. Fund Accounting B. System Reinvestment Funding C. Debt Service Coverage D. Use of Connection Charge Revenue E. Capital Program Funding / Debt Management F. Cumulative Impact of Financial Policies 3. REVENUE REQUIREMENTS A. Methodology B. Capital Program and Funding Plan C. Operating Forecast D. Revenue Needs Assessment 4. REMOVAL OF FIRE PROTECTION COSTS A. Methodology B. Results 5. RATE DESIGN A. Methodology	1.	Study Framework1
 B. Study Objectives	A.	Background1
 C. Methodology	В.	Study Objectives1
 D. Report Organization	C.	Methodology2
 2. FINANCIAL POLICIES	D.	Report Organization2
 A. Fund Accounting	2.	FINANCIAL POLICIES3
 B. System Reinvestment Funding	A.	Fund Accounting3
 C. Debt Service Coverage	В.	System Reinvestment Funding4
 D. Use of Connection Charge Revenue	C.	Debt Service Coverage5
 E. Capital Program Funding / Debt Management F. Cumulative Impact of Financial Policies	D.	Use of Connection Charge Revenue
 F. Cumulative Impact of Financial Policies	Е.	Capital Program Funding / Debt Management
 3. REVENUE REQUIREMENTS	F.	Cumulative Impact of Financial Policies7
 A. Methodology B. Capital Program and Funding Plan C. Operating Forecast D. Revenue Needs Assessment 4. REMOVAL OF FIRE PROTECTION COSTS 4. Methodology 5. RATE DESIGN A. Methodology B. Results 	3.	REVENUE REQUIREMENTS8
 B. Capital Program and Funding Plan	A.	Methodology8
 C. Operating Forecast	B.	Capital Program and Funding Plan9
 D. Revenue Needs Assessment	C.	Operating Forecast
 4. REMOVAL OF FIRE PROTECTION COSTS A. Methodology 5. RATE DESIGN A. Methodology P. Posulta 	D.	Revenue Needs Assessment11
 A. Methodology B. Results 5. RATE DESIGN A. Methodology P. Posulta 	4.	R EMOVAL OF FIRE PROTECTION COSTS13
 B. Results 5. RATE DESIGN A. Methodology P. Posults 	A.	Methodology13
 5. RATE DESIGN A. Methodology B. Bogulta 	В.	Results14
A. Methodology	5.	RATE DESIGN 19
P Doculto	A.	Methodology19
D. KC5UIIS	В.	Results19
C. Conclusions and Recommendations	С.	Conclusions and Recommendations22

TECHNICAL APPENDIX

A. BACKGROUND

The City of Yakima (City) owns and operates a Domestic Water Utility System (Utility), which provides service to a population base of slightly over 65,000 through just over 18,000 service connections. The main goal of the water system is to provide customers with a clean, safe and adequate supply of water. In support of this goal, the City continually evaluates its water system capital needs to address federal and state regulations and environmental concerns; periodically reviews its strategic plan to ensure alignment with City goals and Utility conditions; and regularly updates its Utility rates and charges to support identified programs and initiatives.

Of special note, the City has been successful in maintaining some of the lowest water rates in the area, while continuously improving its level of service. The City has undertaken a variety of Utility organizational, operational, and financial studies to promote water system sustainability and sound fiscal management practices - including strategic business plans, comprehensive system plans, and regular rate and charge studies. Since 1998, the City Council has adopted a rolling five-year schedule of water rates to fund its current five-year capital program, ongoing operations, and special program incentives. The City Council should be commended for this proactive approach to fiscal management.

The City updated its Water System Comprehensive Plan (WSCP) in 2011 and implemented the final installment of the previous five-year rate adjustment strategy (2008-2012); with additional adjustments necessary to address changes in legal requirements for water rate setting (Washington State Supreme Court decision in *Lane vs. Seattle*, discussed later in this report).

B. STUDY **O**BJECTIVES

In May 2012, the City retained FCS GROUP to update the Domestic Water Rate Study to evaluate Utility capital needs and ongoing operations and maintenance expenses and develop a rate strategy to recover costs for the current five-year planning period (2013-2017). The scope of this study included the following major elements:

- 1. Update operating and capital reserve targets, debt management strategies, and other fiscal policies as appropriate to ensure sound financial operations of the Utility.
- 2. **Develop financing strategies for funding the Utility's** current five-year capital program (2013-2017).
- 3. Forecast revenue requirements for the study period, incorporating fiscal policies, capital-related costs, ongoing operating & maintenance expenses, and other cash

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obligations of the Utility. Determine annual revenue adjustments necessary to fund revenue requirements for the five-year period (2013-2017).

- 4. Identify and remove fire protection-related costs from general service water rates, in compliance with the Washington State Supreme Court Ruling (*Lane vs. Seattle*). Calculate the water utility tax increase necessary to recover those costs from the City's General Fund.
- 5. Update the schedule of rates to recover total Utility costs through an appropriate balance of fixed and variable rate components. Assignment of costs to customer classes is not necessary since the same schedule of general service rates applies to all domestic service customers on the system (e.g., residential, governmental, commercial, and industrial). A unique schedule of charges applies to customers receiving private fire protection (e.g., commercial sprinkler systems).
- 6. Present findings and document study results in a project report, including technical appendices containing the detailed analyses.

The above scope elements are addressed throughout each section described in this report. An update of Utility connection charges and a Utility performance benchmarking analysis are currently underway and will be provided under separate cover by year-end 2012.

C. METHODOLOGY

The methods used to complete our work employed analytical principles that are generally accepted and widely followed throughout the industry – rates and charges should generate sufficient revenue to maintain a self-supporting and financially viable Utility without undue discrimination toward or against any customer.

We worked closely with City staff to develop a five-year rate strategy that recovers the forecasted costs of Utility operations, complies with legal requirements and industry practices, supports City pricing goals, and remains affordable to customers. This report documents our assumptions, findings and recommendations for the study period (2013-2017).

D. REPORT ORGANIZATION

The remainder of this report provides separate sections for Financial Policies (Section 2), Revenue Requirements (Section 3); Removal of Fire Protection Costs (Section 4); and Rate Design (Section 5). The technical appendix contains the analytical detail supporting study conclusions.

The purpose of establishing financial policies is to promote the financial integrity and stability of the Utility and to provide for the sustainability of essential water system services. These policies form the foundation of Utility management and, with routine application, can act as overarching guidelines for consistent decision making.

Some financial policies are imposed by outside sources (e.g., minimum debt service coverage and bond reserves) while other policies are specific to the agency and its utility (e.g., discretionary reserve levels, reinvestment protocols, and use of debt). This study continues the financial policies established in the City's previous Utility rate studies updated to reflect current conditions.

A. FUND ACCOUNTING

From an industry and fiscal management perspective, cash balances are a necessary and appropriate part of prudent utility budgeting. Within each utility enterprise, appropriate segregation of monies should be established and maintained to provide adequate controls as to the sources and uses of funds. This practice helps to ensure that funds raised through the utility are applied to the appropriate purposes, and that equity attained through rate and charge structures is maintained in application. Above all, the City should establish and maintain a financial structure that provides for adequate and predictable revenues to meet the forecasted needs and operational, legal, and policy objective of its utility systems.

