



CITY OF JUNCTION CITY

Water and Wastewater Financial Business Plan

Final Report | June 11, 2014

3.3 WASTEWATER UTILITY FINANCIAL BUSINESS PLAN

3.3.1 Forecast Wastewater Utility Units of Service and Revenue at Existing Rates

Existing Wastewater Rates

The City recovers the cost of operating the wastewater utility via volumetric rates and fixed minimum charges. Table 21 below summarizes the existing wastewater rate structure.

City of Junction City			Test Year
Wastewater Utility Financial Plan			
Table 21: Existing Wastewater Rate Structure			2014
<u>Volumetric Rates</u>			
Minimum	2 CCF and Below	\$	-
Wastewater Volumetric	Greater than 2 CCF	\$	1.90
<u>Monthly Wastewater Minimum Charges</u>			
Minimum Charge		\$	25.50
<u>Extra Strength Surcharges</u>			
Industrial BOD5	\$/per lb		0.104
Industrial TSS	\$/per lb		0.117

The City measures customer usage in one hundred cubic feet (CCF) increments. 1 CCF is equivalent to approximately 748 gallons. City customers typically use around 5 CCF per month. The wastewater volumetric rates include a minimum allotment and are based on an inclining block rate structure.

The minimum allotment represents usage which has been included in the City's minimum charge, and to which no volume rate is applied. The City's existing minimum allotment is 2 CCF. The volumetric rate is applied to all usage above 2 CCF. As an example, a customer using 5 CCF would be charged \$5.70 (2 CCF*\$0.00+3 CCF*1.90).

The minimum charge (\$25.50/month) includes the first 2 CCF of wastewater use.

Also shown are extra strength surcharges, which apply to customers whose wastewater strength exceeds the limit set by the City.

Historical Wastewater Units of Service

Tables 22 through 25 on the following pages summarize the trends in wastewater account growth, wastewater usage, and wastewater usage per account.

The number of historical wastewater accounts was estimated as the number of monthly bills for each customer class, divided by 12. As Table 22 indicates, account growth has been fairly limited, with an average growth rate of approximately 1% over the 5 year historical period. Despite apparent upward trend in account growth, there were least two years that appear to indicate a decline in wastewater accounts. As indicated by the historical data, commercial accounts have exhibited the highest overall average growth rates over the 5 year period.

Table 23 indicates the historical trends in billed wastewater usage. Over the 5 year period, billed wastewater usage growth averaged 3.75% per year. The primary driver of this trend appears to be commercial accounts, as growth in residential usage has been negative over 5 year period.

Table 24 indicates the trend, over the historical period, for wastewater usage per customer account. Overall growth in usage per account has been negative over the past 5 years. Excluding industrial customer Armour-Eckridge, growth in consumption per account has average approximately -.5% over the 5 year period, principally due to declines in residential usage.

While the City has experienced some account growth in recent years, each new account is, on average, is discharging less wastewater than in prior years. This trend is consistent with what we have seen for utilities throughout the United States, and is associated with a growing trend in water conservation. This trend is based on a general conservation ethos (i.e. environmental awareness) as well as a customer response to increasing utility rates (e.g. installing high efficiency fixtures and appliances).

*City of Junction City
Wastewater Utility Financial Plan
Table 22: Historical Wastewater Accounts*

Class	Historical 2009	Historical 2010	Historical 2011	Historical 2012	Historical 2013	% Change 2010	% Change 2011	% Change 2012	% Change 2013	5 Year CAGR
Commercial	654	666	669	795	813	1.83%	0.45%	18.83%	2.26%	4.45%
Residential	8,614	9,041	9,010	9,031	8,946	4.96%	-0.34%	0.23%	-0.94%	0.76%
Armour	-	-	-	-	1					
Grand Total Wastewater	9,268	9,707	9,679	9,826	9,760	4.74%	-0.29%	1.52%	-0.67%	1.04%

*City of Junction City
Wastewater Utility Financial Plan
Table 23: Historical Wastewater Usage*

Class	Historical 2009	Historical 2010	Historical 2011	Historical 2012	Historical 2013	% Change 2010	% Change 2011	% Change 2012	% Change 2013	5 Year CAGR
Commercial	194,122	213,847	225,903	290,011	291,788	10.16%	5.64%	28.38%	0.61%	8.49%
Residential	694,808	703,857	745,129	642,662	578,457	1.30%	5.86%	-13.75%	-9.99%	-3.60%
Armour	-	-	-	-	198,460					
Grand Total Wastewater	888,930	917,704	971,032	932,673	1,068,705	3.24%	5.81%	-3.95%	14.59%	3.75%

City of Junction City
Wastewater Utility Financial Plan
Table 24: Historical Wastewater Usage Per Account

Class	Historical		Historical		Historical		Historical		% Change		% Change		% Change		5 Year		Previous		Average		Average		
	2009	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013	2013	2 Year	3 Year	4 Year	5 Year	
Commercial	297	321	338	365	359	8.18%	5.16%	8.03%	-1.61%	3.87%	359	362	354	346	336								
Residential	81	78	83	71	65	-3.48%	6.23%	-13.95%	-9.14%	-4.33%	65	68	73	74	75								
Armour					198,460																		
Grand Total Wastewater	96	95	100	95	109	-1.43%	6.12%	-5.39%	15.36%	2.68%	109	102	102	100	99								

Forecast Wastewater Units of Service

Tables 25 through 30 on the following pages summarize the forecast levels of wastewater customer accounts and wastewater billed usage. Forecast billed usage is shown by amounts included in—and greater than—the minimum allotment, and overall.

Table 25 indicates the forecast of wastewater customer accounts. Though the historical data do indicate that some level of account growth occurred over the 5 year historical period, there was a fair amount of variation over the years examined. Consequently, wastewater accounts have been forecast at the 2013 levels, both in the test year, and the ten year forecast period.

Table 26 indicates the forecast industrial surcharge units. The industrial surcharge is applied to high volume wastewater customers and is based on the concentration of total suspended solids (TSS) and biochemical oxygen demand (BOD) in the wastewater discharged by these customers. The charge is only levied on strength units beyond normal domestic strength and is based on pounds of each pollutant discharged by these customers. At this time, industrial customer Armour-Eckridge (“AE”), which operates a food manufacturing plant within the City, is the sole industrial customer to which this charge applies. The projections indicated are based on measurements of AE wastewater strength in 2013, and are forecast to remain flat throughout the ten year period.

Table 27 indicates the forecast of wastewater usage per customer account. This forecast is based on the average usage per account—by customer class—observed in 2013. Compared to the historical data, this is a relatively conservative forecast, given that usage per account has been higher in the historical years. However, the overall trend is toward declining per customer usage. Consequently, we feel the low, yet stable forecast of usage per account is not an unreasonable estimate.

Table 28 indicates the forecast usage which is included in the minimum allotment and against which—under the current rate structure—the wastewater volume rates would not be applied. This forecast represents the forecast number of accounts indicated in multiplied by 2 CCF per account, and again by each of the 12 monthly bills.

Table 29 summarizes the forecast of usage greater than the minimum allotment. This was determined by subtracting the minimum allotment—by class—from the forecast of total billed usage.

Table 30 indicates the forecast of total billed usage. Total billed usage was determined by multiplying the forecast of wastewater accounts, by the forecast wastewater usage per account.

*City of Junction City
Wastewater Utility Financial Plan
Table 25: Forecast Wastewater Accounts*

Class	Historical 2013	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	813	813	813	813	813	813	813	813	813	813	813	813
Residential	8,946	8,946	8,946	8,946	8,946	8,946	8,946	8,946	8,946	8,946	8,946	8,946
Armour	1	1	1	1	1	1	1	1	1	1	1	1
Grand Total Wastewater	9,760	9,760	9,760	9,760	9,760	9,760	9,760	9,760	9,760	9,760	9,760	9,760

*City of Junction City
Wastewater Utility Financial Plan
Table 26: Forecast Surcharge Units*

Class	Historical 2013	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Industrial BOD5	627,931	627,931	627,931	627,931	627,931	627,931	627,931	627,931	627,931	627,931	627,931	627,931
Industrial TSS	179,601	179,601	179,601	179,601	179,601	179,601	179,601	179,601	179,601	179,601	179,601	179,601
Grand Total Wastewater	807,532	807,532	807,532	807,532	807,532	807,532	807,532	807,532	807,532	807,532	807,532	807,532

*City of Junction City
Wastewater Utility Financial Plan
Table 27: Forecast Wastewater Usage Per Account*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	359	359	359	359	359	359	359	359	359	359	359
Residential	65	65	65	65	65	65	65	65	65	65	65
Armour	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460

*City of Junction City
Wastewater Utility Financial Plan
Table 28: Forecast Minimum Usage*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	19,512	19,512	19,512	19,512	19,512	19,512	19,512	19,512	19,512	19,512	19,512
Residential	214,704	214,704	214,704	214,704	214,704	214,704	214,704	214,704	214,704	214,704	214,704
Armour	24	24	24	24	24	24	24	24	24	24	24
Grand Total Wastewater	234,240	234,240	234,240	234,240	234,240	234,240	234,240	234,240	234,240	234,240	234,240

*City of Junction City
Wastewater Utility Financial Plan
Table 29: Forecast Usage>Minimum*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	272,276	272,276	272,276	272,276	272,276	272,276	272,276	272,276	272,276	272,276	272,276
Residential	363,753	363,753	363,753	363,753	363,753	363,753	363,753	363,753	363,753	363,753	363,753
Armour	198,436	198,436	198,436	198,436	198,436	198,436	198,436	198,436	198,436	198,436	198,436
Grand Total Wastewater	834,465	834,465	834,465	834,465	834,465	834,465	834,465	834,465	834,465	834,465	834,465

*City of Junction City
Wastewater Utility Financial Plan
Table 30: Forecast Total Usage*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	291,788	291,788	291,788	291,788	291,788	291,788	291,788	291,788	291,788	291,788	291,788
Residential	578,457	578,457	578,457	578,457	578,457	578,457	578,457	578,457	578,457	578,457	578,457
Armour	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460	198,460
Grand Total Wastewater	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705	1,068,705

Wastewater Revenue under Existing Rates

Tables 31 through 33 on the following pages indicate the forecast level of volumetric, fixed and total revenue forecast to be generated under the City’s existing wastewater rates.

Table 31 indicates the forecast level of volumetric revenue. This forecast was determined by multiplying the forecast usage by the volumetric rate. Under the City’s existing rates, volumetric revenues are forecast to be approximately \$1.7 Million per year—in the test year—and throughout the forecast period. This represents approximately 36% of total wastewater revenues.

Table 32 indicates the forecast of fixed charge revenue. This forecast was determined by multiplying the number of accounts forecast in each customer class, by the minimum charge and again by 12 for each of the monthly bills. Under the City’s existing rates, fixed charge revenue is forecast to be approximately 3.0 Million per year—in the test year—and throughout the forecast period. This represents approximately 64% of total wastewater revenues.

Total wastewater utility rate revenues are forecast to be \$4.7 Million per year—in the test year—and throughout the forecast period.

*City of Junction City
Wastewater Utility Financial Plan
Table 31: Forecast Wastewater Volumetric Revenue*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324
Total Commercial Volumetric	\$ 517,324										
Residential	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131
Total Residential Volumetric	\$ 691,131										
Armour	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Armour	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028
Total Armour Volumetric	\$ 377,028										
Industrial BOD5	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305	\$ 65,305
Industrial TSS	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013	\$ 21,013
Total Industrial Surcharge	\$ 86,318										
Grand Total Wastewater	\$ 1,671,802										

*City of Junction City
Wastewater Utility Financial Plan
Table 32: Forecast Wastewater Fixed Charge Revenue*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778
Residential	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476
Armour	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306
Grand Total Wastewater	\$ 2,986,560										

*City of Junction City
Wastewater Utility Financial Plan
Table 33: Summary of Total Water Revenue at Existing Rates*

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Total Commercial Volumetric	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324	\$ 517,324
Total Residential Volumetric	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131	\$ 691,131
Total Armour Volumetric	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028	\$ 377,028
Total Industrial Surcharge	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318	\$ 86,318
Total Volumetric Wastewater Rate Revenue	1,671,802										
Commercial	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778	\$ 248,778
Residential	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476	\$ 2,737,476
Armour	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306	\$ 306
Total Fixed Charge Wastewater Rate Revenue	\$ 2,986,560										
Grand Total Wastewater Revenue at Existing Wastewater Rates	\$ 4,658,362										

3.3.2 Forecast Wastewater Operation and Maintenance Expenditures

Wastewater O&M Inflation Rates

The budgets provided by the City are the basis for the forecast of wastewater utility O&M expenditures. To forecast the level of wastewater utility O&M expenditures that the City would incur we applied the escalation rates shown in Table 34 below. The rates indicated were developed based on discussions with City staff and our experience with similar utilities.

*City of Junction City
Wastewater Utility Financial Plan
Table 34: Wastewater O&M Escalation Rates*

	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Salaries and Wages	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Medical	0.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Benefits	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Pension	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Chemicals	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
General	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Materials/Supplies	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Vehicle	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Maintenance	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Telecommunications	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Utilities-Electric	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Utilities-Gas	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Bad Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Capital Outlay	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Transfer to Other Funds	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Contract Services-Veolia	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Table 38 summarizes a forecast of the City's wastewater debt service, including the anticipated KPWSLF loans.

<i>City of Junction City Wastewater Utility Financial Plan Table 36: Wastewater Capital Improvements Program</i>											
Project	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Influent Pump Station	\$ -	\$ -	\$ -	\$ 70,725	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Headworks Building	\$ -	\$ -	\$ -	\$ 224,250	\$ -	\$ 1,147,125	\$ -	\$ -	\$ -	\$ -	\$ -
Grit Building	\$ -	\$ -	\$ -	\$ 77,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Clarifiers	\$ -	\$ -	\$ -	\$ 724,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Sludge Pump Station	\$ -	\$ -	\$ -	\$ 486,450	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Anoxic Basin	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 75,900	\$ -	\$ -	\$ -	\$ -	\$ -
Aeration Basin	\$ -	\$ -	\$ -	\$ 319,125	\$ -	\$ 431,250	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Clarifiers	\$ -	\$ -	\$ -	\$ 865,950	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
RAS/WAS Pump Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 381,225	\$ -	\$ -	\$ -	\$ -	\$ -
Sludge System	\$ -	\$ -	\$ -	\$ 514,050	\$ -	\$ 558,900	\$ -	\$ -	\$ 2,501,250	\$ -	\$ -
Site	\$ -	\$ -	\$ -	\$ 819,375	\$ -	\$ 784,875	\$ -	\$ -	\$ -	\$ -	\$ -
BNR Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,530,075	\$ -	\$ -
Flow Diversion Structure	\$ -	\$ -	\$ -	\$ 70,725	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Screening - Industrial and Domestic	\$ -	\$ -	\$ -	\$ 194,925	\$ -	\$ 243,225	\$ -	\$ -	\$ -	\$ -	\$ -
Acid Feed System	\$ -	\$ -	\$ -	\$ 34,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equalization Basins	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 274,275	\$ -	\$ -	\$ -	\$ -	\$ -
Dissolved Air Flotation	\$ -	\$ -	\$ -	\$ 960,825	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BNR Basin(s) (New)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 267,375	\$ -	\$ -	\$ 5,718,375	\$ -	\$ -
Selector Basin (Existing)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 74,175	\$ -	\$ -	\$ -	\$ -	\$ -
Aeration System	\$ -	\$ -	\$ -	\$ 1,285,125	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Secondary Clarifiers	\$ -	\$ -	\$ -	\$ 676,200	\$ -	\$ -	\$ -	\$ -	\$ 5,318,175	\$ -	\$ -
WAS/RAS/Scum Handling	\$ -	\$ -	\$ -	\$ 70,725	\$ -	\$ 25,875	\$ -	\$ -	\$ -	\$ -	\$ -
Biosolids System	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,748,200	\$ -	\$ -	\$ 6,630,900	\$ -	\$ -
Collection System Projects	\$ 322,394	\$ 332,066	\$ 341,738	\$ 351,410	\$ 361,081	\$ 370,753	\$ 380,425	\$ 390,097	\$ 399,769	\$ 409,441	\$ 419,112
Other System Recapitalization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Wastewater Capital Improvements	\$ 322,394	\$ 332,066	\$ 341,738	\$ 7,746,485	\$ 361,081	\$ 11,383,153	\$ 380,425	\$ 390,097	\$ 22,098,544	\$ 409,441	\$ 419,112

<i>City of Junction City Water Utility Financial Plan Table 37: Wastewater Utility CIP Financing Plan</i>											
	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Determination of Current Year Funds Available for CIP											
Beginning Construction Fund Balance	\$ -	\$ 2,177,606	\$ 2,345,540	\$ 3,503,802	\$ -	\$ 1,138,919	\$ -	\$ 619,575	\$ 1,729,478	\$ -	\$ 90,559
Carry-Over CIP from Previous Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ 2,177,606	\$ 2,345,540	\$ 3,503,802	\$ -	\$ 1,138,919	\$ -	\$ 619,575	\$ 1,729,478	\$ -	\$ 90,559
Sources of CIP Funds											
Current Year Funds Available for CIP	\$ -	\$ 2,177,606	\$ 2,345,540	\$ 3,503,802	\$ -	\$ 1,138,919	\$ -	\$ 619,575	\$ 1,729,478	\$ -	\$ 90,559
KPWSLF Loan Proceeds (Wastewater)	\$ -	\$ -	\$ -	\$ 3,258,977	\$ -	\$ 9,290,688	\$ -	\$ -	\$ 18,963,885	\$ -	\$ -
Wastewater Revenue Bonds Issued	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Rate Revenue CIP Financing (Cash)	\$ 2,500,000	\$ 500,000	\$ 1,500,000	\$ 1,000,000	\$ 1,500,000	\$ 1,000,000	\$ 1,000,000	\$ 1,500,000	\$ 1,500,000	\$ 500,000	\$ 500,000
	\$ 2,500,000	\$ 2,677,606	\$ 3,845,540	\$ 7,762,779	\$ 1,500,000	\$ 11,429,607	\$ 1,000,000	\$ 2,119,575	\$ 22,193,363	\$ 500,000	\$ 500,559
Uses of CIP Funds											
East WWTP Projects	\$ -	\$ -	\$ -	\$ 4,102,050	\$ -	\$ 3,379,275	\$ -	\$ -	\$ 4,031,325	\$ -	\$ -
Southwest WWTP Projects	\$ -	\$ -	\$ -	\$ 3,293,025	\$ -	\$ 7,633,125	\$ -	\$ -	\$ 17,667,450	\$ -	\$ -
Collection System Projects	\$ 322,394	\$ 332,066	\$ 341,738	\$ 351,410	\$ 361,081	\$ 370,753	\$ 380,425	\$ 390,097	\$ 399,769	\$ 409,441	\$ 419,112
Other System Recapitalization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
KPWSLF Issuance Costs	\$ -	\$ -	\$ -	\$ 16,295	\$ -	\$ 46,453	\$ -	\$ -	\$ 94,819	\$ -	\$ -
Wastewater Revenue Bond Issuance Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ 322,394	\$ 332,066	\$ 341,738	\$ 7,762,779	\$ 361,081	\$ 11,429,607	\$ 380,425	\$ 390,097	\$ 22,193,363	\$ 409,441	\$ 419,112
Ending Construction Fund Balance	\$ 2,177,606	\$ 2,345,540	\$ 3,503,802	\$ -	\$ 1,138,919	\$ -	\$ 619,575	\$ 1,729,478	\$ -	\$ 90,559	\$ 171,447
Target Balance	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

City of Junction City Wastewater Utility Financial Plan Table 38: Wastewater Utility Forecast Debt Service											
Debt Issue	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Total KPWSLF Debt											
Total KPWSLF Principal	\$ 437,372	\$ 450,611	\$ 464,257	\$ 478,323	\$ 625,718	\$ 644,319	\$ 1,042,339	\$ 1,072,499	\$ 893,745	\$ 1,691,558	\$ 1,737,999
Total KPWSLF Interest	\$ 149,343	\$ 137,206	\$ 124,695	\$ 156,609	\$ 188,125	\$ 298,512	\$ 408,374	\$ 379,532	\$ 612,299	\$ 849,419	\$ 803,872
Total KPWSLF Service Fee	\$ 14,025	\$ 12,923	\$ 11,788	\$ 10,619	\$ 9,414	\$ 8,173	\$ 6,894	\$ 5,576	\$ 4,348	\$ 3,478	\$ 2,585
Total KPWSLF Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total KPWSLF Total Debt Service	\$ 600,740	\$ 600,740	\$ 600,740	\$ 646,551	\$ 823,257	\$ 951,004	\$ 1,457,607	\$ 1,457,607	\$ 1,510,393	\$ 2,544,456	\$ 2,544,456
Total KPWSLF Total Outstanding Debt	\$ 5,281,129	\$ 4,830,518	\$ 4,368,261	\$ 7,148,915	\$ 6,521,198	\$ 15,187,566	\$ 14,125,228	\$ 13,052,729	\$ 31,122,868	\$ 29,431,310	\$ 27,693,311
Total Revenue Bond Debt											
Total Revenue Bond Principal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Interest	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Service Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Total Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
Total Revenue Bond Total Outstanding Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total General Obligation Bond Debt											
Total General Obligation Bond Principal	\$ 156,000	\$ 162,000	\$ 168,000	\$ 174,000	\$ 183,000	\$ 192,000	\$ 198,000	\$ 210,000	\$ 219,000	\$ 231,000	\$ 240,000
Total General Obligation Bond Interest	\$ 139,388	\$ 133,008	\$ 126,401	\$ 119,553	\$ 112,458	\$ 103,736	\$ 94,736	\$ 85,436	\$ 75,487	\$ 65,032	\$ 53,913
Total General Obligation Bond Service Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total General Obligation Bond Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total General Obligation Bond Total Debt Service	\$ 295,388	\$ 295,008	\$ 294,401	\$ 293,553	\$ 295,458	\$ 295,736	\$ 292,736	\$ 295,436	\$ 294,487	\$ 296,032	\$ 293,913
Total General Obligation Bond Total Outstanding Debt	\$ 2,858,000	\$ 2,694,000	\$ 2,526,000	\$ 2,352,000	\$ 2,169,000	\$ 1,977,000	\$ 1,779,000	\$ 1,569,000	\$ 1,350,000	\$ 1,119,000	\$ 879,000
Grand Total Debt											
Grand Total Principal	\$ 593,372	\$ 612,611	\$ 632,257	\$ 652,323	\$ 808,718	\$ 836,319	\$ 1,240,339	\$ 1,282,499	\$ 1,112,745	\$ 1,922,558	\$ 1,977,999
Grand Total Interest	\$ 288,711	\$ 270,214	\$ 251,096	\$ 278,162	\$ 300,583	\$ 402,247	\$ 503,110	\$ 464,967	\$ 687,788	\$ 914,451	\$ 857,785
Grand Total Service Fee	\$ 14,025	\$ 12,923	\$ 11,788	\$ 10,619	\$ 9,414	\$ 8,173	\$ 6,894	\$ 5,576	\$ 4,348	\$ 3,478	\$ 2,585
Grand Total Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total Debt Service	\$ 896,108	\$ 895,748	\$ 895,141	\$ 939,104	\$ 1,118,715	\$ 1,246,739	\$ 1,750,342	\$ 1,753,042	\$ 1,804,880	\$ 2,840,488	\$ 2,838,369
Grand Total Outstanding Debt	\$ 8,137,129	\$ 7,524,518	\$ 6,892,261	\$ 9,498,915	\$ 8,890,198	\$ 17,144,566	\$ 15,904,228	\$ 14,621,729	\$ 32,472,868	\$ 30,550,310	\$ 28,572,311

3.3.4 Wastewater Utility Cash Flow Forecast

The final step in the development of the wastewater utility financial business plan is the cash flow forecast. The results of the cash flow forecast are indicated in Table 39 on the following page. The cash flow forecast has 4 components:

- Forecast of Wastewater Utility Revenues
- Forecast of Wastewater Utility Revenue Requirements
- Operating Performance
- Debt Service Coverage Calculation

Forecast of Wastewater Utility Revenues

The forecast of wastewater utility revenues includes both the revenue under existing wastewater rates, as well as the additional revenue generated by the forecast rate increases. For example, in the test year, it is anticipated that existing rates will generate \$4.6 Million. To ensure adequate recovery of the wastewater utility's revenue requirements, it is anticipated that additional revenue will be needed in the test year. This revenue will be generated by a July 1 (6 months) rate increase of 5.5%. The total test year revenue, \$5.1 Million, represents the revenue under the City's existing rates, plus non-rate revenue, plus additional revenue generated by the anticipated rate increase.

Forecast of Wastewater Utility Revenue Requirements

The forecast of wastewater utility revenue requirements includes the O&M expenditures discussed previously, existing and proposed debt service, cash funded capital improvements, and transfers to the operating reserve. The test year total of \$5.1 Million, represents the gross revenue requirement (i.e. before any offset from non-rate revenues), which must be recovered from wastewater rates.

