

City of El Mirage

12145 NW Grand Avenue • El Mirage, AZ 85335

Water and Wastewater Cost of Service and Sanitation Fee Study

May 2011

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Contents

Executive Summary	1
Introduction	1
Findings.....	1
Water Study Findings.....	1
Irrigation Water Findings	3
Sewer Study Findings	4
Acknowledgements	5
1. Water Financial Plan and Rate Design	1-1
1.1. Financial Plan	1-1
1.1.1. Cash Flow	1-1
1.1.1.1. Water User Charges	1-2
1.1.1.2. Water Impact Fees.....	1-3
1.1.1.3. Miscellaneous Revenues	1-3
1.1.2. Operation and Maintenance (O&M)	1-3
1.1.3. CIP.....	1-3
1.1.4. Debt Service.....	1-3
1.1.5. General Fund Cost Allocation	1-4
1.1.6. Water Recharge Credits.....	1-4
1.2. Cost-of-Service	1-5
1.2.1. Revenue Requirements.....	1-5
1.2.2. Allocation to Functional Cost Components	1-5
1.2.3. Allocation of Costs to Customer Classes	1-6
1.3. Rate Alternatives.....	1-6
1.3.1. Current Rates	1-6
1.3.2. Proposed Base Charge	1-7
1.3.3. Proposed Volume Rate Structure	1-8
1.3.3.1. Alternative 1	1-8
1.3.3.2. Alternative 2	1-9
1.3.4. Bill Impact Information.....	1-10
1.4. Irrigation Water	1-10
2. Sewer Financial Plan and Rate Design	2-1
2.1. Financial Plan	2-1
2.1.1. Cash Flow	2-1
2.1.1.1. Sewer User Charges.....	2-2
2.1.1.2. Sewer Impact Fees.....	2-3
2.1.1.3. Miscellaneous Revenue.....	2-3
2.1.2. Operations and Maintenance (O&M)	2-3
2.1.3. CIP.....	2-3
2.1.4. Debt Service.....	2-3
2.1.5. General Fund Cost Allocation	2-4
2.1.6. Water Recharge Credits.....	2-4
2.2. Cost-of-Service	2-5
2.2.1. Revenue Requirements.....	2-5
2.2.2. Allocation to Functional Cost Components	2-5

2.2.3.	Allocation of Costs to Customer Classes	2-5
2.3.	Rate Alternatives.....	2-6
2.3.1.	Current Rates	2-6
2.3.2.	Proposed Base Charge	2-7
2.3.3.	Proposed Volume Rate Structure	2-8
2.3.3.1.	Alternative 1	2-8
2.3.3.2.	Alternative 2.....	2-8
2.3.4.	Bill Impact Information.....	2-8

3. Sanitation Financial Plan 3-1

3.1.	Financial Plan	3-1
3.1.1.	Cash Flow	3-1
3.2.	Financial Plan Without Recycling Program.....	3-1
3.2.1.	Sanitation User Charges	3-2
3.2.2.	O&M	3-2
3.2.3.	General Fund Cost Allocation	3-2
3.3.	Financial Plan With Recycling Program.....	3-3
3.3.1.	Sanitation User Charges	3-4
3.3.2.	O&M	3-4
3.3.3.	Capital	3-4
3.3.4.	Debt.....	3-4
3.4.	Customer Impacts.....	3-4

List of Tables

Table ES-1:	Projected Water Rate Revenue Increases	2
Table ES-2:	Proposed Alternative Water Base Charges	2
Table ES-3:	Proposed Water Volume Rate Alternatives.....	3
Table ES-4:	Irrigation Cost Recovery	3
Table ES-5:	Proposed Sewer Rate Revenue Increases	4
Table ES-6:	Proposed Sewer Alternative Base Charges.....	4
Table ES-7:	Proposed Sewer Alternative Flow Rates.....	5
Table 1-1:	Projected Water Rate Revenue Increases.....	1-1
Table 1-2:	Current Residential Water Rates	1-7
Table 1-3:	Current Commercial Monthly Water Rates	1-7
Table 1-4:	Current and Proposed Alternatives 1 and 2 Base Charges.....	1-8
Table 1-5:	Current and Alternative 1 Water Volume Rates.....	1-9
Table 1-6:	Current and Alternative 2 Water Volume Rates.....	1-9
Table 1-7:	Irrigation Water Cost Recovery Levels.....	1-11
Table 2-1:	Projected Sewer Rate Revenue Increase	2-1
Table 2-2:	Current Sewer Monthly Base Charges.....	2-6
Table 2-3:	Current Sewer Volume Rates	2-7
Table 2-4:	Current and Proposed Sewer Base Charges.....	2-7
Table 2-5:	Current and Alternative 1 Flow Rates	2-8
Table 2-6:	Current and Alternative 2 Flow Rates	2-8
Table 3-1:	Projected Sanitation Rate Revenue Increase	3-1
Table 3-2:	Projected Sanitation Rate Revenue Increase	3-3

