

Executive Report

**Columbia Water and Light
Water Department
Cost of Service Report**

January 2015



**Specializing in Cost of Service,
Rate Design, and Financial Analysis**

Rate Design and Financial Analysis
Specializing in Cost of Service



January 2015

Mr. Tad Johnsen
Director of Water & Light
Columbia Water and Light
15 North 7th Street
P.O. Box 6015
Colombia MO, 65205-6015

Dear Mr. Johnsen,

We are pleased to present this executive summary report for a water Cost of Service and Financial Projection study completed for the Columbia Water and Light (CWL). This report was prepared to provide CWL with a comprehensive examination of its existing financials by an outside party.

The specific purposes of this long-term financial projection and rate study are:

- 1) Determine water utility's revenue requirements for 2015
- 2) Recommend rate adjustments needed to meet targeted revenue requirements

This report includes results of the Cost of Service, long-term financial projection and recommendations on future rate design of the Water Department. Specific recommendations included in this report are:

- 1) Rate adjustments that are based on the utilities ability to meet three factors listed below:
 - a. Debt Coverage Ratio
 - b. Minimum Cash Reserves
 - c. Optimal Net Income

This report is intended for information and use by management and Columbia City Council for purposes stated above and is not intended to be used by anyone except the specified parties.

A summary result of the study is discussed below:

1. CWL is considering substantial capital improvements in future years. The rate adjustments projected in this analysis assumed the following capital improvements and bonding requirements of \$39.8 million in 2017 and \$22.9 million in 2020.

Fiscal Year	Capital Improvements
2015	\$ 1,900,000
2016	3,900,000
2017	25,057,875
2018	18,849,400
2019	9,300,800
2020	10,522,000

If the amount and timing of the capital improvement program changes it may affect the rate track recommended in this report.

- CWL should consider rate adjustments as identified in the table below to maintain long-term financial targets of the water utility. UFS recommends the following rate track based on the capital improvement program and timing discussed above.

Fiscal Year	Projected Rate Adjustment	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2015	0.0%	\$ 24,555,898	\$ 20,270,411	\$ 4,285,486	\$ 11,381,032	\$ 1,900,000	\$ -	1.55
2016	3.0%	25,392,654	20,761,145	4,631,509	10,929,665	3,900,000	-	1.67
2017	6.0%	26,943,419	21,565,009	5,378,409	27,715,420	25,057,875	39,807,275	1.27
2018	6.0%	28,592,765	22,291,329	6,301,436	11,673,970	18,849,400	-	1.34
2019	2.5%	29,439,775	22,892,665	6,547,110	5,484,906	9,300,800	-	1.38
2020	0.0%	29,644,359	23,523,160	6,121,200	19,152,949	10,522,000	22,880,800	1.14
Target Operating Income				2015	\$ 4,088,097			
				2020	\$ 6,858,019			
Minimum Cash Cash Level				2015	\$ 8,612,491			
				2020	\$ 12,745,406			

- CWL should consider moving the monthly customer charge by meter size toward cost of service over time. The table compares the current customer charges by meter size with the cost of service charges.

Meter Size	Monthly Charge		
	Current Average Monthly Charge	COS Monthly Charge	Monthly Charge Variance
0.625	\$ 8.43	\$ 10.50	25%
0.75	\$ 8.35	\$ 10.50	26%
1	\$ 8.79	\$ 15.88	81%
1.5	\$ 12.89	\$ 29.84	131%
2	\$ 13.57	\$ 48.94	261%
3	\$ 22.90	\$ 184.27	705%
4	\$ 34.30	\$ 336.87	882%
6	\$ 66.41	\$ 719.48	983%

4. CWL currently uses a 0.1 premium to bond debt ratio coverage as a safety factor. UFS recommends a 0.2 premium be used when considering future rate adjustments.
5. The cost of service study indicates summer rates should be increased and winter rates decreased. Following cost of service and increasing summer rates would place the utility at greater financial risk because summer sales are so dependent upon weather. If the City Council desired to increase summer rates the utility should maintain additional cash reserves to protect the utility from the additional financial risks. It is recommended that future rate adjustment maintain the existing rate differential between summer and winter.

Customer Type	Winter		Summer		
	COS Usage Charge	Current Usage Charge	COS Usage Charge	Current Usage Charge Block 1	Current Usage Charge Block 2
Residential	\$ 1.95	\$ 2.79	\$ 3.79	\$ 2.79	\$ 3.91
Commercial	\$ 1.95	\$ 2.60	\$ 3.30	\$ 2.60	\$ 3.91
Large Commercial	\$ 1.95	\$ 2.43	\$ 3.08	\$ 2.43	\$ 3.91
Master Metered	\$ 1.95	\$ 2.79	\$ 3.05	\$ 2.79	\$ 3.91
Irrigation Residential	\$ 1.95	\$ 2.79	\$ 4.37	\$ 2.79	\$ 3.91
Irrigation Commercial	\$ 1.95	\$ 2.60	\$ 4.23	\$ 2.60	\$ 3.91

6. CWL's current cash reserve policy may be revised to reflect the methodology used below. The analysis identified the following minimum cash reserves should be maintained by the CWL.