The City maintains separate fund accounting for the Utility and segregates account balances for operating activities, capital activities, and restricted debt reserves. The rate management strategy presented in this study presumes that the Utility will continue to operate as a self-supporting enterprise fund. This means Utility rates and charges have been designed to recover the forecasted costs and financial obligations of the water system – without subsidy from other City utilities or General Fund revenues sources, such as property taxes.

1. Operating Reserves

The operating reserve is designed to provide a liquidity cushion to maintain financial viability of the Utility despite short-term variability in revenues and expenses – primarily caused by seasonal fluctuations in billings and receipts, unanticipated cash operating expenses, or lower than expected revenue collections. Target funding levels **are generally expressed in number of days' cash operating expenses, with the minimum** requirement varying with the expected risk of unanticipated needs.

FCS GROUP recommends that the City maintain a minimum cash balance in the Utility operating account equal to between 45 and 60 days (12% to 16.5%) of annual O&M expense. The current financial plan **continues the City's historical practice of**

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maintaining a minimum target balance of \$1 million, which falls within the recommended target. This target should be evaluated over time to reflect changing demand patterns and associated revenue risk.

2. Capital Reserves

A capital reserve is an amount of cash set aside in case of an emergency, should a piece of equipment or a portion of the Utility's infrastructure fail unexpectedly. Additionally, the reserve could be used for other unanticipated capital needs, including project cost overruns. These reserves are not intended to cover the cost of system-wide failures resulting from catastrophic events; a more common practice is to carry insurance for such purposes. The capital account holds loan and bond proceeds; other capital-related revenues, and transfers from the operating fund designated for capital construction and replacement projects.

FCS GROUP recommends that the City maintain a minimum cash balance in the Utility capital account equal to 1.0% to 2.0% of water system fixed assets. The current capital funding plan **continues the City's historical practice of maintaining** a minimum target balance of \$750,000, which falls within the recommended target. This target should be evaluated over time to increase as the Utility's asset base increases.

3. Restricted Debt Reserves

When issuing revenue bonds, underwriters require the municipality to establish and maintain a restricted cash reserve for the utility through the term of debt repayment. The purpose of a debt reserve is to provide one safeguard for bondholders, in the event the utility has insufficient funds to meet annual debt service payments. This reserve is **generally equal to one year's debt service payment for each bond issue. The reserve can be used to fund the last year's debt service payment for each issue.**

The City has historically used both revenue bonds and low-interest state loans to finance Utility capital projects. The rate management strategy presented in this study conservatively presumes that the City will issue revenue bonds for future debt-financing needs, unless grants or state loans have been approved. Additional reserves have been incorporated for each proposed future bond issue (assumed to be funded with debt **proceeds equal to one year's principal and interest payment).** The City will continue to pursue grants and low-cost loans to reduce future bond financing requirements.

B. System Reinvestment Funding

The purpose of system replacement funding is to provide for the replacement of aging system facilities to ensure sustainability of the system for ongoing operations. A common approach of municipal utilities is to incorporate a replacement funding (or equity accumulation) mechanism based on annual depreciation expense as a reasonable level of reinvestment in the system.

Annual depreciation is a non-cash expense intended to recognize the consumption of utility assets over their useful lives. Collecting the amount of annual depreciation expense through rates provides a funding source for capital expenditures, especially those related to repair and replacement of existing utility plant. Further, funding

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depreciation through rates helps to ensure that existing ratepayers pay for the use of the assets serving them, with the cash flow funding at least a portion of the eventual replacement of those assets. As an alternative to full depreciation funding, depreciation funding net of debt principal payments is sometimes used as a relatively moderate replacement funding strategy. Using this approach, the full funding of depreciation is seen as having two uses: first, reducing liabilities by paying debt principal as due, and second, generating a cash asset for system reinvestment. Debt reduction, cash accumulation, or both thereby offset depreciation.

The Utility's annual depreciation expense is currently about \$1 million. The City includes a water main replacement program in the five-year capital program. Further, the City plans to transfer between \$600,000 and \$650,000 per year from the operating account to the capital account for direct rate-funding of capital projects. Given this level of rate-funding, FCS GROUP does not see a need to generate additional rate revenues for reinvestment funding during this study period. Over time, the City should consider phasing in an increase to the direct rate-funding of capital projects to reach about \$1 million to more closely align with funding annual depreciation expense.

C. DEBT SERVICE COVERAGE

When a municipality issues revenue bonds (and other types of debt instruments), it agrees to certain terms and conditions related to the repayment of those bonds. One of those terms is referred to as bond coverage. Simply put, the agency agrees to collect enough in annual system revenues to meet all operating expenses and not only pay debt service, but actually collect an additional multiple of that debt service. Bond coverage ratios typically range from 1.10 to 1.50, meaning that the agency would collect O&M expenses plus 1.10 to 1.50 times revenue bond debt service as a minimum legal level of revenues. The stated coverage factor is a minimum requirement – meaning anything less than this level would be a technical default of the bond covenant.

The City's current minimum coverage requirement on outstanding revenue bonds is 1.25 times annual revenue bond debt service, using the net revenues of the Utility. This study continues the City's internal policy to set Utility rates at a level that will achieve coverage of at least 2.0 times revenue bond debt service. Revenue generated above cash needs to comply with coverage requirements may be used for capital purposes, and thus reduce future borrowing needs.

D. USE OF CONNECTION CHARGE REVENUES

Connection charges are assessed on new development as a condition of connection to the utility system. Because of the variability in customer growth from year to year, the annual revenue stream from this resource can be unreliable and subject to wide fluctuations. The City should estimate and budget Utility connection charge revenues based on long-term growth estimates, recent growth experience, and the scale of known development planned or underway. The purpose is to establish a reasonable and conservative estimate of potential connection charge revenue collections.

Connection charge revenue should be deposited in the capital account and made available for capital purposes only. Connection charges can legally be used in two ways – they can be applied to capital project costs directly (reducing the amount of debt issued), or they can be applied toward annual debt service payments. FCS GROUP recommends that, as a general policy, connection charge revenues be used to directly fund capital expenditures. This practice serves to mitigate the risk of relying on this volatile revenue source to pay debt obligations.

E. CAPITAL PROGRAM FUNDING / DEBT MANAGEMENT

In conjunction with establishing or planning its Utility capital program, the City should develop a corresponding capital-financing plan that supports execution of that program. This program should incorporate system replacement and rehabilitation, system upgrade and improvement, and system expansion. The policy intent is to establish an integrated capital funding strategy that considers best management practices for debt management.

1. Capital Funding

Utilities can typically draw funds for capital projects from a variety of sources:

- Grants
- Developer contributions
- Connection charges
- System reinvestment funding
- Direct funding from rates
- Other capital revenues
- Debt

Given these potential funding sources, utilities often find themselves choosing between funding sources when establishing a capital funding plan. While available grants and developer contributions would logically be applied to project costs first, the next choice **in the funding "hierarchy" is not necessarily apparent.**

The specific decision regarding whether to fund projects by cash or debt is an important policy decision that will likely be driven by a number of considerations. Cash funding might be cheaper in the long-run because there is no interest, but debt funding could be the more practical option since it allows for the payment of project costs over an extended period of time. In addition, using debt to spread the cost over time will help ensure that future customers pay for their fair share of system costs.