List of Figures

Figure 1-1: Water Residential Customer Impacts 1-10
Figure 2-1: Sewer Residential Customer Impacts..... 2-9

Appendices

- A. Water, Sewer, Sanitation Financial Plans
- B. General Fund Cost Allocations
- C. Water and Sewer Cost-of-Service Schedules and Rate Design

Executive Summary

Introduction

The City of El Mirage (City) retained Red Oak Consulting (Red Oak) to update the City's water, sewer and sanitation rates (Study). In addition to providing water and sewer service to customers within the City boundaries, the City also provides water service to a portion of the City of Surprise.

This section summarizes the Study findings and recommendations. The financial plan starts in fiscal year (FY) 2010-11 and is projected through FY 2019-20. Water, sewer and sanitation rates developed for FY 2011-12 are anticipated to be effective July 1.

The City's Water and Sewer Funds proposed and projected future revenue increases are necessary to fully fund operating and capital expenditures and maintain financially viable water and sewer utilities. The City's Water and Sewer Funds were divided into subfunds for operations (non-growth) and impact fees (growth) purposes in order to more acutely monitor the financial performance of each utility. The increases in the City's sanitation rates are required in order to meet the annual contract obligations and internal costs of providing sanitation service.

Findings

The balance of this report and its appendices contain supporting discussion and schedules regarding the key findings, listed below.

Water Study Findings

In FY 2011-12, a water rate increase of 10% is required to fund the operating and capital expenditures of the Water Fund while adhering to the following financial policies:

- Achieve a minimum ratio of 1.20 times annual debt service or debt service coverage (DSC) ratio on existing and projected annual debt service. Attainment of this ratio provides assurance that current period revenues will be sufficient to repay projected debt.
- Accumulate funds to maintain an annual cash balance or reserves equal to 3 months (25%) of annual O&M. It is anticipated that this will be achieved by 2015.

Future water rate revenue increases are summarized in Table ES-1.

**Table ES-1:
Projected Water Rate Revenue Increases**

<u>Fiscal Year</u>	<u>Increase</u>	<u>Fiscal Year</u>	<u>Increase</u>
2010-11	0.0%	2015-16	10.0%
2011-12	10.0%	2016-17	10.0%
2012-13	10.0%	2017-18	7.0%
2013-14	10.0%	2018-19	0.0%
2014-15	10.0%	2019-20	0.0%

Red Oak developed two alternative water rate structures for the City. The first is an increase of 10.0% for all customers in FY 2011-12 to the City's current rate structure. The second is a class cost-of-service adjustment to the City's current rate structure with an increasing base charge for larger meter sizes, while maintaining current block thresholds and current rate ratios between each block. Table ES-2 summarizes the base charges developed for the City. Table ES-3 summarizes the proposed alternative volume rates.

**Table ES-2:
Proposed Alternative Water Base Charges**

<u>Class</u>	<u>Meter Size (inches)</u>	<u>Current</u>	<u>Alternative 1</u>	<u>Alternative 2</u>
Residential	5/8	\$14.85	\$16.34	\$13.63
	3/4	14.85	16.34	14.64
	1	14.85	16.34	16.64
	1 ½	14.85	16.34	21.65
	2	14.85	16.34	27.67
	3	14.85	16.34	43.70
	4	14.85	16.34	46.71
	6	14.85	16.34	111.87
	8	14.85	16.34	172.01
Commercial	10	14.85	16.34	242.18
	5/8	\$17.60	\$19.36	\$13.63
	3/4	17.60	19.36	14.64
	1	17.60	19.36	16.64
	1 ½	17.60	19.36	21.65
	2	17.60	19.36	27.67
	3	17.60	19.36	43.70
	4	17.60	19.36	46.71
	6	17.60	19.36	111.87
8	17.60	19.36	172.01	
10	17.60	19.36	242.18	

**Table ES-3:
Proposed Water Volume Rate Alternatives**

<u>Class</u>	<u>Use (gallons)</u>	<u>Current</u>	<u>Alternative 1</u>	<u>Alternative 2</u>
Residential	0-5,000	\$2.67	\$2.94	\$2.76
	5,001 – 15,000	2.94	3.23	3.04
	15,001 – 25,000	3.23	3.56	3.34
	> 25,000	3.55	3.91	3.67
Commercial	All	\$3.32	\$3.65	\$4.46

Irrigation Water Findings

In addition to the water rates previously discussed, the City provides irrigation water from a single well to a select number of customers (the Dysart Ranchettes). The customers are currently assessed a rate of \$15.75 per hour. Based on water pumped the hourly rate of \$15.75 equates to a per 1,000 gallon (kgals) rate of \$0.30 per kgals. Red Oak developed two rate alternatives for the irrigation water. The first was a full cost of service rate and the second alternative was a percentage recovery level that indicates the cost per kgals based upon the chosen level of recovery. Table ES-4 summarizes the two alternatives, with the 100% cost recovery level reflecting the proposed rate under Alternative 1.