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Minimum Cash Reserve Allocation						
Operation & Maintenance Less Depreciation	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%
Historical Rate Base	1%	1%	1%	1%	1%	1%
Current Portion of Debt Service Payment	70%	70%	70%	70%	70%	70%
Five Year Capital Improvements - Net of bond	20%	20%	20%	20%	20%	20%
Calculated Minimum Cash Level						
Operation & Maintenance Less Depreciation	\$ 2,145,301	\$ 2,198,933	\$ 2,253,906	\$ 2,310,254	\$ 2,368,010	\$ 2,427,211
Historical Rate Base	1,505,729	1,544,729	1,795,308	1,983,802	2,076,810	2,182,030
Current Portion of Debt Service Reserve	3,593,061	5,352,936	5,709,399	5,709,833	6,758,618	6,767,765
Five Year Capital Improvements - Net of bond	1,368,400	1,368,400	1,368,400	1,368,400	1,368,400	1,368,400
Minimum Cash Reserve Levels	\$ 8,612,491	\$ 10,464,999	\$ 11,127,013	\$ 11,372,289	\$ 12,571,839	\$ 12,745,406
Projected Cash Reserves	\$ 11,381,032	\$ 10,267,677	\$ 25,014,309	\$ 5,453,354	\$ (4,938,404)	\$ 4,509,765

7. Water connection fees are established to create equity between existing customers and new customers. To ensure new customers are appropriately charged and existing customers appropriately compensated for excess capacity paid through rates the following fees are recommended when new customer connect to the water system.

Meter Size		Connection Charges
	1 inch and below	\$576
	1 1/2 inch	\$1,296
	2 inch	\$2,303
	3 inch	\$5,182
	4 inch	\$9,213
	6 inch	\$20,729

We have attached the executive summary report that details the process and results. We appreciate the opportunity to provide this water cost of services study.

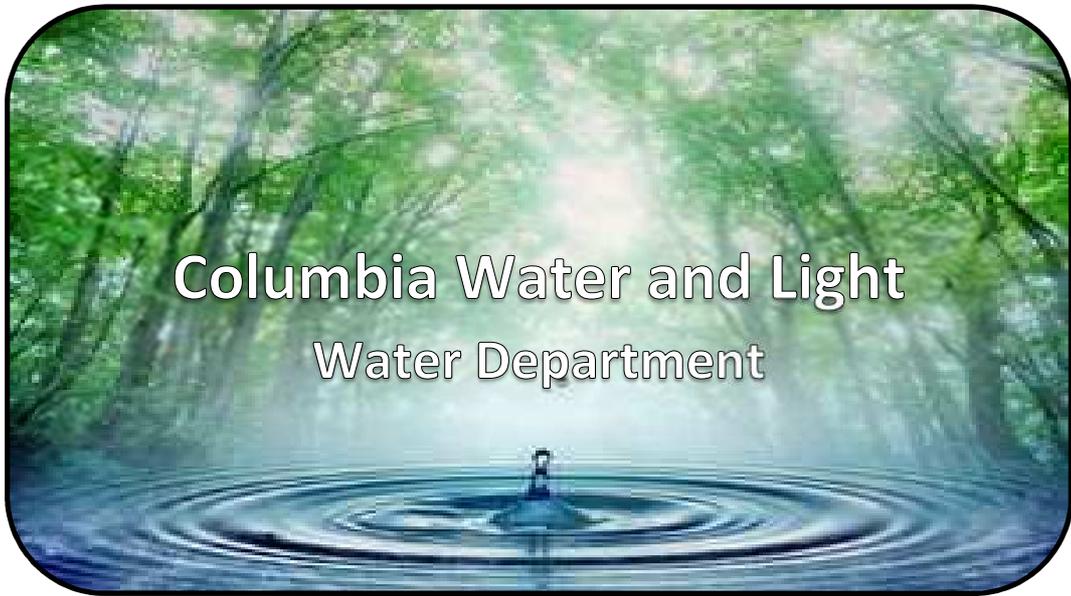
Sincerely,

Utility Financial Solutions, LLC
Mark Beauchamp, President



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Columbia Water and Light
Water Department

Utility Revenue Requirements

To determine revenue requirements, the revenues and expenses for Fiscal Years 2011, 2012 and 2013, 2014 estimates and 2015 budget were analyzed, with adjustments made to reflect projected operating characteristics. ***The projected financial statements are for cost of service purposes only and assume increased interest on debt due to issuance of bond in 2017 and 2020.***

Table 1 is the projected financial statement for the Water Department from 2015-2020. The 2015 rate of return calculation established an operating income target of \$1,538,940 (See Table Five).

Operating income for 2015 is projected at \$4,285,486 and decreases to \$1,928,751 in 2020. Operating income is one target that helps to determine if rate adjustments are needed. The following pages review cash flow and debt coverage ratio which are also important indicators.