Operating Performance

The forecast of the wastewater utility's operating performance summarizes the change in the utility's cash position which results from the revenues and revenue requirements summarized above. It is assumed that any net revenues available after O&M expenditures, debt service payments, and cash-funded capital will be retained in the City's operating reserve. In the test year, total revenues are anticipated to be approximately \$5.1 Million. Total expenditures (including cash funded capital) are anticipated to be \$6.9 Million, leaving a deficit of \$1.8 Million. This shortfall will be reconciled against the City's existing cash reserves of \$2.9 Million, leaving approximately \$1.2 Million. This is approximately \$.1 Million above the operating reserve target of 90 days of O&M expenditures and debt service payments.

Maintaining this cash reserve is critical to mitigating the risk associated with operating a climatically variable enterprise. As is noted in the discussion of historical usage, water usage patterns can vary significantly and—as a result—the wastewater utility can face significant and unexpected revenue shortfalls. This is particular true when a City (as Junction City does) bills wastewater usage based on billed water usage. The 90 day reserve helps limit the impact in the event such a shortfall occurs. Additionally, “days cash on hand” is one of the criteria used to evaluate credit-worthiness by bond ratings agencies. Insufficient cash reserves can negatively impact bond ratings, and put upward pressure on borrowing costs in the future should the City decide to avail itself of financing sources beyond KPWSLF.

The wastewater utility financial plans were developed under the assumption that revenue bond debt would have first claim on utility revenues, followed by KPWSLF loans, followed by GO bonds. Since the current forecasts do not assume any revenue bond issuance, the coverage calculations shown are for KPWSLF loans, GO debt and combined debt service. The minimum debt service coverage target used was 1.25x combined wastewater utility debt service (including proposed debt). While utility funds often set higher targets, they are also typically employing revenue bonds, which tend to carry higher coverage requirements. Note that debt service coverage is actually significantly stronger than the target until 2023. The primary driver behind this is a smoothing of rate increases built into the financial plan, which requires higher increases (and stronger coverage) in the early years to build up to the level of revenue (and coverage) needed to sustain the plans in the later years.

City of Junction City
Wastewater Utility Financial Plan
Table 39: Wastewater Utility Cash Flow Forecast

Forecast of Wastewater Utility Revenues

Test Year	Forecast 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Grand Total Wastewater Revenue at Existing Wastewater Rates	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362	\$ 4,658,362
Fiscal Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Annual % Increase in Rate Revenues	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Months Effective	5.5	12	12	12	12	12	12	12	12	12	12
2014	\$ 117,400	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200	\$ 256,200
2015	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400	\$ 319,400
2016	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000	\$ 314,000
2017	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900	\$ 332,900
2018	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900	\$ 352,900
2019	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000	\$ 374,000
2020	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500	\$ 396,500
2021	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300	\$ 420,300
2022	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500	\$ 445,500
2023	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900	\$ 432,900
2024	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100	\$ 249,100

Additional Revenue from Rate Increases
Total Non-Rate Revenues

2014	\$ 117,400	\$ 575,600	\$ 889,600	\$ 1,222,500	\$ 1,575,400	\$ 1,949,400	\$ 2,345,900	\$ 2,766,200	\$ 3,211,700	\$ 3,644,600	\$ 3,893,700
2015	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000	\$ 279,000
Grand Total Wastewater Revenues	\$ 5,054,762	\$ 5,512,962	\$ 5,826,962	\$ 6,159,862	\$ 6,512,762	\$ 6,886,762	\$ 7,283,262	\$ 7,703,562	\$ 8,149,062	\$ 8,581,962	\$ 8,831,062

Forecast of Wastewater Utility Revenue Requirements

Total Wastewater Fund O&M Expenses
Total Wastewater Utility Debt Service
Wastewater Rate Revenue CIP Financing (Cash)
Transfer to Operating Reserve

2014	\$ 3,474,165	\$ 3,617,571	\$ 3,767,292	\$ 3,923,622	\$ 4,086,867	\$ 4,257,351	\$ 4,435,410	\$ 4,621,399	\$ 4,815,688	\$ 5,018,669	\$ 5,230,749
2015	\$ 896,108	\$ 895,748	\$ 895,141	\$ 939,104	\$ 1,118,715	\$ 1,248,739	\$ 1,750,342	\$ 1,753,042	\$ 1,804,880	\$ 2,840,488	\$ 2,838,369
2016	\$ 2,500,000	\$ 500,000	\$ 1,500,000	\$ 1,000,000	\$ 1,500,000	\$ 1,000,000	\$ 1,000,000	\$ 1,500,000	\$ 1,500,000	\$ 500,000	\$ 500,000
2017	\$ (1,815,512)	\$ 499,643	\$ (335,471)	\$ 297,136	\$ (192,820)	\$ 382,672	\$ 97,510	\$ (170,879)	\$ 28,494	\$ 222,805	\$ 261,944
Grand Total Wastewater Utility Revenue Requirements	\$ 5,054,762	\$ 5,512,962	\$ 5,826,962	\$ 6,159,862	\$ 6,512,762	\$ 6,886,762	\$ 7,283,262	\$ 7,703,562	\$ 8,149,062	\$ 8,581,962	\$ 8,831,062

Operating Performance

Total Revenue
Total Operating Expenditures
Transfer to Operating Reserve
Beginning Cash Available for Capital and Operations
Add Net Operating Surplus/(Deficit)
Ending Operating Reserve Balance
Target Operating Reserve Balance
Variance from Target Operating Reserve Balance

2014	\$ 2,982,421	\$ 1,176,910	\$ 1,676,553	\$ 1,341,082	\$ 1,638,218	\$ 1,445,397	\$ 1,828,069	\$ 1,925,579	\$ 1,754,700	\$ 1,783,194	\$ 2,005,999
2015	\$ (1,815,512)	\$ 499,643	\$ (335,471)	\$ 297,136	\$ (192,820)	\$ 382,672	\$ 97,510	\$ (170,879)	\$ 28,494	\$ 222,805	\$ 261,944
2016	\$ 1,176,910	\$ 1,676,553	\$ 1,341,082	\$ 1,638,218	\$ 1,445,397	\$ 1,828,069	\$ 1,925,579	\$ 1,754,700	\$ 1,783,194	\$ 2,005,999	\$ 2,267,943
2017	\$ 1,092,568	\$ 1,128,330	\$ 1,165,608	\$ 1,215,681	\$ 1,301,396	\$ 1,376,023	\$ 1,546,438	\$ 1,593,610	\$ 1,655,142	\$ 1,964,789	\$ 2,017,279
Variance from Target Operating Reserve Balance	\$ 84,341	\$ 548,223	\$ 175,474	\$ 422,536	\$ 144,002	\$ 452,047	\$ 379,141	\$ 161,090	\$ 128,052	\$ 41,210	\$ 260,664

Debt Service Coverage Calculations

Revenue Bond DSCR
KPSLF DSCR
General Obligation DSCR
Combined DSCR

2014	N/A										
2015	2.63	3.16	3.43	3.46	2.95	2.76	1.95	2.11	2.21	1.40	1.41
2016	3.32	4.39	4.96	5.42	5.42	5.68	4.75	5.50	6.19	3.44	3.59
2017	1.76	2.12	2.30	2.38	2.17	2.11	1.63	1.76	1.85	1.25	1.27

4. WATER UTILITY COST OF SERVICE STUDY

Following the determination of the water utility financial plan, the next steps are to summarize the water utilities total rate revenue requirement, determine the proportion of that requirement which is attributable to each customer class, and calculate the volumetric and fixed rates.

4.1 WATER UTILITY REVENUE REQUIREMENTS FROM RATES

Table 40 summarizes the revenue requirement components from the cash flow forecast. In the test year the total gross revenue requirements are \$5 Million. This is offset by \$.4 Million in non-rate revenue, bringing the net revenue requirement in the test year to \$4.6 Million. The two primary revenue requirements are O&M expenditures, and capital expenditures. Note that an adjustment has been made to reflect the mid-year rate increase anticipated by the City.

City of Junction City Water Utility Cost of Service Study and Rate Design Table 40: Water Utility Revenue Requirements											
	Test Year 2014	Forecast 2016	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Water Utility Gross Revenue Requirements											
Total Water Fund O&M Expenses	\$ 3,236,876	\$ 3,360,560	\$ 3,489,370	\$ 3,623,538	\$ 3,763,303	\$ 3,908,917	\$ 4,060,647	\$ 4,218,769	\$ 4,383,574	\$ 4,555,368	\$ 4,734,472
Total Water Utility Debt Service	\$ 1,145,537	\$ 1,229,783	\$ 1,485,596	\$ 1,581,019	\$ 1,788,372	\$ 1,975,006	\$ 2,306,641	\$ 2,437,322	\$ 2,570,706	\$ 2,701,203	\$ 2,839,984
Water Rate Revenue CIP Financing (Cash)	\$ 2,000,000	\$ 500,000	\$ 500,000	\$ 1,000,000	\$ 1,000,000	\$ 500,000	\$ 1,000,000	\$ 500,000	\$ 500,000	\$ 1,000,000	\$ 500,000
Transfer to Operating Reserve	\$ (1,504,724)	\$ 242,546	\$ 179,223	\$ (208,160)	\$ (190,885)	\$ 364,966	\$ (236,898)	\$ 277,599	\$ 261,109	\$ (248,182)	\$ 238,633
Adjustment for Mid-Year Rate Increase	\$ 153,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Revenue Requirements	\$ 1,794,313	\$ 1,972,330	\$ 2,164,819	\$ 2,372,852	\$ 2,597,487	\$ 2,839,972	\$ 3,069,743	\$ 3,214,921	\$ 3,331,816	\$ 3,453,021	\$ 3,578,617
Gross Revenue Requirement From Rates	\$ 5,031,189	\$ 5,332,889	\$ 5,654,189	\$ 5,996,389	\$ 6,360,789	\$ 6,748,889	\$ 7,130,389	\$ 7,433,689	\$ 7,715,389	\$ 8,008,389	\$ 8,313,089
Water Utility Non-Rate Revenues											
15-4-34-331 City Permits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-352 Bad Debt Collection	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
15-4-34-393 Water Turn on Fees	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000	\$ 275,000
15-4-34-384 Tap & Connect Fees	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000
15-4-34-396 Bulk Water Sales	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-367 Late Fees	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000
15-4-34-400 Loan Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-420 Insurance Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-431 Transfer In	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-421 Miscellaneous	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000
15-4-34-422 Sale of Fixed Assets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Earnings on Fund Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Non-Rate Revenues	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100
Water Utility Net Revenue Requirement from Rates	\$ 4,641,089	\$ 4,942,789	\$ 5,264,089	\$ 5,606,289	\$ 5,970,689	\$ 6,358,789	\$ 6,740,289	\$ 7,043,589	\$ 7,325,289	\$ 7,618,289	\$ 7,922,989

4.2 WATER UTILITY REVENUE REQUIREMENTS BY CUSTOMER CLASS

Following the development of the total test year revenue requirement, the proportion of the total revenue requirement (i.e. O&M and capital) allocable to each customer class must be determined. This allocation represents the level of revenues that must be recovered from each customer class, given the operational demands that class places on the water utility system. This allocation is performed via the following steps:

- Cost Functionalization
- Allocation of Functionalized Costs to Cost Components
- Determination of Peaking Factors
- Determination of Units of Service
- Calculation of Unit Cost of Service

- Determination of Revenue Requirements by Customer Class

4.2.1 Cost Functionalization

The first step in determining revenue requirements by customer class involves the allocation of water utility O&M, and capital costs to functional categories. These categories relate to the various functions performed by the water utility system and staff in order to provide service to City customers. For this study the functions are: Administrative, Customer Service, Source of Supply, Pumping, Treatment, and the various components of the transmission and distribution system (storage, transmission mains, distribution mains, meters and service lines, and hydrants).

Allocation of Water Utility O&M to Functional Categories

Table 41 below summarizes the functional allocation of the water utility’s test year O&M revenue requirement. These allocations relate to the proportion of expenditures in each cost center that is associated with performing each function. Water Plant Production, for example, is associated with the cost of operating the City’s water treatment plant, the majority of which is associated with payments to with the City’s contract operator Veolia Water. Consequently, all O&M expenditures for this cost center have been allocated the treatment function.

City of Junction City Water Utility Cost of Service Study and Rate Design Table 41: Water Utility O&M Functionalization		Test Year										
Look-Up Code	Line Department	Total	A&G	CS	SOS	Pumping	Treatment	Storage	Transmission	Distribution	M&S	Hydrants
15-5-34	WATER ADMINISTRATION											
	Subtotal Personnel	\$ 373,584	\$ 373,584	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal Commodities	\$ 59,000	\$ 59,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal Contract Service	\$ 206,256	\$ 206,256	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal Capital	\$ 17,500	\$ 17,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal Debt & Transfers	\$ 485,000	\$ 485,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	TOTAL WATER ADMINISTRATION	\$ 1,141,340	\$ 1,141,340	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-5-32	WATER DISTRIBUTION											
	Subtotal Personnel	\$ 254,499	\$ -	\$ -	\$ 50,900	\$ 50,900	\$ -	\$ 50,900	\$ 50,900	\$ 50,900	\$ -	\$ -
	Subtotal Commodities	\$ 120,625	\$ -	\$ -	\$ 24,125	\$ 24,125	\$ -	\$ 24,125	\$ 24,125	\$ 24,125	\$ -	\$ -
	Subtotal Contract Services	\$ 72,500	\$ -	\$ -	\$ 14,500	\$ 14,500	\$ -	\$ 14,500	\$ 14,500	\$ 14,500	\$ -	\$ -
	Subtotal Capital	\$ 50,247	\$ -	\$ -	\$ 10,049	\$ 10,049	\$ -	\$ 10,049	\$ 10,049	\$ 10,049	\$ -	\$ -
	TOTAL WATER OPERATIONS	\$ 497,871	\$ -	\$ -	\$ 99,574	\$ 99,574	\$ -	\$ 99,574	\$ 99,574	\$ 99,574	\$ -	\$ -
15-5-33	WATER PLANT PRODUCTION											
	Total Contract Services	\$ 1,597,665	\$ -	\$ -	\$ -	\$ -	\$ 1,597,665	\$ -	\$ -	\$ -	\$ -	\$ -
	Total Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	TOTAL WATER PRODUCTION	\$ 1,597,665	\$ -	\$ -	\$ -	\$ -	\$ 1,597,665	\$ -	\$ -	\$ -	\$ -	\$ -
	TOTAL WATER FUND O&M EXPENSES	\$ 3,236,876	\$ 1,141,340	\$ -	\$ 99,574	\$ 99,574	\$ 1,597,665	\$ 99,574	\$ 99,574	\$ 99,574	\$ -	\$ -

Allocation of Water Utility Capital Costs to Functional Categories

Similar to the allocation of the O&M revenue requirement described in the previous section, the capital revenue requirement must be allocated to functional categories. Table 42 below indicates the functional allocation of capital costs.

The basis for the allocation of capital costs was the existing level of water utility investment in fixed assets. The original cost of investments in each major asset class was allocated to the functional categories. The total capital revenue requirement, approximately \$1.8 Million in the test year, was then allocated according to the proportion of existing investment in each functional category. As indicated, a large proportion of investment in fixed assets pertains to the City’s distribution mains. As such, the majority of the capital revenue requirement (62%) has been allocated to the distribution function.

<i>City of Junction City</i>											
<i>Water Utility Cost of Service Study and Rate Design</i>											
<i>Table 42: Water Utility Capital Cost Functionalization</i>											
	Test Year Total	A&G	CS	SOS	Pumping	Treatment	Storage	Transmission	Distribution	M&S	Hydrants
Functional Categories	100%	2%	0%	0%	0%	22%	0%	14%	62%	0%	0%
Total Capital Revenue Requirements	\$ 1,794,313	\$ 31,034	\$ -	\$ -	\$ -	\$ 403,369	\$ -	\$ 255,575	\$ 1,104,336	\$ -	\$ -
	Original Cost	A&G	CS	SOS	Pumping	Treatment	Storage	Transmission	Distribution	M&S	Hydrants
Water Treatment Plant	\$ 21,000,000	\$ -	\$ -	\$ -	\$ -	\$ 21,000,000	\$ -	\$ -	\$ -	\$ -	\$ -
Pumping Stations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transmission Mains	\$ 13,305,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,305,600	\$ -	\$ -	\$ -
Distribution Mains	\$ 63,222,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63,222,400	\$ -	\$ -
Storage Tanks	\$ 4,270,995	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,270,995	\$ -	\$ -
Meters	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Source of Supply	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Vehicles	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ 516,929	\$ 8,941	\$ -	\$ -	\$ -	\$ 116,208	\$ -	\$ 73,629	\$ 318,151	\$ -	\$ -
Land	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CWIP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Administration	\$ 1,615,693	\$ 1,615,693	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ 93,931,817	\$ -	\$ 1,624,634	\$ -	\$ -	\$ 21,116,208	\$ -	\$ 13,379,229	\$ 57,811,546	\$ -	\$ -

4.2.2 Allocation of O&M, Capital Costs and Non-Rate Revenue to Cost Components

Once the O&M and capital costs have been allocated to the functional categories, the totals allocated to each functional category must be further allocated based on the operational need each function is designed to fulfill.

For this allocation RFC has utilized the “Base Extra Capacity” method described in the American Water Works Association (“AWWA”) publication, “Manual of Water Supply Practices M1, Principles of Rates, Fees and Charges” (“AWWA M1”). The Base Extra Capacity Method involves allocating each of the functionalized O&M costs in accordance with operational need that function was designed to satisfy. The cost components can be generalized as pertaining to either the volumetric, customer service and fire protection demand of water utility customers.

The volumetric cost components are: base demand, which relates to the water demand of City customers on an average day; max day extra capacity, or the level of demand in excess of base

demand, demonstrated by City customers on the highest consumption day of the year, and maximum hour extra capacity, the theoretical demand, in excess of maximum day demand, demonstrated by City customers in the highest consumption hour.

The customer service related cost components are customer meters and services, and customer bills. These components relate to—at a minimum—the cost of reading customer meters, and processing customer bills. Additionally, customer meter costs may also relate to the fixed investment in water utility assets associated with providing water service which is available (virtually at all times) regardless of how much water is consumed by City customers (i.e. “readiness to serve”).

The fire protection cost components are private fire connections, private fire bills, and public fire hydrants. These costs relate to the theoretical demand of private fire lines and public fire hydrants (based on connection size), as well the costs associated with billing for each of these services. For the purposes of this study, no costs were allocated to the fire protection cost components, as the City does not charge separately for these services.

The cost components are units of operating demand which the various functions of the water utility system are designed to meet.

Allocation of Functionalized O&M to Cost Components

Table 43 below summarizes the allocation of each of the functionalized O&M costs to each of the cost components.

<i>City of Junction City Water Utility Cost of Service Study and Rate Design Table 43: Water Utility O&M Allocation to Cost Components</i>										
<u>Functional Category</u>	<u>Total</u>	<u>Base</u>	<u>Max Day Extra Capacity</u>	<u>Max Hour Extra Capacity</u>	<u>Equivalent Meters</u>	<u>Customer Bills</u>	<u>Equivalent Fire Lines</u>	<u>Fire Bills</u>	<u>Public Fire Hydrants</u>	
Total A&G	\$ 1,141,340	\$ -	\$ -	\$ -	\$ -	\$ 1,141,340	\$ -	\$ -	\$ -	\$ -
Total Customer Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Source of Supply	\$ 99,574	\$ 99,574	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Pumping	\$ 99,574	\$ 53,824	\$ 45,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Treatment	\$ 1,597,665	\$ 863,603	\$ 734,062	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Storage	\$ 99,574	\$ 29,902	\$ 25,417	\$ 44,255	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Transmission	\$ 99,574	\$ 53,824	\$ 45,750	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Distribution	\$ 99,574	\$ 29,902	\$ 25,417	\$ 44,255	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Meters and Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Hydrants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL WATER FUND O&M EXPENSES	\$ 3,236,876	\$ 1,130,629	\$ 876,397	\$ 88,510	\$ 1,141,340	\$ -	\$ -	\$ -	\$ -	\$ -

Allocation of Functionalized Capital Costs to Cost Components

Table 44 below summarizes the allocation of the functionalized capital costs to the cost components. Similar to the O&M revenue requirement, the functionalized capital costs are allocated to the base extra capacity cost components.

*City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 44: Water Utility Capital Cost Allocation to Cost Components*

<u>Functional Category</u>	<u>Total</u>	<u>Base</u>	<u>Max Day Extra Capacity</u>	<u>Max Hour Extra Capacity</u>	<u>Equivalent Meters</u>	<u>Customer Bills</u>	<u>Equivalent Fire Lines</u>	<u>Fire Bills</u>	<u>Public Fire Hydrants</u>
A&G	\$ 31,034	\$ -	\$ -	\$ -	\$ 31,034	\$ -	\$ -	\$ -	\$ -
CS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SOS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pumping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Treatment	\$ 403,369	\$ 218,037	\$ 185,332	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Storage	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transmission	\$ 255,575	\$ 138,148	\$ 117,426	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Distribution	\$ 1,104,336	\$ 331,632	\$ 281,887	\$ 490,816	\$ -	\$ -	\$ -	\$ -	\$ -
M&S	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Hydrants	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capital Revenue Requirements	\$ 1,794,313	\$ 687,818	\$ 584,645	\$ 490,816	\$ 31,034	\$ -	\$ -	\$ -	\$ -

Allocation of Non-Rate Revenue to Cost Components

Table 45 indicates the allocation to non-rate revenues to the cost components. Non-rate revenue represents funds the City's water utility receives which are not based on water customer user charges. Since non-rate revenue represents an offset to the revenue which must be recovered from rates, it must be allocated to each of the cost components so it can be removed prior to calculating water rates. All of the non-rate revenues are allocated proportionally based on the O&M allocations to cost components.

*City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 45: Water Utility Non-Rate Revenue Allocation to Cost Components*

<u>Functional Category</u>	<u>Total</u>	<u>Base</u>	<u>Max Day Extra Capacity</u>	<u>Max Hour Extra Capacity</u>	<u>Equivalent Meters</u>	<u>Customer Bills</u>	<u>Equivalent Fire Lines</u>	<u>Fire Bills</u>	<u>Public Fire Hydrants</u>
15-4-34-331 City Permits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-352 Bad Debt Collection	\$ 100	\$ 35	\$ 27	\$ 3	\$ 35	\$ -	\$ -	\$ -	\$ -
15-4-34-363 Water Turn on Fees	\$ 275,000	\$ 96,056	\$ 74,457	\$ 7,520	\$ 96,966	\$ -	\$ -	\$ -	\$ -
15-4-34-364 Tap & Connect Fees	\$ 35,000	\$ 12,225	\$ 9,476	\$ 957	\$ 12,341	\$ -	\$ -	\$ -	\$ -
15-4-34-366 Bulk Water Sales	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-367 Late Fees	\$ 60,000	\$ 20,958	\$ 16,245	\$ 1,641	\$ 21,156	\$ -	\$ -	\$ -	\$ -
15-4-34-400 Loan Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-420 Insurance Proceeds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-431 Transfer In	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-4-34-421 Miscellaneous	\$ 20,000	\$ 6,986	\$ 5,415	\$ 547	\$ 7,052	\$ -	\$ -	\$ -	\$ -
15-4-34-422 Sale of Fixed Assets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Earnings on Fund Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Non-Rate Revenue Requirements	\$ 390,100	\$ 136,261	\$ 105,621	\$ 10,667	\$ 137,551	\$ -	\$ -	\$ -	\$ -

4.2.3 Determination of Customer Class Peaking Factors

Once each of the revenue requirements has been allocated to the cost components, maximum day and hour peaking factors for each customer class are estimated. These are the basis upon which the maximum day and hour cost allocations, determined in the previous step, are allocated to each customer class. In general, the guidelines for determining maximum day and hour peaking factors outlined in AWWA M1 were the basis for this component of the analysis.

The maximum day demand for each customer class is estimated as the average consumption per day in the highest consumption month, divided by the annual average consumption per day, weighted by the ratio of maximum day demand to the average demand in the maximum month for the entire water system. In other words:

- System Max Day to Average Day in Max Month= $(\text{System Max Day Demand})/(\text{System Max Month}/30)$
- Class Maximum Day= $[(\text{Class Max Month}/30)/(\text{Class Annual Total})/365]*[\text{System Max Day to Average Day in Max Month}]$

The weighting occurs because the exact maximum day, by customer class is not known, but is assumed to have the same relationship to the average day in the maximum month as the entire system. As the exact customer class maximum hour is not known, a similar weighting process occurs to determine the customer class maximum hour demands:

- System Max Hour to Average Day in Max Month= $(\text{System Max Hour})/(\text{System Max Month}/30)$
- Class Maximum Hour= $\text{Class Max Day}*\text{System Max Hour to Average Day in Max Month}$

The determination of customer class peaking factors is shown in Table 46 below. The average factor for 2011 to 2013 was used for all customer classes.