**Table ES-4:
Irrigation Cost Recovery**

<u>Cost of Service Recovery Level</u>	<u>Proposed Rate (per kgals)</u>
24%	\$0.30
25%	0.31
30%	0.38
40%	0.50
50%	0.62
60%	0.75
70%	0.87
75%	0.93
80%	1.00
90%	1.12
100%	1.24

Sewer Study Findings

In FY 2011-12, a sewer rate increase of 10.0% is required to fund the operating and capital expenditures of the Sewer Fund while adhering to the following financial policies:

- Achieve a minimum ratio of 1.20 times annual debt service or debt service coverage (DSC) ratio on existing and projected annual debt service. Attainment of this ratio provides assurance that current period revenues will be sufficient to repay projected debt.
- Accumulate funds to maintain an annual cash balance or reserves equal to 2 months (16%) of annual O&M. It is anticipated that this will be achieved by 2014.

Future sewer rate revenue increases are summarized in Table ES-5.

**Table ES-5:
Proposed Sewer Rate Revenue Increases**

<u>Fiscal Year</u>	<u>Increase</u>	<u>Fiscal Year</u>	<u>Increase</u>
2010-11	0.0%	2015-16	0.6%
2011-12	10.0%	2016-17	2.9%
2012-13	10.0%	2017-18	3.3%
2013-14	0.0%	2018-19	3.8%
2014-15	0.0%	2019-20	4.3%

Red Oak developed two alternative sewer rate structures. The first is an increase in FY 2011-12 of 10.0% across-the-board rate increase on all current sewer rates. The second is a class-cost-of-service based alternative. This alternative is a class cost of service based approach to both the base charge and the volume rate. The proposed sewer base charges for both alternatives are summarized in Table ES-6; flow rates are summarized in Table ES-7.

**Table ES-6:
Proposed Sewer Alternative Base Charges**

<u>Class</u>	<u>Meter Size (inches)</u>	<u>Current</u>	<u>Alternative 1</u>	<u>Alternative 2</u>
Residential	5/8	\$4.75	\$5.23	\$ 3.29
and	3/4	4.75	5.23	4.93
Commercial	1	4.75	5.23	8.22
	1 ½	4.75	5.23	16.45
	2	4.75	5.23	26.31
	3	4.75	5.23	52.63
	4	4.75	5.23	57.56
	6	4.75	5.23	164.46
	8	4.75	5.23	263.14
	10	4.75	5.23	378.26

**Table ES-7:
Proposed Sewer Alternative Flow Rates**

<u>Class</u>	<u>Use</u>	<u>Current</u> (per kgals)	<u>Alternative 1</u>	<u>Alternative 2</u>
Residential	All	\$2.70	\$2.97	\$2.97
Commercial	All	2.70	2.97	2.97

Acknowledgements

The successful completion of this study depended on the efforts of the City staff. In particular the Red Oak team would like to thank Finance Director Mr. Robert Nilles, Public Works Director and City Engineer Mr. Lance Calvert and Senior Accountant Ms. Christy Eusebio for their support throughout this study.

1. Water Financial Plan and Rate Design

1.1. Financial Plan

The financial plan is comprised of a Water Fund with operations (non-growth) and impact fee (growth) subfunds. The rate revenue requirements for the City's water operations represent the cost of providing water service and includes operation and maintenance (O&M) costs, non-growth capital related costs (cash funded project costs and debt service), and transfers to the impact fee subfund. . Growth-related capital costs are assigned to the impact fee subfund, and transfers from the operations subfund are made to fund growth-related projects and/or debt service. The full financial plan can be found in Appendix A.

1.1.1. Cash Flow

Beginning cash balance for the Water Fund provided by the City is \$281,471 as of July 1, 2010.

With a 10.0% rate increase effective July 1, 2011 water charge revenues are estimated to be \$6,748,818 in FY 2011-12 (an increase of \$613,259 from the prior year). Table 1-1 summarizes projected water rate revenue increases over the FY 2010-11 through FY 2019-20 study period.