Table 1 – Financial Statements (without rate adjustments)

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Revenues						
Water Sales	\$ 21,956,490	\$ 22,066,273	\$ 22,176,604	\$ 22,287,487	\$ 22,398,925	\$ 22,510,919
Pilot	1,557,737	1,596,681	1,636,598	1,677,513	1,719,450	1,762,437
Other Misc Revenue	1,041,670	1,067,712	1,094,405	1,121,765	1,149,809	1,178,554
<i>Total Revenues</i>	<u>\$ 24,555,898</u>	<u>\$ 24,730,665</u>	<u>\$ 24,907,607</u>	<u>\$ 25,086,765</u>	<u>\$ 25,268,184</u>	<u>\$ 25,451,910</u>
Expenses						
Production	\$ 5,549,901	\$ 5,688,649	\$ 5,830,865	\$ 5,976,636	\$ 6,126,052	\$ 6,279,204
Transmission and Distribution	5,225,144	5,355,773	5,489,667	5,626,909	5,767,581	5,911,771
Administration and General	3,325,726	3,408,869	3,494,091	3,581,443	3,670,979	3,762,754
Depreciation	2,869,640	2,925,355	3,283,324	3,552,601	3,685,470	3,835,784
Pilot	3,300,000	3,382,500	3,467,063	3,553,739	3,642,583	3,733,647
<i>Total Expenses</i>	<u>\$ 20,270,411</u>	<u>\$ 20,761,145</u>	<u>\$ 21,565,009</u>	<u>\$ 22,291,329</u>	<u>\$ 22,892,665</u>	<u>\$ 23,523,160</u>
Operating Income	<u>\$ 4,285,486</u>	<u>\$ 3,969,520</u>	<u>\$ 3,342,597</u>	<u>\$ 2,795,436</u>	<u>\$ 2,375,519</u>	<u>\$ 1,928,751</u>
Other Income/(Expenses)						
Non Operating Revenue	\$ 225,572	\$ 231,212	\$ 236,992	\$ 242,917	\$ 248,990	\$ 255,214
Non Operating Expense	(175,344)	-	-	-	-	-
Interest and Other Income	787,202	806,905	801,338	875,072	777,267	750,000
Interest on Long Term Debt	(2,519,359)	(2,527,071)	(4,456,547)		(4,162,418)	(5,142,568)
<i>Non Operating Income</i>	<u>\$ (1,681,929)</u>	<u>\$ (1,488,954)</u>	<u>\$ (3,418,216)</u>	<u>\$ 1,117,988</u>	<u>\$ (3,136,162)</u>	<u>\$ (4,137,353)</u>
Net Income	<u>\$ 2,603,558</u>	<u>\$ 2,480,566</u>	<u>\$ (75,619)</u>	<u>\$ 3,913,424</u>	<u>\$ (760,643)</u>	<u>\$ (2,208,603)</u>

Projected Cash Flow

Table 2 is the projected cash flow for 2015-2020, including projections of capital improvements as provided by the Utility. Changes in the capital improvement plan can greatly affect the cash balance and recommended minimum cash reserve target. The cash balance for 2015 is projected at \$11.3 million and decreases to \$4.5M million by 2020. The recommended minimum cash reserve is approximately \$8.6 million in 2015 and rises to \$12.7 million in 2020.

Table 2 – Projected Cash Flows (without rate adjustments)

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Net Income	\$ 2,603,558	\$ 2,480,566	\$ (75,619)	\$ 3,913,424	\$ (760,643)	\$ (2,208,603)
+ Depreciation Expense	2,869,640	2,925,355	3,283,324	3,552,601	3,685,470	3,835,784
+ Debt Sale Proceed	-	-	39,807,275	-	-	22,880,800
- Debt Principal	(2,632,522)	(2,619,276)	(3,210,473)	(3,860,909)	(4,015,785)	(4,537,813)
- Estimated Capital Additions	(1,900,000)	(3,900,000)	(25,057,875)	(18,849,400)	(9,300,800)	(10,522,000)
<i>Net Cash from Operations</i>	\$ 940,676	\$ (1,113,355)	\$ 14,746,633	\$ (15,244,284)	\$ (10,391,758)	\$ 9,448,169
Beginning Cash Balance	\$ 10,440,356	\$ 11,381,032	\$ 10,267,677	\$ 25,014,309	\$ 5,453,354	\$ (4,938,404)
Ending Cash Balance	\$ 11,381,032	\$ 10,267,677	\$ 25,014,309	\$ 9,770,026	\$ (4,938,404)	\$ 4,509,765
Available Cash	\$ 11,381,032	\$ 10,267,677	\$ 25,014,309	\$ 9,770,026	\$ (4,938,404)	\$ 4,509,765
Recommended Minimum Cash	\$ 8,612,491	\$ 10,464,999	\$ 11,127,013	\$ 11,372,289	\$ 12,571,839	\$ 12,745,406

Projected Cash Balance falls below recommended minimum in 2018

Minimum Cash Reserve

Table 3 is the minimum level of cash reserves required to help ensure timely replacement of assets and to provide financial stability of the water utility. The methodology used to establish this target is based on certain assumptions related to a percentage of operating expense, historical investment, capital improvements, and debt service to be kept in cash reserves. Based on these assumptions, CWL should maintain a minimum of \$8.6 million in cash reserves for 2015 rising to \$12.75 million in 2020.