City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 46: Water Utility Peaking Factors

	<u>Annual</u> <u>Total</u> <u>CCF/Day</u>	<u>Max</u> <u>Month</u>	<u>Max Day in</u> <u>Max Month</u> <u>CCF/Day</u>	<u>Annual</u> <u>Average Day</u> <u>CCF/Day</u>	<u>Max to</u> <u>Average</u> <u>Day Ratio</u>	<u>System</u> <u>Max To</u> <u>Average</u> <u>Day</u>	<u>Max Day</u> <u>Peaking</u> <u>Factor</u>	<u>System</u> <u>Max</u> <u>Hour to</u> <u>Average</u> <u>Day</u>	<u>Max</u> <u>Hour</u> <u>Peaking</u> <u>Factor</u>
	1	2	3 = 2 / 30	4 = 1 / 365	5 = 3 / 4	6	7 = 5 x 6	8	9 = 7 x 8
Commercial									
2013	260,194	25,963	865	713	1.21	1.85	2.25	3.33	7.5
2012	282,502	30,978	1,033	774	1.33	1.85	2.47	3.33	8.2
2011	266,161	29,318	977	729	1.34	1.85	2.48	3.33	8.3
Commercial Average	269,619	25,799	860	739	1.16	1.85	2.15	3.33	7.2
Residential									
2013	733,890	81,522	2,717	2,011	1.35	1.85	2.50	3.33	8.3
2012	818,452	101,846	3,395	2,242	1.51	1.85	2.80	3.33	9.3
2011	786,951	88,494	2,950	2,156	1.37	1.85	2.53	3.33	8.4
Residential Average	779,764	86,274	2,876	2,136	1.35	1.85	2.49	3.33	8.3
Irrigation									
2013	75,225	16,470	549	206	2.66	1.85	4.93	3.33	16.4
2012	91,506	21,231	708	251	2.82	1.85	5.22	3.33	17.4
2011	82,011	20,584	686	225	3.05	1.85	5.65	3.33	18.8
Irrigation Average	82,914	17,351	578	227	2.55	1.85	4.71	3.33	15.7
Armour									
2013	255,718	30,418	1,014	701	1.45	1.85	2.68	3.33	8.9
2012	241,490	31,790	1,060	662	1.60	1.85	2.96	3.33	9.9
2011	305,160	32,860	1,095	836	1.31	1.85	2.42	3.33	8.1
Armour Average	267,456	30,475	1,016	733	1.39	1.85	2.56	3.33	8.5

4.2.4 Determination of Water Units of Service

The next step in the cost allocation process is to summarize the units of service, which are the basis for the allocation of the total revenue requirement to each of the customer classes. The units are Base units, Maximum Day Extra Capacity units, Maximum Hour Extra Capacity units, Customer units and Direct Fire Protection Units and are indicated in Table 47 on the following page.

Base units are the annual consumption for each customer class. Maximum Day Extra Capacity units represent the water demand in excess of that which is used on an average day for that customer class, and is a function of the average daily consumption and the customer class peaking factor determined in the prior step.

As an example, the residential class is forecast to use approximately 744,000 CCF on an annual basis in the test year. This equates to 2,000 CCF per Day on an average day. Based on the maximum day peaking factor determined in the previous step, Residential customers, on their highest consumption day of the year, typically use 2.5 times their average day consumption, or around

5,100 CCF. The difference between the maximum day and average day, around 3,100 CCF, represents that class's Maximum Day Extra Capacity units.

A similar calculation is used to determine the Maximum Hour Extra Capacity Units, which are simply the consumption forecast in the highest hour of the test year, less the maximum day demand.

Customer Units are equivalent meters, and customer monthly bills. The number of bills for each customer class was ascertained via an examination of the billing data from the City's Customer Information System ("CIS"). The equivalent meters are the number of customer meters at each meter size weighted by the potential water demand each meter can place on the water system. For the City, a 1" meter is the current standard for residential services. The number of equivalent meters for sizes larger than 1" is determined by multiplying the nominal number of meters (the number at each connection size) by a meter factor, which represents the ratio of the flow rate of the larger meter, to that of the standard 1" meter. Once the number of equivalent meters which are larger than 1" is determined, this total is added to the number of 1" meters to arrive at the total number of equivalent meters.

Note that no units have been included for private fire lines or public fire hydrants, as the City does not currently levy separate charges for these services.

Finally, note that no units have been included for Commercial Low Flow, Residential Grandview, and the no charge water classes. Though consumption is tracked for low flow meters, there is no separate charge for these meters. No charge water represents other City government entities which are not charged directly for their water consumption. Grandview plaza is a community of mostly residential customers, whose rates (by contract) can only be increased by inflation, consequently, it was excluded from the cost of service analysis.

*City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 47: Water Utility Units of Service*

Customer Class	Base	Average Day Demand	Max Day Peaking Factor	Max Day Total Capacity	Max Day Extra Capacity	Max Hour Peaking Factor	Max Hour Total Capacity	Max Hour Extra Capacity	Equivalent Customer Meters	Customer Bills	Equivalent Fire Lines	Fire Bills	Public Fire Hydrants
	1	2 = 1/365	3	4 = 2 x 3	5 = 4 - 2	6	7 = 2 x 6	8 = 7 - 4					
Total Commercial Consumption	244,884	670.92	2.15	1,445.00	774.09	7.17	4,812	3,366.88	1,858	8,280	0	0	0
Total Residential Consumption	743,561	2,037.15	2.49	5,073.22	3,036.07	8.29	16,894	11,820.60	9,463	109,860	0	0	0
Total Irrigation Consumption	50,196	137.52	4.71	647.78	510.25	15.69	2,157	1,509.32	88	1,056	0	0	0
Armour	255,718	700.60	2.56	1,796.81	1,096.22	8.54	5,983	4,186.58	-	12	0	0	0
Commercial Low-Flow	-	-	2.15	-	-	7.17	-	-	-	-	0	0	0
Residential Grandview	-	-	2.49	-	-	8.29	-	-	-	-	0	0	0
No Charge Water	-	-	2.15	-	-	7.17	-	-	-	-	0	0	0
No Charge Gallon Water	-	-	2.15	-	-	7.17	-	-	-	-	0	0	0
Total System Units	1,294,359	3,546	2.53	8,963	5,417	8.42	29,846	20,883	11,409	119,208	-	-	-

4.2.5 Determination of Water Unit Cost of Service

Once each component of the test year revenue requirement (i.e. O&M and Capital) has been allocated to each of the cost components (i.e. base, max day etc.), the unit cost of service can be

determined. The unit cost of service is the basis by which costs are allocated to each customer class.

Table 48 below summarizes the determination of the unit cost of service.

The total system units are the sum of all of the units from Table 47. Base units represent customer use on an annual basis. Max day units represent the daily use, in excess of that which is used on an average day for all customer classes. Max Hour use is that which is used in excess of max day consumption. Equivalent meters are the nominal number of customer meters (i.e. 1", 2" etc.) multiplied by an equivalent meter factor.

Also shown is each of the revenue requirements, as they have been allocated to the cost components, and the unit cost for each component. As an example, the total O&M costs allocated to the "base" cost component is \$1.1 Million. Since there are 1.3 million base units, the cost per unit is \$.87. This calculation is repeated for each of the cost components and revenue requirements to arrive at a total system unit cost for each cost component. These are the basis by which costs are allocated to customer classes.

*City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 48: Water Utility Unit Cost of Service*

	<u>Total</u>	<u>Base</u>	<u>Max Day Extra Capacity</u>	<u>Max Hour Extra Capacity</u>	<u>Equivalent Meters</u>	<u>Customer Bills</u>	<u>Equivalent Fire Lines</u>	<u>Fire Bills</u>	<u>Public Fire Hydrants</u>
Total System Units		1,294,359	5,417	20,883	11,409	119,208	-	-	-
Total Water Fund O&M Expenses	\$ 3,236,876	\$ 1,130,629	\$ 876,397	\$ 88,510	\$ 1,141,340	\$ -	\$ -	\$ -	\$ -
<i>Unit Cost</i>		\$ 0.8735	\$ 161.7976	\$ 4.2383	\$ 100.0354	\$ -	\$ -	\$ -	\$ -
Total Capital Revenue Requirements	\$ 1,794,313	\$ 687,818	\$ 584,645	\$ 490,816	\$ 31,034	\$ -	\$ -	\$ -	\$ -
<i>Unit Cost</i>		\$ 0.5314	\$ 107.9354	\$ 23.5027	\$ 2.7201	\$ -	\$ -	\$ -	\$ -
Total Non-Rate Revenue Requirements	\$ (390,100)	\$ (136,261)	\$ (105,621)	\$ (10,667)	\$ (137,551)	\$ -	\$ -	\$ -	\$ -
<i>Unit Cost</i>		\$ (0.1053)	\$ (19.4994)	\$ (0.5108)	\$ (12.0560)	\$ -	\$ -	\$ -	\$ -
Total System Revenue Requirements	\$ 4,641,089	\$ 1,682,187	\$ 1,355,421	\$ 568,659	\$ 1,034,823	\$ -	\$ -	\$ -	\$ -
<i>Total System Unit Cost</i>		\$ 1.30	\$ 250.23	\$ 27.23	\$ 90.70	\$ -	\$ -	\$ -	\$ -

4.2.6 Determination of Revenue Requirements by Customer Class

Table 49 below summarizes the allocation of the test year revenue requirements to each of the customer classes. For each customer class, the cost allocation is the total unit cost of service multiplied by the units of service for that class. For example, the \$.9 Million in base demand costs allocated to residential customers is the cost per unit of base demand multiplied by the test year annual consumption for this class.

*City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 49: Water Utility Revenue Requirements by Customer Class*

	Total	Base	Max Day Extra Capacity	Max Hour Extra Capacity	Equivalent Meters	Customer Bills	Equivalent Fire Lines	Fire Bills	Public Fire Hydrants
Total System Revenue Requirements	\$ 4,641,089	\$ 1,682,187	\$ 1,355,421	\$ 568,659	\$ 1,034,823	\$ -	\$ -	\$ -	\$ -
Total System Unit Cost	\$ -	\$ 1.30	\$ 250.23	\$ 27.23	\$ 90.70	\$ -	\$ -	\$ -	\$ -
<i>Customer Class Units of Service</i>									
Total Commercial Consumption		244,884	774	3,367	1,858	8,280	-	-	-
Total Residential Consumption		743,561	3,036	11,821	9,463	109,860	-	-	-
Total Irrigation Consumption		50,196	510	1,509	88	1,056	-	-	-
Armour		255,718	1,096	4,187	-	12	-	-	-
Commercial Low-Flow		-	-	-	-	-	-	-	-
Residential Grandview		-	-	-	-	-	-	-	-
No Charge Water		-	-	-	-	-	-	-	-
No Charge Gallon Water		-	-	-	-	-	-	-	-
Total System Units		1,294,359	5,417	20,883	11,409	119,208	-	-	-
<i>Test Year Revenue Requirements By Customer Class</i>									
Total Commercial	\$ 772,173	\$ 318,258	\$ 193,703	\$ 91,680	\$ 168,531	\$ -	\$ -	\$ -	\$ -
Total Residential	\$ 2,906,267	\$ 966,353	\$ 759,726	\$ 321,878	\$ 858,310	\$ -	\$ -	\$ -	\$ -
Total Irrigation	\$ 241,999	\$ 65,236	\$ 127,682	\$ 41,099	\$ 7,982	\$ -	\$ -	\$ -	\$ -
Total Armour	\$ 720,650	\$ 332,359	\$ 274,310	\$ 114,002	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial Low-Flow	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Grandview	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total System Costs	\$ 4,641,089	\$ 1,682,187	\$ 1,355,421	\$ 568,659	\$ 1,034,823	\$ -	\$ -	\$ -	\$ -

4.3 WATER UTILITY RATE DESIGN

4.3.1 Water Volumetric Rate Design

Table 50 below summarizes the water volumetric rate design calculations.

There are three steps involved in calculating the volumetric rates by customer class:

1. Determine the volumetric revenue requirement
2. Determine test year consumption
3. Calculate the volumetric rates

The rates shown reflect the City's existing rate structure, as no major structure changes are being proposed at this time.

Revenue Requirements

The volumetric revenue requirement represents the costs incurred by the water utility to provide service on an average day, as well as account for peak day and hour demand. The revenue requirements are offset by three adjustments: first, an offset associated with readiness-to-serve is included (described in further detail in the fixed charge discussion below); second, an adjustment associated with the minimum allotment is included (described in further detail in the fixed charge discussion below); finally, a proportional adjustment for the contractual revenue recovered from Grandview Plaza has been included.

The Grandview plaza rates were set by the original contract and can only be increased by inflation. Consequently, the existing rates were escalated by a 3% inflation factor, and multiplied by the forecast Grandview Plaza units to determine the level of the revenue offset in the test year. This offset has been applied proportionally, to the base, max day and max hour revenue requirements.

Test Year Consumption

The test-year consumption represents the total forecast water consumption in the test year (CY 2014). This is the total test year consumption—excluding minimum consumption—multiplied by the proportion of consumption in each tier. At this time, the tier cut-offs of 2 and 10 CCF have been maintained. This consumption is adjusted again, by a differential which is used to set the Armour-Eckridge contract volume rate. The existing Armour rates were set at approximately 37% of the City rate. This differential has been maintained for these calculations.

Rate Calculation

The volumetric rates are determined for the City (i.e. non-contractual customers) first then the differential is applied to determine the Armour-Eckridge rate. The determination of the non-contractual (City) rate is as follows:

1. Add the revenue requirements for contractual and non-contractual customers
2. Multiply the tiered consumption for contractual and non-contractual customers by the proposed steepness (i.e. the increase between the Tier 1 and 2 rates)
3. Add the adjusted consumption determined in 2 above
4. Divide the total revenue requirements determined in 1 above by the total adjusted consumption from step 3 above to determine the Tier 1 rate for non-contractual customers
5. Multiply the non-contractual Tier 1 rate, by the proposed steepness for Tier 2 to determine the non-contractual Tier 2 rate
6. Multiply the non-contractual Tier 1 rate by the differential used to determine the test year consumption above to determine the contractual Armour-Eckridge rate.

Table 50 below summarizes these calculations. While what is shown in Table 50 approximates an across the board rate increase, the City should evaluate whether a higher increase in the Armour-Eckridge volume rate is appropriate. Our understanding is that the economic development contract sets the initial rate at the higher of \$1.00 per thousand gallons (1.00 per 1,000 gallons is approximately \$.75/CCF) or 60% of the residential rate. The existing Armour-Eckridge volume rate is only 37% of the Tier 2 rate. Transitioning this charge closer to the contractual 60% would reduce the impact of water rate increases on City customers.

City of Jackson City
Water Utility Cost of Service Study and Rate Design
Table 8c: Volumetric Rate Design (Agency)

	ALLOCATION OF COSTS TO BLOCKS				ALLOCATION OF COSTS TO BLOCKS				DETERMINATION OF FORECAST CONSUMPTION BY BLOCK				BLOCK RATE CALCULATION			
	Volumetric Service Requirements		Allocation of Costs to Blocks		Allocation of Costs to Blocks		Forecast Consumption		Determine Adjustment		Forecast Block Rates		Estimate Block Rates			
	Block	Max Hour Extra Capacity	Max Hour Extra Capacity	Block	Max Hour Extra Capacity	Block	Max Hour Extra Capacity	Proposed Block-Cut Consumption	Proposed Adjusted Consumption	Proposed Block Rates	Proposed Block Rates	Estimate Block Rates	Estimate Block Rates			
NON-CONTRACTUAL RATES																
Total Non-Contractual	\$ 538,845	\$ 1,051,111	\$ 651,955													
Non-Contractual PTS Adjustment	(283,870)	(383,171)	(118,171)													
Non-Contractual Minimum Adjustment	(247,970)	(97,682)	(83,119)													
Non-Contractual O&M Reserve Offset	(84,135)	(39,624)	(16,137)													
Total Non-Contractual	\$ 700,970	\$ 270,934	\$ 234,541													
Total Non-Contractual Tier 1																
Total Non-Contractual Tier 2																
Total Non-Contractual Consumption																
RATES DETERMINED BY CONTRACTS																
Residential Customers																
Total Monthly	\$ 302,239	\$ 274,310	\$ 114,000													
Annual PTS Adjustment	-	-	-													
Annual Minimum Adjustment	(11,785)	(9,711)	(4,035)													
Annual O&M Reserve Offset	302,973	284,299	105,936													
Total Annual Tier 1																
Total Annual Tier 2																
Total Annual Consumption																
ALL CLASSES																
Total All Classes	\$ 1,002,147	\$ 1,355,621	\$ 648,649													
Total All Classes PTS Adjustment	(283,870)	(383,171)	(118,171)													
Total All Classes Minimum Adjustment	(247,970)	(97,682)	(83,119)													
Total All Classes O&M Reserve Offset	1,001,908	925,832	342,208													
Total All Classes Tier 1																
Total All Classes Tier 2																
Total All Classes Consumption																

4.3.2 Water Minimum Charge Design

Table 51 below summarizes the water minimum charge calculations.

The rates shown reflect the City's existing rate structure, as no major structure changes are being proposed at this time.

Revenue Requirements

The minimum charges are designed to recover the cost of meter reading, billing and collection, customer service, and the provision of public fire protection. The charges also recover additional fixed revenue which relates to the fixed investment in infrastructure which is constantly available to provide water service whenever a customer requires, regardless of how much water is actually consumed ("readiness-to-serve").

The readiness to serve revenue requirement is a portion of the volumetric revenue requirement, which is shifted to the fixed charge. Added to this are the costs incurred to read customer meters and process customer bills ("equivalent meters"). Added to the customer service and readiness to serve revenue requirements is the cost of the minimum allotment. This is the volumetric rate multiplied by the consumption included in the minimum. The revenue associated with this consumption is not recovered from the volume charges, therefore it must be recovered from (included in) the minimum charges. The total minimum charge revenue requirement is approximately \$2.3 Million in the test year.

Rate Calculation

The minimum charge revenue requirement is recovered via a monthly charge which varies by the size of the City customer's water meter. Meter size relates the potential demand a customer can place on the water system at any time, as a function of the flow rate (gallons per minute) of that meter size. Recall that, in the units of service determination, the number of 1" equivalent meters was determined based on the number of customer accounts at each meter size. The RTS charge is first determined for a 1" meter and is then scaled up for larger sizes based on flow equivalencies. The result is a charge which is higher for customers whose meters have greater theoretical demand on the water system, and cause the utility to incur higher fixed costs to provide constant service.

To calculate the minimum charge the total minimum charge revenue requirement (\$2.3 Million) is divided by the number equivalent accounts to determine a charge for a 1" account. The remaining charges are calculated by multiplying the 1" charge by the flow equivalencies for each meter size greater than 1".

*City of Junction City
Water Utility Cost of Service Study and Rate Design
Table 51: Fixed Charge Rate Design #1 (Existing)*

	<u>Equivalent Meters</u>	<u>Customer Bills</u>	<u>Equivalent Fire Lines</u>	<u>Fire Bills</u>	<u>Public Fire Hydrants</u>	<u>Total Fixed Costs Prior to RTS Adjustment</u>	<u>RTS Adjustment</u>	<u>Minimum Revenue</u>	<u>Total Fixed Costs</u>
Total System Costs	\$ 1,034,823	\$ -	\$ -	\$ -	\$ -	\$ 1,034,823	\$ 756,352	\$ 528,171	\$ 2,319,346
	\$ 1,034,823	\$ -	\$ -	\$ -	\$ -	\$ 1,034,823	\$ 756,352	\$ 528,171	\$ 2,319,346
Test Year									
<u>Class</u>	<u>Accounts</u>	<u>Equivalency</u>	<u>Equivalents</u>	<u>Total Fixed Costs</u>	<u>Monthly Cost Per Equivalent</u>	<u>Proposed Monthly Minimum Charge</u>	<u>Existing Monthly Minimum Charge</u>	<u>\$ Difference</u>	<u>% Difference</u>
1" and Less	9,709	1.00	9,709		\$ 17.07	\$ 16.03	\$ 1.04	6.5006%	
1 1/2"	48	6.27	301		\$ 107.05	\$ 100.52	\$ 6.53	6.5006%	
2"	61	12.40	757		\$ 211.72	\$ 198.80	\$ 12.92	6.5006%	
3"	17	18.34	312		\$ 313.06	\$ 293.95	\$ 19.11	6.5006%	
4"	10	24.31	243		\$ 415.05	\$ 389.72	\$ 25.33	6.5006%	
>4"	-	30.58	-		\$ 522.00	\$ 490.14	\$ 31.86	6.5006%	
	9,845		11,321	\$ 2,319,346	\$ 17.07				

4.3.3 Water Rates and Typical Bill Impacts

Tables 52 and 53 indicate the forecast rates for all customers as well as bill impacts for a typical City customer. A typical City customer has a 1" water meter and uses approximately 5 CCF per month. Under existing rates, the typical customer would pay approximately \$22.21 per bill for water service. Under the proposed 2014 rates (assumed to be effective July 15) this bill would increase to \$23.72, an increase of around \$1.51 per bill.

City of Junction City
 Water Utility Cost of Service Study and Rate Design
 Table 52: Alternative 1 Forecast Rates

	Test Year											
	Existing	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Annual % Increase in Rate Revenues		6.50%	7.00%	7.00%	7.00%	7.00%	7.50%	7.50%	4.50%	4.00%	4.00%	4.00%
Volumetric Rates												
Minimum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tier 1	\$ 2.06	\$ 2.22	\$ 2.37	\$ 2.54	\$ 2.71	\$ 2.90	\$ 3.12	\$ 3.36	\$ 3.51	\$ 3.65	\$ 3.79	\$ 3.95
Tier 2	\$ 2.37	\$ 2.55	\$ 2.73	\$ 2.92	\$ 3.12	\$ 3.34	\$ 3.59	\$ 3.86	\$ 4.03	\$ 4.19	\$ 4.36	\$ 4.54
Amour	\$ 0.88	\$ 0.95	\$ 1.02	\$ 1.09	\$ 1.17	\$ 1.25	\$ 1.34	\$ 1.44	\$ 1.51	\$ 1.57	\$ 1.63	\$ 1.70
Residential Grandview Bills	\$ 2.06	\$ 2.12	\$ 2.27	\$ 2.43	\$ 2.60	\$ 2.78	\$ 2.99	\$ 3.21	\$ 3.36	\$ 3.49	\$ 3.63	\$ 3.78
No Charge Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Monthly Water Minimum Charges												
1" and Less	\$ 16.03	\$ 17.07	\$ 18.27	\$ 19.65	\$ 20.91	\$ 22.38	\$ 24.06	\$ 25.86	\$ 27.02	\$ 28.11	\$ 29.23	\$ 30.40
1 1/2"	\$ 100.52	\$ 107.05	\$ 114.55	\$ 122.57	\$ 131.15	\$ 140.33	\$ 150.85	\$ 162.16	\$ 169.46	\$ 176.24	\$ 183.29	\$ 190.62
2"	\$ 198.80	\$ 211.72	\$ 226.54	\$ 242.40	\$ 259.37	\$ 277.53	\$ 298.34	\$ 320.72	\$ 335.15	\$ 348.55	\$ 362.50	\$ 377.00
3"	\$ 293.95	\$ 313.06	\$ 334.97	\$ 358.42	\$ 383.51	\$ 410.36	\$ 441.13	\$ 474.22	\$ 495.56	\$ 515.38	\$ 535.99	\$ 557.43
4"	\$ 389.72	\$ 415.05	\$ 444.11	\$ 475.20	\$ 508.46	\$ 544.05	\$ 584.86	\$ 628.72	\$ 657.01	\$ 683.29	\$ 710.62	\$ 739.05
Greater Than 4"	\$ 490.14	\$ 522.00	\$ 558.54	\$ 597.64	\$ 639.48	\$ 684.24	\$ 735.56	\$ 790.72	\$ 826.31	\$ 859.36	\$ 893.73	\$ 929.48
Residential Grandview Bills	\$ 465.42	\$ 479.38	\$ 512.94	\$ 548.85	\$ 587.25	\$ 628.37	\$ 675.50	\$ 726.16	\$ 758.84	\$ 789.19	\$ 820.76	\$ 853.59

City of Junction City

Water Utility Cost of Service Study and Rate Design

Table 53: Alternative 1 Bill Impacts

		<u>Existing</u>	<u>2014</u>	<u>\$</u>	<u>%</u>
<u>Volumetric Rates</u>					
Minimum	2	\$ -	\$ -	\$ -	
Tier 1	10	\$ 2.06	\$ 2.22	\$ 0.16	7.55%
Tier 2		\$ 2.37	\$ 2.55	\$ 0.18	7.51%
<u>Monthly Water Minimum Charges</u>					
1" and Less		\$ 16.03	\$ 17.07	\$ 1.04	6.50%
<u>Consumption Block (CCF/Month)</u>					
0		\$ 16.03	\$ 17.07	\$ 1.04	6.50%
1		\$ 16.03	\$ 17.07	\$ 1.04	6.50%
2		\$ 16.03	\$ 17.07	\$ 1.04	6.50%
3		\$ 18.09	\$ 19.29	\$ 1.20	6.62%
4		\$ 20.15	\$ 21.50	\$ 1.35	6.72%
5		\$ 22.21	\$ 23.72	\$ 1.51	6.79%
6		\$ 24.27	\$ 25.93	\$ 1.66	6.86%
7		\$ 26.33	\$ 28.15	\$ 1.82	6.91%
8		\$ 28.39	\$ 30.37	\$ 1.98	6.96%
9		\$ 30.45	\$ 32.58	\$ 2.13	7.00%
10		\$ 32.51	\$ 34.80	\$ 2.29	7.03%
20		\$ 56.21	\$ 60.28	\$ 4.07	7.23%
30		\$ 79.91	\$ 85.75	\$ 5.84	7.31%
40		\$ 103.61	\$ 111.23	\$ 7.62	7.36%
50		\$ 127.31	\$ 136.71	\$ 9.40	7.39%
60		\$ 151.01	\$ 162.19	\$ 11.18	7.40%
70		\$ 174.71	\$ 187.67	\$ 12.96	7.42%
80		\$ 198.41	\$ 213.15	\$ 14.74	7.43%
90		\$ 222.11	\$ 238.63	\$ 16.52	7.44%
100		\$ 245.81	\$ 264.11	\$ 18.30	7.44%

5. WASTEWATER UTILITY COST OF SERVICE STUDY

Following the determination of the wastewater utility financial plan, the next steps are to summarize the wastewater utilities total rate revenue requirement, determine the proportion of that requirement which is attributable to each customer class, and calculate the volumetric and fixed rates.