**Table 1-1:
Projected Water Rate Revenue Increases**

<u>Fiscal Year</u>	<u>Increase</u>	<u>Fiscal Year</u>	<u>Increase</u>
2010-11	0.0%	2015-16	10.0%
2011-12	10.0%	2016-17	10.0%
2012-13	10.0%	2017-18	7.0%
2013-14	10.0%	2018-19	0.0%
2014-15	10.0%	2019-20	0.0%

The proposed rate revenue increases are necessary to fund operating and capital expenditures (including debt service) over the study period while adhering to the following financial policies:

- Achieve a minimum ratio of 1.20 times annual debt service or debt service coverage (DSC) ratio on existing and projected annual debt service. Attainment of this ratio provides assurance that current period revenues will be sufficient to repay projected debt.

- Accumulate funds to maintain an annual cash balance or reserve equal to 3 months (25%) of annual O&M. It is anticipated that this will be achieved by 2015.

Debt Service coverage ratios are a measure of a utility's ability to repay its debt obligations. The proposed financial plan is designed to achieve a 1.20 times annual DSC ratio for the Water Fund. At a ratio of 1.20, the revenues available to pay debt service are 20% greater than the annual debt service payment; providing assurance to bond holders that there will be sufficient revenues available to repay the City's outstanding debt.

Cash reserve ratios are determined by dividing the end-of-year cash balance by annual O&M expenses. A positive cash reserve ratio indicates there is sufficient cash on hand to pay for expenses that the City has incurred and must be paid before water user charge revenue has been collected to pay the expenses.

While rate revenue increases have been projected for 7 years of the study period, adjustments to the proposed increases may also be necessary depending upon the level of future capital improvement program (CIP) expenditures and a variety of other factors including, and not limited to:

- Water use patterns
- Inflation
- Regulatory requirements

At a minimum, the City should conduct annual reviews to assess the condition of the Water Fund and the necessity of future rate revenue adjustments.

Water Fund expenditures are primarily financed by water user charge revenues. Additional revenue sources include impact fees and other miscellaneous revenues.

With a 10% revenue increase in FY 2011-12, the Water Fund is projected to still have a deficit of \$1.3 million, and will require a loan from the City's General Fund. Deficits are projected to continue through the end of FY 2014-15. Beginning in FY 2015-16 the General Fund is repaid for prior year's loans and the Water Fund begins accumulating a positive fund balance.

1.1.1.1. Water User Charges

The financial plan is based on the City's FY 2010-11 budgeted water user charges. Future year revenues are adjusted based on the assumed growth rate for the City (1% per year) and future year rate revenue increases. Subsection 1.3 of this section of the report describes proposed rate structure alternatives. Each alternative was designed to generate the same amount of revenue.

1.1.1.2. Water Impact Fees

The City of El Mirage has an existing water impact fee which is a one-time fee assessed to new development. Due to the slowdown in new development, there is minimal impact fee revenue projected throughout the study period.

1.1.1.3. Miscellaneous Revenues

The Water Fund has a variety of miscellaneous fee and charge revenues. The financial plan incorporates these revenues based on FY 2010-11 budgeted projections. Revenues attributable to system growth such as late fees are inflated by the growth rate, and all other miscellaneous revenues are increased by an inflationary rate of 3% per year throughout the study period.

1.1.2. Operation and Maintenance (O&M)

Projected O&M expenditures are based on the City's FY 2010-11 budgeted expenditures through FY 2014-15. Future years are adjusted by an annual inflation rate of 3%. O&M expenses include direct costs associated with the water system as well as an allocation of the City administration costs.

1.1.3. CIP

Water system capital improvements projects (CIP) are based on City provided line item CIP projections in current year dollars. Red Oak applied an escalation factor of 5% to future CIP costs. The detailed project listing in Appendix A includes the dollar amount and timing of capital expenditures over the study period. The City's CIP is divided into two parts, growth related and non-growth related projects.

1.1.4. Debt Service

The Water Fund currently has three outstanding Water Infrastructure Finance Authority (WIFA) debt issues:

- 2006 WIFA loan
- 2008 WIFA loan
- 2009 WIFA loan

The loans were issued in order to finance capital projects for the water system.

It is the City's policy to use WIFA loans to fund future capital projects. Therefore the financial plan projects WIFA loans for each year of the study period to finance the CIP. The City has pre-authorization for future WIFA loans and "draws down" on the authority as capital projects commence. The loans are assumed to have a 20 year repayment period and a 3% interest rate.