Table 3 – Minimum Cash Reserve (2015-2020; Before Rate Adjustment)

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Minimum Cash Reserve Allocation						
Operation & Maintenance Less Depreciation	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%
Historical Rate Base	1%	1%	1%	1%	1%	1%
Current Portion of Debt Service Payment	70%	70%	70%	70%	70%	70%
Five Year Capital Improvements - Net of bond	20%	20%	20%	20%	20%	20%
Calculated Minimum Cash Level						
Operation & Maintenance Less Depreciation	\$ 2,145,301	\$ 2,198,933	\$ 2,253,906	\$ 2,310,254	\$ 2,368,010	\$ 2,427,211
Historical Rate Base	1,505,729	1,544,729	1,795,308	1,983,802	2,076,810	2,182,030
Current Portion of Debt Service Reserve	3,593,061	5,352,936	5,709,399	5,709,833	6,758,618	6,767,765
Five Year Capital Improvements - Net of bond	1,368,400	1,368,400	1,368,400	1,368,400	1,368,400	1,368,400
Minimum Cash Reserve Levels	\$ 8,612,491	\$ 10,464,999	\$ 11,127,013	\$ 11,372,289	\$ 12,571,839	\$ 12,745,406
Projected Cash Reserves	\$ 11,381,032	\$ 10,267,677	\$ 25,014,309	\$ 5,453,354	\$ (4,938,404)	\$ 4,509,765

Projected Cash Balance falls below recommended minimum target in 2018

Debt Coverage Ratio

Table 4 is the projected debt coverage ratios with capital additions as provided by CWL. The coverage required in bond ordinances is typically 1.15 – 1.20; however the minimum recommended debt coverage ratio is established at 1.35-1.4 for forecast purposes a 0.2 premium to ordinance. CWL have a 1.1 coverage ratio requirement. The recommended debt coverage ratio is 1.3; CWL's internal minimum ratio is 1.2. Maintaining a higher debt coverage ratio is good business practice and helps to achieve the following:

- Helps to ensure adequate funds are available to meet debt service payments in years when sales are low due to cold or wet summers or loss of a major customer(s).
- Obtain higher bond rating, if revenue bonds are sold in the future, to lower interest cost.

Table 4 – Projected Debt Coverage Ratios (2015-2020)

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Net Income	\$ 2,603,558	\$ 2,480,566	\$ (75,619)	\$ 3,913,424	\$ (760,643)	\$ (2,208,603)
+ Depreciation Expense	2,869,640	2,925,355	3,283,324	3,552,601	3,685,470	3,835,784
+ Interest Expense	2,519,359	2,527,071	4,456,547	4,316,672	4,162,418	5,142,568
<i>Cash Available for Debt Service</i>	<i>\$ 7,992,557</i>	<i>\$ 7,932,992</i>	<i>\$ 7,664,252</i>	<i>\$ 11,782,698</i>	<i>\$ 7,087,245</i>	<i>\$ 6,769,749</i>
Debt Principal and Interest	\$ 5,151,881	\$ 8,210,400	\$ 8,210,400	\$ 8,210,400	\$ 8,210,400	\$ 8,210,400
Projected Debt Coverage Ratio	1.55	0.97	0.93	1.44	0.86	0.82
Minimum Debt Coverage Ratio	1.30	1.30	1.30	1.30	1.30	1.30

Debt Coverage Ratio falls below minimum target starting in 2016

Rate of Return

The optimal target for setting rates is the establishment of a target operating income to help ensure the following:

- Funding of Interest Expense on the outstanding principal on debt. Interest expense is below the operating income line and needs to be recouped through the operating income balance.
- Funding of the inflationary increase on the assets invested in the system. The inflation on the replacement of assets invested in the utility should be recouped through the Operating Income
- Funding of depreciation expense
- Adequate rate of return on investment to help ensure current customers are paying their fair share of the use of the infrastructure and not deferring the charge to future generations.

As improvements are made to the system, the optimal operating income target will increase unless annual depreciation expense is greater than yearly capital improvements. The revenue requirements for the study are set on the utility basis. Charging the rates in the cost of service study would produce the target operating income identified in Table 5. The utility basis target established for 2015 is \$4.08 million and increases to \$6.85 million in 2020.