Finding the appropriate balance of cash versus debt financing requires an evaluation of debt management policies discussed below.

2. Debt Management

Historically, the City has funded Utility **capital projects through a combination of "pay**as-you-**go" cash funding (cash reserves,** connection charges, rates) and debt issuance. Excessive use of debt is unfavorable for **a utility, and can damage the utility's credit** rating, reducing its ability to acquire low-cost debt in the future. On the other hand,

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"pay-as-you-go" funding might create excessive burdens for existing customers, raising questions of practicality and equity between current and future customers.

Industry best practices (and bond underwriter's preference) suggest that municipalities should maintain a debt-to-equity ratio (total debt divided by the sum of total debt and equity) of no greater than 50% debt and 50% equity (cash). The Utility's current debt-to-equity ratio is 14% debt /86% equity – well within industry capacity benchmarks to fund near-term capital projects through debt instruments.

The City's general policy is to maintain debt service below 25 percent of the total Utility budget. Utility debt service is currently 7.5 percent of the budget, forecasted to increase to 15 percent by the end of the study period - well within the City's established target.

F. CUMULATIVE IMPACT OF FINANCIAL POLICIES

Satisfying all of these policy objectives might seem daunting at first, but the outcome is that multiple benchmarks overlap, resulting in the simultaneous achievement of multiple objectives within the same level of rates. For example, the higher internal policy for debt service coverage provides a cash resource to the capital account that helps maintain a healthy debt-to-equity ratio and contributes to the recommended capital reserve.

Each criterion provides a different perspective on how much revenue is appropriate, and satisfying them all generally results in a higher rate than if only a single standard is considered. However, this approach reduces financial risk and increases financial stability – any near term increases that result will help to promote more stable, and lower, long-term rates. This is evidenced by the City's continued delivery of high quality water service while maintaining relatively low water rates.

The revenue requirement analysis forms the basis for a long-range financial plan and multi-year rate management strategy. It also forms the basis for the City to set Utility **rate structures that are rooted in the "cost**-of-**service" and which fully recover the total** costs of operating the utility: capital improvement and replacement, operations and maintenance, general administration, and fiscal policy attainment. Linking Utility rate levels to a financial plan such as this helps to enable not only sound financial performance for the Utility, but also, a clear and reasonable relationship between the costs imposed on water system customers and the costs incurred to provide them the service.

A. METHODOLOGY

The financial plan includes the following core elements, which together, form a complete portrayal of the water system's financial obligations:

- Capital Funding Analysis Defines a strategy for funding the water system capital improvement program including an analysis of available resources from rate revenues, connection charges, debt financing, and any special resources (e.g., grants, developer participation, etc.).
- *Operating Forecast* Identifies future annual non-capital costs associated with the operation, maintenance, and administration of the water system.
- Sufficiency Testing Evaluates the sufficiency of Utility revenues in meeting all obligations, including cash uses such as operating expenses, debt service, capital outlays, and reserve contributions, as well as any coverage requirements associated with long-term debt.
- *Rate Strategy Development* Designs a forward-looking strategy for adjusting Utility resources to fully fund all utility obligations on an annual or periodic basis over the forecast period.
- Reserve Analysis Forecasts cash flow and fund balance activity in Utility reserves. Tests for satisfaction of recommended minimum fund balance policies (as discussed in Section 2 – Financial Policies).

From this foundation, Utility rate structures can be adjusted to meet the defined annual and long-term funding targets, as well as the City's pricing objectives.

The financial plan was developed for the five-year planning period 2013-2017, using 2012 as the baseline.

B. CAPITAL PROGRAM AND FUNDING PLAN

1. Assumptions

The following assumptions were used in developing the capital funding plan:

- The five-year capital program includes projects identified in the CWSP, updated to incorporate completed projects and current estimates for years 2012-2017. Costs include an allowance for inflation estimated at 4.0% per year, consistent with the industry construction cost index (*Engineering News Record*). Routine capital outlays are funded from the Utility operating account and are not included in the CIP.
- 2012 beginning fund balance for the capital account reflect year-end 2011 financial records.
- Capital connection charge revenues are based on the 2012 budget (\$44,000), and are assumed to remain at the current level throughout the study period. Consistent with State guidelines, such revenues are used to fund capital projects.
- Transfers from the operating account of \$600,000 in 2012, \$625,000 in 2013 and \$650,000 a year thereafter are planned for direct rate-funding of capital projects.

2. Results

The City has identified \$22.1 million (\$23.9 million in inflated dollars) in capital projects (2012-2017) consisting of replacement and rehabilitation projects necessary to sustain viable operation of the system, as well as supply and treatment projects necessary to comply with state and federal regulations and ensure the public health and safety of the community.

In addition to the Utility capital resources identified above, \$3.5 million in State Revolving Fund loans are planned for water treatment plant projects in 2012-2013; \$5.0 million in Public Works Trust Fund loans are planned for the automated metering project in 2012-2013; and revenue bond proceeds are assumed at \$2.7 million in 2013, \$3.7 million in 2015, and \$2.3 million in 2017.

Exhibit 3-1 presents the 2012-2017 Capital Improvement Program and **Exhibit 3-2** presents the capital funding plan.

Exhibit 3-1: Capital Improvement Program (inflated)

CAPITAL PROGRAM	2012	2013	2014	2015	2016	2017
Leak Detection	\$-	\$ 20,800	\$ 21,632	\$-	\$ 23,397	\$ 24,333
WTP PLC Replacement	-	260,000	-	-	-	-
WTP Lagoon / Electrical service	450,000	3,239,392	-	-	-	-
Intake Flood Repair	-	1,040,000	-	-	-	-
Automated Metering Infrastructure	1,500,000	6,760,000	-	-	-	-
Open Gear Vale Replacement	25,000	26,000	27,040	28,122	29,246	30,416
Private Water Main Replacement	175,000	182,000	189,280	196,851	204,725	212,914
Lead-Oakum Joint Line Replacement	-	-	2,163,200	2,249,728	2,339,717	2,433,306
Total	\$ 2,150,000	\$11,528,192	\$ 2,401,152	\$ 2,474,701	\$ 2,597,086	\$ 2,700,969

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CITY OF YAKIMA 2012 Domestic Water System Rate Update Study Report - 9

Exhibit 3-2: Capital Funding Plan

CAPITAL FINANCING PLAN	2012	2013	2014	2015	2016	2017
Beginning Fund Balance	\$ 3,374,890	\$ 3,818,890	\$ 2,253,770	\$ 546,618	\$ 2,404,947	\$ 501,861
Connection Charges Direct Funding from Rates Net Loan Proceeds	\$ 44,000 600,000 1,950,000	\$ 44,000 625,000 6,564,800	\$ 44,000 650,000	\$ 44,000 650,000	\$ 44,000 650,000	\$ 44,000 650,000
Net Bond Proceeds Total Funding Sources	<u>-</u> \$ 2,594,000	2,729,272 \$ 9,963,072	<u>-</u> \$ 694,000	3,639,030 \$ 4,333,030	 \$ 694,000	<u>2,274,394</u> \$ 2,968,394
Less: Capital Projects [a]	(\$2,150,000)	(\$11,528,192)	(\$2,401,152)	(\$2,474,701)	(\$2,597,086)	(\$2,700,969)
Fund Balance	\$ 3,818,890	\$ 2,253,770	\$ 546,618	\$ 2,404,947	\$ 501,861	\$ 769,285
Actual % of Assets: Minimum Target Balance [1.0% of assets]: City Established Target Balance:	7.1% \$540,974 \$750,000	4.2% \$540,974 \$750,000	1.0% \$540,974 \$750,000	4.4% \$540,974 \$750,000	0.9% \$540,974 \$750,000	1.4% \$540,974 \$750,000

[a] Includes an allowance for inflation of 4.0 percent per year.