5.1 WASTEWATER UTILITY REVENUE REQUIREMENTS FROM RATES

Table 55 summarizes the revenue requirement components from the cash flow forecast. In the test year the total gross revenue requirements are \$5.1 Million. This is offset by \$.3 Million in non-rate revenue, bringing the net revenue requirement in the test year to 4.9 Million. The two primary revenue requirements are O&M expenditures, and capital expenditures (debt service, cash financed CIP and operating reserve transfers). Note that an adjustment has been made to reflect the mid-year rate increase anticipated by the City.

City of Junction City Wastewater Utility Cost of Service Study and Rate Design Table 54: Wastewater Utility Revenue Requirements											
	Test Year	Forecast									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Wastewater Utility Gross Revenue Requirements											
Total Wastewater Fund O&M Expenses	\$ 3,474,165	\$ 3,617,571	\$ 3,767,292	\$ 3,923,622	\$ 4,086,867	\$ 4,257,351	\$ 4,435,410	\$ 4,621,399	\$ 4,815,688	\$ 5,018,669	\$ 5,230,749
Total Wastewater Utility Debt Service	\$ 895,108	\$ 895,748	\$ 895,141	\$ 939,104	\$ 1,118,715	\$ 1,246,739	\$ 1,750,342	\$ 1,753,042	\$ 1,804,880	\$ 2,840,488	\$ 2,838,369
Wastewater Rate Revenue CIP Financing (Cash)	\$ 2,500,000	\$ 500,000	\$ 1,500,000	\$ 1,000,000	\$ 1,500,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,500,000	\$ 500,000	\$ 500,000
Transfer to Operating Reserve	\$ (1,815,512)	\$ 499,643	\$ (335,471)	\$ 297,136	\$ (192,820)	\$ 302,672	\$ 97,510	\$ (170,879)	\$ 29,494	\$ 222,805	\$ 261,944
Adjustment for Mid-Year Increase	\$ 138,800										
Total Capital Revenue Requirements	\$ 1,719,397	\$ 1,895,391	\$ 2,059,670	\$ 2,236,240	\$ 2,425,895	\$ 2,629,411	\$ 2,847,852	\$ 3,082,163	\$ 3,333,373	\$ 3,563,293	\$ 3,600,313
Gross Revenue Requirement From Rates	\$ 5,193,562	\$ 5,512,962	\$ 5,826,962	\$ 6,159,862	\$ 6,512,762	\$ 6,886,762	\$ 7,283,262	\$ 7,703,562	\$ 8,149,062	\$ 8,581,962	\$ 8,831,062
Wastewater Utility Non-Rate Revenues											
15-5-41-352 Bad Debt Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-5-41-363 SWWTP Loan	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000	\$ 186,000
15-5-41-364 Tap and Connect Fees	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000
15-5-41-367 Late Fee	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000
15-5-41-421 Miscellaneous	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000
Interest Earnings on Fund Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Non-Rate Revenues	\$ 279,000										
Wastewater Utility Net Revenue Requirement from	\$ 4,914,562	\$ 5,233,962	\$ 5,547,962	\$ 5,880,862	\$ 6,233,762	\$ 6,607,762	\$ 7,004,262	\$ 7,424,562	\$ 7,870,062	\$ 8,302,962	\$ 8,552,062

5.2 WASTEWATER UTILITY REVENUE REQUIREMENTS BY CUSTOMER CLASS

Following the development of the total test year revenue requirement, the proportion of the total revenue requirement (i.e. O&M and capital) allocable to each customer class must be determined. This allocation represents the level of revenues that must be recovered from each customer class, given the operational demands that class places on the wastewater utility system. This allocation is performed via the following steps:

- Cost Functionalization
- Allocation of Functionalized Cost to Cost Components
- Plant Balance Analysis
- Determination of Units of Service

- Calculation of Unit Cost of Service
- Determination of Revenue Requirements by Customer Class

5.2.1 Cost Functionalization

The first step in determining revenue requirements by customer class involves the allocation of wastewater utility O&M and capital costs to functional categories. These categories relate to the various functions performed by the wastewater utility system and staff in order to provide service to City customers. For this study the functions are: Administrative, Customer Service, Collection, Lift Stations and Pumping, and Treatment.

Allocation of Wastewater Utility O&M to Functional Categories

Table 55 below summarizes the functional allocation of the wastewater utility's test year O&M revenue requirement. These allocations relate to the proportion of expenditures in each major cost center that is associated with performing each function. Wastewater Plant Operations, for example, is associated with the operation of the City's wastewater treatment plants, the majority of which are associated with payments to with the City's contract operator Veolia Water. Consequently, all O&M expenditures for this cost center have been allocated the treatment function.

<i>City of Junction City Wastewater Utility Cost of Service Study and Rate Design Table 55: Wastewater Utility O&M Functionalization</i>								
<u>Look-Up Code</u>	<u>Line</u>	<u>Department</u>	<u>Total</u>	<u>A&G</u>	<u>CS</u>	<u>Collection</u>	<u>Lift Stations and Pumping</u>	<u>Treatment</u>
15-5-41		WASTEWATER ADMINISTRATION						
	WWA Personnel	<i>Subtotal Personnel</i>	\$ 342,542	\$ 342,542	\$ -	\$ -	\$ -	\$ -
	WWA Commodities	<i>Subtotal Commodities</i>	\$ 37,000	\$ 37,000	\$ -	\$ -	\$ -	\$ -
	WWA Contract Services	<i>Subtotal Contract Services</i>	\$ 97,055	\$ 97,055	\$ -	\$ -	\$ -	\$ -
	WWA Capital	<i>Subtotal Capital</i>	\$ 4,000	\$ 4,000	\$ -	\$ -	\$ -	\$ -
	WWA Debt	<i>Subtotal Debt</i>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	WWA Transfer	<i>Subtotal Debt and Transfer</i>	\$ 485,000	\$ 485,000	\$ -	\$ -	\$ -	\$ -
		TOTAL WASTEWATER ADMINISTRATION	\$ 965,597	\$ 965,597	\$ -	\$ -	\$ -	\$ -
15-5-40		WASTEWATER OPERATIONS						
	WWO Personnel	<i>Subtotal Personnel</i>	\$ 247,750	\$ -	\$ -	\$ 123,875	\$ 123,875	\$ -
	WWO Commodities	<i>Subtotal Commodities</i>	\$ 120,958	\$ -	\$ -	\$ 60,479	\$ 60,479	\$ -
	WWO Contract Services	<i>Subtotal Contract Services</i>	\$ 148,500	\$ -	\$ -	\$ 74,250	\$ 74,250	\$ -
	WWO Capital	<i>Subtotal Capital</i>	\$ 36,861	\$ -	\$ -	\$ 18,431	\$ 18,431	\$ -
		TOTAL OPERATIONS	\$ 554,069	\$ -	\$ -	\$ 277,035	\$ 277,035	\$ -
15-5-39		WASTEWATER PLANT OPERATIONS						
	WWTP Contract Services	<i>Total Contract Services</i>	\$ 1,954,499	\$ -	\$ -	\$ -	\$ -	\$ 1,954,499
	WWTP Capital	<i>Total Capital</i>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		TOTAL WASTEWATER PLANT	\$ 1,954,499	\$ -	\$ -	\$ -	\$ -	\$ 1,954,499
		TOTAL WASTEWATER FUND O&M EXPENSES	\$ 3,474,165	\$ 965,597	\$ -	\$ 277,035	\$ 277,035	\$ 1,954,499

Allocation of Wastewater Utility Capital Costs to Functional Categories

Similar to the allocation of the O&M revenue requirement described in the previous section, the capital revenue requirement must be allocated to the functional categories. Table 56 indicates the functional allocation of capital costs.

The basis for the allocation of capital costs was the existing level of wastewater utility investment in fixed assets. The original cost of investments in each major asset class was allocated to each of the functional categories. The total capital revenue requirement, approximately \$1.7 Million in the test year, was then allocated according to the proportion of existing investment in each functional category. For example, a large proportion of investment in fixed assets pertains to City’s collection system. As such, the majority of the capital revenue requirement (71%) has been allocated to the collection function.

*City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 56: Wastewater Utility Capital Cost Functionalization*

	<u>Total</u>	<u>A&G</u>	<u>CS</u>	<u>Collection</u>	<u>Lift Stations and Pumping</u>	<u>Treatment</u>
Functional Categories	100%	0%	0%	71%	0%	29%
Total Capital Revenue Requirements	\$ 1,719,397	\$ -	\$ -	\$ 1,229,261	\$ -	\$ 490,136
Asset Category	<u>Net Book Value</u>	<u>A&G</u>	<u>CS</u>	<u>SOS</u>	<u>Pumping</u>	<u>Treatment</u>
Wastewater Treatment Plants	\$ 32,000,000	\$ -	\$ -	\$ -	\$ -	\$ 32,000,000
Pumping and Lift Stations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Collections Mains	\$ 80,256,000	\$ -	\$ -	\$ 80,256,000	\$ -	\$ -
Vehicles	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ 372,922	\$ -	\$ -	\$ 266,616	\$ -	\$ 106,306
Land	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CWIP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Buildings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ 112,628,922	\$ -	\$ -	\$ 80,522,616	\$ -	\$ 32,106,306

5.2.2 Allocation of O&M, Capital Costs and Non-Rate Revenue to Cost Components

Once O&M and Capital Costs have been allocated to functional categories, the totals allocated to each functional category must be further allocated based on the operational need that function is designed to fulfill.

For this allocation RFC has utilized the “functional cost methodology” described in the Water Environment Federation (“WEF”) publication “Manual of Practice 27, Financing and Charges for Wastewater Systems.” This involves allocating each of the functionalized O&M costs in accordance with operational need that function was designed to satisfy. The cost components can be generalized as pertaining to either the volumetric, or customer service demand of wastewater utility customers.

The volumetric cost components are: wastewater volume, which relates to the costs of handling the wastewater discharge of City customers (regardless of strength), and wastewater strength, which relates to the concentration of pollutants which must be removed via the wastewater treatment process. In this study strength costs were allocated based on Total Suspended Solids (“TSS”) and Biochemical Oxygen Demand (“BOD”).

The customer service related cost components are customer water meters and customer bills. Additionally, customer service costs may also relate to the fixed investment in wastewater utility assets associated with providing wastewater service which is available (virtually at all times) regardless of how much wastewater is discharged by City customers (i.e. “readiness to serve”).

Allocation of Functionalized O&M to Cost Components

Table 57 below summarizes the allocation of each of the functionalized O&M costs to each of the cost components.

<i>City of Junction City Wastewater Utility Cost of Service Study and Rate Design Table 57: Wastewater Utility O&M Allocation to Cost Components</i>						
Functional Category	Test Year		Biochemical	Total	Customer	Customer
	Total	Volume	Oxygen Demand	Suspended Solids	Meters	Bills
Total A&G	\$ 965,597	\$ -	\$ -	\$ -	\$ -	\$ 965,597
Total Customer Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Source of Supply	\$ 277,035	\$ 277,035	\$ -	\$ -	\$ -	\$ -
Total Pumping	\$ 277,035	\$ 277,035	\$ -	\$ -	\$ -	\$ -
Total Treatment	\$ 1,954,499	\$ -	\$ 977,250	\$ 977,250	\$ -	\$ -
TOTAL WASTEWATER FUND O&M EXPENSES	\$ 3,474,165	\$ 554,069	\$ 977,250	\$ 977,250	\$ -	\$ 965,597

Allocation of Functionalized Capital Costs to Cost Components

Table 58 below summarizes the allocation of the functionalized capital costs to the cost components. Similar to the O&M revenue requirement, the functionalized capital costs are allocated to the cost components.

*City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 58: Wastewater Utility Capital Cost Allocation to Cost Components*

<u>Functional Category</u>	Test Year		<u>Biochemical Total</u>		<u>Customer Meters</u>	<u>Customer Bills</u>
	<u>Total</u>	<u>Volume</u>	<u>Oxygen</u>	<u>Suspended</u>		
			<u>Demand</u>	<u>Solids</u>		
A&G	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Collection	\$ 1,229,261	\$ 1,229,261	\$ -	\$ -	\$ -	\$ -
Lift Stations and Pumping	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Treatment	\$ 490,136	\$ -	\$ 245,068	\$ 245,068	\$ -	\$ -
Total Capital Revenue Requirements	\$ 1,719,397	\$ 1,229,261	\$ 245,068	\$ 245,068	\$ -	\$ -

Allocation of Non-Rate Revenue to Cost Components

Table 59 indicates the allocation of non-rate revenues to the cost components. Non-rate revenue represents funds the City’s wastewater utility receives which are not based on wastewater customer user charges. Since non-rate revenue represents an offset to the revenue which must be recovered from rates, it must be allocated to each of the cost components so it can be removed prior to calculating wastewater rates.

*City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 59: Wastewater Utility Non-Rate Revenue Allocation to Cost Components*

<u>Functional Category</u>		Test Year		<u>Biochemic Total</u>		<u>Customer Meters</u>	<u>Customer Bills</u>
		<u>Total</u>	<u>Volume</u>	<u>al Oxygen</u>	<u>Suspende</u>		
				<u>Demand</u>	<u>d Solids</u>		
15-5-41-352	Bad Debt Collection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15-5-41-363	SWWTP Loan	\$ 186,000	\$ -	\$ 93,000	\$ 93,000	\$ -	\$ -
15-5-41-364	Tap and Connect Fees	\$ 15,000	\$ 2,392	\$ 4,219	\$ 4,219	\$ -	\$ 4,169
15-5-41-367	Late Fee	\$ 60,000	\$ 9,569	\$ 16,877	\$ 16,877	\$ -	\$ 16,676
15-5-41-421	Miscellaneous	\$ 18,000	\$ 2,871	\$ 5,063	\$ 5,063	\$ -	\$ 5,003
	Interest Earnings on Fund Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Non-Rate Revenue Requirements		\$ 279,000	\$ 14,832	\$ 119,160	\$ 119,160	\$ -	\$ 25,848

All of the non-rate revenues are allocated proportionally based on the O&M allocations to cost components.

5.2.3 Plant Balance Analysis

Once each component of the revenue requirements has been determined, wastewater strength units, by customer class must be estimated. These are the basis upon which the strength costs, determined in the previous step, are allocated to each customer class.

This allocation is performed via a proportional distribution of each measure of strength to each customer class, based on the contribution of that class to overall billed wastewater volumes. This calculation is shown in Table 60 below.

As an example, consider Biochemical Oxygen Demand. The proportion of BOD contributed to the wastewater system by each class, is function of the overall volume contributed by that class. Therefore the BOD units are allocated to each customer class based on their proportion of total billed volumes. Residential customers, for example, are forecasted to contribute 578,457 CCF in billed wastewater volumes in the test year, or 50% of total billed volumes. Consequently, they are assigned 50% of total forecast BOD. The same calculations are performed for the TSS. Finally note that assumptions have been made regarding infiltration and inflow (“I/I”) into the wastewater system. The level of infiltration into the wastewater system is assumed to be the difference between forecast billed volumes and forecast influent into the treatment plants.

The result is a total level of strength units for each customer class, which is then used to determine unit costs by customer class and allocate the test year revenue requirement.

*City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 60: Wastewater Utility Plant Balance Analysis*

	<u>Volume</u> <u>CCF</u>	<u>%</u>	<u>BOD</u> <u>mg/L</u>	<u>Biochemical</u> <u>Oxygen Demand</u> <u>Lb.</u>	<u>TSS</u> <u>mg/L</u>	<u>Total Suspended</u> <u>Solids</u> <u>Lb.</u>	<u>Total</u> <u>Strength</u> <u>Units</u> <u>Lb.</u>
Treatment Plant Volumes:							
East Wastewater Treatment Plant	811,003	70%	342	1,733,425	565	2,860,354	4,594,343
Southwest Wastewater Treatment Plant	341,968	30%	403	860,920	271	578,287	1,439,477
Total Treatment Plant Volumes	1,152,971	100%		2,594,344		3,438,640	6,032,985
Less Industrial Surcharge Volumes:							
Industrial BOD5				627,931			627,931
Industrial TSS						179,601	179,601
Surcharge				627,931	-	179,601	807,532
Equals Non-Surcharge Volumes							
Commercial	291,788	25%		497,650		824,781.31	1,322,431
Residential	578,457	50%		986,570		1,635,093.64	2,621,663
Armour	198,460	17%		338,477		560,975.80	899,453
Total Billed Volumes	1,068,705	93%		1,822,697		3,020,851	4,843,547
Total Infiltration	84,265	7%		143,716		238,188.66	381,905
Balance	-	-		-	-	-	0

5.2.4 Determination of Wastewater Units of Service

The next step in the cost allocation process is to summarize the units of service, which are the basis for the allocation of the total revenue requirement to each of the customer classes. The units are volume, strength and customer, and are indicated in Table 61 below.

City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 61: Wastewater Utility Units of Service

<u>Customer Class</u>	<u>Volume</u> <u>CCF</u>	<u>% Billed</u> <u>Volumes</u>	<u>Biochemical</u> <u>Oxygen</u> <u>Demand</u> <u>Lb.</u>	<u>Total</u> <u>Suspended</u> <u>Solids</u> <u>Lb.</u>	<u>Customer</u> <u>Bills</u>
Total Treatment Plant Volumes	1,152,971		2,594,344	3,438,640	
Total Infiltration	84,265		143,716	238,189	
Customer Billed Volumes:					
Commercial	291,788	27%	497,650	824,781	9,756
Residential	578,457	54%	986,570	1,635,094	107,352
Armour	198,460	19%	338,477	560,976	12
Surcharge	-	0%	627,931	179,601	0
	1,068,705	100%	2,450,628	3,200,452	117,120
Plus Allocation of Infiltration:					
Commercial	23,007		39,239	65,033	-
Residential	45,610		77,789	128,924	-
Armour	15,648		26,688	44,232	-
Surcharge	-		-	-	-
	84,265	-	143,716	238,189	-
Equals Total Units:					
Total Commercial	314,795		536,889	889,814	9,756
Total Residential	624,068		1,064,359	1,764,018	107,352
Total Armour	214,108		365,165	605,208	12
Total Surcharge	-		627,931	179,601	-
Total System Units	1,152,971	-	2,594,344	3,438,640	117,120

5.2.5 Determination of Wastewater Unit Cost of Service

Once each component of the test year revenue requirement (i.e. O&M and Capital) has been allocated to each of the cost components, the unit cost of service can be determined. The unit cost of service is the basis by which costs are allocated to each customer class.

Table 62 below summarizes the determination of the unit cost of service.

The total system units are the sum of all of the units from Table 61. Also shown is each of the revenue requirements, as they have been allocated to the cost components, and the unit cost for each component. As an example, the total O&M costs allocated to the "volume" cost component is \$.5 Million. Since there are 1.1 million base units, the cost per unit is \$.48. This calculation is

repeated for each of the cost components and revenue requirements to arrive at a total system unit cost for each cost component. These are the basis by which costs are allocated to customer classes.

*City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 62: Wastewater Utility Unit Cost of Service*

	<u>Total</u>	<u>Volume</u>	<u>Biochemical Oxygen Demand</u>	<u>Total Suspended Solids</u>	<u>Customer Bills</u>
Total System Units		1,152,971	2,594,344	3,438,640	117,120
Total Wastewater Fund O&M Expenses	\$ 3,474,165	\$ 554,069	\$ 977,250	\$ 977,250	\$ 965,597
<i>Unit Cost</i>		\$ 0.4806	\$ 0.3767	\$ 0.2842	\$ 8.2445
Total Capital Revenue Requirements	\$ 1,719,397	\$ 1,229,261	\$ 245,068	\$ 245,068	\$ -
<i>Unit Cost</i>		\$ 1.0662	\$ 0.0945	\$ 0.0713	\$ -
Total Non-Rate Revenue Requirements	\$ (279,000)	\$ (14,832)	\$ (119,160)	\$ (119,160)	\$ (25,848)
<i>Unit Cost</i>		\$ (0.0129)	\$ (0.0459)	\$ (0.0347)	\$ (0.2207)
Total System Revenue Requirements	\$ 4,914,562	\$ 1,768,498	\$ 1,103,157	\$ 1,103,157	\$ 939,749
<i>Total System Unit Cost</i>		\$ 1.53	\$ 0.43	\$ 0.32	\$ 8.02

5.2.6 Determination of Revenue Requirements by Customer Class

Table 63 below summarizes the allocation of the test year revenue requirements to each of the customer classes. For each customer class, the cost allocation is the total unit cost of service multiplied by the units of service for that class. For example, the \$.9 Million in volume costs allocated to residential customers is the cost per unit of volume multiplied by the test year annual usage for this class.

*City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 63: Wastewater Utility Revenue Requirements by Customer Class*

	<u>Total</u>	<u>Volume</u>	<u>Biochemical Oxygen Demand</u>	<u>Total Suspended Solids</u>	<u>Customer Bills</u>
Total System Revenue Requirements	\$ 4,914,562	\$ 1,768,498	\$ 1,103,157	\$ 1,103,157	\$ 939,749
<i>Total System Unit Cost</i>	\$ -	\$ 1.53	\$ 0.43	\$ 0.32	\$ 8.02
<i>Customer Class Units of Service</i>					
Total Commercial		314,795	536,889	889,814	9,756
Total Residential		624,068	1,064,359	1,764,018	107,352
Total Armour		214,108	365,165	605,208	12
Total Surcharge		-	627,931	179,601	-
Total System Units		1,152,971	1,966,413	3,259,039	117,120
<i>Test Year Revenue Requirements By Customer Class</i>					
Commercial	\$ 1,074,889	\$ 482,852	\$ 228,294	\$ 285,463	\$ 78,280
Residential	\$ 2,837,107	\$ 957,234	\$ 452,583	\$ 565,918	\$ 861,372
Armour	\$ 677,941	\$ 328,412	\$ 155,274	\$ 194,158	\$ 96
Industrial Surcharge	\$ 324,625	\$ -	\$ 267,007	\$ 57,618	\$ -
Total System Costs	\$ 4,914,562	\$ 1,768,498	\$ 1,103,157	\$ 1,103,157	\$ 939,749

5.3 WASTEWATER UTILITY RATE DESIGN

5.3.1 Wastewater Volumetric Rate Design

Table 64 below summarizes the wastewater volumetric rate design calculations.

There are three steps involved in calculating the volumetric wastewater rates by customer class:

1. Determine the volumetric revenue requirement
2. Determine the test year usage
3. Calculate the volumetric rates

The rates shown reflect the City's existing rate structure, as no major structure changes are being proposed at this time.

Revenue Requirements

The volumetric revenue requirement represents the costs incurred by the wastewater utility to collect ("volume") and treat ("strength") wastewater discharge. The revenue requirements are offset by three adjustments: first, an offset associated with readiness-to-serve is included (described in further detail in the fixed charge discussion below); second, an adjustment associated with the minimum allotment is included (described in further detail in the fixed charge discussion below); finally, an adjustment associated with the industrial surcharge.

The industrial surcharge is the cost per pound of TSS and BOD which exceeds limits set by the City. The rate is simply the revenue requirements allocated to the TSS and BOD surcharge classes, divided by the forecast pounds of TSS and BOD. This has been adjusted downward to achieve an across the board rate increase for this charge.

Test-Year Usage

The test-year usage represents the total forecast wastewater usage, in the selected test-year (CY 2014), excluding minimum usage.

Rate Calculation

The determination of the volume rate is as follows:

1. Sum the revenue requirements (i.e. volume, TSS and BOD) for City customers
2. Divide the total revenue requirements determined in 1 above by the total usage excluding volumes included in the minimum.

Table 64 below summarizes the above calculations. It is worth noting that, while what is shown in Table 64 approximates an across the board rate increase, the City should evaluate whether a higher increase in the industrial surcharge is appropriate. Our understanding is that the economic

development contract indicates that the original charges were set at 7.2 cents and 8.1 cents per pound of BOD and TSS respectively. Based on the initial results of this study, it appears that the cost per pound of BOD and TSS is significantly higher than the current industrial surcharge, even after the increases since the original contract was put in place.

This appears to be due to the fact that both the volume and strength levels associated with the Armour-Eckridge plant are now significantly less than what was anticipated in the agreement. As an example, consider the flow stipulated under the original contract of .75 MGD. In 2013 AE volumes were only approximately .41 MGD. The strength of these discharges is also significantly less than the projections from the original contract.

In other words, the current rates are premised upon the original flow and strength assumptions from the agreement, yet the actual discharge sent to the wastewater treatment plant by Armour-Eckridge is such that the level of revenue generated by these charges is significantly less than what was anticipated under the contract. The result is that the fixed cost to construct the facilities used to serve Armour-Eckridge has been incurred, but the revenue recovered under the existing surcharge rates is not sufficient to recover the full cost of these investments. Increasing these rates to reflect the units of service observed in recent years could reduce the impact of increases to the City's volume and minimum charges.