Table 5 – Rate of Return Calculation

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Target Operating Income Allocator						
Interest on Debt	3.57%	3.72%	4.24%	4.23%	4.24%	4.40%
System Equity	4.39%	4.46%	4.31%	4.26%	4.29%	4.32%
Target Operating Income						
Interest on Debt	\$ 2,519,359	\$ 2,527,071	\$ 4,456,547	\$ 4,316,672	\$ 4,162,418	\$ 5,142,568
System Equity	1,568,738	1,755,724	1,031,760	1,807,607	2,228,253	1,715,451
Target Operating Income	\$ 4,088,097	\$ 4,282,795	\$ 5,488,307	\$ 6,124,279	\$ 6,390,671	\$ 6,858,019
Projected Adjusted Operating Income	\$ 4,285,486	\$ 3,969,520	\$ 3,342,597	\$ 2,795,436	\$ 2,375,519	\$ 1,928,751
Rate of Return	3.8%	4.0%	4.3%	4.2%	4.3%	4.4%

Rate of Return is healthy throughout the projection period

Revenue Forecast

Sales were projected based on assumptions provided by CWL. Table 6 / Table 7 detail the projections for consumption (CCF) and Table 8 / Table 9 details projected customers for 2015 by location, meter size and customer type.

Table 6 – 2015 Sales by Meter Size

Meter Size	Inside Water Sales Projected 2015	Outside Water Sales Projected 2015	Former Water Sales Projected 2015	Total Water Sales Projected 2015
0.625	2,821,969	91,860	119,114	3,032,943
0.75	30,867	116	488	31,471
1	428,420	4,642	6,650	439,712
1.5	257,274	1,230	494	258,998
2	545,100	9,330	13,891	568,321
3	185,391	4,227	1,195	190,813
4	266,117	14,890	-	281,007
6	468,821	979	-	469,800
Total	5,003,959	127,274	141,832	5,273,065

Table 7 – 2015 Sales by Customer Type

Customer Type	Inside Water Sales Projected 2015	Outside Water Sales Projected 2015	Former Water Sales Projected 2015	Total Water Sales Projected 2015
Residential	2,681,016	90,592	108,811	2,880,419
Commercial	1,024,365	9,212	8,695	1,042,272
Large Commercial	735,317	-	-	735,317
Master Metered	321,880	6,653	23,115	351,648
Irrigation Residential	47,317	118	1,191	48,626
Irrigation Commercial	194,064	20,699	20	214,783
Total	5,003,959	127,274	141,832	5,273,065

Table 8 – 2015 Customers by Meter Size

Meter Size	Inside Meter Count	Outside Meter Count	Former Meter Count	Total Meter Count
0.625	41,535	1,352	1,598	44,485
0.75	112	1	2	115
1	1,846	25	27	1,898
1.5	393	3	4	400
2	459	7	11	477
3	46	1	1	48
4	30	2	-	32
6	11	1	-	12
Total	44,432	1,392	1,643	47,467

Table 9 – 2015 Customers by Customer Type

Customer Type	Inside Meter Count	Outside Meter Count	Former Meter Count	Total Meter Count
Residential	39,123	1,327	1,522	41,972
Commercial	3,461	55	54	3,570
Large Commercial	22	-	-	22
Master Metered	920	1	63	984
Irrigation Residential	299	2	2	303
Irrigation Commercial	607	7	2	616
Total	44,432	1,392	1,643	47,467

Summary of Financial Position:

Proposed Rate Track

Increasing rates requires balancing the financial health of the utility with the financial impact on customers and cost of service results. Table 10 is the summary financial projection without any rate changes. Cash balances, operating income and the debt coverage ratio fall to critical levels.

Table 10 – Summary of Financials without Rate Adjustment

Fiscal Year	Projected Rate Adjustment	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2015	0.0%	\$ 24,555,898	\$ 20,270,411	\$ 4,285,486	\$ 11,381,032	\$ 1,900,000	\$ -	1.55
2016	0.0%	24,730,665	20,761,145	3,969,520	10,267,677	3,900,000	-	1.54
2017	0.0%	24,907,607	21,565,009	3,342,597	25,014,309	25,057,875	39,807,275	1.00
2018	0.0%	25,086,765	22,291,329	2,795,436	5,453,354	18,849,400	-	0.91
2019	0.0%	25,268,184	22,892,665	2,375,519	(4,938,404)	9,300,800	-	0.87
2020	0.0%	25,451,910	23,523,160	1,928,751	4,509,765	10,522,000	22,880,800	0.70
Target Operating Income				2015	\$ 4,088,097			
				2020	\$ 6,858,019			
Minimum Cash Level				2015	\$ 8,612,491			
				2020	\$ 12,745,406			

Table 11 is the summary financial projection with recommended rate increases of 3% in 2016, 6% in 2017 and 2018, and 2.5% in 2019. The rate track was developed to maintain or move toward the established financial targets listed below:

Table 11 – Summary of Financials without Proposed Adjustment

Fiscal Year	Projected Rate Adjustment	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2015	0.0%	\$ 24,555,898	\$ 20,270,411	\$ 4,285,486	\$ 11,381,032	\$ 1,900,000	\$ -	1.55
2016	3.0%	25,392,654	20,761,145	4,631,509	10,929,665	3,900,000	-	1.67
2017	6.0%	26,943,419	21,565,009	5,378,409	27,715,420	25,057,875	39,807,275	1.27
2018	6.0%	28,592,765	22,291,329	6,301,436	11,673,970	18,849,400	-	1.34
2019	2.5%	29,439,775	22,892,665	6,547,110	5,484,906	9,300,800	-	1.38
2020	0.0%	29,644,359	23,523,160	6,121,200	19,152,949	10,522,000	22,880,800	1.14
Target Operating Income				2015	\$ 4,088,097			
				2020	\$ 6,858,019			
Minimum Cash Cash Level				2015	\$ 8,612,491			
				2020	\$ 12,745,406			

- Operating Income remains healthy through 2019
- Projected Cash Balance remains steady through 2019
- Depending on system improvement timetable additional changes may be needed in 2020

Cost of Service Components Water Department

The purpose of a cost of service study is to allocate costs between flow (Commodity Costs) and customer service costs (Customer Costs). The cost of service study was based on recognized procedures from the American Water Works Association.

Commodity Costs are costs that tend to vary with the quantity of water used, as well as costs associated with purchasing, pumping and distributing water to customers. Commodity costs include wholesale water purchase costs plus pumping stations and transmission lines.

Customer Costs are costs associated with serving customers regardless of their usage or demand characteristics. Customer costs include the operation and maintenance expenses related to meters and services, meter reading costs, billing and collection costs. The customer costs were allocated on the basis of the relative cost of meters and services and the number of customers.

The revenue requirements for the study are set on the utility basis. Table 12 and Table 13 detail the current monthly charge and commodity charge and provides a comparison with the cost of service. We recommend the utility move toward the cost of service monthly charge. The cost of service study identified that summer commodity charges could be reduced, however we recommend that CWL does not reduce summer rates due to the variable nature of summer water loads.

Table 12 – Comparison of Monthly Charge with Cost of Service

Meter Size	Monthly Charge		
	Current Average Monthly Charge	COS Monthly Charge	Monthly Charge Variance
0.625	\$ 8.43	\$ 10.50	25%
0.75	\$ 8.35	\$ 10.50	26%
1	\$ 8.79	\$ 15.88	81%
1.5	\$ 12.89	\$ 29.84	131%
2	\$ 13.57	\$ 48.94	261%
3	\$ 22.90	\$ 184.27	705%
4	\$ 34.30	\$ 336.87	882%
6	\$ 66.41	\$ 719.48	983%

Table 13 outlines the COS commodity rates compared to the current commodity charge. The rates below are not the recommended rates. They are used as a guide to move toward cost of service slowly over time.

Table 13 – Comparison of Monthly Commodity Charge with Cost of Service

Customer Type	Winter		Summer		
	COS Usage Charge	Current Usage Charge	COS Usage Charge	Current Usage Charge Block 1	Current Usage Charge Block 2
Residential	\$ 1.95	\$ 2.79	\$ 3.79	\$ 2.79	\$ 3.91
Commercial	\$ 1.95	\$ 2.60	\$ 3.30	\$ 2.60	\$ 3.91
Large Commercial	\$ 1.95	\$ 2.43	\$ 3.08	\$ 2.43	\$ 3.91
Master Metered	\$ 1.95	\$ 2.79	\$ 3.05	\$ 2.79	\$ 3.91
Irrigation Residential	\$ 1.95	\$ 2.79	\$ 4.37	\$ 2.79	\$ 3.91
Irrigation Commercial	\$ 1.95	\$ 2.60	\$ 4.23	\$ 2.60	\$ 3.91

Connection Fees

Consistent with prior studies, the connection fees were updated using the equity method. The “Equity Method” identifies the equity existing customers have in the water system, new customers are charged at the same level of equity to be on par with the existing customers. The equity method is used by mature, established water systems with an established customer base and is the recommended method for the City of Columbia.

Determination of System Equity

CWL has approximately \$29.2 million in equity as defined by the equity method as shown in Table 14. This includes the total net book value of the assets plus cash balances less the amount of debt outstanding and

hydrants, meters and services that are typically paid for by customers. This is the existing ratepayer’s equity in the CWL’s water system.

Table 14 – System Equity

	Total Net Book Value	\$102,810,987
	Less Principal Outstanding on Bonds	(\$70,638,419)
	Add Cash Balance	\$10,634,145
	Less Hydrants, Meters & Services	(\$13,599,213)
	Net Equity	\$29,207,500

- Total Net Book Value – Depreciated value of capital assets (Total Historical Investment less Accumulated Depreciation)
- Principal Outstanding on Bonds – Total of outstanding debt on water system assets
- Cash Balances – Total of cash reserves available and funded by CWL customers
- Hydrants, Meters and Services - Depreciated value of listed assets

Determination of Meter Equivalentents

The net equity of \$29.2 million is divided by the number of meter equivalentents in the system. A meter equivalent is the maximum capacity of a 1” meter compared with the maximum capacity of other meters. Total 1-inch meter equivalentents are calculated at 50,726 using the following capacity factors for each meter identified in Table 15.