C. OPERATING FORECAST

1. Assumptions

The following assumptions were used in developing the operating forecast:

- Operating & maintenance (O&M) expenses consist of the cost of personnel and materials to supply, pump, and distribute water on a routine basis. Since these costs are an annual obligation of the Utility, they must be met from water rates. O&M expense projections are based on the 2012 budget, plus 3.0 percent annual inflation (consistent with the *Consumer Price Index*). No additional staff is planned for this study period. Electricity costs are assumed to increase by \$25,000 per year (plus inflation) for additional pumping requirements for the new well.
- Utility taxes are excluded from the O&M forecast and shown separately in order to illustrate the impacts of the Washington Supreme Court Decision (*Lane vs. Seattle*), which dictates the removal of fire protection costs from general service water rates and prescribes the potential recovery of those costs from an increase to the utility tax (Further discussed in Section 4 – Removal of Fire Protection Costs).

2. Results

The operating forecast focuses on annual expenses incurred to operate, maintain, and manage the water system. While the cost of skilled labor, employee benefits, and certain materials continue to increase, the City has strived to achieve cost savings wherever possible to maintain overall operating increases at or below inflationary levels. As noted previously, the City in is the process of conducting a benchmarking study to assist in evaluating the cost effectiveness and efficiency of the Utility as compared to industry performance. This information will be used to identify potential areas for further investigation. Results are expected by the end of the year.

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Exhibit 3-3 presents the O&M expense forecast over the study period (excluding utility taxes).

OPERATING & MAINTENANCE	2012		2013		2014		2015		2016		2017	
Functional Categories												
Fire Suppression	\$	288,094	\$	296,737	\$	305,639	\$	314,808	\$	324,252	\$	333,980
Fire Suppression Admin		32,496		33,471		34,475		35,509		36,575		37,672
Water Distribution		2,129,807		2,193,701		2,259,512		2,327,298		2,397,117		2,469,030
WTP, Trans & Storage		1,652,832		1,702,417		1,753,489		1,806,094		1,860,277		1,916,085
Water/Irrigation Engineer		57,870		59,606		61,394		63,236		65,133		67,087
Water Administration		1,378,832		1,420,197		1,462,803		1,506,687		1,551,888		1,598,444
Total O&M Expenses [a]	\$	5,539,931	\$	5,706,129	\$	5,877,313	\$	6,053,632	\$	6,235,241	\$	6,422,298

Exhibit 3-3: Operating and Maintenance Forecast

[a] Includes inflation of 3.0 percent per year, plus known operational changes; excludes Utility Taxes.

D. REVENUE NEEDS ASSESSMENT

1. Assumptions

The following assumptions were used in developing the revenue needs assessment:

- Existing rate revenues are based on actual 2011 billing system records applied to current rates. Future revenues (under existing rates) incorporate annual customer growth. Projected revenue under existing rates provides the benchmark upon which to evaluate the need for revenue adjustments over the study period. Such revenue is a function of the number and size of meters, water usage, and current water rates. Note that water sales revenue is down from historical levels as a result of lower water demands due to a combination of water conservation efforts, economic conditions, and weather patterns. Water use has declined about 17% over the last five years. This pattern is expected to continue for this study period.
- Miscellaneous revenues from charges for new water services, personnel services, and hydrant fees are based on the 2012 budget and assumed to remain at current levels. Interest earnings on Utility cash balances are assumed to be deposited into the General Fund per City policy.
- 2012 beginning fund balances for the operating account reflect 2011 actual financial records.
- A new revenue source, "General Fund Payment for Fire Protection", represents the fire protection costs historically included in the general service water rates now to be paid from the General Fund per the Supreme Court decision in *Lane vs. Seattle*. (Further discussed in Section 4 – Removal of Fire Protection Costs).
- Utility taxes are a function of Utility revenues and as such, increase as the total revenues for the Utility increase. The current utility tax rate is 20.0 percent of revenues (excluding annual debt service payments on revenue bonds). Based on this study, the utility tax is proposed to increase to 24.0 percent assuming

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recovery of fire protection costs from this tax. (Further discussed in Section 4 – Removal of Fire Protection Costs).

- Existing debt service schedules were provided by City staff and include outstanding revenues bonds, Public Works Trust Fund loans, and State Revolving Fund loans. New debt service incorporates the impacts of the proposed capital funding plan as shown in Exhibit 3-2.
- Residual equity transfers are transfers from the Utility operating account to other **City funds for the Utility's allocated share of other** City debt.

2. Results

The Utility faces \$10 million in total cash obligations over the study period. Total revenues (excluding the use of cash reserves) are forecasted at \$8.3 million over the same time period – yielding a deficit of \$1.7 million. The proposed rate strategy calls for three years of 9.0% increases (2013-2015), followed by two years of 3.5% increases (2016-2017). Note that in addition to proposed rate increases, cash reserves are used to supplement annual revenue shortfalls in years (2012-2014). For 2013, this results in an increase to the average residential customer bi-monthly water bill of \$4.06, or about \$24 over the course of the year (3/4-inch meter and 2,200 cubic feet per bill). Additional sample bills are presented in Section 5 – Rate Design. **Exhibit 3-4** presents the revenue requirement analysis for the study period.

REVENUE REQUIREMENTS SUMMARY	2012	2013	2014	2015	2016	2017
Povonuos						
Water Sales (w/ existing rates)	\$ 7 480 452	\$ 7 677 228	\$ 7 696 421	\$ 7 715 662	\$ 7 734 951	\$ 7 754 289
General Fund Payment for Fire Protection	φ 1,400,402	317 433	347 405	380 597	395 369	410 699
Other Revenues	258 500	258 500	258 500	258 500	258 500	258 500
Total Boyonuos	\$ 7 738 052	\$ 9 253 161	\$ 9 302 326	\$ 9 354 750	\$ 9 399 920	\$ 9 423 497
Total Revenues	\$ 1,130,332	\$ 0,235,101	\$ 0,502,520	\$ 0,334,735	φ 0,300,020	\$ 0,423,407
Expenses						
Operating & Maintenance Expenses	\$ 5,539,931	\$ 5,706,129	\$ 5,877,313	\$ 6,053,632	\$ 6,235,241	\$ 6,422,298
Interfund In lieu Utility Tax	1,025,000	1,944,529	2,128,128	2,331,459	2,421,945	2,515,853
Existing Debt Service	558,963	556,006	562,896	559,188	555,279	551,169
New Debt Service	28,487	406,996	708,782	869,267	1,029,752	1,130,056
Residual Equity Transfers	64,497	64,497	64,497	64,497	64,497	64,497
Transfers to the Capital Fund	600,000	625,000	650,000	650,000	650,000	650,000
Total Expenses	\$ 7,816,878	\$ 9,303,157	\$ 9,991,616	\$10,528,043	\$10,956,714	\$11,333,873
Annual Surplus/(Deficiency)	\$ (77,925)	\$ (1,049,996)	\$(1,689,290)	\$(2,173,284)	\$(2,567,895)	\$(2,910,386)
Annual Rate Adjustment	0.00%	9.00%	9.00%	9.00%	3.50%	3.50%
Additional Revenue from Rate Adjustments	\$-	\$ 690,951	\$ 1,447,697	\$ 2,276,344	\$ 2,632,629	\$ 3,002,984
······		• • • • • • • • •	• • • • •	• , -,-	• • • • • •	• • • • • • • • •
Net Surplus/(Deficiency)	\$ (77,925)	\$ (359,045)	\$ (241,594)	\$ 103,060	\$ 64,735	\$ 92,598
Beginning Fund Balance	\$ 2,015,478	\$ 1,937,553	\$ 1,578,507	\$ 1,336,914	\$ 1,439,974	\$ 1,504,709
Cumulative Fund Balance	\$ 1,937,553	\$ 1,578,507	\$ 1,336,914	\$ 1,439,974	\$ 1,504,709	\$ 1,597,307
Actual Days of O&M:	108	75	61	63	63	65
Minimum Target Balance [60 days]:	\$1,079,167	\$1,257,642	\$1,315,963	\$1,378,371	\$1,423,099	\$1,469,285
City Established Target Balance:	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000

