City of Tempe

Water and Wastewater Rates

Executive Summary

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1. Executive Summary

1.1. Introduction

The City of Tempe, Arizona (City) provides water and wastewater service to approximately 43,400 customer accounts. The City's water and wastewater utilities are funded primarily from water and wastewater rate revenue.

The City authorized Red Oak Consulting to review the utilities' financial status and to recommend rate adjustments, as necessary, to assure their continuing financial viability. This study includes:

- Development of water and wastewater financial plans for the 10-year study period, 2010-11 through 2019-20;
- Analysis of customer class cost of service for 2011-12; and
- Design of water and wastewater rates for 2011-12.

1.2. Definitions

References made to a year or fiscal year mean the year ending June 30. Existing rates mean water and wastewater rates in effect November 2010.

1.3. Study Assumptions

This rate study is based on numerous assumptions. Changes in these assumptions could have a material effect on study findings. Red Oak incorporated the following key assumptions into the study:

- The number of accounts will increase 0.25% annually.
- Residential usage per account will decrease 0.5% annually.
- Commercial and landscaping usage per account will decrease 1% annually
- Costs will change as follows:
  - Capital costs will increase 3% annually.
  - Consistent with the City's long-range forecast, salaries and wages will remain at 2010-11 levels in 2011-12 and will increase 4.5% in 2012-13 and 4% annually thereafter.
  - All other operating expenses are increased in accordance with the inflation factors used in the City's long range forecast.

- Utilities will maintain minimum reserve (fund balance) equal to:
  - 90 days O&M PLUS
  - 2% of fixed asset value.
- Utilities will strive to achieve target levels equal to twelve months of revenue to be consistent with City policy although this level is not achieved during the study period.
- Costs associated with Other Post Employment Benefits (OPEB) are fully included in utility revenue requirements.
- Costs associated with supporting certain non-utility services are included in utility revenue requirements. Non-utility services represent $1.33 million or 1.9% of the total revenue requirements.
- Costs associated with irrigation services total $597,000 in 2011-12 and represent 1.5% of water revenue requirements.

1.4. Usage Trends

Water utility customers have reduced their water usage over each of the past three years. This trend is due to a combination of factors including abnormal rainfall amounts, economic slowdown, conservation and price increases. Table 1-1 shows water sales amounts for the most recent fiscal years. Allowance has been made in projected water sales and wastewater billed usage for these trends by reducing residential use per account by 0.5% annually, and reducing commercial and landscaping usage per account by 1% annually.

Table 1-1.
Historical Water Usage Trends

Fiscal Year	Water Sales	No. of Monthly Bills	Monthly Use per Bill	Annual Change
	(Kgals)		*(Kgals)*	
2006-07	18,146,087	516,716	35.1	
2007-08	16,516,375	517,729	31.9	(9.2%)
2008-09	15,253,279	519,618	29.4	(8.0%)
2009-10	14,711,762	519,928	28.3	(3.6%)

1.5. Water Rates

Principal findings of the water rate study are:

- Utility staff has developed a $153 million water capital improvement program for the study period.

- Water sales revenue under existing rates is inadequate to meet projected revenue requirements and maintain minimum reserve levels during the study period. Rate adjustments are needed in 2011-12 to increase annual water sales revenue by 10.5%. Similar rate adjustments are indicated to increase revenues in each of the subsequent five fiscal years. More moderate rate adjustments are projected thereafter.
- Red Oak recommends the water utility's long term financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and capital financing requirements.
- Red Oak conducted a comprehensive water utility cost of service analysis in accordance with standard methods supported by the American Water Works Association. We performed our analysis for the 2011-12 test year and determined the cost of providing water service to customer classes. Table 1-2 summarizes the findings of the cost of service analysis.