Table 15 – Meter Capacity Factors

Meter Size	Capacity Factor
1 inch and below	1.00
1 1/2 inch	2.25
2 inch	4.00
3 inch	9.00
4 inch	16.00
6 inch	36.00

*Table of capacity factors was calculated using theoretical volume capacity of each meter size.
 **The table can be interpreted as a 2-inch meter has 4 times more potential capacity than a 1-inch meter.

Determination of Equity equivalent

Table 16 shows net equity divided by meter equivalentents or equity per equivalent meter is \$575.80 per 1-inch meter equivalent.

Table 16 – Equity Costs Per 1” Meter Equivalent

	Net Equity	\$29,207,500
	Meter Equivalents Used	50,726
	Equity Costs per Equivalent	\$575.80

Equity charges by Meter Size

Table 17 is the equity charges for new customer based on the size of meter installed by the customer. This will help ensure new customer and existing customers are treated fairly and in a consistent manner.

Table 17 – Recommended Equity Charges

Meter Size		Connection Charges
	1 inch and below	\$576
	1 1/2 inch	\$1,296
	2 inch	\$2,303
	3 inch	\$5,182
	4 inch	\$9,213
	6 inch	\$20,729

Significant Assumptions

This section outlines the procedures used to develop the cost of service for CWL and the related significant assumptions.

Forecasted Operating Expenses

Forecasted expenses were based on 2012, 2013, 2014, budget data and adjusted for inflation. Table 14 is a summary of the expenses used in the analysis.

Table 18 – Projected Operating Expenses

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Expenses						
Production	\$ 5,549,901	\$ 5,688,649	\$ 5,830,865	\$ 5,976,636	\$ 6,126,052	\$ 6,279,204
Transmission and Distribution	5,225,144	5,355,773	5,489,667	5,626,909	5,767,581	5,911,771
Administration and General	3,325,726	3,408,869	3,494,091	3,581,443	3,670,979	3,762,754
Depreciation	2,869,640	2,925,355	3,283,324	3,552,601	3,685,470	3,835,784
Pilot	3,300,000	3,382,500	3,467,063	3,553,739	3,642,583	3,733,647
<i>Total Expenses</i>	<u>\$20,270,411</u>	<u>\$20,761,145</u>	<u>\$21,565,009</u>	<u>\$22,291,329</u>	<u>\$22,892,665</u>	<u>\$23,523,160</u>

Unit Sales

Growth projections of 0.5% was used for 2015-2020 were discussed with management.

Inflation

Inflation was assumed at 2.5% annually.

Beginning 2015 Cash Balance

Beginning 2015 cash balance was based on utility budget plus \$3M identified by management as unspent capital.

Depreciation Expense

Depreciation expense was projected based on historical capital additions and discussions with management on future capital additions.

Interest Income

Interest income was forecasted based on projected cash balances and an interest rate of 0.5

Capital Improvements

The capital improvement projections were provided by CWL. Projections for 2015 – 2020 are outlined in Table 13 – Capital Improvements Projection

Table 19 – Capital Improvements Projection

Fiscal Year	Capital Improvements
2015	\$ 1,900,000
2016	3,900,000
2017	25,057,875
2018	18,849,400
2019	9,300,800
2020	10,522,000

Water Department Recommendations

- For CWL to maintain long-term financial targets of the water utility, a rate increase should be considered. We recommend the following rate track to maintain current operating income and cash balance and move towards the recommended debt coverage ratio target.

Fiscal Year	Projected Rate Adjustment	Projected Revenues	Projected Expenses	Adjusted Operating Income	Projected Cash Balances	Capital Improvements	Bond Issues	Debt Coverage Ratio
2015	0.0%	\$ 24,555,898	\$ 20,270,411	\$ 4,285,486	\$ 11,381,032	\$ 1,900,000	\$ -	1.55
2016	3.0%	25,392,654	20,761,145	4,631,509	10,929,665	3,900,000	-	1.67
2017	6.0%	26,943,419	21,565,009	5,378,409	27,715,420	25,057,875	39,807,275	1.27
2018	6.0%	28,592,765	22,291,329	6,301,436	11,673,970	18,849,400	-	1.34
2019	2.5%	29,439,775	22,892,665	6,547,110	5,484,906	9,300,800	-	1.38
2020	0.0%	29,644,359	23,523,160	6,121,200	19,152,949	10,522,000	22,880,800	1.14
Target Operating Income				2015	\$ 4,088,097			
				2020	\$ 6,858,019			
Minimum Cash Cash Level				2015	\$ 8,612,491			
				2020	\$ 12,745,406			

- The financial projection revenue, expenses and cash flow should be updated annually with the budget process to determine if the rate track is on target. The rate track was set at a minimum and any changes in capital or expenses can affect the future rate track.
- When changing rates the City Council should consider moving the monthly customer charge toward cost of service over time. The table compares the current customer charges by meter size with the cost of service charges.