Exhibit 3-4: Revenue Requirement and Reserve Analysis

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The proposed increases represent the system-wide adjustments necessary to recover total revenue requirements for the Utility. The design of the fixed and variable components of the rate structure is discussed in Section 5 – Rate Design.

The Washington State Supreme Court decision in *Lane vs. Seattle* defines fire protection as a general government service that cannot be funded through water rates. This analysis aims to facilitate compliance with the verdict by identifying fire protection costs embedded in the City's water rates and removing those costs from the general service water rate structure.

To finance this shift in funding responsibility, the court upheld "a solution" that an increase to the utility tax on the water utility to recover identified fire protection costs is valid and within statutory authority. This analysis presumes the City will follow this approach. Alternatively, the City could directly bill the General Fund for payment. The City should consult with its own legal counsel regarding the mechanism for recovery.

It is important to note that compliance with this ruling under the proposed approach will be transparent to the Utility customer. Meaning, it will not materially impact general service water rates or resulting customer bills. It involves simply removing the fire protection costs from domestic water rates and replacing that dollar amount with an equal amount (with adjustments for private fire services) generated from an increase to the current tax imposed on the Utility by the General Fund. The utility tax is treated as a water utility expense, with the cost embedded in the calculation of water rates, just like all other expenses. Thus, the reduction in water rates for fire protection cost removal is offset by the increase to the utility tax. The Utility is made whole by receiving payment from the General Fund to recover the fire protection costs, and the General Fund is made whole by receiving the incremental revenue generated from the increased water utility tax. Should the City choose the alternative approach of a direct payment from the General Fund without a corresponding increase to the water utility tax, the General Fund would not be made whole.

A. METHODOLOGY

While the decision in *Lane vs. Seattle* requires the removal of "the cost of providing hydrants" from water rates, it does not provide a specific methodology for identifying such costs. Consequently, local governments have considerable discretion in determining the best way to address this decision. There is ambiguity in the definition of the "cost of providing fire hydrants." The most literal interpretations would suggest that it only includes costs specifically related to fire hydrants (such as the operation and maintenance of fire hydrants) that are embedded in water rates; other interpretations may be more aggressive in allocating water system facilities and revenue requirement components to fire protection. There is flexibility in assigning the water system to fire protection, depending on how the water system is viewed:

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- Most Common Allocating primary cost to general water service, with incremental costs allocated to fire protection service. This would result in relatively lower fire protection costs.
- Rare Allocating primary cost to fire protection service, with additional costs allocated to general water service. This would result in relatively higher fire protection costs.
- Seattle Method Allocating costs to general water service and fire protection on a proportional basis.

The methodology used in this study is based on cost allocations that are driven by an analysis of the City's entire water system to identify costs related to fire protection. We believe that this methodology is most consistent with the intent of the decision in *Lane vs. Seattle*.

B. Results

Results of the fire removal analysis for the Utility are summarized in this section. Additional detail can be viewed in the technical appendix.

1. Allocation of Assets to "Fire Protection"

The first step is to allocate water system assets to functional categories, including:

- Customer: Related to providing customer service.
- Meters & Services: Related to servicing meters and customer connections.
- Base Capacity: Related to providing capacity to meet average demands.
- Peak Capacity: Related to providing capacity to meet peak demands.
- Fire Protection: Related to providing capacity for fire flow, including portions of certain assets (mains, pumping facilities and storage facilities) dedicated to fire protection, plus direct fire protection costs related to fire hydrants, hydrant stub lines, and private fire sprinkler systems.

The water system fixed asset schedule and system design criteria form the basis for allocating the water costs between functions of service, as discussed in further detail below.

Supply/treatment and **pumping** assets are assigned to base and peak capacity using the ratio of peak day to average day demand. As cited in the WSCP, this ratio is 1.75, resulting in a split of 57% and 43%, respectively, to base and peak capacity.

Storage assets are allocated to the functions based on the WSCP analysis of operational, equalizing, standby, fire suppression, and dead storage requirements. **Exhibit 4-1** summarizes the storage allocation.

	GALLONS	GENER	AL WATER SE	RVICE FUNCT	IONS	FIDE			
Function	STORAGE [a]	CUSTOMER	METERS & SERVICES	BASE	PEAK	PROTECTION	OTHERS	TOTAL	ALLOCATION BASIS
Operational Storage Equalizing Storage Standby Storage	1.89 1.89 27.20	0.00% 0.00% 0.00%	0.00% 0.00% 0.00%	100.00% 0.00% 57.14%	0.00% 100.00% 42.86%	0.00% 0.00% 0.00%	0.00% 0.00% 0.00%	100.00% 100.00% 100.00%	All to Base All to Peak Peak/Average Day Ratio
Fire Flow Storage	5.20	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	All to Fire Capacity
TOTAL STORAGE	36.17	0.00%	0.00%	48.18%	37.44%	14.38%	0.00%	100.00%	

Exhibit 4-1: Allocation of Storage Facilities

[a] Source: City of Yakima Comprehensive Water System Plan, Table 3-34

Mains are allocated to the functions based on the estimated replacement cost, type, and size of pipe. Pipes are allocated to fire capacity based on the estimated cost of over-sizing pipes. **Exhibit 4-2** shows the functional allocation of mains:

- Pipe sizes up through 6-inches are assumed to provide domestic capacity only, and thus, are allocated to base and peak capacity using the peak day to average day demand ratio.
- Pipe sizes between 8 and 12-inches are assumed to be oversized one increment from 6-inch pipes to provide fire capacity.
- Pipes greater than 12-inches are assumed to be transmission mains, allocated to base and peak capacity.