City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 64: Volumetric Rate Design #1 (Existing)

	Volumetric Revenue Requirements				Usage		Rate Calculation		
	Test Year		Total Suspended Solids	Minimum Allotment	Test Year		Proposed Block Rates	Existing Block Rates	% Difference
	Volume	Biochemical Oxygen Demand			Usage	Usage			
Industrial Surcharge	\$ -	\$ 267,007	\$ 57,618						
Industrial Surcharge Adjustment		\$ (198,108)	\$ (35,448)						
		\$ 68,898	\$ 22,170						
Industrial BOD5					627,931	\$ 0.11	0.104	\$ 0.01	5.50%
Industrial TSS					179,601	\$ 0.12	0.117	\$ 0.01	5.50%
					807,532				
Total All Classes	\$ 1,768,498	\$ 836,151	\$ 1,045,539						
Total All Classes RTS Adjustment	\$ (843,769)	\$ (398,936)	\$ (498,838)						
Total All Classes Minimum Adjustment	\$ (227,485)	\$ (107,556)	\$ (134,490)						
Total All Classes Surcharge Adjustment	\$ 113,157	\$ 53,501	\$ 66,899						
	\$ 810,401	\$ 383,160	\$ 479,111						
Total All Classes					234,240	\$ 2.00	\$ 1.90	\$ 0.10	5.50%
Total All Classes					834,465				
Total All Classes Consumption					1,068,705				
Total Volumetric Revenue									

5.3.2 Wastewater Minimum Charge Design

Table 65 below summarizes the wastewater minimum charge calculations.

Revenue Requirements

The minimum charges are designed to recover the cost of meter reading, billing and collection, and customer service. The charges also recover additional fixed revenue which relates to the fixed investment in infrastructure which is constantly available to provide wastewater service whenever a customer requires, regardless of how much wastewater is actually discharged (“readiness-to-serve”).

The readiness to serve revenue requirement is a portion of each customer class’s volumetric revenue requirement, which is shifted to the fixed charge. Added to this are the costs incurred to read customer meters and process customer bills (“customer bills”). Added to the customer service and readiness to serve revenue requirements is the cost of the minimum allotment. This is, for each customer class, the rate for that class, multiplied by the usage included in the minimum. The revenue associated with this usage is not recovered from the volume charges therefore, it must be recovered from (included in) the minimum charges. The total minimum charge revenue requirement is approximately \$3.1 Million in the test year.

Rate Calculation

The minimum charge revenue requirement is recovered via a monthly charge on each customer bill. To calculate the minimum charge the total minimum charge revenue requirement (\$3.1 Million) is divided by the number of bills to determine a charge per bill.

<i>City of Junction City Water Utility Cost of Service Study and Rate Design Table 65: Fixed Charge Rate Design #1 (Existing)</i>						
	<u>Customer Bills</u>	<u>Total Fixed Costs Prior to RTS Adjustment</u>	<u>RTS Adjustment</u>	<u>Minimum Revenue</u>	<u>Total Fixed Costs</u>	
Total System Costs	\$ 939,749	\$ 939,749	\$ 1,741,543	\$ 469,530	\$ 3,150,822	
Test Year						
<u>Class</u>	<u>Bills</u>	<u>Total Fixed Costs</u>	<u>Proposed Monthly Minimum Charge</u>	<u>Existing Monthly Minimum Charge</u>	<u>\$ Difference</u>	<u>% Difference</u>
Grand Total Wastewater	117,120	\$ 3,150,822	\$ 26.90	\$ 25.50	\$ 1.40	5.5000%

5.3.3 Wastewater Rates and Typical Bill Impacts

Tables 66 and 67 indicate the forecast rates for all customers and as well as bill impacts for a typical City customer. A typical City customer uses approximately 5 CCF of water per month. Under existing rates, the typical customer would pay approximately \$31.20 per bill for wastewater service. Under the proposed 2014 rates (assumed to be effective July 15) this bill would increase to \$32.92, an increase of around \$1.72 per bill.

**City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 66: Alternative 1 Forecast Rates**

	Test Year											
	Existing	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Annual % Increase in Rate Revenues		5.50%	5.50%	6.00%	6.00%	6.50%	6.50%	7.00%	7.00%	7.00%	7.00%	3.00%
Volumetric Rates												
Minimum Wastewater Volumetric	\$ - \$ 1.90	\$ - \$ 2.00	\$ - \$ 2.11	\$ - \$ 2.24	\$ - \$ 2.38	\$ - \$ 2.53	\$ - \$ 2.70	\$ - \$ 2.88	\$ - \$ 3.09	\$ - \$ 3.30	\$ - \$ 3.53	\$ - \$ 3.64
Monthly Wastewater Minimum Charges												
Minimum Charge	\$ 25.50	\$ 26.90	\$ 28.38	\$ 30.09	\$ 31.89	\$ 33.96	\$ 36.17	\$ 38.70	\$ 41.41	\$ 44.31	\$ 47.41	\$ 48.83
Extra Strength Surcharges												
Industrial BOD5	\$ 0.10	\$ 0.11	\$ 0.12	\$ 0.12	\$ 0.13	\$ 0.14	\$ 0.15	\$ 0.16	\$ 0.17	\$ 0.18	\$ 0.19	\$ 0.20
Industrial TSS	\$ 0.12	\$ 0.12	\$ 0.13	\$ 0.14	\$ 0.15	\$ 0.16	\$ 0.17	\$ 0.18	\$ 0.19	\$ 0.20	\$ 0.22	\$ 0.22

City of Junction City
Wastewater Utility Cost of Service Study and Rate Design
Table 67: Alternative 1 Bill Impacts

	<u>Existing</u>	<u>2014</u>	<u>\$</u>	<u>%</u>
<u>Volumetric Rates</u>				
Minimum	\$ -	\$ -	\$ -	
Wastewater Volumetric	\$ 1.90	\$ 2.00	\$ 0.10	5.50%
<u>Monthly Water Minimum Charges</u>				
Minimum Charge	\$ 25.50	\$ 26.90	\$ 1.40	5.50%
<u>Consumption Block (CCF/Month)</u>				
0	\$ 25.50	\$ 26.90	\$ 1.40	5.50%
1	\$ 25.50	\$ 26.90	\$ 1.40	5.50%
2	\$ 25.50	\$ 26.90	\$ 1.40	5.50%
3	\$ 27.40	\$ 28.91	\$ 1.51	5.50%
4	\$ 29.30	\$ 30.91	\$ 1.61	5.50%
5	\$ 31.20	\$ 32.92	\$ 1.72	5.50%
6	\$ 33.10	\$ 34.92	\$ 1.82	5.50%
7	\$ 35.00	\$ 36.92	\$ 1.92	5.50%
8	\$ 36.90	\$ 38.93	\$ 2.03	5.50%
9	\$ 38.80	\$ 40.93	\$ 2.13	5.50%
10	\$ 40.70	\$ 42.94	\$ 2.24	5.50%
20	\$ 59.70	\$ 62.98	\$ 3.28	5.50%
30	\$ 78.70	\$ 83.03	\$ 4.33	5.50%
40	\$ 97.70	\$ 103.07	\$ 5.37	5.50%
50	\$ 116.70	\$ 123.12	\$ 6.42	5.50%
60	\$ 135.70	\$ 143.16	\$ 7.46	5.50%
70	\$ 154.70	\$ 163.21	\$ 8.51	5.50%
80	\$ 173.70	\$ 183.25	\$ 9.55	5.50%
90	\$ 192.70	\$ 203.30	\$ 10.60	5.50%
100	\$ 211.70	\$ 223.34	\$ 11.64	5.50%

*Impacts shown for 1" and Less Residential Customer

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1. EXECUTIVE SUMMARY

1.1 BACKGROUND OF THE STUDY

In February of 2014, the City of Junction City (“City”) engaged Raftelis Financial Consultants, Inc. (“RFC”) to develop, in collaboration with City staff, a utility financial business plan (“FBP”). The study was precipitated by the need to finance approximately \$93 Million in water and wastewater capital improvements over the next 10 to 15 years, the majority of which relate to the City’s water and wastewater treatment plants. The scope of services included the following:

- Evaluate the adequacy of existing water and wastewater revenues to meet each utility’s projected revenue requirements
- Develop a comprehensive water and wastewater financial business plan for a 10 year forecast period
- Determine water and wastewater rates which adequately recover the cost of operating the water and wastewater utilities under the existing rate structures and provide alternatives based on a comprehensive cost of service study

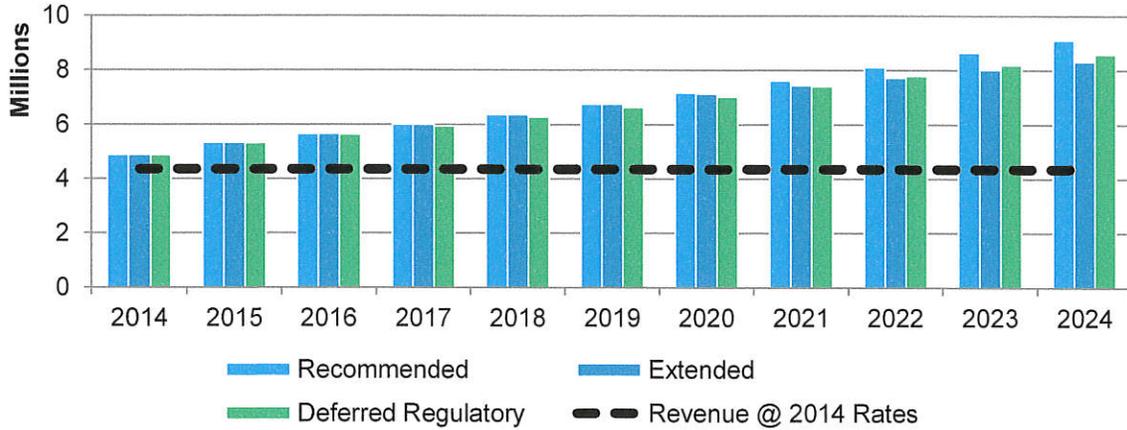
As part of the development of the FBP the City requested alternative FBPs based on 3 capital planning scenarios: *recommended*, or the schedule of capital improvements recommended by the City’s engineering consultant; *extended*, which represents all of the recommended projects, but defers some less critical projects; finally, *deferred regulatory*, which assumes deferral of some state and federal regulatory requirements.

It is our recommendation that the City pursue the “extended” alternative.

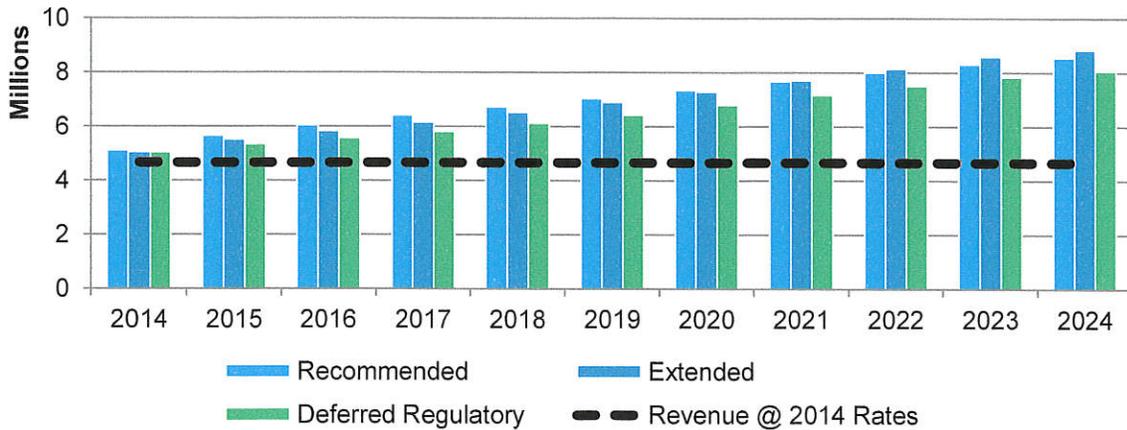
1.2 ADEQUACY OF UTILITY REVENUES AT EXISTING RATES

Exhibits 1 and 2 below indicate the forecast revenue under the existing water and wastewater utility rates. As of approximately July 2014 current revenues are insufficient to recover the forecast revenue requirements for each utility. Note that the total revenue requirements are shown for each of the three scenarios discussed above: recommended, extended, and regulatory deferral.

Ex.1: Existing Revenue vs. Requirements (Water Fund)



Ex. 2: Existing Revenue vs. Requirements (Wastewater Fund)



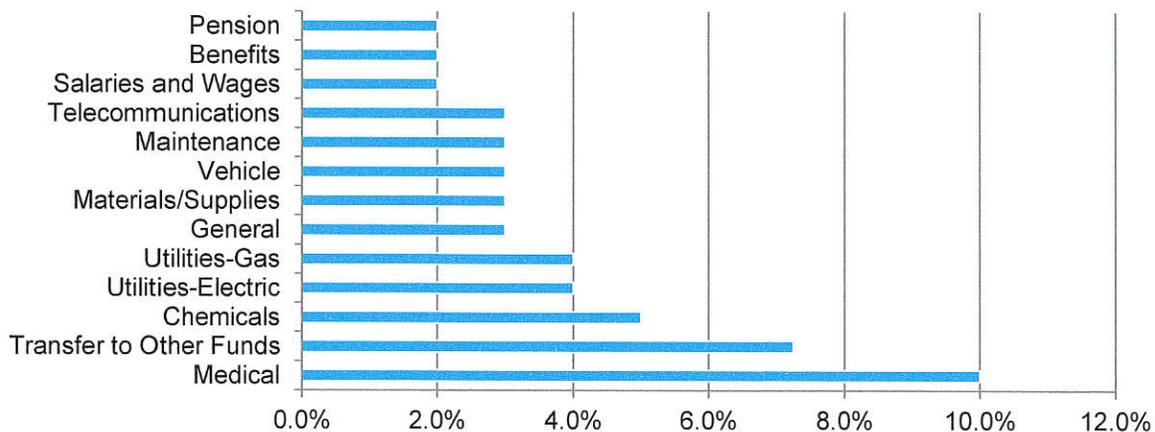
1.3 WATER AND WASTEWATER FINANCIAL BUSINESS PLAN

The purpose of the financial business plan is to determine the level of revenue required to ensure the independent financial sustainability of each utility over the ten year planning period. The financial plans are driven by three factors: inflationary O&M increases, the size and timing of capital expenditures and financial management policies.

1.3.1 Inflationary O&M increases

The basis for the O&M expenditures forecast for each utility are the budgets provided by the City. To these we applied the escalation rates indicated in Exhibit 3 below to determine the anticipated level of O&M expenditures in each year of the forecast period. The rates shown are the same for each utility. Note that while some escalation rates are assumed to be consistent with general inflation (around 3%), other costs—which are known to increase at rates beyond general inflation—have been escalated at higher rates.

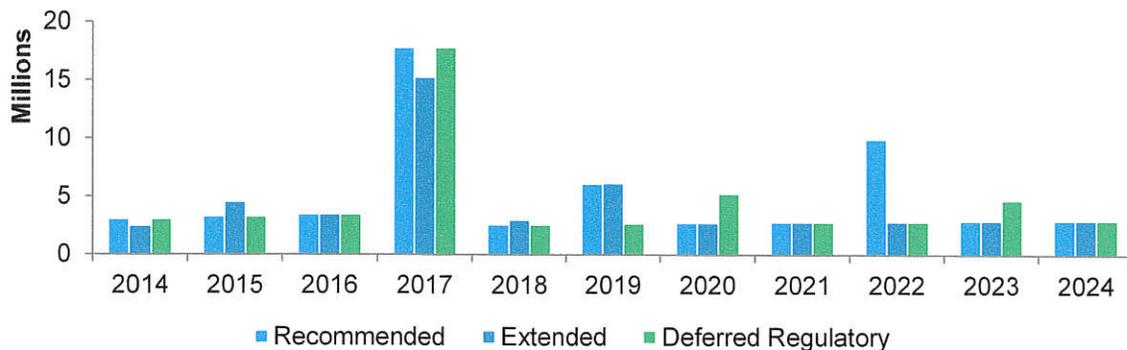
Ex. 3: O&M Escalation Rates



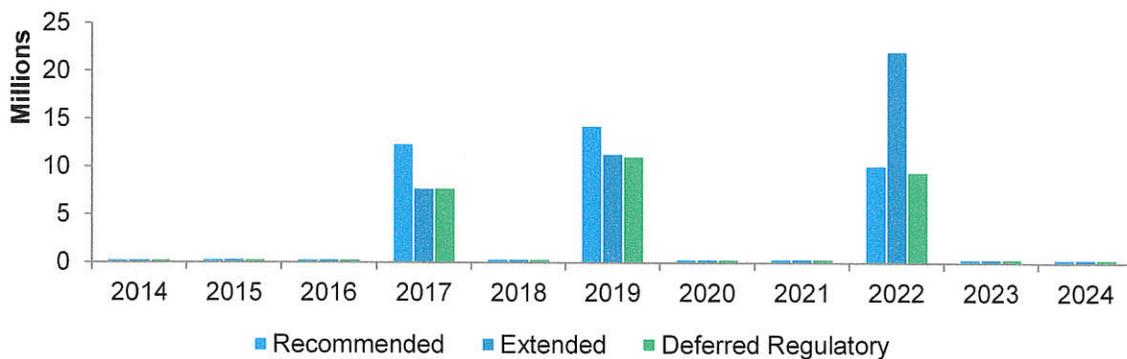
1.3.2 Capital Improvements

Exhibits 4 and 5 below indicate the water and wastewater capital improvements under each scenario. Under the water capital plans, the level of expenditures is similar for all three scenarios, with the majority of the deferral associated with projects that would have occurred by 2022 (under the recommended schedule), but are being delayed. Under the wastewater capital plans, the differences under the three scenarios are more readily apparent with projects from the recommended schedule shifted out in the extended schedule, and moved out of the forecast period entirely under the deferred regulatory schedule. In addition to the treatment plant projects which occur in 2017, 2019 and 2022, each plan includes the remaining upgrades to the water distribution system and wastewater collection system identified in the City's water and wastewater master plans.

Ex. 4: Capital Expenditures (Water)



Ex. 5: Capital Expenditures (Wastewater)



1.3.3 Financial Policies

The final factor driving the utility financial plans is the need to meet debt service coverage requirements and ensure adequate operating reserves. Exhibits 6 through 9 indicate the projected debt service coverage and operating reserve levels for each utility for the ten year period.

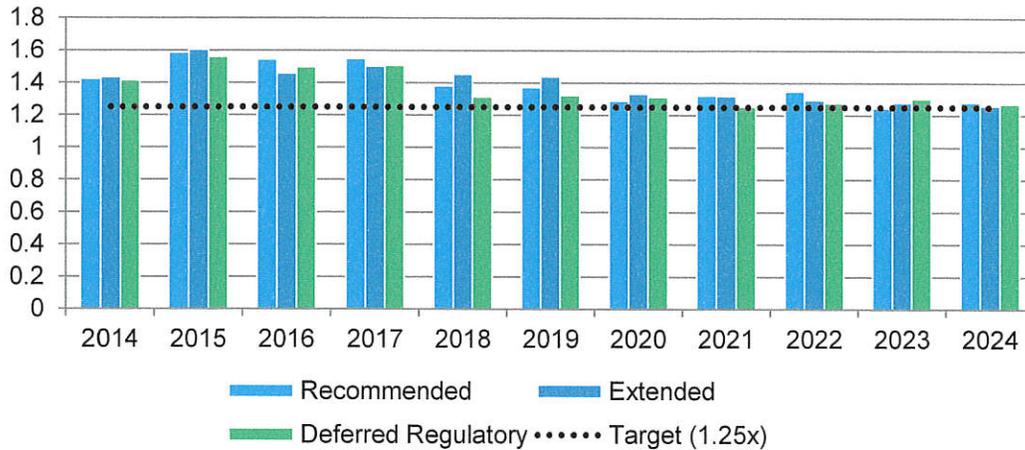
In general, debt service coverage is the ratio of utility revenues—less operation and maintenance expenditures—to annual debt service. The City’s existing debt service is represented by General Obligation (“GO”) bonds, and Kansas Public Water Supply Loan Fund loans (“KPWSLF”). All proposed debt is assumed to be in the form of KPWSLF loans. As the chart below indicates, debt service coverage will meet or exceed the 1.25x minimum target in each year of the forecast period.

The target operating reserve is set at 90 days’ (25%) of each utility’s annual O&M expenditures and debt service.

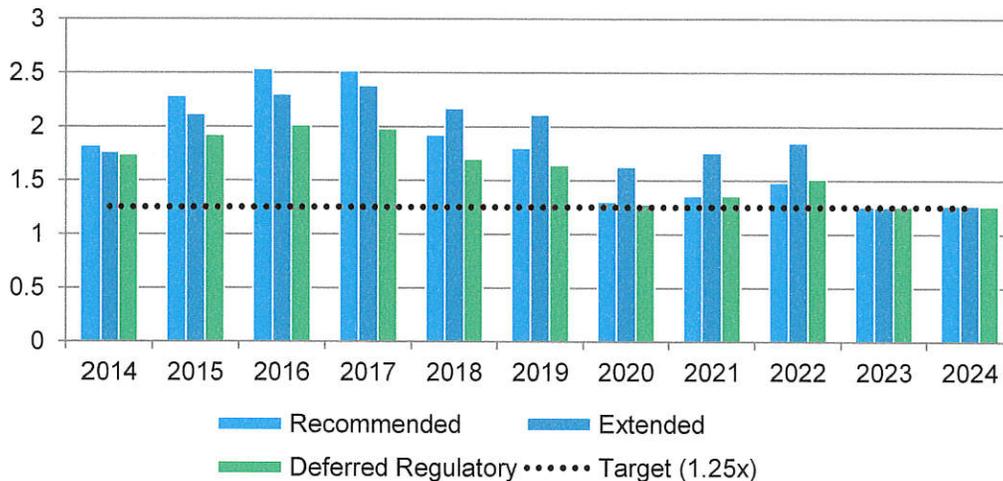
Maintaining this cash balance is critical to mitigating the risk associated with operating a climatically variable enterprise. The 90 day reserve helps limit the impact of unexpected shortfalls in revenue. Additionally, “days cash on hand” is one of the criteria used to evaluate credit-

worthiness by bond ratings agencies. Insufficient cash reserves can negatively impact bond ratings, put upward pressure on borrowing costs and could ultimately lead to higher rate increases in the future.

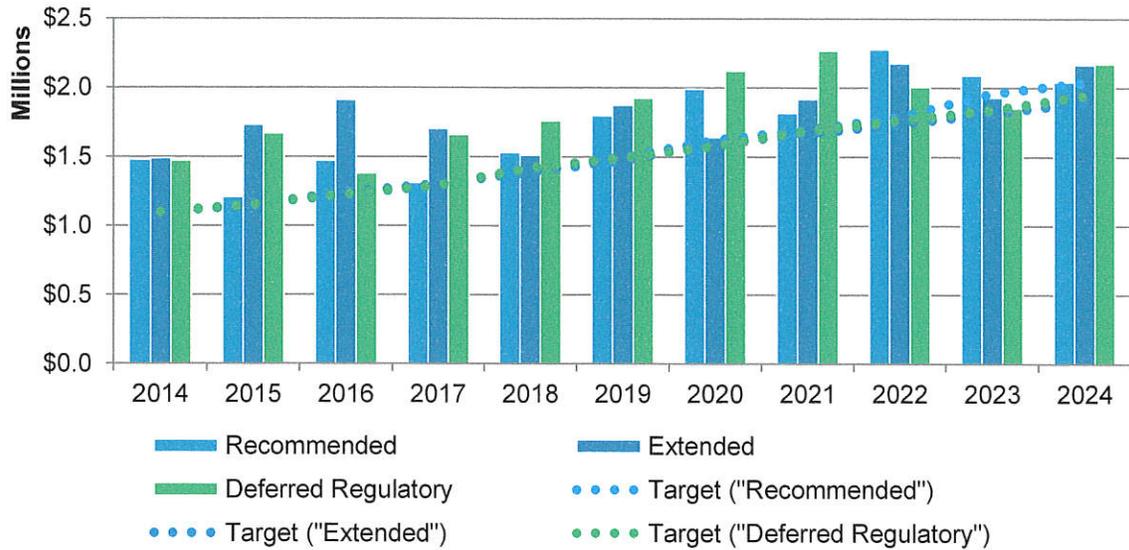
Ex. 6: Debt Service Coverage (W)



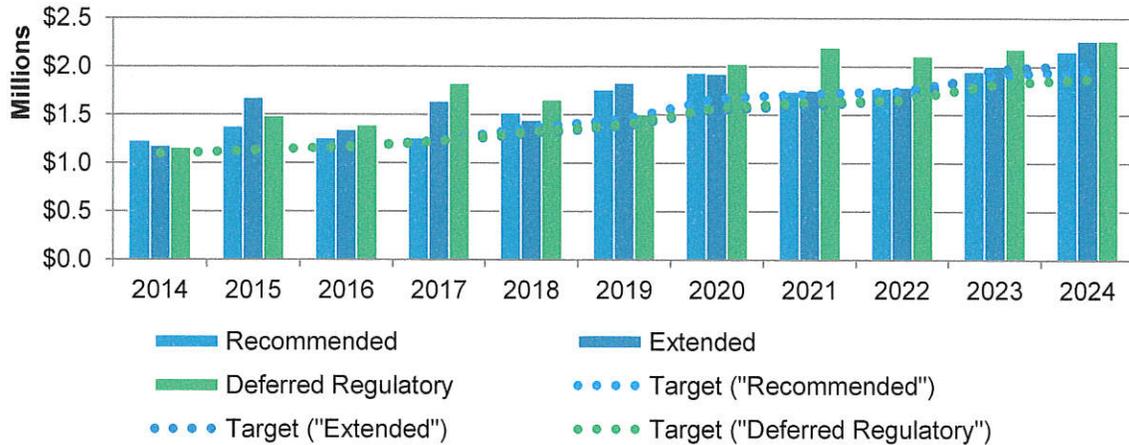
Ex. 7: Debt Service Coverage (WW)



Ex. 8: Operating Reserve Balance (Water)



Ex. 9: Operating Reserve Balance (Wastewater)



1.4 COST OF SERVICE STUDY

1.4.1 Cost of Service Study Overview

While the financial planning process determines the overall level of rate revenue necessary to sustain each utility, the cost of service analysis determines how much of that revenue should be recovered from each of the City's customer classes.