1.1.5. General Fund Cost Allocation

Red Oak worked in conjunction with City staff to develop a General Fund cost allocation for water, sewer and sanitation to reflect the services provided to each of these utilities by the General Fund. General Fund departments or cost centers that had a portion of their costs allocated to other departments or City services include:

- Municipal Court
- General Administration
- Information Technology
- City Clerk
- Human Resources
- Finance
- Facilities Management
- Council
- Legal Services
- Safety and Loss

The above listed departments or City services maintain their own budgets and support the daily functioning of the City, but generally speaking do not have revenue streams to support themselves. The analysis determined that for FY 2009-10, the costs associated with these departments and services that support other City activities were \$5,811,150. City activities that benefit from the above listed departments and services include not only the Water, Sewer and Sanitation Funds, but also streets, engineering, community development and others. The water cost allocation due to the General Fund was \$902,260 for General Fund activities that support the Water Fund, with an additional \$134,637 for customer service costs (water portion based on percentage of water versus sewer accounts) for a total of \$1,036,897. The General Fund cost allocation calculations are show in Appendix B.

1.1.6. Water Recharge Credits

The State of Arizona (State) requires the City to recharge water into the State system based on the amount of water drawn annually. The City's sewer system is projected to discharge water (reclaimed water) back into the ground in an amount roughly equal to 1,960 acre feet (AF) in FY 2011-12. If the City was to purchase water credits on the open market, the water credit would cost \$403 per AF in FY 2011-12. The City has elected therefore to "purchase" or pay the Sewer Fund for the amount of reclaimed water that is discharged back into the ground and pay the prevailing market rate. This amounts to \$789,880 in FY 2011-12. The cost of water per AF is anticipated to increase in the future as is the amount of reclaimed water discharged by the sewer system. By the end of

the study period FY 2019-20, the annual payment from Water Fund to the Sewer Fund will be \$1,710,669.

1.2. Cost-of-Service

Red Oak performed a cost-of-service analysis for the FY 2011-12 test year to identify the cost to provide service to each customer class, summarized in Appendix C.

1.2.1. Revenue Requirements

The total 2011 revenue requirements consist of \$3,914,475 in operating costs and \$3,887,345 in capital costs (CIP and debt service). These costs are offset by miscellaneous non-rate revenues and WIFA loans. Water user charge revenue of \$6,748,818 is required to fund the remaining revenue requirements.

1.2.2. Allocation to Functional Cost Components

Different types of customers place different demands and hence different costs on the system. For example, the water demands of the residential class are different than the water demands of the commercial class. Residential customers tend to use less water in winter months and more water in summer months whereas commercial customers tend to use the same amount of water across all months of the year. It is therefore necessary to allocate costs to functional components to more equitably capture the costs of serving different customer classes. Various functions are involved in providing safe, on demand potable water to customers. Functional costs apply to both operating and capital costs. Red Oak allocated City operating costs to the following functional categories:

- Source of Supply
- Wells
- Pumping
- Transmission
- Distribution
- Storage
- General Plant
- Administration
- Tools and Equipment
- Power and Chemicals
- Meters and Services
- Customer Service

Red Oak grouped existing assets into similar functions for the cost-of-service analysis.

Once operating and capital facilities are organized by function, the functional cost components are allocated among service demand categories based on the service provided (e.g., Distribution or Customer Service).

1.2.3. Allocation of Costs to Customer Classes

The City currently provides service to the following two customer classes:

- Residential
- Commercial

The classes group customers with similar service requirement characteristics together and provide a means for allocating costs to customers.

Revenue requirements are generally allocated to functional cost components, which are then allocated among service categories that reflect the design parameter of the associated service facility. For example, distribution costs are related to services that distribute treated water to the City's customers. These facilities are designed to meet average day, maximum day and maximum hour demands. Distribution expenses are therefore allocated to the base, maximum day and maximum hour cost components.

Class cost-of-service is the product of unit cost-of-service and class units of service.

1.3. Rate Alternatives

Appendix C contains the detailed rate alternative calculations. The rate design alternatives are discussed in detail in the balance of this section of the report.

1.3.1. Current Rates

The City's current water rate structure is comprised of:

- A fixed base charge and
- A volume rate that increases by use (an inclining block rate structure) for residential and a uniform rate for commercial

Table 1-2 provides a summary of the City’s current residential water rates while Table 1-3 illustrates the City’s current commercial water rates.

**Table 1-2:
Current Residential Water Rates**

<u>Base Charge per Month</u>	
All meter sizes	\$14.85
<u>Usage (gallons)</u>	<u>Rate per kgal</u>
0 – 5,000	\$ 2.67
5,001 – 15,000	2.94
15,001 – 25,000	3.23
Over 25,000	3.55

**Table 1-3:
Current Commercial Monthly Water Rates**

<u>Base Charge per Month</u>	
All meter sizes	\$17.60
<u>Usage</u>	<u>Rate per kgal</u>
All	\$3.32

1.3.2. Proposed Base Charge

Table 1-4 summarizes the current and proposed base charges for FY 2011-12. The base charge is assessed on a monthly basis. Alternative 1 is an across-the-board increase of 10% on all base charges. Alternative 2 is a cost-of-service based charge which increases for larger meter sizes. The base charge in Alternative 2 is intended to recover meter replacement and maintenance costs, customer service costs and a portion of transmission costs that allows the City to be “ready to serve” customers when their account is activated or water is “turned on”.