Pipe	Replacement Cost perl lf. [b]	Estimated Cost	Incremental Cost for Fire Oversizing [c]	BASE	PEAK	FIRE PROTECTION	AS ALL OTHERS	TOTAL	ALLOCATION BASIS
4" or less	130	2,460,120		44.05%	55.95%	0.00%	0.00%	100.00%	Domestic: Base/Peak
6"	160	86,505,760		44.05%	55.95%	0.00%	0.00%	100.00%	Domestic: Base/Peak
8"	185	101,853,415	13,763,975	49.42%	37.07%	13.51%	0.00%	100.00%	Fire Flow Capacity Oversizing: Base/Peal
10"	215	818,505	114,210	49.17%	36.88%	13.95%	0.00%	100.00%	Fire Flow Capacity Oversizing: Base/Peal
12"	230	60,250,110	3,929,355	53.42%	40.06%	6.52%	0.00%	100.00%	Fire Flow Capacity Oversizing: Base/Peal
16"	280	21,251,720		44.05%	55.95%		0.00%	100.00%	Transmission: Base/Peak
Total		¢ 072 420 620	¢ 17 907 540	49 1 49/	45 250/	6 500/	0.00%	100.00%	•

Exhibit 4-2: Allocation of Water System Mains

 Iotal
 |
 \$273,139,630
 \$17,807,540
 |
 48.14%
 |
 [a]
 Source: City of Yakima Comprehensive Water System Plan, Table 3-36
 Image: City of Yakima Comprehensive Water System Plan, Table 3-36
 Image: City of Yakima Comprehensive Water System Plan, Table 3-36
 Image: City of Yakima Comprehensive Water System Plan, Table 3-36
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 Image: City of Yakima Comprehensive Water System Plan, Table 3-36
 Image: City of Yakima Comprehensive Water System Plan, Table 3-36
 Image: City

[b] Source: General planning estimates, to be updated
 [c] Incremental unit cost times linear feet of pipe at each size. Minimum distribution line size = 8"

Hydrant assets are assigned directly to fire protection, **Meter & services** assets are directly assigned to meters and services, and **general plant** assets are allocated in proportion to all other assets.

Exhibit 4 -3 shows the resulting functional allocation of total water system assets.

	τοται	GENER	RAL WATER SE	RVICE FUNC	TIONS	FIRE			
PLANT-IN-SERVICE	COSTS	CUSTOMER	METERS & SERVICES	BASE	PEAK	PROTECTION	OTHERS	TOTAL	ALLOCATION BASIS
Source of Supply / Treatment	\$11,896,540	0.00%	0.00%	57.14%	42.86%	0.00%	0.00%	100.00%	Peak/Average Ratio - Max Day = 1.75
Pumping Plant	1,280,515	0.00%	0.00%	57.14%	42.86%	0.00%	0.00%	100.00%	Peak/Average Ratio - Max Day = 1.75
Reservoirs / Standpipes	3,301,452	0.00%	0.00%	48.18%	37.44%	14.38%	0.00%	100.00%	See Storage Capacity Allocation Table
Transmission & Distribution	22,051,442	0.00%	0.00%	48.14%	45.35%	6.52%	0.00%	100.00%	See Pipe Capacity Allocation Table
Meters	1,548,738	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	All to Meters & Services
Service Connections	9,585,460	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	All to Customer
Hydrants	1,630,174	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	All to Fire Protection
General Plant / Intangible Plant	2,803,031	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other
Total Utility Plant	\$54,097,352	\$ -	\$ 11,134,198	\$19,735,017	\$16,882,636	\$ 3,542,469	\$ 2,803,031	\$54,097,352	
Total Water Service Functions		0.00%	20.58%	36.48%	31.21%	6.55%	5.18%	100.00%	
General Water Service Functions		0.00%	23.32%	41.33%	35.35%			100.00%	
Allocation of "As All Other"		\$-	\$ 653,577	\$ 1,158,445	\$ 991,010		\$(2,803,031)	\$-	
TOTAL	\$ 54,097,352	s -	\$ 11,787,775	\$20,893,462	\$17,873,646	\$ 3,542,469	\$ -	\$ 54,097,352	
Total Allocation Percentages		0.00%	21.79%	38.62%	33.04%	6.55%	6.55% 0.00% 100.00%		
General Water Service Allocation %		0.00%	23.32%	41.33%	35.35%		0.00%	100.00%	

Exhibit 4-3: Functional Allocation of Assets

[a] Source: City of Yakima Comprehensive Water System Plan, Table 2-33

2. Functional Allocation of Revenue Requirement

The allocation principles developed in this analysis will extend to the determination of water rates for 2013 and subsequent years. This step involved a detailed review of 2013 revenue requirements, as summarized below:

- City staff identified specific fire suppression related O&M costs, including administrative costs. These costs were directly assigned to the fire protection component. Other O&M costs were allocated to functional components based on assumed cost causation.
- Debt service payments and rate-funded capital are allocated in proportion to total plant in service.
- Miscellaneous operating revenues (non-rate revenues and interest earnings) are allocated in proportion to total operating and maintenance expenses.
- The analysis incorporates a transfer from the General Fund to the Utility for the fire protection costs identified for domestic water service. This revenue stream effectively "reimburses" the Utility for fire protection costs that are incurred by the water system. This new cost to the General Fund is assumed to be funded through an incremental increase to the current water utility tax (treated as an expense of the Utility). The resulting tax increase is embedded within the proposed 2013 rates.

Exhibit 4-4 shows the 2013 O&M allocation to functional components and **Exhibit 4-5** presents the total revenue requirement allocation to functional components.

Exhibit 4-4: Functional Allocation of O&M Expenses

OPERATING & MAINTENANCE EXPENSE	2012			2013		2014		2015		2016		2017	
Functional Categories Fire Suppression	\$	288,094	\$	296,737	\$	305,639	\$	314,808	\$	324,252	\$	333,980	
Fire Suppression Admin		32,496 2 129 807		33,471 2 193 701		34,475 2 259 512		35,509 2 327 298		36,575 2 397 117		37,672 2 469 030	
WTP, Trans & Storage		1,652,832		1,702,417		1,753,489		1,806,094		1,860,277		1,916,085	
Water/Irrigation Engineer Water Administration		57,870 1,378,832		59,606 1,420,197		61,394 1,462,803		63,236 1,506,687		65,133 1,551,888		67,087 1,598,444	
Interfund In lieu Utility Tax	*	5 500 004		5 700 400		E 077 040	¢	0.050.000	¢	0.005.044			
Total O&M Expenses [a]	\$	5,539,931	4	» 5,706,129	\$	5,877,313	\$	6,053,632	\$	6,235,241	\$	6,422,298	

[a] Includes an allowance for inflation of 3.0 percent per year, plus known operational changes; excludes utility taxes.