For the water utility, costs are allocated on the basis of average and peak demand. Average demand represents water consumption on an average day, while peak demand represented highest usage day and theoretical highest usage hour. To serve both types of demand, the water utility system must be built to provide water on an average day, and on peak days and peak hours.

Consequently, customers who use water *more* consistently (i.e. those with lower peak demand) cause the utility to incur the *less* costs to provide service. Conversely, those who use water *less* consistently (i.e. those with higher peak demand) cause the utility to incur more costs to provide service. This cost allocation methodology is known the “Base Extra Capacity” method, and is described in the American Water Works Association (“AWWA”) publication, “Manual of Water Supply Practices M1, Principles of Rates, Fees and Charges (M1).”

For the wastewater utility, costs are typically allocated on the basis of wastewater volume, and strength. Customers that produce more wastewater volume, at higher strength levels, cause the wastewater utility to incur higher costs. For this allocation RFC has utilized the “functional cost methodology” described in the Water Environment Federations (“WEF”) publication, “Manual of Practice M27, Financing and Charges for Wastewater Systems.”

1.4.2 Rate Design Considerations

Fixed Versus Volumetric Revenues

Currently approximately 58% of utility revenue is recovered from fixed charges and 42% is recovered from volumetric charges.

Typically fixed charges recover, at a minimum, the cost of meter reading, billing and collection. They may also recover additional revenue associated with the cost of making water and wastewater service available on a “24/7” basis, regardless of the amount of water consumed, or wastewater discharged. This concept, known as “readiness to serve” is becoming more common as utilities seek to stabilize their revenues. Revenue stability is critical for financial sustainability, and creditworthiness. The primary disadvantage to fixed charge revenue recovery is that it typically impacts lower volume users, creating potential affordability issues.

Volume charges recover each utility’s variable costs. For the water utility, these are associated with meeting average and peak demand. For the wastewater utility, these are associated with the collection and treatment of wastewater. Typically increased volumetric revenue recovery has a lower impact on lower volume users who are only billed for the water they use. The disadvantage to volumetric recovery is revenue stability, which is decreased as the proportion of revenue recovered from variable charges increases. This is a especially important consideration given that the majority of utility costs are fixed (e.g. capital and personnel expenditures), while only a few vary with the amount of water consumed and wastewater discharged (e.g. chemicals and power).

Rates by Customer Class

The second consideration, relates to whether to move to rates by customer class. The primary advantage to moving to rates by customer class is that it will be more equitable. In other words, customers will pay based on the costs they cause the utility to incur. For the water utility, this means that customers with higher peak demand would pay higher rates water than customers with lower peak demand. For the wastewater utility customers with higher volume and strength would pay more than customers with lower volume and strength.

There are a few challenges however. First, unlike an across the board increase, the impact of the overall rate revenue increase will differ by customer. Some may experience large bill increases, while others experience large bill increases. Second, the potential for demand response (i.e. usage decreases associated with rate increases) becomes a larger issue as the impacts to certain customer classes are likely to be large. Finally, the changes can be difficult to explain and understand. Given the need to explain and justify critical infrastructure replacement to ratepayers, it is not recommended that the City significantly alter its rate structure at this time.

One final consideration pertains to the Armour-Eckridge contract rates. There are two considerations with regard to these rates.

First, our understanding is that the economic development contract sets the initial water rate at the higher of \$1.00 per thousand gallons (1.00 per 1,000 gallons is approximately \$.75/CCF) or 60% of the residential rate. The existing Armour-Eckridge volume rate is only 37% of the Tier 2 rate. We recommend that the City take action to transition the AE rate closer to the contractual 60%,

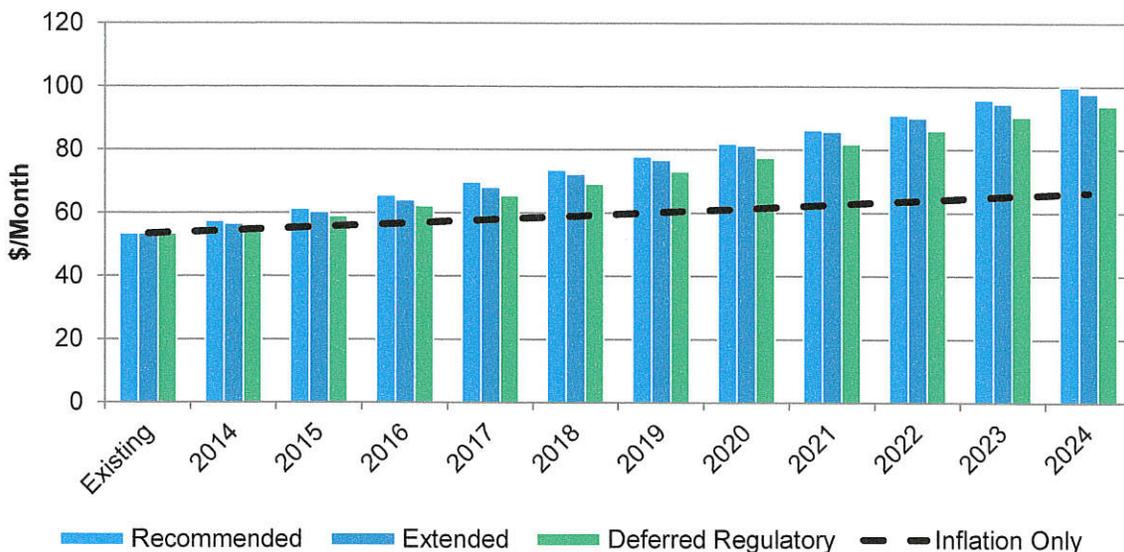
Second, the current industrial wastewater surcharge rates are premised upon the original flow and strength assumptions from the agreement, yet the actual discharge sent to the wastewater treatment plant by Armour-Eckridge is such that the level of revenue generated by these charges is significantly less than what was anticipated under the contract. The result is that the fixed cost to construct the facilities used to serve Armour-Eckridge has been incurred, but the revenue recovered under the existing surcharge rates is not sufficient to recover the full cost of these investments. We recommend the City increase these rates to reflect the units of service observed in recent years. This would more appropriately reflect the cost to provide industrial treatment services to AE.

1.4.3 Rate Impacts

Exhibit 10 below indicates the forecast bills for a typical City customer using 5 CCF (3,740 gallons) per month. Note that the projected bills for all three capital scenarios are shown, as well as a projection of where bills would be, if only inflationary increases (assumed to be 2% per year) were pursued. As indicated, bill increases beyond inflation are necessary to fund the infrastructure improvements under all three scenarios. The typical **combined** water and wastewater bill under existing rates is approximately \$50. By 2024, the typical bill is projected to increase to right at

\$100 under the recommended scenario, just under \$100 under the extended scenario and around \$90 under the regulatory deferral scenario.

Ex.10: Projected Combined Monthly Bills (5 CCF)



1.5 RECOMMENDATION: EXTENDED CIP ALTERNATIVE

Based on extensive discussions with City staff and the City’s engineering consultant, ***it is our recommendation that the City pursue the “extended” alternative.***

Based on discussions with City staff and the City’s engineering consultant, our understanding is that the risks with the latter two scenarios relate to the expense associated with the projects and the maintenance that may need to occur in the meantime. In general, deferred projects will be more expensive, due to inflationary construction cost increases, potential changes in the cost of borrowing (i.e. interest rate increases), and further deterioration of utility assets due to the deferral.

Additionally, it is critical to note that the third scenario, regulatory deferral, is based on the assumption that the City will be able to delay some state and federal regulatory requirements. This delay is not a foregone conclusion. Therefore this scenario carries with it the risk that, if the projects are delayed and the requirements are still enforced, the City would be required to make these improvements on an accelerated basis, potentially at higher cost and impact to City residents than if they were made as scheduled.

The extended alternative represents an appropriate balance between the need for critical infrastructure improvements against the need to minimize rate increases.

2. INTRODUCTION AND STUDY OBJECTIVES

2.1 INTRODUCTION

In February of 2014, the City of Junction City (“City”) engaged Raftelis Financial Consultants to develop, in collaboration with City staff, a water and wastewater utility financial business plan (“FBP”), and perform water and wastewater rate studies. The need for this study was precipitated by the need to finance approximately \$93 Million in water and wastewater capital improvements over the next 10 to 15 years, the majority of which relate to the City’s water and wastewater treatment plants. A key aspect of this engagement involved collaboration with City staff, and the City’s engineering consultant, to mitigate the financial impact of these historically large capital improvements.

2.2 RATE STUDY OBJECTIVES

The objectives of this study are as follows:

- Evaluate the adequacy of existing water and wastewater revenues to meet each utility’s projected revenue requirements
- Develop comprehensive a water and wastewater financial business plan for a 10 year forecast period
- Determine water and wastewater rates which adequately recover the cost of operating the water and wastewater utilities under the existing rate structures and provide alternatives based on a comprehensive cost of service study

3. FINANCIAL BUSINESS PLAN

3.1 THE FINANCIAL PLANNING PROCESS

At the direction of the City, RFC developed financial business plans based on 3 alternative capital scenarios: recommended, extended and deferred regulatory. Based on discussions with City staff and the City’s engineering consultant, our understanding is that the risks with the latter two scenarios relate to the expense associated with the projects and the additional maintenance that may need to occur in the meantime. In general, deferred projects will be more expensive, due to inflationary construction cost increases, potential changes in the cost of borrowing (i.e. interest rate increases), and further deterioration of utility assets due to the deferral.

Based on extensive discussions with City staff and the City’s engineering consultant, ***it is our joint recommendation that the City pursue the “extended” alternative, which offers some rate relief, but without the risks associated with the deferred regulatory alternative.*** This alternative is the basis under which the proceeding FBPs were developed.

The general objective of the financial planning process is to arrive at the level of water and wastewater rate revenue required to ensure the financial sustainability of each utility on a going forward basis.

For this study the FBP was developed for a test year and a ten-year forecast period. The test year represents a projection of utility revenues, expenditures and operating reserve levels. The ten-year forecast period allows the City to evaluate trends over time and evaluate the impact of challenges that occur beyond the test year. Separate FBPs were developed for each utility to ensure that each would be self-sustaining.

The following steps are necessary to arrive at the test year revenue requirement for each utility:

- Forecast customer units of service and revenue at existing water and wastewater rates
- Forecast water and wastewater utility operation and maintenance expenditures (“O&M”)
- Forecast water and wastewater utility capital expenditures
- Develop detailed water and wastewater utility cash flow forecasts summarizing planned O&M and capital expenditures, recommended rate revenue increases and operating reserve levels

3.2 WATER UTILITY FINANCIAL BUSINESS PLAN

3.2.1 Forecast Water Utility Units of Service and Revenue at Existing Rates

Existing Water Rates

The City recovers the cost of operating the water utility via volumetric rates and fixed minimum charges. Table 1 below summarizes the existing water rate structure.

City of Junction City
Water Utility Financial Plan
Table 1: Existing Water Rate Structure

		Test Year	
		2014	
<u>Volumetric Rates</u>			
Minimum	2 CCF and Below (Per CCF)	\$	-
Tier 1	2 CCF to 10 CCF (Per CCF)	\$	2.06
Tier 2	Greater Than 10 CCF (Per CCF)	\$	2.37
Armour	Per CCF	\$	0.88
No Charge Water	Per CCF	\$	-
<u>Monthly Water Minimum Charges</u>			
1" and Less		\$	16.03
1 1/2"		\$	100.52
2"		\$	198.80
3"		\$	293.95
4"		\$	389.72
Greater Than 4"		\$	490.14
Residential Grandview Bills		\$	465.42

The City measures customer consumption in one hundred cubic feet (CCF) increments. 1 CCF is equivalent to approximately 748 gallons. City customers typically use around 5 CCF per month. The water volumetric rates include a minimum allotment and are based on an inclining block rate structure.

The minimum allotment represents consumption which has been included in the City's minimum charge, and to which no volume rate is applied. The City's existing minimum allotment is 2 CCF. Beyond that the charge per CCF increases as usage increases, based on defined consumption blocks. As an example, a customer using 11 CCF would be charged \$18.85 (2 CCF*\$0.00+8 CCF*2.06+1 CCF*2.37).

The minimum charge includes the first 2 CCF of water use. Most City customers have 1" (or less) meters and pay the \$16.03 monthly minimum charge.

Note that a separate volume rate is indicated for Armour-Eckridge, an industrial customer that has a contractually negotiated volumetric rate.

Historical Water Units of Service

Tables 2 through 5 on the following pages summarize the trends in water account growth, water consumption, water consumption per account and water consumption per rate tier.

The number of historical water accounts was estimated as the number of monthly bills for each customer class, divided by 12. As Table 2 indicates, account growth has been fairly limited, with an

average growth rate of approximately 1% over the 5 year historical period. Despite the upward trend in account growth, there were least two years that appear to indicate a decline in water accounts. As indicated by the historical data, residential and irrigation accounts have exhibited the highest overall average growth rates over the 5 year period.

Table 3 indicates the historical trends in billed water consumption. Growth in overall billed water consumption has been relatively anemic. Over the 5 year period, billed water consumption growth averaged just .56% per year. The primary driver of this trend is a relatively large decline in billed consumption in 2013 (8%), a trend which may have begun in 2012 (.95% over 2011), given that the prior two years demonstrated growth of around 5%. Commercial and irrigation accounts exhibited positive growth over the historical period, while residential growth was, on average, negative.

Table 4 indicates the trend, over the historical period, for water consumption per customer account. Overall consumption per account has been negative over the past 5 years. As discussed above, this is driven by minimal account growth, accompanied by billed consumption decline.

While the City has experienced some account growth in recent years, each new account is, on average, using less water than in prior years. This trend is consistent with what we have seen for utilities throughout the United States, and is associated with a growing trend in water conservation. This trend is based on a general conservation ethos (i.e. environmental awareness) as well a demand response associated with increasing water rates (e.g. installing high efficiency fixtures and appliances).

Table 5 indicates historical water consumption per rate tier and included in the 2 CCF minimum. The amount of consumption falling into each tier was estimated via the following three step process: first, the amount of consumption included in the 2 CCF minimum was estimated as 2 CCF per water bill, for each customer class; second to estimate consumption by tier a bill frequency analysis was performed to determine the proportion of consumption—by customer class—that falls into each tier on average. Finally, the percentages determined in the second step were applied to the total consumption—for each customer class—excluding the units included in the minimum. The result, by customer class, are the proportion of units included in the minimum, to which a volume rate of \$0 is applied, and the proportions of units included in the two tiers to which the tier rates are applied.

Overall, the majority of consumption is in tier two (i.e. greater than 10 CCF). By customer class however, there is a fair amount of variation in tier consumption. While, commercial customers use water primarily in tier 2, residential consumption is split more evenly between the minimum, tier 1 and tier 2. Irrigation consumption, like commercial, is generally concentrated in tier 2.

City of Junction City
Water Utility Financial Plan

Table 2: Historical Water Accounts

Class	Historical 2009	Historical 2010	Historical 2011	Historical 2012	Historical 2013	% Change 2010	% Change 2011	% Change 2012	% Change 2013	5 Year CAGR
Total Commercial	676	685	689	695	690	1.33%	0.58%	0.87%	-0.72%	0.41%
Total Residential	8,683	9,110	9,077	9,219	9,155	4.92%	-0.36%	1.56%	-0.69%	1.06%
Total Irrigation	76	80	88	90	88	5.26%	10.00%	2.27%	-2.22%	2.98%
Armour	1	1	1	1	1	0.00%	0.00%	0.00%	0.00%	0.00%
Commercial Low-Flow	-	-	-	-	16					
Residential Grandview	-	-	1	1	1			0.00%	0.00%	
No Charge Water	56	56	55	54	55	0.00%	-1.79%	-1.82%	1.85%	-0.36%
No Charge Gallon Water	1	1	1	1	1	0.00%	0.00%	0.00%	0.00%	0.00%
Grand Total Water	8817	9248	9223	9366	9317	4.89%	-0.27%	1.55%	-0.52%	1.11%

City of Junction City
Water Utility Financial Plan

Table 3: Historical Water Consumption

Class	Historical 2009	Historical 2010	Historical 2011	Historical 2012	Historical 2013	% Change 2010	% Change 2011	% Change 2012	% Change 2013	5 Year CAGR
Commercial 1" and Less	85,242	90,887	92,300	98,967	84,194	6.62%	1.55%	7.22%	-14.93%	-0.25%
Commercial 1 1/2"	12,968	16,525	20,378	27,356	23,025	27.43%	23.32%	34.24%	-15.83%	12.17%
Commercial 2"	55,674	69,446	63,324	65,451	59,347	24.74%	-8.82%	3.36%	-9.33%	1.29%
Commercial 3"	29,828	24,807	25,762	26,622	23,878	-16.83%	3.85%	3.34%	-10.31%	-4.35%
Commercial 4"	35,274	48,142	43,983	43,008	54,440	36.48%	-8.64%	-2.22%	26.58%	9.07%
Commercial Greater Than 4"	-	-	-	-	-					
Total Commercial	218,986	249,807	245,747	261,404	244,884	14.07%	-1.63%	6.37%	-6.32%	2.26%
Residential 1" and Less	680,342	712,976	739,512	790,843	694,199	4.80%	3.72%	6.94%	-12.22%	0.40%
Residential 1 1/2"	2,203	3,741	3,124	6,902	10,891	69.81%	-16.49%	120.93%	57.79%	37.66%
Residential 2"	21,028	19,917	23,960	27,105	23,135	-5.28%	20.30%	13.13%	-14.65%	1.93%
Residential 3"	2,073	17	-	10	62	-99.18%	-100.00%		520.00%	-50.44%
Residential 4"	74,855	82,110	47,540	16,270	15,274	9.69%	-42.10%	-65.78%	-6.12%	-27.23%
Residential Greater Than 4"	-	-	-	-	-					
Total Residential	780,501	818,761	814,136	841,130	743,561	4.90%	-0.56%	3.32%	-11.60%	-0.97%
Commercial Irrigation 1" and Less	13,900	20,836	26,069	26,752	21,615	49.90%	25.12%	2.62%	-19.20%	9.23%
Residential Irrigation 1" and Less	28,535	22,978	28,555	37,485	28,581	-19.47%	24.27%	31.27%	-23.75%	0.03%
Total Irrigation	42,435.00	43,814.00	54,624.00	64,237.00	50,196.00	3.25%	24.67%	17.60%	-21.86%	3.42%
Armour	289,925	266,300	305,160	241,490	255,718	-8.15%	14.59%	-20.86%	5.89%	-2.48%
Commercial Low-Flow	-	-	-	-	1,034					
Residential Grandview	-	-	30,755	62,365	58,152			102.78%	-6.76%	
No Charge Water	67,423	77,134	100,637	98,181	85,093	14.40%	30.47%	-2.44%	-13.33%	4.77%
No Charge Gallon Water	-	21,427	3,001	-	-					
Grand Total Water	1,399,270	1,477,243	1,554,060	1,568,807	1,438,638	5.57%	5.20%	0.95%	-8.30%	0.56%

City of Junction City
Water Utility Financial Plan
Table 4: Historical Water Consumption Per Account

	Historical 2009	Historical 2010	Historical 2011	Historical 2012	Historical 2013	% Change 2010	% Change 2011	% Change 2012	% Change 2013	5 Year CAGR	Previous 2013	Average 2 Year	Average 3 Year	Average 4 Year	Average 5 Year
Commercial 1" and Less	146	155	157	167	144	5.72%	1.38%	6.68%	-14.08%	-0.35%	144	155	156	156	154
Commercial 1 1/2"	463	551	679	882	743	18.93%	23.32%	29.91%	-15.83%	9.91%	743	813	768	714	664
Commercial 2"	1,185	1,417	1,292	1,309	1,164	19.65%	-8.82%	1.29%	-11.10%	-0.36%	1,164	1,236	1,255	1,296	1,273
Commercial 3"	2,486	2,067	1,717	1,775	1,592	-16.83%	-16.92%	3.34%	-10.31%	-8.53%	1,592	1,683	1,695	1,788	1,927
Commercial 4"	5,879	8,024	7,331	6,144	7,777	36.48%	-8.64%	-16.19%	26.58%	5.76%	7,777	6,961	7,084	7,319	7,031
Commercial Greater Than 4"															
Total Commercial	324	365	357	376	355	12.58%	-2.20%	5.45%	-5.64%	1.84%	355	366	363	363	355
Residential 1" and Less	79	78	82	86	76	-0.12%	4.17%	5.32%	-11.59%	-0.63%	76	81	81	81	80
Residential 1 1/2"	441	624	312	493	641	41.51%	-49.90%	57.81%	29.95%	7.77%	641	567	482	517	502
Residential 2"	2,336	2,213	2,178	2,464	2,314	-5.28%	-1.57%	13.13%	-6.11%	-0.20%	2,314	2,389	2,319	2,292	2,301
Residential 3"	1,037	9	-	5	31	-99.18%	-100.00%	-	520.00%	-50.44%	31	18	12	11	216
Residential 4"	18,714	20,528	11,885	5,423	5,091	9.68%	-42.10%	-54.37%	-6.12%	-22.92%	5,091	5,257	7,467	10,732	12,328
Residential Greater Than 4"															
Total Residential	90	90	90	91	81	-0.01%	-0.20%	1.72%	-10.98%	-2.01%	81	86	87	88	88
Commercial Irrigation 1" and Less	496	695	790	764	636	39.91%	13.74%	-3.24%	-16.83%	5.07%	636	700	730	721	676
Residential Irrigation 1" and Less	594	460	519	682	529	-22.70%	12.97%	31.27%	-22.34%	-2.30%	529	605	577	547	557
Total Irrigation	558	548	621	714	570	-1.91%	13.34%	14.99%	-20.08%	0.43%	570	642	635	613	602
Armour	289,925	266,300	305,160	241,490	255,718	-8.15%	14.59%	-20.86%	5.89%	-2.48%	255,718	248,604	267,456	267,167	271,719
Commercial Low-Flow	-	-	-	-	85	-	-	-	-	-	85	32	22	16	13
Residential Grandview	-	-	30,755	62,365	58,152	-	-	102.78%	-6.76%	-	58,152	60,259	50,424	37,818	30,254
No Charge Water	1,204	1,377	1,830	1,818	1,547	14.40%	32.84%	-0.63%	-14.91%	5.14%	1,547	1,683	1,732	1,643	1,555
No Charge Gallon Water	-	21,427	3,001	-	-	-	-	-	-	-	-	1,000	6,107	4,886	-
Grand Total Water	159	160	168	168	154	0.65%	5.49%	-0.59%	-7.82%	-0.55%	154	161	163	163	162

City of Junction City
Water Utility Financial Plan
Table 5: Historical Water Consumption By Tier

Class	Tier	Historical 2009	Historical 2010	Historical 2011	Historical 2012	Historical 2013	% Change 2010	% Change 2011	% Change 2012	% Change 2013	5 Year CAGR
Total Commercial	Minimum (CCF)	16,224	16,440	16,536	16,680	16,560	1%	1%	1%	-1%	0%
Total Commercial	Tier 1 (%)	8,437	9,710	9,537	10,182	9,500	15%	-2%	7%	-7%	2%
Total Commercial	Tier 2 (%)	194,325	223,657	219,674	234,542	218,824	15%	-2%	7%	-7%	2%
Total Commercial Consumption		218,986	249,807	245,747	261,404	244,884	14%	-2%	6%	-6%	2%
Total Residential	Minimum (CCF)	208,392	218,640	217,848	221,256	219,720	5%	0%	2%	-1%	1%
Total Residential	Tier 1 (%)	284,992	298,946	297,037	308,786	260,948	5%	-1%	4%	-15%	-2%
Total Residential	Tier 2 (%)	287,117	301,175	299,251	311,088	262,893	5%	-1%	4%	-15%	-2%
Total Residential Consumption		780,501	818,761	814,136	841,130	743,561	5%	-1%	3%	-12%	-1%
Total Irrigation	Minimum (CCF)	1,824	1,920	2,112	2,160	2,112	5%	10%	2%	-2%	3%
Total Irrigation	Tier 1 (%)	207	214	268	316	245	3%	25%	18%	-23%	3%
Total Irrigation	Tier 2 (%)	40,404	41,680	52,244	61,761	47,839	3%	25%	18%	-23%	3%
Total Irrigation Consumption		42,435	43,814	54,624	64,237	50,196	3%	25%	18%	-22%	3%
Armour	Minimum (CCF)	-	-	-	-	-					
Armour	Tier 1 (%)	-	-	-	-	-					
Armour	Tier 2 (%)	289,925	266,300	305,160	241,490	255,718	-8%	15%	-21%	6%	-2%
Armour Minimum		289,925	266,300	305,160	241,490	255,718	-8%	15%	-21%	6%	-2%
Commercial Low-Flow	Minimum (CCF)	-	-	-	-	384					
Commercial Low-Flow	Tier 1 (%)	-	-	-	-	27					
Commercial Low-Flow	Tier 2 (%)	-	-	-	-	623					
Commercial Low-Flow Minimum		-	-	-	-	1,034					
Residential Grandview	Minimum (CCF)	-	-	24	24	24			0%	0%	
Residential Grandview	Tier 1 (%)	-	-	30,731	62,341	58,128			103%	-7%	
Residential Grandview	Tier 2 (%)	-	-	-	-	-					
Residential Grandview Minimum		-	-	30,755	62,365	58,152					
No Charge Water	Minimum (CCF)	1,344	1,344	1,320	1,296	1,320	0%	-2%	-2%	2%	0%
No Charge Water	Tier 1 (%)	-	-	-	-	-					
No Charge Water	Tier 2 (%)	66,079	75,790	99,317	96,885	83,773	15%	31%	-2%	-14%	5%
No Charge Water Minimum		67,423	77,134	100,637	98,181	85,093	14%	30%	-2%	-13%	5%
No Charge Gallon Water	Minimum (CCF)	24	24	24	24	24	0%	0%	0%	0%	0%
No Charge Gallon Water	Tier 1 (%)	-	-	-	-	-					
No Charge Gallon Water	Tier 2 (%)	(24)	21,403	2,977	(24)	(24)	-89279%	-86%	-101%	0%	0%
No Charge Gallon Water Minimum		-	21,427	3,001	-	-		-86%	-100%		
Total Minimum	Minimum (CCF)	227,808	238,368	237,864	241,440	240,144	5%	0%	2%	-1%	1%
Total Tier 1	Tier 1 (%)	293,636	308,870	337,573	381,626	328,848	5%	9%	13%	-14%	2%
Total Tier 2	Tier 2 (%)	877,826	930,005	978,623	945,741	869,646	6%	5%	-3%	-8%	0%
Grand Total Water Consumption		1,399,270	1,477,243	1,554,060	1,568,807	1,438,638	6%	5%	1%	-8%	1%

Forecast Water Units of Service

Tables 6 through 11 on the following pages summarize the forecast levels of water customer accounts and water billed consumption. Forecast billed consumption is shown by amounts included in—and greater than—the minimum allotment, by tier and overall.