Table 1-2.
Comparison of Water Cost of Service
With Revenue from Existing Rates
Test Year 2011-12

Line No.	Customer Class	Cost of Service	Revenue From Existing Rates	Indicated Revenue Adjustment
	Inside City			
1	Single Family Residential	$15,443,199	$13,927,046	10.9%
2	Multifamily Residential	6,193,752	5,747,241	7.8%
3	Commercial	9,151,393	8,275,964	10.6%
4	Construction	235,807	217,042	8.7%
5	Industrial	1,664,694	1,603,418	3.8%
6	Landscaping	6,212,245	5,446,154	14.1%
7	Private Fire Protection	108,259	102,219	5.9%
8	Total Inside City	$39,009,349	$35,319,084	10.5%
9	Outside City	46,317	25,410	85.4%
10	**Total**	**$ 39,055,666**	**$ 35,344,494**	**10.5%**

- Existing water rates have been in effect since November 2010 and have the following structure:
  - Monthly base charges that vary by meter size.
  - Volume charges for single family residential customers that use a 4-block increasing rate structure.
  - Volume charges for all other customer classes that use a uniform rate structure.

- Red Oak developed proposed 2011-12 rates using the existing structure. These rates will increase annual water sales revenue by 10.5%. Red Oak proposes that these rates be adopted.
- Table 1-3 compares existing and proposed monthly water base charges for inside city customers. Outside city rates are 30% greater than inside city rates, in accordance with City policy.

Table 1-3.
Comparison of Existing and Proposed 2011-12 Monthly Water Base Charges

Meter Size	Existing	Proposed 2011-12 Rates
(inches)	*(per month)*	*(per month)*
5/8	$ 10.24	$ 10.24
3/4	14.63	14.63
1	22.01	22.01
1 1/2	37.69	37.70
2	62.50	62.50
3	139.25	140.10
4	272.71	275.20
6	539.98	545.80
8	1,255.29	1,276.00
10	1,995.66	2,023.70

- Table 1-4 compares existing and proposed water volume charges for inside City customers. Outside city rates are 30% greater than inside city rates, in accordance with City policy.

Table 1-4.
Comparison of Existing and Proposed 2011-12 Water Volume Charges

Monthly Usage	Existing Rates	Proposed 2011-12 Rates
(Kgal)	*(per Kgal)*	*(per Kgal)*
Single Family		
First 8	$ 1.46	$ 1.70
Next 7	1.83	2.13
Next 10	2.29	2.66
Over 25	2.86	3.33
Multifamily		
All Usage	1.66	1.84
Commercial		
All Usage	1.83	2.09
Construction		
All Usage	2.00	2.34
Industrial		
All Usage	1.79	1.87
Landscaping		
All Usage	2.00	2.34

- Table 1-5 compares monthly single family water bills under existing and proposed 2011-12 inside city rates. The 2011-12 monthly bill for the median single family customer (10,000 gallons) increases $2.52 from $25.58 under existing rates to $28.10 under proposed 2011-12 rates.

Table 1-5.
Monthly Single Family Water Bills
5/8-inch Meter

Monthly Usage	Cumulative Percent of Bills	Existing Rates	Proposed 2011-12 Rates	
			Amount	Change
(gallons)				
0	2.1%	$ 10.24	$ 10.24	$ 0.00
1,000	4.2%	11.70	11.94	0.24
2,000	7.7%	13.16	13.64	0.48
3,000	12.7%	14.62	15.34	0.72
4,000	18.5%	16.08	17.04	0.96
5,000	24.8%	17.54	18.74	1.20
6,000	31.1%	19.00	20.44	1.44
7,000	37.0%	20.46	22.14	1.68
8,000	42.4%	21.92	23.84	1.92
9,000	47.5%	23.75	25.97	2.22
10,000	***52.2%***	**25.58**	***28.10***	***2.52***
11,000	56.4%	27.41	30.23	2.82
12,000	60.2%	29.24	32.36	3.12
13,000	*63.6%*	31.07	*34.49*	*3.42*
14,000	66.7%	32.90	36.62	3.72
15,000	69.6%	34.73	38.75	4.02
16,000	72.2%	37.02	41.41	4.39
17,000	74.5%	39.31	44.07	4.76
18,000	76.6%	41.60	46.73	5.13
19,000	78.6%	43.89	49.39	5.50
20,000	80.4%	46.18	52.05	5.87
25,000	87.1%	57.63	65.35	7.72
50,000	97.7%	129.13	148.60	19.47

1.6. Wastewater Rates

Principal findings of the wastewater rate study are as follows:

- Utility staff has developed a $105 million wastewater capital improvement program for the 10-year study period. This includes consideration of Kyrene Water Reclamation Facility and represents a reduction from $135 million shown in the previous rate study.
- Wastewater service revenue under existing rates is inadequate to meet projected O&M and debt service and maintain minimum reserve levels during the study period. Rate adjustments are needed in 2011-12 to increase annual wastewater service revenue by 4%. Similar rate adjustments are projected over the remainder of the study period.
- Red Oak recommends the wastewater utility's ten-year financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and capital financing requirements.
- Red Oak conducted a comprehensive wastewater utility cost of service analysis in accordance with standard methods supported by the Water Environment Federation. We performed our analysis for the 2011-12 test year and determined the cost of providing wastewater service to customer classes. Table 1-6 summarizes the findings of the cost of service analysis.

Table 1-6.
Comparison of Wastewater Cost of Service With Revenue From Existing Rates
Test Year 2011-12

Line No.	Customer Class	Cost of Service	Revenue under Existing Rates	Indicated Revenue Adjustment
1	Residential	$ 12,760,663	$ 12,393,788	3.0%
2	Residential with separate sprinkler meters	981,138	906,749	8.2%
3	Commercial – Low Strength	8,776,051	8,881,712	(1.2%)
4	Commercial – Medium Strength	664,681	619,137	7.4%
5	Commercial – High Strength	1,695,411	1,556,550	8.9%
6	Industrial	5,012,827	4,383,193	14.4%
7	**Total**	**$ 29,890,771**	**$ 28,741,129**	**4.0%**

- Existing wastewater rates have been in effect since November 2010 and have the following structure:
  - Monthly base charge that varies by meter size.
  - Volume charge that varies by customer class and is based on billable water usage.
- Red Oak developed 2011-12 proposed rates using the existing structure. These rates will increase annual wastewater service revenue by 4%. Red Oak proposes that these rates be adopted.

- Table 1-7 compares existing and proposed monthly wastewater base charges for inside City customers. Outside city rates are 30% greater than inside city rates, in accordance with City policy.

Table 1-7.
Comparison of Existing and Proposed 2011-12 Monthly Wastewater Base Charges

Meter Size	Existing	Proposed 2011-12 Rates
(inches)	*(per month)*	*(per month)*
5/8	$ 8.30	$ 9.50
3/4	11.40	13.00
1	24.70	24.70
1 1/2	46.30	46.30
2	72.20	72.20
3	176.00	176.00
4	349.00	349.00
6	695.00	695.00
8	1,650.00	1,650.00
10	2,600.00	2,600.00

- Table 1-8 compares existing and proposed wastewater volume charges for inside City customers. Outside city rates are 30% greater than inside city rates, in accordance with City policy.

Table 1-8.
Comparison of Existing and Proposed Wastewater Volume Charges

Line No.	Customer Class	Existing	Proposed 2011-12 Rates
		(per Kgal)	*(per Kgal)*
1	Residential	$ 1.76	$ 1.76
2	Residential with separate sprinkler meters	2.46	2.63
3	Commercial – Low Strength	2.88	2.94
4	Commercial – Medium Strength	3.98	4.33
5	Commercial – High Strength	6.80	7.46
7	Industrial	varies	varies

- Table 1-9 compares monthly single family wastewater bills under existing and proposed 2011-12 inside city rates. The monthly bill for the median single family customer (5,000 gallons) would increase $1.20 from $17.10 under existing rates to $18.30 under proposed 2011-12 rates.

Table 1-9.
Monthly Single Family Wastewater Bills
5/8-inch Meter

Billable Monthly Usage	Existing Rates	Proposed 2011-12 Rates	
		Amount	Change
(gallons)			
0	$ 8.30	$ 9.50	$ 1.20
1,000	10.06	11.26	1.20
2,000	11.82	13.02	1.20
3,000	13.58	14.78	1.20
4,000	15.34	16.54	1.20
5,000	**17.10**	**18.30**	**1.20**
6,000	18.86	20.06	1.20
7,000	20.62	21.82	1.20
8,000	22.38	23.58	1.20
9,000	24.14	25.34	1.20
10,000	25.90	27.10	1.20
11,000	27.66	28.86	1.20
12,000	29.42	30.62	1.20
13,000	31.18	32.38	1.20
14,000	32.94	34.14	1.20
15,000	34.70	35.90	1.20