**Table 1-4:
Current and Proposed Alternatives 1 and 2 Base Charges**

<u>Class</u>	<u>Meter Size (inches)</u>	<u>Alternative 1</u>			<u>Alternative 2</u>	
		<u>Current</u>	<u>Proposed</u>	<u>Difference From Current</u>	<u>Proposed</u>	<u>Difference From Current</u>
Residential	5/8	\$14.85	\$16.34	\$1.49	\$13.63	(\$1.22)
	3/4	14.85	16.34	1.49	14.64	(0.21)
	1	14.85	16.34	1.49	16.64	1.79
	1 1/2	14.85	16.34	1.49	21.65	6.80
	2	14.85	16.34	1.49	27.67	12.82
	3	14.85	16.34	1.49	43.70	28.85
	4	14.85	16.34	1.49	46.71	31.86
	6	14.85	16.34	1.49	111.87	97.02
	8	14.85	16.34	1.49	172.1	157.16
	10	14.85	16.34	1.49	242.18	227.33
Commercial	5/8	\$17.60	\$19.36	\$1.76	\$13.63	(\$3.97)
	3/4	17.60	19.36	1.76	14.64	(2.96)
	1	17.60	19.36	1.76	16.64	(0.96)
	1 1/2	17.60	19.36	1.76	21.65	4.05
	2	17.60	19.36	1.76	27.67	10.07
	3	17.60	19.36	1.76	43.70	26.10
	4	17.60	19.36	1.76	46.71	29.11
	6	17.60	19.36	1.76	111.87	94.27
	8	17.60	19.36	1.76	172.1	154.41
	10	17.60	19.36	1.76	242.18	224.58

1.3.3. Proposed Volume Rate Structure

Red Oak developed two volume rate alternatives, both which applies the City's current rate structure.

1.3.3.1. Alternative 1

Alternative 1 increases FY 2010-11 City volume rates for all customer classes by the proposed revenue increase of 10.0%. The block thresholds and the ratios of unit costs between blocks remain the same. Table 1-5 compares the volume rates between current and Alternative 1 rates.

**Table 1-5:
Current and Alternative 1 Water Volume Rates**

<u>Class</u>	<u>Block Thresholds</u> (gallons)	<u>Current</u>	<u>Alternative 1</u>	<u>\$ Difference</u>	<u>% Difference</u>
Residential	0 – 5,000	\$2.67	\$2.94	\$0.27	10%
	5,001 – 15,000	2.94	3.23	0.29	10%
	15,001 – 25,000	3.23	3.56	0.33	10%
	> 25,000	3.55	3.91	0.36	10%
Commercial	All Use	\$3.32	\$3.65	\$0.33	10%

Table 1-5 shows the volume rates for all customer classes and all blocks are proposed to increase by 10.0%. This alternative maintains the current rate structure while adjusting rates to reflect the revenue increases required in FY 2011-12 to meet financial obligations.

1.3.3.2. Alternative 2

Alternative 2 maintains the current rate structure and block thresholds, and adjusts unit costs for each customer class based on cost-of-service principles. Table 1-6 compares the current rates to Alternative 2 rates.

**Table 1-6:
Current and Alternative 2 Water Volume Rates**

<u>Class</u>	<u>Block Thresholds</u> (gallons)	<u>Current</u>	<u>Alternative 2</u>	<u>\$ Difference</u>	<u>% Difference</u>
Residential	0 – 5,000	\$2.67	\$2.76	\$0.09	3%
	5,001 – 15,000	2.94	3.04	0.10	3%
	15,001 – 25,000	3.23	3.34	0.11	3%
	> 25,000	3.55	3.67	0.12	3%
Commercial	All Use	\$3.32	\$4.46	\$1.14	34%

Alternative 2 maintains the current rate structure but recognizes that costs of service differ between residential and commercial classes. The difference in rates varies, from an increase in residential rates of 3% to an increase of 34% for commercial.

Both Alternative 1 and Alternative 2 rates were designed to generate the same amount of revenue.

1.3.4. Bill Impact Information

Figure 1-1 summarizes the monthly water bill for residential customers using between 0 and 25,000 gallons of water a month. Alternative 1 results in the highest bill for each usage level while Alternative 2 results in bill impacts closer to what current customers experience.