Table 6 indicates the forecast of water customer accounts. Though the historical data do indicate that some account growth occurred over the 5 year historical period, the rate, on average was fairly modest. Additionally, there was a fair amount of variation over the years examined. Consequently, water accounts have been forecast at their 2013 levels, both in the test year, and the ten year forecast period.

Table 7 indicates the forecast of water consumption per customer account. This forecast is based on the average consumption per account—by customer class—observed in 2013. Compared to the

historical data, this is a relatively conservative forecast, given that consumption per account was higher in years prior to 2013. However, the overall trend is toward declining per customer consumption. Consequently, we feel the low, yet stable forecast of consumption per account is not an unreasonable estimate.

Table 8 indicates the forecast consumption which is included in the minimum allotment and against which—under the current rate structure—the water volume rates would not be applied. This forecast represents the forecast number of accounts indicated in multiplied by 2 CCF per account, and again by each of the 12 monthly bills.

Table 9 summarizes the forecast of consumption greater than the minimum allotment. This was determined by subtracting the minimum allotment—by class and meter size—from the forecast of total billed consumption.

Table 10 indicates the forecast of total billed consumption. Total billed consumption was determined by multiplying the forecast of water accounts, by the forecast water consumption per account.

Table 11 summarizes the forecast water consumption by tier. A forecast of consumption by tier is necessary to determine the level of volumetric revenue which is forecast to be generated in the test year, and the forecast period, under existing rates. Forecast consumption by tier was determined by subtracting the forecast of minimum consumption (by customer class) from total billed consumption (by customer class) and applying the percentages determined in the bill frequency analysis.

*City of Junction City
Water Utility Financial Plan
Table 6: Forecast Water Accounts*

Class	Historical	Test Year	Forecast									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Commercial 1" and Less	586	586	586	586	586	586	586	586	586	586	586	586
Commercial 1 1/2"	31	31	31	31	31	31	31	31	31	31	31	31
Commercial 2"	51	51	51	51	51	51	51	51	51	51	51	51
Commercial 3"	15	15	15	15	15	15	15	15	15	15	15	15
Commercial 4"	7	7	7	7	7	7	7	7	7	7	7	7
Commercial Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-	-
Total Commercial	690											
Residential 1" and Less	9,123	9,123	9,123	9,123	9,123	9,123	9,123	9,123	9,123	9,123	9,123	9,123
Residential 1 1/2"	17	17	17	17	17	17	17	17	17	17	17	17
Residential 2"	10	10	10	10	10	10	10	10	10	10	10	10
Residential 3"	2	2	2	2	2	2	2	2	2	2	2	2
Residential 4"	3	3	3	3	3	3	3	3	3	3	3	3
Residential Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-	-
Total Residential	9,155											
Commercial Irrigation 1" and Less	34	34	34	34	34	34	34	34	34	34	34	34
Residential Irrigation 1" and Less	54	54	54	54	54	54	54	54	54	54	54	54
Total Irrigation	88											
Armour	1											
Commercial Low-Flow	16											
Residential Grandview	1											
No Charge Water	55											
No Charge Gallon Water	1											
Grand Total Water	10,007											

*City of Junction City
Water Utility Financial Plan
Table 7: Forecast Water Consumption Per Account*

	Test Year	Forecast									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Commercial 1" and Less	144	144	144	144	144	144	144	144	144	144	144
Commercial 1 1/2"	743	743	743	743	743	743	743	743	743	743	743
Commercial 2"	1,164	1,164	1,164	1,164	1,164	1,164	1,164	1,164	1,164	1,164	1,164
Commercial 3"	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592	1,592
Commercial 4"	7,777	7,777	7,777	7,777	7,777	7,777	7,777	7,777	7,777	7,777	7,777
Commercial Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Commercial											
Residential 1" and Less	76	76	76	76	76	76	76	76	76	76	76
Residential 1 1/2"	641	641	641	641	641	641	641	641	641	641	641
Residential 2"	2,314	2,314	2,314	2,314	2,314	2,314	2,314	2,314	2,314	2,314	2,314
Residential 3"	31	31	31	31	31	31	31	31	31	31	31
Residential 4"	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091	5,091
Residential Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Residential											
Commercial Irrigation 1" and Less	636	636	636	636	636	636	636	636	636	636	636
Residential Irrigation 1" and Less	529	529	529	529	529	529	529	529	529	529	529
Total Irrigation											
Armour	255,718										
Commercial Low-Flow	65										
Residential Grandview	58,152										
No Charge Water	1,547										
No Charge Gallon Water	-										

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Table 8: Forecast Minimum Consumption

	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial 1" and Less	14,064	14,064	14,064	14,064	14,064	14,064	14,064	14,064	14,064	14,064	14,064
Commercial 1 1/2"	744	744	744	744	744	744	744	744	744	744	744
Commercial 2"	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224	1,224
Commercial 3"	360	360	360	360	360	360	360	360	360	360	360
Commercial 4"	168	168	168	168	168	168	168	168	168	168	168
Commercial Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Commercial Minimum	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560
Residential 1" and Less	218,952	218,952	218,952	218,952	218,952	218,952	218,952	218,952	218,952	218,952	218,952
Residential 1 1/2"	408	408	408	408	408	408	408	408	408	408	408
Residential 2"	240	240	240	240	240	240	240	240	240	240	240
Residential 3"	48	48	48	48	48	48	48	48	48	48	48
Residential 4"	72	72	72	72	72	72	72	72	72	72	72
Residential Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Residential Minimum	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720
Commercial Irrigation 1" and Less	816	816	816	816	816	816	816	816	816	816	816
Residential Irrigation 1" and Less	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296
Total Irrigation Minimum	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112
Armour	-	-	-	-	-	-	-	-	-	-	-
Commercial Low-Flow	-	-	-	-	-	-	-	-	-	-	-
Residential Grandview	-	-	-	-	-	-	-	-	-	-	-
No Charge Water	-	-	-	-	-	-	-	-	-	-	-
No Charge Gallon Water	-	-	-	-	-	-	-	-	-	-	-
Grand Total Water	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392

City of Junction City
Water Utility Financial Plan
Table 9: Forecast Consumption>Minimum

	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial 1" and Less	70,130	70,130	70,130	70,130	70,130	70,130	70,130	70,130	70,130	70,130	70,130
Commercial 1 1/2"	22,281	22,281	22,281	22,281	22,281	22,281	22,281	22,281	22,281	22,281	22,281
Commercial 2"	58,123	58,123	58,123	58,123	58,123	58,123	58,123	58,123	58,123	58,123	58,123
Commercial 3"	23,518	23,518	23,518	23,518	23,518	23,518	23,518	23,518	23,518	23,518	23,518
Commercial 4"	54,272	54,272	54,272	54,272	54,272	54,272	54,272	54,272	54,272	54,272	54,272
Commercial Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Commercial>Minimum	228,324	228,324	228,324	228,324	228,324	228,324	228,324	228,324	228,324	228,324	228,324
Residential 1" and Less	475,247	475,247	475,247	475,247	475,247	475,247	475,247	475,247	475,247	475,247	475,247
Residential 1 1/2"	10,483	10,483	10,483	10,483	10,483	10,483	10,483	10,483	10,483	10,483	10,483
Residential 2"	22,895	22,895	22,895	22,895	22,895	22,895	22,895	22,895	22,895	22,895	22,895
Residential 3"	14	14	14	14	14	14	14	14	14	14	14
Residential 4"	15,202	15,202	15,202	15,202	15,202	15,202	15,202	15,202	15,202	15,202	15,202
Residential Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Residential>Minimum	523,841	523,841	523,841	523,841	523,841	523,841	523,841	523,841	523,841	523,841	523,841
Commercial Irrigation 1" and Less	20,799	20,799	20,799	20,799	20,799	20,799	20,799	20,799	20,799	20,799	20,799
Residential Irrigation 1" and Less	27,285	27,285	27,285	27,285	27,285	27,285	27,285	27,285	27,285	27,285	27,285
Total Irrigation>Minimum	48,084	48,084	48,084	48,084	48,084	48,084	48,084	48,084	48,084	48,084	48,084
Armour	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718
Commercial Low-Flow	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034
Residential Grandview	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152
No Charge Water	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093
No Charge Gallon Water	-	-	-	-	-	-	-	-	-	-	-
Grand Total Water	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246	1,200,246

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Water Utility Financial Plan*

Table 10: Forecast Water Consumption

	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial 1" and Less	84,194	84,194	84,194	84,194	84,194	84,194	84,194	84,194	84,194	84,194	84,194
Commercial 1 1/2"	23,025	23,025	23,025	23,025	23,025	23,025	23,025	23,025	23,025	23,025	23,025
Commercial 2"	59,347	59,347	59,347	59,347	59,347	59,347	59,347	59,347	59,347	59,347	59,347
Commercial 3"	23,878	23,878	23,878	23,878	23,878	23,878	23,878	23,878	23,878	23,878	23,878
Commercial 4"	54,440	54,440	54,440	54,440	54,440	54,440	54,440	54,440	54,440	54,440	54,440
Commercial Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Commercial Consumption	244,884	244,884	244,884	244,884	244,884	244,884	244,884	244,884	244,884	244,884	244,884
Residential 1" and Less	694,199	694,199	694,199	694,199	694,199	694,199	694,199	694,199	694,199	694,199	694,199
Residential 1 1/2"	10,891	10,891	10,891	10,891	10,891	10,891	10,891	10,891	10,891	10,891	10,891
Residential 2"	23,135	23,135	23,135	23,135	23,135	23,135	23,135	23,135	23,135	23,135	23,135
Residential 3"	62	62	62	62	62	62	62	62	62	62	62
Residential 4"	15,274	15,274	15,274	15,274	15,274	15,274	15,274	15,274	15,274	15,274	15,274
Residential Greater Than 4"	-	-	-	-	-	-	-	-	-	-	-
Total Residential Consumption	743,561	743,561	743,561	743,561	743,561	743,561	743,561	743,561	743,561	743,561	743,561
Commercial Irrigation 1" and Less	21,615	21,615	21,615	21,615	21,615	21,615	21,615	21,615	21,615	21,615	21,615
Residential Irrigation 1" and Less	28,581	28,581	28,581	28,581	28,581	28,581	28,581	28,581	28,581	28,581	28,581
Total Irrigation Consumption	50,196	50,196	50,196	50,196	50,196	50,196	50,196	50,196	50,196	50,196	50,196
Armour	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718
Commercial Low-Flow	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034	1,034
Residential Grandview	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152
No Charge Water	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093
No Charge Gallon Water	-	-	-	-	-	-	-	-	-	-	-
Grand Total Water	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638	1,438,638

City of Junction City
Water Utility Financial Plan
Table 11: Forecast Water Consumption By Tier

Class	Tier	Test Year	Forecast									
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Commercial Minimum	Minimum	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560	16,560
Total Commercial Tier 1	Tier 1 (%)	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500
Total Commercial Tier 2	Tier 2 (%)	218,824	218,824	218,824	218,824	218,824	218,824	218,824	218,824	218,824	218,824	218,824
Total Commercial Consumption		244,884										
Total Residential Minimum	Minimum	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720	219,720
Total Residential Tier 1	Tier 1 (%)	260,948	260,948	260,948	260,948	260,948	260,948	260,948	260,948	260,948	260,948	260,948
Total Residential Tier 2	Tier 2 (%)	262,893	262,893	262,893	262,893	262,893	262,893	262,893	262,893	262,893	262,893	262,893
Total Residential Consumption		743,561										
Total Irrigation Minimum	Minimum	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112
Total Irrigation Tier 1	Tier 1 (%)	245	245	245	245	245	245	245	245	245	245	245
Total Irrigation Tier 2	Tier 2 (%)	47,839	47,839	47,839	47,839	47,839	47,839	47,839	47,839	47,839	47,839	47,839
Total Irrigation Consumption		50,196										
Total Armour Minimum	Minimum	-	-	-	-	-	-	-	-	-	-	-
Armour Tier 1	Tier 1 (%)	-	-	-	-	-	-	-	-	-	-	-
Armour Tier 2	Tier 2 (%)	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718	255,718
Armour		255,718										
Commercial Low-Flow	Minimum	-	-	-	-	-	-	-	-	-	-	-
Commercial Low-Flow Tier 1	Tier 1 (%)	43	43	43	43	43	43	43	43	43	43	43
Commercial Low-Flow Tier 2	Tier 2 (%)	991	991	991	991	991	991	991	991	991	991	991
Commercial Low-Flow		1,034										
Residential Grandview	Minimum	-	-	-	-	-	-	-	-	-	-	-
Residential Grandview Tier 1	Tier 1 (%)	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152	58,152
Residential Grandview Tier 2	Tier 2 (%)	-	-	-	-	-	-	-	-	-	-	-
Residential Grandview		58,152										
No Charge Water	Minimum	-	-	-	-	-	-	-	-	-	-	-
No Charge Water Tier 1	Tier 1 (%)	-	-	-	-	-	-	-	-	-	-	-
No Charge Water Tier 2	Tier 2 (%)	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093	85,093
No Charge Water		85,093										
No Charge Gallon Water	Minimum	-	-	-	-	-	-	-	-	-	-	-
No Charge Gallon Water Tier 1	Tier 1 (%)	-	-	-	-	-	-	-	-	-	-	-
No Charge Gallon Water Tier 2	Tier 2 (%)	-	-	-	-	-	-	-	-	-	-	-
No Charge Gallon Water		-										
Total Minimum	Minimum	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392	238,392
Total Tier 1	Tier 1 (%)	328,888	328,888	328,888	328,888	328,888	328,888	328,888	328,888	328,888	328,888	328,888
Total Tier 2	Tier 2 (%)	871,358	871,358	871,358	871,358	871,358	871,358	871,358	871,358	871,358	871,358	871,358
Grand Total Water Consumption		1,438,638										

Water Revenue under Existing Rates

Tables 12 through 14 on the following pages indicate the level of volumetric, fixed and total revenue forecast to be generated under the City’s existing water rates.

Table 12 indicates the forecast level of volumetric revenue. This forecast was determined by multiplying the forecast consumption in each tier by the volumetric rate for that tier. Under the City’s existing rates, volumetric revenues are forecast to be approximately \$2.2 Million per year—in the test year—and throughout the forecast. This represents approximately 50% of total water revenues.

Table 13 indicates the forecast of fixed charge revenue. This forecast was determined by multiplying the number of accounts forecast at each meter size, by the minimum charge for that meter size, and again by 12 for each of the monthly bills. Under the City’s existing rates, fixed charge revenue is forecast to be approximately 2.2 Million per year—in the test year—and throughout the forecast period. This represents approximately 50% of total water revenues.

Total water utility rate revenues are forecast to be 4.4 Million per year—in the test year—and throughout the forecast period.

City of Junction City Water Utility Financial Plan Table 12: Forecast Water Volumetric Revenue											
Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Total Commercial Minimum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Commercial Tier 1	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570	\$ 19,570
Total Commercial Tier 2	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613	\$ 518,613
Total Commercial Volumetric	\$ 538,183										
Total Residential Minimum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Residential Tier 1	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553	\$ 537,553
Total Residential Tier 2	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056	\$ 623,056
Total Residential Volumetric	\$ 1,160,609										
Total Irrigation Minimum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Irrigation Tier 1	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505	\$ 505
Total Irrigation Tier 2	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378	\$ 113,378
Total Irrigation Volumetric	\$ 113,883										
Total Armour Minimum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Armour Tier 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Armour Tier 2	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032
Armour Volumetric	\$ 225,032										
Commercial Low-Flow	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial Low-Flow Tier 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial Low-Flow Tier 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial Low-Flow Volumetric	\$ -										
Residential Grandview	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Grandview Tier 1	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793
Residential Grandview Tier 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Grandview Volumetric	\$ 119,793										
No Charge Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Water Tier 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Water Tier 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Water Volumetric	\$ -										
No Charge Gallon Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water Tier 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water Tier 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water Volumetric	\$ -										
Total Minimum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Tier 1	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421	\$ 677,421
Total Tier 2	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047	\$ 1,255,047
Armour	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032
No Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total Water Consumption	\$ 2,157,500										

**City of Junction City
Water Utility Financial Plan
Table 13: Forecast Water Fixed Charge Revenue**

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Commercial 1" and Less	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723	\$ 112,723
Commercial 1 1/2"	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393	\$ 37,393
Commercial 2"	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666	\$ 121,666
Commercial 3"	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911	\$ 52,911
Commercial 4"	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736	\$ 32,736
Commercial Greater Than 4"	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Commercial Fixed Charge	\$ 357,429										
Residential 1" and Less	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900	\$ 1,754,900
Residential 1 1/2"	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506	\$ 20,506
Residential 2"	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856	\$ 23,856
Residential 3"	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055	\$ 7,055
Residential 4"	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030	\$ 14,030
Residential Greater Than 4"	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Residential Fixed Charge	\$ 1,820,347										
Commercial Irrigation 1" and Less	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540	\$ 6,540
Residential Irrigation 1" and Less	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387	\$ 10,387
Total Irrigation Fixed Charge	\$ 16,928										
Armour	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial Low-Flow	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Grandview	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585
No Charge Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total Water	\$ 2,200,289										

**City of Junction City
Water Utility Financial Plan
Table 14: Summary of Total Water Revenue at Existing Rates**

Class	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Total Commercial Volumetric	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183	\$ 538,183
Total Residential Volumetric	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609	\$ 1,160,609
Total Irrigation Volumetric	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883	\$ 113,883
Armour Volumetric	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032	\$ 225,032
Commercial Low-Flow Volumetric	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Grandview Volumetric	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793	\$ 119,793
No Charge Water Volumetric	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water Volumetric	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Volumetric Water Rate Revenue	2,157,500										
Total Commercial Fixed Charge	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429	\$ 357,429
Total Residential Fixed Charge	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347	\$ 1,820,347
Total Irrigation Fixed Charge	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928	\$ 16,928
Armour	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Commercial Low-Flow	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Grandview	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585	\$ 5,585
No Charge Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Charge Gallon Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fixed Charge Water Rate Revenue	\$ 2,200,289										
Grand Total Water Revenue at Existing Rates	\$ 4,357,789										

3.2.2 Forecast Water Operation and Maintenance Expenditures

Water O&M Inflation Rates

The budgets provided by the City are the basis for the forecast of water utility O&M expenditures. To forecast the level of water utility O&M expenditures over the forecast period we applied the escalation rates shown in Table 15. The rates indicated were developed based on discussions with City staff and our experience with similar utilities.

City of Junction City
Water Utility Financial Plan
Table 15: Water O&M Escalation Rates

	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Salaries and Wages	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Medical	0.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Benefits	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Pension	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Chemicals	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
General	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Materials/Supplies	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Vehicle	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Maintenance	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Telecommunications	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Utilities-Electric	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Utilities-Gas	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Bad Debt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Capital Outlay	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Transfer to Other Funds	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Contract Operations-Veolia	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Forecast Water Utility O&M Expenditures

Table 16 below summarizes the forecast O&M expenditures by department and major cost center. The majority of O&M expenditures relate to the water plant production department, under which the line item associated with the City’s contract water treatment plant operator, Veolia Water, falls. Second to expenditures associated with the water treatment plant, are those relating to water administration, which handles the general administrative duties of the water utility, as well as meter reading, billing and collection and customer service. Finally, water distribution relates to the maintenance of the City’s distribution system, which includes piping, valves, hydrants and storage tanks. The total level O&M expenditures is forecast to be \$3.2 Million in the test year, rising to 4.7 Million, by the end of the ten year forecast period.

City of Junction City
Water Utility Financial Plan
Table 16: Forecast Water O&M Expenditures

Look-Up Code	Department	Test Year 2014	Forecast 2016	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
15-5-34	WATER ADMINISTRATION											
	Subtotal Personnel	\$ 373,584	\$ 386,631	\$ 400,199	\$ 414,314	\$ 429,003	\$ 444,294	\$ 460,217	\$ 476,804	\$ 494,088	\$ 512,106	\$ 530,895
	Subtotal Commodities	\$ 59,000	\$ 60,770	\$ 62,593	\$ 64,471	\$ 66,405	\$ 68,397	\$ 70,449	\$ 72,563	\$ 74,739	\$ 76,982	\$ 79,291
	Subtotal Contract Service	\$ 206,256	\$ 212,169	\$ 218,267	\$ 224,556	\$ 231,043	\$ 237,734	\$ 244,635	\$ 251,754	\$ 259,096	\$ 266,671	\$ 274,484
	Subtotal Capital	\$ 17,500	\$ 18,025	\$ 18,566	\$ 19,123	\$ 19,696	\$ 20,287	\$ 20,896	\$ 21,523	\$ 22,168	\$ 22,834	\$ 23,519
	Subtotal Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal Debt & Transfers	\$ 485,000	\$ 499,550	\$ 514,537	\$ 529,973	\$ 545,872	\$ 562,248	\$ 579,115	\$ 596,489	\$ 614,383	\$ 632,815	\$ 651,799
	TOTAL WATER ADMINISTRATION	\$ 1,141,340	\$ 1,177,144	\$ 1,214,161	\$ 1,252,437	\$ 1,292,020	\$ 1,332,961	\$ 1,375,313	\$ 1,419,132	\$ 1,464,476	\$ 1,511,407	\$ 1,559,988
15-5-32	WATER DISTRIBUTION											
	Subtotal Personnel	\$ 254,499	\$ 263,327	\$ 272,504	\$ 282,046	\$ 291,971	\$ 302,297	\$ 313,044	\$ 324,233	\$ 335,886	\$ 348,026	\$ 360,678
	Subtotal Commodities	\$ 120,625	\$ 124,254	\$ 127,992	\$ 131,843	\$ 135,809	\$ 139,896	\$ 144,106	\$ 148,442	\$ 152,909	\$ 157,512	\$ 162,252
	Subtotal Contract Services	\$ 72,500	\$ 74,750	\$ 77,072	\$ 79,467	\$ 81,939	\$ 84,489	\$ 87,122	\$ 89,838	\$ 92,642	\$ 95,536	\$ 98,523
	Subtotal Capital	\$ 50,247	\$ 51,691	\$ 53,179	\$ 54,712	\$ 56,290	\$ 57,916	\$ 59,590	\$ 61,315	\$ 63,092	\$ 64,922	\$ 66,806
	TOTAL WATER OPERATIONS	\$ 497,871	\$ 514,022	\$ 530,746	\$ 548,067	\$ 566,009	\$ 584,598	\$ 603,861	\$ 623,828	\$ 644,529	\$ 665,995	\$ 688,260
15-5-33	WATER PLANT PRODUCTION											
	Total Contract Services	\$ 1,597,665	\$ 1,669,393	\$ 1,744,463	\$ 1,823,034	\$ 1,905,274	\$ 1,991,359	\$ 2,081,473	\$ 2,175,808	\$ 2,274,569	\$ 2,377,966	\$ 2,486,224
	Total Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	TOTAL WATER PRODUCTION	\$ 1,597,665	\$ 1,669,393	\$ 1,744,463	\$ 1,823,034	\$ 1,905,274	\$ 1,991,359	\$ 2,081,473	\$ 2,175,808	\$ 2,274,569	\$ 2,377,966	\$ 2,486,224
	TOTAL WATER FUND O&M EXPENSES	\$ 3,236,876	\$ 3,360,560	\$ 3,489,370	\$ 3,623,538	\$ 3,763,303	\$ 3,908,917	\$ 4,060,647	\$ 4,218,769	\$ 4,383,574	\$ 4,555,368	\$ 4,734,472

3.2.3 Forecast Water Utility Capital Improvements and Financing

Tables 17 and 18 below indicate a summary of the planned water capital improvements and anticipated financing sources. Table 19 indicates a forecast of the City's forecast debt service.