Meter Size	Monthly Charge		
	Current Average Monthly Charge	COS Monthly Charge	Monthly Charge Variance
0.625	\$ 8.43	\$ 10.50	25%
0.75	\$ 8.35	\$ 10.50	26%
1	\$ 8.79	\$ 15.88	81%
1.5	\$ 12.89	\$ 29.84	131%
2	\$ 13.57	\$ 48.94	261%
3	\$ 22.90	\$ 184.27	705%
4	\$ 34.30	\$ 336.87	882%
6	\$ 66.41	\$ 719.48	983%

- A change in debt coverage ratio should be considered to help ensure bond covenants are met in the event of forecasting inaccuracies. CWL currently uses a 0.1 premium to bond debt ratio coverage we recommend moving toward a 0.2 premium.

5. The cost of service study indicates summer rates should be increased and winter rates decreased. It is recommended future rate increases continue using the current summer and winter rate differential. Following cost of service and increasing summer rates would place the utility at greater financial risk because summer sales are so dependent upon weather. If the City Council desired to increase summer rates and move toward cost of service the utility should maintain additional cash reserves to protect the utility from the additional financial risks.

Customer Type	Winter		Summer		
	COS Usage Charge	Current Usage Charge	COS Usage Charge	Current Usage Charge Block 1	Current Usage Charge Block 2
Residential	\$ 1.95	\$ 2.79	\$ 3.79	\$ 2.79	\$ 3.91
Commercial	\$ 1.95	\$ 2.60	\$ 3.30	\$ 2.60	\$ 3.91
Large Commercial	\$ 1.95	\$ 2.43	\$ 3.08	\$ 2.43	\$ 3.91
Master Metered	\$ 1.95	\$ 2.79	\$ 3.05	\$ 2.79	\$ 3.91
Irrigation Residential	\$ 1.95	\$ 2.79	\$ 4.37	\$ 2.79	\$ 3.91
Irrigation Commercial	\$ 1.95	\$ 2.60	\$ 4.23	\$ 2.60	\$ 3.91

6. The City Council may consider modifications to its existing cash reserve policy. The analysis identified the following minimum cash reserves should be maintained by the CWL.

Description	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020
Minimum Cash Reserve Allocation						
Operation & Maintenance Less Depreciation	12.3%	12.3%	12.3%	12.3%	12.3%	12.3%
Historical Rate Base	1%	1%	1%	1%	1%	1%
Current Portion of Debt Service Payment	70%	70%	70%	70%	70%	70%
Five Year Capital Improvements - Net of bond	20%	20%	20%	20%	20%	20%
Calculated Minimum Cash Level						
Operation & Maintenance Less Depreciation	\$ 2,145,301	\$ 2,198,933	\$ 2,253,906	\$ 2,310,254	\$ 2,368,010	\$ 2,427,211
Historical Rate Base	1,505,729	1,544,729	1,795,308	1,983,802	2,076,810	2,182,030
Current Portion of Debt Service Reserve	3,593,061	5,352,936	5,709,399	5,709,833	6,758,618	6,767,765
Five Year Capital Improvements - Net of bond	1,368,400	1,368,400	1,368,400	1,368,400	1,368,400	1,368,400
Minimum Cash Reserve Levels	\$ 8,612,491	\$ 10,464,999	\$ 11,127,013	\$ 11,372,289	\$ 12,571,839	\$ 12,745,406
Projected Cash Reserves	\$ 11,381,032	\$ 10,267,677	\$ 25,014,309	\$ 5,453,354	\$ (4,938,404)	\$ 4,509,765

7. The City Council should consider the following water connection fees for new customers connecting to the system and is established based on the size of the installed meter.



Water Department

Meter Size		Connection Charges
	1 inch and below	\$576
	1 1/2 inch	\$1,296
	2 inch	\$2,303
	3 inch	\$5,182
	4 inch	\$9,213
	6 inch	\$20,729

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ACCOUNTANTS' COMPILATION REPORT

Columbia Water and Light
Columbia City Council

The accompanying forecasted statements of revenues and expenses of the Columbia Water and Light were compiled for the year ending September 30, 2015 in accordance with guidelines established by the American Institute of Certified Public Accountants.

The purpose of this report is to assist management in forecasting revenue requirements and determining the cost to service each customer class. This report should not be used for any other purpose.

A compilation is limited to presenting, in the form of a forecast; information represented by management and does not include evaluation of support for any assumptions used in projecting revenue requirements. We have not audited the forecast and, accordingly, do not express an opinion or any other form of assurance on the statements or assumptions accompanying this report.

Differences between forecasted and actual results will occur since some assumptions may not materialize and events and circumstances may occur that were not anticipated. Some of these variations may be material. Utility Financial Solutions has no responsibility to update this report after the date of this report.

This report is intended for information and use by Columbia City Council and management for the purposes stated above. This report is not intended to be used by anyone except the specified parties.

UTILITY FINANCIAL SOLUTIONS

Mark Beauchamp, CPA, CMA, MBA
Holland, MI
January 2015