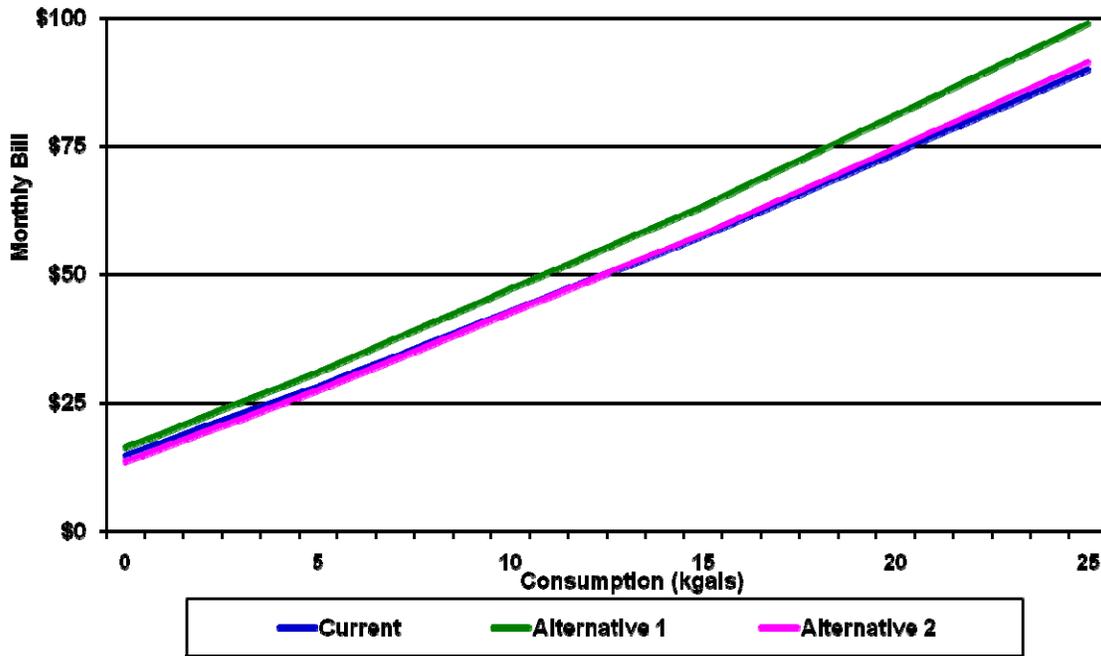


Figure 1-1: Water Residential Customer Impacts

1.4. Irrigation Water

The City currently provides irrigation water to a select number of customers known as the Dysart Ranchettes. Irrigation water is provided from a single well and is charged to customers at a rate of \$15.75 per hour. Based on the average volume of water pumped per hour the converted rate per thousand gallons is \$0.30.

Using City provided costs of production Red Oak developed a cost of service rate to recover the full cost of the irrigation water. The full cost of service rate is \$1.24 per kgals. The second alternative that Red Oak developed, provide cost of service by recovery level. The recovery levels are illustrated in Table 1-7.

**Table 1-7:
Irrigation Water Cost Recovery Levels**

<u>Cost of Service Recovery Level</u>	<u>Proposed Rate</u> (per kgals)
24%	\$0.30
25%	0.31
30%	0.38
40%	0.50
50%	0.62
60%	0.75
70%	0.87
75%	0.93
80%	1.00
90%	1.12
100%	1.24

2. Sewer Financial Plan and Rate Design

2.1. Financial Plan

The financial plan is comprised of a Sewer Fund divided into two subfunds an operations (non-growth) and impact fee (growth) subfunds. The sewer rate revenue requirements of the City's sewer operations represent the cost of providing service and includes operation and maintenance (O&M) costs, non-growth related costs (cash funded project costs and debt service), and transfers to the impact fee subfund. Growth-related capital costs are assigned to the impact fee subfund, and transfers from the operations subfund are made to fund growth-related projects and/or debt service.

2.1.1. Cash Flow

Beginning of year cash balance for the Sewer Fund, provided by the City, was \$124,586 as of July 1, 2010.

With a 10.0% rate increase effective FY 2011-12, sewer charge revenues are estimated at \$2,918,963 in FY 2011-12 an increase of \$265,360 over the prior fiscal year. Table 2-1 provides a summary of sewer rate revenue increases over the 2011 through 2020 study period.

**Table 2-1:
Projected Sewer Rate Revenue Increase**

<u>Fiscal Year</u>	<u>Increase</u>	<u>Fiscal Year</u>	<u>Increase</u>
2010-11	0.0%	2015-16	0.6%
2011-12	10.0%	2016-17	2.9%
2012-13	10.0%	2017-18	3.3%
2013-14	0.0%	2018-19	3.8%
2014-15	0.0%	2019-20	4.3%

The proposed rate revenue increases are necessary to fund operating and capital expenditures (including debt service) over the study period while adhering to financial policies:

- Achieve a minimum ratio of 1.20 times annual debt service or debt service coverage (DSC) ratio on existing and projected annual debt service. Attainment of this ratio provides assurance that current period revenues will be sufficient to repay projected debt.