Exhibit 4-4: Functional Allocation of Total Revenue Requirement

	τοται	GENER	RAL WATER SE	RVICE FUNC	TIONS	FIRE				
REVENUE REQUIREMENT	COSTS	CUSTOMER	METER SERVICES	BASE	PEAK	PROTECTION	OTHERS	TOTAL	ALLOCATION BASIS	
OPERATING AND CAPITAL EXPENSES										
Cash Operating Expenses	\$ 7,650,658	25.28%	0.00%	40.69%	29.72%	4.32%	0.00%	100.00%	As O&M Expense	
Existing Debt Service	620,503	0.00%	21.79%	38.62%	33.04%	6.55%	0.00%	100.00%	As Plant In Service	
New Debt Service	406,996	0.00%	21.79%	38.62%	33.04%	6.55%	0.00%	100.00%	As Plant In Service	
Rate-Funded Capital	625,000	0.00%	21.79%	38.62%	33.04%	6.55%	0.00%	100.00%	As Plant In Service	
	\$ 9,303,157	20.79%	3.87%	40.32%	30.31%	4.71%	0.00%	100.00%		
OTHER REVENUES AND ADJUSTMENTS										
Less: Other Revenues	(258,500)	25.28%	0.00%	40.69%	29.72%	4.32%	0.00%	100.00%	As O&M Expense	
Less: Operating Fund Interest Earnings	-	25.28%	0.00%	40.69%	29.72%	4.32%	0.00%	100.00%	As O&M Expense	
Plus: Adjustment for Partial Year Increase	-	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other	
Plus: Net Cash Flow after Rate Increase	(359,045)	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	As All Other	
Rate Revenue Requirement	\$ 8,685,612	\$ 1.868.555	\$ 360.078	\$ 3.645.868	\$ 2,742,894	\$ 427.262	\$ (359.045)	\$ 8,685,612		
Water Service Functions	,,.	20.66%	3.98%	40.31%	30.33%	4.72%	, (,,	100.00%		
Water Service Functions (Excluding Fire)		21.68%	4.18%	42.31%	31.83%			100.00%		
Allocation of "As All Others"		\$ (77,854)	\$ (15,003)	\$ (151,906)	\$ (114,283)		\$ 359,045	\$-		
Total Rate Revenue Requirement	\$ 8.685.612	\$ 1,790,701	\$ 345.076	\$ 3,493,962	\$ 2.628.611	\$ 427.262	\$ -	\$ 8.685.612		
less: Provision for Operational Use of Fire Assets [a]	• •,•••,•	\$ 9,265	\$ 1,785	\$ 18,077	\$ 13,600	\$ (42,726)	•	\$ -		
Cost Allocation Before Fire Protection Adjustment	\$ 8,685,612	\$ 1,799,966	\$ 346,861	\$ 3,512,039	\$ 2,642,211	\$ 384,535		\$ 8,685,612		
Total Fire Protection	\$ (384,535)					\$ 384,535				
Fire Protection Allocated to Private Fire Services	67,102									
less: Public Fire Payment from General Fund	\$ (317,433)					<u>\$ (317,433</u>)		\$ (317,433)		
Rate Revenue Requirement	8,368,178	\$ 1,799,966	\$ 346,861	\$ 3,512,039	\$ 2,642,211	\$ 67,102		\$ 8,368,178		
Allocation Percentages		21.51%	4.15%	41.97%	31.57%	0.80%	0.00%	100.00%		

[a] Percent of fire assets used for operations. 10.00%

As shown in the table above, 10% of the costs allocated to fire protection are separated out from that category and reallocated proportionally amongst the other functions. This adjustment recognizes that fire protection-related assets are periodically used for water system operations such as water main flushing.

The remaining fire protection costs of \$384,535 are allocated between public fire protection (domestic service) and private fire service based on equivalent number of hydrants. Private fire service represents 17% of total equivalent hydrants (476 out of 2,254) resulting in an allocation of \$67,102. Private fire service charges need to recover the allocated share of fire protection costs for those customers with private fire suppression systems. Service to these unique customers is not of general benefit thus

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should not be considered a General Fund obligation. These costs are more appropriately recovered from water rates imposed on only those customers requiring the specific service from the water system.

The remaining cost of \$317,433 is allocated to domestic water service and removed from general service water service rates.

3. Water Utility Tax Rate Increase

The domestic water service share of fire protection costs (\$317,433) forms the basis for the General Fund payment to the Utility, as well as the calculation of the necessary utility tax increment. The payment from the General Fund to the Utility is offset by an increase to the water utility tax rate.

The City's existing water utility tax rate is 20.0%. This tax would need to increase to 23.9% (perhaps rounded to 24.0%) in order to offset the General Fund payment. The incremental portion of the tax related to fire protection costs and the basis for the annual General Fund payment is 3.9% (or rounded to 4.0%). This percentage would be applied to the annual budgeted Utility rate revenues in subsequent years to determine the annual payment from the General fund to the Utility for fire protection costs.

4. Removal of Fire Protection Costs and Reallocation of Water Utility Tax

The City currently applies the same schedule of water rates to all domestic customer classes, thus, the fire protection costs were removed from each domestic customer class in proportion to existing rate revenues. The dollar amount generated from the incremental utility tax (3.9%) was then allocated to all customers on the water system (including private fire services) in portion to revenues. Note that the impact to private fire services is higher since there is no fire protection cost deduction, yet an impact for the system-wide increase (9.0%) and application of the incremental utility tax.

Exhibit 4-5 shows the progression of customer bill impacts.

Customer Classes	2013 Revenue Under Existing Rates	2013 Revenue with 9% ATB Rate Increase	% Change with ATB Increase [a]	Fire Removal from Rates	Reallocation of Additional Utility Tax	2013 Revenue with ATB Increase Net of Fire	Total % Rate Change with ATB Net of Fire [b]
Domestic Water Customers Private Fire Services	\$ 7,529,461 147,767	\$ 8,207,112 161,066	9.00% 9.00%	\$ (317,433) -	\$ 311,323 6,110	\$ 8,201,002 167,176	8.92% 13.13%
TOTAL	\$ 7,677,228	\$ 8,368,178	9.00%	\$ (317,433)	\$ 317,433	\$ 8,368,178	9.00%

Exhibit 4-5: Total Customer Bill Impacts

[a] Rate increase applied Jan. 1, 2013

[b] To be applied across-the-board (ATB) to existing rate structure and rates to meet revenue requirements and comply with Lane vs. Seattle.

SECTION 5 RATE DESIGN

The rate design focuses on constructing rate structures, including fixed and variable components for each class of customer, to recover the appropriate amount of revenue from each class and to recover the revenue necessary in total to fund utility financial obligations. Further, City pricing objectives regarding rate stability, affordability, equity, and conservation are applied.

A. METHODOLOGY

Prior to this section, our findings rested on financial and technical analyses to derive the total annual revenue need of the Utility and to determine the amount that should be collected from domestic and private fire service customers. In this section, we focus on the design of the pricing structure itself to achieve intended outcomes that carry out desired public policy.

The existing domestic water rate structure consists of a fixed charge increasing by meter **size ("readiness**-to-**serve" and a uniform volume charge ("unit of cost"). The same** schedule of rates applies to all domestic service customers, with a 1.50 multiplier applied to outside city customers. Private fire services are charged a readiness-to-service charge increasing by line size; no charge is applied to actual water usage, if any. Cost recovery under the existing rate structure is about 22% from the fixed charge and 78% from volume charges.

In general, the fixed charge component recovers customer related costs, meters & services related costs, and commonly a portion of peak demand costs. The volume charge recovers base (average) demand costs and a portion of peak demand costs. Including a portion of peak costs in the fixed charge enhances revenue stability. Relying too heavily on volume charges to recover costs can result in revenue shortfalls if water sales are less than anticipated (due to unusually wet summers and/or or increased water conservation practices).