As Table 17 indicates the general level of capital expenditures throughout the forecast period is approximately \$3 Million. This amount relates to distribution system projects identified in the City's Water Master Plan. As indicated however, capital expenditures are larger in 2017, 2019 and 2022. These represent the years in which major upgrades to the City's water treatment plant ("WTP") are anticipated to occur.

Table 18 indicates the sources of financing for the projects summarized in Table 17. At this time, the City plans to finance nearly all of the planned capital improvements via loans from the Kansas Public Water Supply Loan Fund ("KPWSLF"). Cash financing, generated from the City's existing debt service coverage requirements will comprise the remaining CIP funding.

Table 19 summarizes a forecast of the City's debt service, including the anticipated KPWSLF loans.

City of Junction City Water Utility Financial Plan Table 17: Water Capital Improvements Program											
Project	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Plant Raw Water Meter	\$ -	\$ -	\$ -	\$ 13,726	\$ 14,104	\$ 115,851	\$ -	\$ -	\$ -	\$ -	\$ -
High and Low Service Pipe Painting/Meters/Surge Valves	\$ -	\$ -	\$ -	\$ 20,693	\$ 21,252	\$ 174,570	\$ -	\$ -	\$ -	\$ -	\$ -
Horizontal Collector Well/Repair Well Controls (#6, 11, 17)	\$ 648,945	\$ 608,413	\$ -	\$ 5,658,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Recarbonation (Carbon Dioxide Feed)	\$ 130,238	\$ 134,145	\$ -	\$ 1,135,671	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lime Sludge Improvements	\$ 123,165	\$ 126,860	\$ -	\$ 1,073,999	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lime Sludge Decant to Sanitary Sewer	\$ -	\$ -	\$ -	\$ 3,761	\$ 3,864	\$ 31,740	\$ -	\$ -	\$ -	\$ -	\$ -
Liquid Ferric Sulfate Feed System	\$ -	\$ -	\$ -	\$ 152,676	\$ 156,878	\$ 1,288,644	\$ -	\$ -	\$ -	\$ -	\$ -
Liquid Polymer Feed System	\$ -	\$ -	\$ -	\$ 12,599	\$ 12,944	\$ 108,329	\$ -	\$ -	\$ -	\$ -	\$ -
Lime System Improvements	\$ 13,283	\$ 13,681	\$ -	\$ 115,823	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Flouride Feed System	\$ 11,558	\$ 11,904	\$ -	\$ 100,781	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chemical Containment	\$ 3,105	\$ 3,198	\$ -	\$ 27,076	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Filter Effluent Turbidimeters	\$ 3,278	\$ 3,376	\$ -	\$ 28,580	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Filter Media	\$ -	\$ -	\$ -	\$ 30,836	\$ 31,685	\$ 260,268	\$ -	\$ -	\$ -	\$ -	\$ -
Chloramines Conversion (Ammonia Feed)	\$ 23,633	\$ 24,341	\$ -	\$ 206,075	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Chlorine Gas Feed System Improvements	\$ 10,868	\$ 11,194	\$ -	\$ 94,765	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
High and Low Service Pump Upgrades/Electrical	\$ 131,618	\$ 135,566	\$ -	\$ 1,147,705	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Transfer Pumps	\$ -	\$ -	\$ -	\$ 32,520	\$ 33,424	\$ 274,551	\$ -	\$ -	\$ -	\$ -	\$ -
Elevated Water Storage Tank in High Pressure Zone	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ground Clearwell Improvements (Painting and Mixing)	\$ 93,495	\$ 96,300	\$ -	\$ 815,276	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Additional Ground Storage Clearwell	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plant/Well Emergency Power	\$ 36,225	\$ 37,312	\$ -	\$ 315,882	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SCADA/Well Controls	\$ -	\$ -	\$ -	\$ 90,916	\$ 93,316	\$ 958,151	\$ -	\$ -	\$ -	\$ -	\$ -
Clean Piping and Basin Weirs of Deposition	\$ 9,488	\$ 9,772	\$ -	\$ 62,731	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Paint Plant Piping and Equipment	\$ -	\$ -	\$ -	\$ 11,282	\$ 11,592	\$ 95,220	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Roof and Skylights	\$ 46,748	\$ 48,150	\$ -	\$ 407,638	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
HVAC Improvements	\$ 19,258	\$ 19,837	\$ -	\$ 185,120	\$ 17,649	\$ 144,972	\$ -	\$ -	\$ -	\$ -	\$ -
Re-Pave Plant Roadway	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Gravel Surface Well Field Roadway	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Bulk Water Station	\$ 129,375	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Conservation Rates	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Customer Meter Replacements	\$ 900,000	\$ 927,000	\$ 954,000	\$ 981,000	\$ 224,000	\$ 230,000	\$ 236,000	\$ 242,000	\$ 248,000	\$ 254,000	\$ 260,000
Water Distribution System Sample Stations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 41,400	\$ 42,480	\$ 43,560	\$ -	\$ -	\$ -
Distribution System Tank Inspections	\$ 40,000	\$ 41,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Spruce Street Booster Pump Station Overhaul	\$ -	\$ 53,663	\$ 276,130	\$ 227,156	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Distribution A	\$ 28,816	\$ 296,804	\$ 305,449	\$ 314,094	\$ 322,739	\$ 331,383	\$ 340,028	\$ 348,673	\$ 357,318	\$ 365,962	\$ 374,607
Distribution B	\$ 28,816	\$ 576,000	\$ 592,777	\$ 609,554	\$ 626,330	\$ 643,107	\$ 659,884	\$ 676,661	\$ 693,437	\$ 710,214	\$ 726,991
Distribution C	\$ 28,816	\$ 695,576	\$ 705,544	\$ 725,512	\$ 745,481	\$ 765,449	\$ 785,417	\$ 805,385	\$ 825,354	\$ 845,322	\$ 865,290
West of Spring Valley	\$ 28,816	\$ 610,583	\$ 628,367	\$ 648,151	\$ 663,935	\$ 681,719	\$ 699,503	\$ 717,287	\$ 735,071	\$ 752,855	\$ 770,639
Other System Recapitalization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Water Capital Improvements	\$ 2,489,539	\$ 4,534,876	\$ 3,462,267	\$ 15,268,295	\$ 2,979,192	\$ 6,143,355	\$ 2,763,312	\$ 2,833,566	\$ 2,859,180	\$ 2,928,353	\$ 2,997,527
Water Treatment Plant Projects	\$ 2,374,275	\$ 2,365,912	\$ 1,230,130	\$ 12,972,983	\$ 620,707	\$ 3,721,697	\$ 278,480	\$ 285,560	\$ 248,000	\$ 254,000	\$ 260,000
Distribution System Projects	\$ 115,264	\$ 2,188,964	\$ 2,232,137	\$ 2,295,311	\$ 2,358,485	\$ 2,421,659	\$ 2,484,832	\$ 2,548,006	\$ 2,611,180	\$ 2,674,353	\$ 2,737,527
Other System Recapitalization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Water Capital Improvements	\$ 2,489,539	\$ 4,534,876	\$ 3,462,267	\$ 15,268,295	\$ 2,979,192	\$ 6,143,355	\$ 2,763,312	\$ 2,833,566	\$ 2,859,180	\$ 2,928,353	\$ 2,997,527

City of Junction City
Water Utility Financial Plan
Table 18: Water Utility CIP Financing Plan

	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Determination of Current Year Funds Available for CIP											
Beginning Construction Fund Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Carry-Over CIP from Previous Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sources of CIP Funds											
Current Year Funds Available for CIP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
KPWSLF Loan Proceeds (Water)	\$ 491,999	\$ 4,055,152	\$ 2,977,153	\$ 14,339,995	\$ 1,989,138	\$ 5,671,714	\$ 1,772,173	\$ 2,345,292	\$ 2,371,035	\$ 1,938,044	\$ 2,510,077
Water Revenue Bonds Issued	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Rate Revenue CIP Financing (Cash)	\$ 2,000,000	\$ 500,000	\$ 500,000	\$ 1,000,000	\$ 1,000,000	\$ 500,000	\$ 1,000,000	\$ 500,000	\$ 500,000	\$ 1,000,000	\$ 500,000
	\$ 2,491,999	\$ 4,555,152	\$ 3,477,153	\$ 15,339,995	\$ 2,989,138	\$ 6,171,714	\$ 2,772,173	\$ 2,845,292	\$ 2,871,035	\$ 2,938,044	\$ 3,010,077
Uses of CIP Funds											
Water Treatment Plant Projects	\$ 2,374,275	\$ 2,365,912	\$ 1,230,130	\$ 12,972,983	\$ 620,707	\$ 3,721,697	\$ 278,480	\$ 285,560	\$ 248,000	\$ 254,000	\$ 260,000
Distribution System Projects	\$ 115,264	\$ 2,168,964	\$ 2,232,137	\$ 2,295,311	\$ 2,359,485	\$ 2,421,659	\$ 2,484,832	\$ 2,548,006	\$ 2,611,180	\$ 2,674,353	\$ 2,737,527
Other System Recapitalization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
KPWSLF Issuance Costs	\$ 2,460	\$ 20,276	\$ 14,886	\$ 71,700	\$ 9,946	\$ 28,359	\$ 8,861	\$ 11,726	\$ 11,855	\$ 9,690	\$ 12,550
Water Revenue Bond Issuance Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ 2,491,999	\$ 4,555,152	\$ 3,477,153	\$ 15,339,995	\$ 2,989,138	\$ 6,171,714	\$ 2,772,173	\$ 2,845,292	\$ 2,871,035	\$ 2,938,044	\$ 3,010,077
Ending Construction Fund Balance											
Target Balance	0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

City of Junction City
Water Utility Financial Plan
Table 19: Water Utility Forecast Debt Service

Debt Issue	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
Total KPWSLF Debt											
Total KPWSLF Principal	\$ 46,510	\$ 68,603	\$ 236,635	\$ 365,364	\$ 961,024	\$ 1,069,458	\$ 1,331,081	\$ 1,440,925	\$ 1,550,734	\$ 1,663,606	\$ 1,788,535
Total KPWSLF Interest	\$ 29,400	\$ 90,057	\$ 184,252	\$ 415,216	\$ 629,026	\$ 707,236	\$ 779,451	\$ 798,701	\$ 823,131	\$ 839,818	\$ 855,128
Total KPWSLF Service Fee	\$ 2,053	\$ 1,888	\$ 1,717	\$ 1,537	\$ 1,350	\$ 1,155	\$ 951	\$ 739	\$ 517	\$ 425	\$ 379
Total KPWSLF Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total KPWSLF Total Debt Service	\$ 77,963	\$ 160,549	\$ 422,604	\$ 782,117	\$ 1,591,400	\$ 1,777,849	\$ 2,111,484	\$ 2,240,365	\$ 2,374,382	\$ 2,503,849	\$ 2,644,042
Total KPWSLF Total Outstanding Debt	\$ 1,043,544	\$ 5,030,092	\$ 7,770,610	\$ 21,745,241	\$ 22,773,355	\$ 27,375,611	\$ 27,816,703	\$ 28,721,070	\$ 29,541,370	\$ 29,815,608	\$ 30,537,350
Total Revenue Bond Debt											
Total Revenue Bond Principal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Interest	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Service Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Revenue Bond Total Debt Service	\$ -										
Total Revenue Bond Total Outstanding Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total General Obligation Bond Debt											
Total General Obligation Bond Principal	\$ 874,000	\$ 903,000	\$ 927,000	\$ 696,000	\$ 122,000	\$ 128,000	\$ 132,000	\$ 140,000	\$ 146,000	\$ 154,000	\$ 160,000
Total General Obligation Bond Interest	\$ 193,575	\$ 166,235	\$ 135,992	\$ 102,902	\$ 74,972	\$ 69,157	\$ 63,157	\$ 56,957	\$ 50,325	\$ 43,355	\$ 35,942
Total General Obligation Bond Service Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total General Obligation Bond Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total General Obligation Bond Total Debt Service	\$ 1,067,575	\$ 1,069,235	\$ 1,062,992	\$ 798,902	\$ 196,972	\$ 197,157	\$ 195,157	\$ 196,957	\$ 196,325	\$ 197,355	\$ 195,942
Total General Obligation Bond Total Outstanding Debt	\$ 4,094,000	\$ 3,191,000	\$ 2,264,000	\$ 1,568,000	\$ 1,448,000	\$ 1,318,000	\$ 1,186,000	\$ 1,046,000	\$ 900,000	\$ 746,000	\$ 566,000
Grand Total Debt											
Grand Total Principal	\$ 920,510	\$ 971,603	\$ 1,163,635	\$ 1,061,264	\$ 1,083,024	\$ 1,197,458	\$ 1,463,081	\$ 1,580,925	\$ 1,696,734	\$ 1,817,606	\$ 1,948,535
Grand Total Interest	\$ 222,974	\$ 256,292	\$ 320,244	\$ 518,118	\$ 703,998	\$ 776,393	\$ 842,608	\$ 855,658	\$ 873,455	\$ 883,172	\$ 891,070
Grand Total Service Fee	\$ 2,053	\$ 1,888	\$ 1,717	\$ 1,537	\$ 1,350	\$ 1,155	\$ 951	\$ 739	\$ 517	\$ 425	\$ 379
Grand Total Subsidy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grand Total Debt Service	\$ 1,145,537	\$ 1,229,783	\$ 1,485,596	\$ 1,581,019	\$ 1,788,372	\$ 1,975,006	\$ 2,306,641	\$ 2,437,322	\$ 2,570,706	\$ 2,701,203	\$ 2,839,984
Grand Total Outstanding Debt	\$ 5,137,544	\$ 8,221,092	\$ 10,034,610	\$ 23,313,241	\$ 24,219,355	\$ 28,693,611	\$ 29,002,703	\$ 29,767,070	\$ 30,441,370	\$ 30,561,608	\$ 31,123,350

3.2.4 Water Utility Cash Flow Forecast

The final step in the development of the water utility financial business plan is the cash flow forecast. The results of the cash flow forecast are indicated in Table 20 on the following page. The cash flow forecast contains 4 components:

- Forecast of Water Utility Revenues
- Forecast of Water Utility Revenue Requirements
- Operating Performance
- Debt Service Coverage Calculation

Forecast of Water Utility Revenues

The forecast of water utility revenues includes both the revenue under existing water rates, as well as the additional revenue generated by the forecast rate increases. For example, in the test year, it is anticipated that existing rates will generate \$4.4 Million. To ensure adequate recovery of the water utility's revenue requirements, it is anticipated that additional revenue will be needed in the test year. This revenue will be generated by a July 1 (6 months) rate increase of 7%. The total test year revenue, \$4.9 Million, represents the revenue under the City's existing rates, plus non-rate revenue, plus additional revenue generated by the anticipated rate increase.

Forecast of Water Utility Revenue Requirements

The forecast of water utility revenue requirements includes the O&M expenditures discussed previously, existing and proposed debt service, cash funded capital improvements, and transfers to the operating reserve. The test year total of \$4.9 Million, represents the gross revenue requirement (i.e. before any offset from non-rate revenues), which must be recovered from water rates.

Operating Performance

The forecast of the water utility's operating performance summarizes the change in the utility's cash position which results from the revenues and revenue requirements summarized above. In this case, it is assumed that any net revenues available after O&M expenditures, debt service payments, and cash-funded capital will be retained in the City's operating reserve. In the test year, total revenues are anticipated to be approximately \$4.8 Million. Total expenditures (including cash funded capital) are anticipated to be 6.4 Million, leaving a deficit of \$1.5 Million. This shortfall will be reconciled against the City's existing cash reserves of \$2.9 Million, leaving approximately \$1.4 Million. This is approximately \$.4 Million above the operating reserve target of 90 days of O&M expenditures and debt service payments.

Maintaining this cash reserve is critical to mitigating the risk associated with operating a climatically variable enterprise. Water usage patterns can vary significantly and—as a result—the water utility can face significant and unexpected revenue shortfalls. The 90 day reserve helps limit the impact in the event such a shortfall occurs. Additionally, “days cash on hand” is one of the criteria used to evaluate credit-worthiness by bond ratings agencies. Insufficient cash reserves can

negatively impact bond ratings, putting upward pressure on borrowing costs in the future should the City decide to avail itself of financing sources beyond KPWSLF.

The final component, debt service coverage, is a measure of the water utility's ability to repay its debt obligations to creditors in full and on time. Currently, water utility outstanding debt consists of KPWSLF loans and GO bonds which have issued by the City for water capital projects. In general, debt service coverage represents the ratio of water utility revenues—less operation and maintenance expenditures—to annual debt service.

The water utility financial plans were developed under the assumption that revenue bond debt would have first claim on utility revenues, followed by KPWSLF loans, followed by GO bonds. Since the current forecasts do not assume any revenue bond issuance, the coverage calculations shown are for KPWSLF loans, GO debt and combined debt service. The minimum debt service coverage target is 1.25x combined water utility debt service (including proposed debt). While utility funds often set higher targets, they are also typically employing revenue bonds, which tend to carry higher coverage requirements. Considering that GO bonds comprise the majority of existing water utility debt service, we do not feel the 1.25x minimum is unreasonable. Note that debt service coverage begins around 1.4x and decreases over the forecast period, as new debt is added.

City of Junction City
Water Utility Financial Plan
Table 20: Water Utility Cash Flow Forecast

Forecast of Water Utility Revenues

Fiscal Year	Annual % Increase in Rate Revenues	Test Year 2014	Forecast 2015	Forecast 2016	Forecast 2017	Forecast 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024
2014	6.5%	\$ 129,800	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300	\$ 283,300
2015	6.5%	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700	\$ 301,700
2016	6.5%		\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300	\$ 321,300
2017	6.5%		\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200	\$ 342,200
2018	6.5%		\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400	\$ 364,400
2019	6.5%		\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100	\$ 388,100
2020	6.0%		\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500	\$ 381,500
2021	4.5%		\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300	\$ 303,300
2022	4.0%		\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700	\$ 281,700
2023	4.0%		\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000	\$ 293,000
2024	4.0%		\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700	\$ 304,700

Grand Total Water Revenue at Existing Water Rates

Months Effective

5.5
12
12
12
12
12
12
12
12
12
12
12

Additional Revenue from Rate Increases
Total Non-Rate Revenues

\$ 129,800	\$ 585,000	\$ 908,300	\$ 1,248,500	\$ 1,612,900	\$ 2,001,000	\$ 2,382,500	\$ 2,685,800	\$ 2,967,500	\$ 3,260,500	\$ 3,565,200	\$ 3,901,000	\$ 3,990,100
\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100	\$ 390,100
\$ 4,877,689	\$ 5,332,889	\$ 5,654,189	\$ 5,996,389	\$ 6,360,789	\$ 6,748,889	\$ 7,130,389	\$ 7,433,689	\$ 7,715,389	\$ 8,008,389	\$ 8,313,089	\$ 8,608,389	\$ 8,813,089

Forecast of Water Utility Revenue Requirements

Total Water Fund O&M Expenses
Total Water Utility Debt Service
Water Rate Revenue CIP Financing (Cash)
Transfer to Operating Reserve

\$ 3,236,876	\$ 3,360,560	\$ 3,488,370	\$ 3,623,538	\$ 3,763,303	\$ 3,908,917	\$ 4,060,647	\$ 4,218,769	\$ 4,383,574	\$ 4,555,368	\$ 4,734,472	\$ 4,920,000	\$ 5,112,000
\$ 1,145,537	\$ 1,229,783	\$ 1,318,596	\$ 1,412,119	\$ 1,510,415	\$ 1,614,500	\$ 1,724,400	\$ 1,839,125	\$ 1,958,688	\$ 2,083,088	\$ 2,212,313	\$ 2,346,363	\$ 2,485,138
\$ 2,000,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
\$(1,504,724)	\$ 242,546	\$ 179,223	\$(208,168)	\$(190,885)	\$ 364,966	\$(236,898)	\$ 277,599	\$(248,182)	\$ 261,109	\$(248,182)	\$ 238,633	\$ 238,633
\$ 4,877,689	\$ 5,332,889	\$ 5,654,189	\$ 5,996,389	\$ 6,360,789	\$ 6,748,889	\$ 7,130,389	\$ 7,433,689	\$ 7,715,389	\$ 8,008,389	\$ 8,313,089	\$ 8,608,389	\$ 8,813,089

Beginning Cash Available for Capital and Operations
Add Net Operating Surplus/(Deficit)
Ending Operating Reserve Balance

\$ 2,992,421	\$ 1,487,697	\$ 1,730,244	\$ 1,909,467	\$ 1,701,299	\$ 1,510,415	\$ 1,875,381	\$ 1,638,482	\$ 1,916,081	\$ 2,177,190	\$ 1,929,008	\$ 2,167,642	\$ 1,929,008
\$(1,504,724)	\$ 242,546	\$ 179,223	\$(208,168)	\$(190,885)	\$ 364,966	\$(236,898)	\$ 277,599	\$(248,182)	\$ 261,109	\$(248,182)	\$ 238,633	\$ 238,633
\$ 1,487,697	\$ 1,730,244	\$ 1,909,467	\$ 1,701,299	\$ 1,510,415	\$ 1,875,381	\$ 1,638,482	\$ 1,916,081	\$ 2,177,190	\$ 1,929,008	\$ 2,167,642	\$ 1,929,008	\$ 1,929,008
\$ 1,095,603	\$ 1,147,586	\$ 1,243,742	\$ 1,301,139	\$ 1,387,919	\$ 1,470,981	\$ 1,591,822	\$ 1,664,023	\$ 1,738,570	\$ 1,814,143	\$ 1,893,814	\$ 1,974,627	\$ 2,060,460
\$ 392,094	\$ 582,658	\$ 665,725	\$ 400,160	\$ 122,496	\$ 404,400	\$ 45,660	\$ 252,058	\$ 438,620	\$ 114,865	\$ 274,028	\$ 274,028	\$ 274,028

Debt Service Coverage Calculations

Revenue Bond DSCR
KPWSLF DSCR
General Obligation DSCR
Combined DSCR

N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21.05	12.28	5.12	3.03	1.63	1.60	1.45	1.43	1.40	1.38	1.35	1.35	1.35
1.46	1.69	1.64	1.99	5.11	5.39	4.91	4.95	4.88	4.81	4.77	4.77	4.77
1.43	1.60	1.46	1.50	1.45	1.44	1.33	1.32	1.30	1.28	1.26	1.26	1.26

3.3 WASTEWATER UTILITY FINANCIAL BUSINESS PLAN

3.3.1 Forecast Wastewater Utility Units of Service and Revenue at Existing Rates

Existing Wastewater Rates

The City recovers the cost of operating the wastewater utility via volumetric rates and fixed minimum charges. Table 21 below summarizes the existing wastewater rate structure.

City of Junction City			Test Year
Wastewater Utility Financial Plan			
Table 21: Existing Wastewater Rate Structure			2014
<u>Volumetric Rates</u>			
Minimum	2 CCF and Below	\$	-
Wastewater Volumetric	Greater than 2 CCF	\$	1.90
<u>Monthly Wastewater Minimum Charges</u>			
Minimum Charge		\$	25.50
<u>Extra Strength Surcharges</u>			
Industrial BOD5	\$/per lb		0.104
Industrial TSS	\$/per lb		0.117

The City measures customer usage in one hundred cubic feet (CCF) increments. 1 CCF is equivalent to approximately 748 gallons. City customers typically use around 5 CCF per month. The wastewater volumetric rates include a minimum allotment and are based on an inclining block rate structure.

The minimum allotment represents usage which has been included in the City's minimum charge, and to which no volume rate is applied. The City's existing minimum allotment is 2 CCF. The volumetric rate is applied to all usage above 2 CCF. As an example, a customer using 5 CCF would be charged \$5.70 (2 CCF*\$0.00+3 CCF*1.90).

The minimum charge (\$25.50/month) includes the first 2 CCF of wastewater use.

Also shown are extra strength surcharges, which apply to customers whose wastewater strength exceeds the limit set by the City.