B. RESULTS

The **proposed rates have been developed in accordance with the City's policy to apply** the same schedule of rates to all domestic customer classes and to recover an appropriate balance of system costs from the fixed and variable components of the rate structure to maintain revenue stability. The proposed rate structure increases the fixed charge cost recovery to 25% to improve revenue stability without unduly burdening customers with relatively low water usage. We recommend that the City monitor water usage patterns over time to determine if a further increase to the fixed charge component is warranted to maintain a stable revenue stream.

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1. Rate Design

Exhibit 5-1 presents a comparison of existing Utility rates and the updated five-year schedule of Utility rates reflecting the removal of fire protection costs from the domestic rates, incorporation of the annual system-wide increases, and the shift to more cost recovery from the fixed charges.

Readiness-To-Service Charge - \$/Bi-Monthly Billing Period [a]											
Motor Cizo	Existing					Ρ	roposed				
weter Size	2012		2013		2014		2015		2016		2017
3/4"	\$ 15.91	\$	16.25	\$	17.71	\$	19.31	\$	19.98	\$	20.68
1"	\$ 20.09	\$	20.52	\$	22.37	\$	24.38	\$	25.23	\$	26.12
1-1/2"	\$ 31.24	\$	31.91	\$	34.78	\$	37.91	\$	39.24	\$	40.61
2"	\$ 44.67	\$	45.63	\$	49.73	\$	54.21	\$	56.11	\$	58.07
3"	\$ 76.03	\$	77.66	\$	84.65	\$	92.27	\$	95.50	\$	98.84
4"	\$ 120.82	\$	123.41	\$	134.52	\$	146.62	\$	151.75	\$	157.07
6"	\$ 232.70	\$	237.69	\$	259.08	\$	282.40	\$	292.28	\$	302.51
8"	\$ 453.59	\$	463.31	\$	505.01	\$	550.46	\$	569.72	\$	589.66
10"	\$ 680.41	\$	694.99	\$	757.54	\$	825.72	\$	854.62	\$	884.53
12"	\$ 993.82	\$	1,015.12	\$	1,106.48	\$	1,206.06	\$	1,248.27	\$	1,291.96
				•				•			
Volume Charge - \$/ccf [a]											
Commodity	Existing					Р	roposed				
Rate	2012		2013		2014		2015		2016		2017
	-										-
\$/ccf	\$ 1.51	\$	1.68	\$	1.83	\$	1.99	\$	2.06	\$	2.14
Private Fire Services - \$/Bi-Monthly Period [a]											
	Existing										
Line Size	2012		2013		2014		2015		2016		2017
	-				-						-
2"	\$6.00	\$	6.79	\$	7.40	\$	8.06	\$	8.35	\$	8.64
3"	\$8.76	\$	9.91	\$	10.80	\$	11.77	\$	12.19	\$	12.61
4"	\$17.54	\$	19.84	\$	21.63	\$	23.58	\$	24.40	\$	25.26
6"	\$51.56	\$	58.33	\$	63.58	\$	69.30	\$	71.73	\$	74.24
8"	\$109.82	\$	124.24	\$	135.43	\$	147.61	\$	152.78	\$	158.13
10"	\$197.46	\$	223.40	\$	243.50	\$	265.42	\$	274.71	\$	284.32
12"	\$319.12	\$	361.04	\$	393.53	\$	428.95	\$	443.96	\$	459.50
Bulk Water Rate - \$/ccf											
Existing											
	2012	2013 2014 2015 2016 2017				2017					
	\$1.51	\$	1.68	\$	1.83	\$	1.99	\$	2.06	\$	2.14
	Da	aily	water mete	er r	ental remai	ins a	at \$4.00 pe	er d	ay		

Exhibit 5-1: Existing & Proposed Water Rates

[a] Outside City rates are 1.50 times inside City rates

2. Customer Bill Impacts

Based on the City's billing system information, the residential class uses an average of about 2,200 cubic feet (22 ccf) of water per bi-monthly billing period over the course of a year. The commercial class uses an average of about 10,600 cubic feet (106 ccf) per billing period, and industrial customers average about 32,700 cubic feet (327 ccf) per billing period. Actual water usage will likely vary by customer and by billing period. For example, residential customers typically experience higher than average usage in summer months and lower than average usage in the winter months. As such, the water bill will also vary by customer and by billing period.

Exhibit 5-2 presents a comparison of sample customer water bills under existing rates and the proposed 2013 rates.

Residential									
Meter	Bi-Mthly	Existing	2013	\$ Change					
Size	Usage	Bi-Mthly	Bi-Mthly	from					
(inches)	(ccf)	Bill	Bill	Existing					
a /4		* • • • -	* ~~~~~	A (A =					
3/4	6	\$24.97	\$26.32	\$1.35					
3/4	15	\$38.56	\$41.43	\$2.87					
3/4	22	\$49.13	\$53.19	\$4.06					
3/4	40	\$76.31	\$83.40	\$7.09					
1	50	\$95.59	\$104.46	\$20.18					
Commercial									
Meter	Bi-Mthly	Existing	2013	\$ Change					
Size	Usage	Usage Bi-Mthly Bi-Mthly		from					
(inches)	(ccf)	Bill	Bill	Existing					
3/4	75	\$129.16	\$142.16	\$25.67					
3/4	106	\$175.97	\$ 194.21	\$18.24					
	000	#000.00	¢ 050.00	#04.00					
1	200	\$322.09	\$ 356.29	\$34.20					
1	300	\$473.09	\$ 524.17	\$51.08					
Industrial									
Meter	Bi-Mthly	Existing	2013	\$ Change					
Size	Usage	Bi-Mthly	Bi-Mthly	from					
(inches)	(ccf)	Bill	Bill	Existing					
2	100	¢105.67	¢ 212 51	¢17.9/					
2	327	\$538 //	\$ 50/ 61	\$56.17					
2	400	\$648.67	\$ 717.16	\$68.49					

Exhibit 5-2 - Sample Residential Water Bills

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C. CONCLUSIONS AND RECOMMENDATIONS

Projections are by nature conjectural and rely on many assumptions regarding growth, water usage, inflations and other factors, and no guarantee as to their ultimate accuracy can be made. We have endeavored to apply the best available estimates of future conditions that affect these findings, and believe the analyses performed in this study provide a reasonable level of assurance with respect to the adequacy of the proposed rates and rate structure. However, regular review of actual financial performance of the Utility should be an integral part of the successful implementation of this study. The next rate study update is anticipated to be completed in 2017.

FCS GROUP and City staff recommends that this study be utilized as support for the adoption of the five-year rate schedule presented herein. The study assumes adoption in December 2012, with implementation of 2013 rates effective January 1, 2013. Subsequent years' rates in the five-year forecast would become effective January 1 of each year.

Following implementation of this five-year rate strategy, the City might consider implementing rate ordinance language providing for the automatic adjustments of rates based on the *Consumer Price Index* (CPI) or other similar index to become effective January 1 of each year. The intent of this policy is to avoid large rate increases that can occur when rates are not adjusted annually in recognition of the constant rise in the cost of delivering services.

Automatic index adjustments may generate excess revenues in some years, while falling short of revenue requirements in other years. Additional revenues generated from the annual index adjustments could be used to build operating reserves or to cash-finance capital projects to help mitigate future debt issuance. Adjustments above the index should be reviewed as part of the rate study.

Spreadsheet Model Outputs

Available on Request