- Accumulate funds to maintain an annual cash balance or reserves equal to 2 months (16%) of annual O&M. It is anticipated that this will be achieved by FY 2013-14.

Debt Service coverage ratios are a measure of a utility's ability to repay its debt obligations. The proposed financial plan is designed to achieve a 1.20 times annual DSC ratio for the Sewer Fund. At a ratio of 1.20, revenue available to pay debt service is 20% greater than the annual debt service payment; providing assurance to bond holders that there will be sufficient revenues available to repay the City's outstanding debt.

Cash reserve ratios are determined by dividing the end-of-year cash balance by annual O&M expenses. A positive cash reserve ratio indicates there is sufficient cash on hand to pay for expenses that the City has incurred and must be paid before sewer user revenue has been collected to pay the expenses.

While a rate revenue increase has been projected for 7 years of the study period, adjustments to the proposed rate increases may also be necessary depending upon the level of future capital improvement program (CIP) expenditures and a variety of other factors, including, and not limited to:

- Changes in sewer flows
- Inflation and regulatory requirements

At minimum, annual reviews should be conducted to assess the condition of the Sewer Fund and necessity of future rate revenue adjustments.

Sewer Fund expenditures are primarily funded by sewer charge revenues. Additional revenue sources include impact fees, water recharge credit revenue and other miscellaneous revenues.

The Sewer Fund was projected to have a negative end-of-year cash balance for FY 2010-11, and a zero balance at the end of FY 2011-12 after repaying loans for the shortfalls in the prior year. Beginning in FY 2012-13 the Sewer Fund maintains a positive annual cash balance that grows over time.

Appendix A summarizes the sewer financial plan.

2.1.1.1. Sewer User Charges

The financial plan is premised upon the City's FY 2010-11 budgeted sewer flows. Future year revenues are adjusted based on the assumed growth rate for the City (1% per year) and future year rate revenue increases. Subsection 2.3 of this section of the report describes the proposed rate structure alternatives. Each alternative was designed to recover the same amount of revenue.

2.1.1.2. Sewer Impact Fees

The City of El Mirage has an existing sewer impact fee that is a one-time fee assessed to new development. Due to the slowdown in new development, there is minimal impact fee revenue projected throughout the study period.

2.1.1.3. Miscellaneous Revenue

The Sewer Fund has a variety of miscellaneous fee and charge revenues. The financial plan incorporates these revenues based on FY 2010-11 budgeted projections. Revenue attributable to system growth, such as late fees, is inflated by the growth rate; all other revenues are increased by 3% per year throughout the study period.

2.1.2. Operations and Maintenance (O&M)

Projected O&M expenditures are based on City projections through FY 2014-15 and thereafter, adjusted for inflation at a rate of 3% per year. O&M expenses include direct costs associated with the sewer system and an allocation of City administration costs.

2.1.3. CIP

The sewer system CIP is based on City provided line item CIP projections in current year dollars. Red Oak applied an escalation factor of 5% to future CIP costs. The detailed project listing in Appendix A includes the dollar amount and timing of capital expenditures over the study period. The City's CIP is divided into two parts, growth related and non-growth related projects.

2.1.4. Debt Service

The Water Fund currently has three outstanding Water Infrastructure Finance Authority (WIFA) debt issues:

- 2006 WIFA loan
- 2008 WIFA loan
- 2009 WIFA loan

The loans were issued in order to finance capital projects for the sewer system.

It is the City's policy to use WIFA loans to fund future capital projects. Therefore the financial plan projects WIFA loans for each year of the study period to finance the CIP. The City has pre-authorization for future WIFA loans and "draws down" on the authority as capital projects commence. The loans are assumed to have a 20 year repayment period and a 3% interest rate.

2.1.5. General Fund Cost Allocation

Red Oak worked in conjunction with City staff to develop a General Fund cost allocation for water, sewer and sanitation to reflect the services provided to each of these utilities by the General Fund. General Fund departments or cost centers that had a portion of their costs allocated to other departments or City services include:

- Municipal Court
- General Administration
- Information Technology
- City Clerk
- Human Resources
- Finance
- Facilities Management
- Council
- Legal Services
- Safety and Loss

The above listed departments or City services maintain their own budgets and support the daily functioning of the City, but generally speaking do not have revenue streams to support themselves. The analysis determined that for FY 2009-10, the costs associated with these departments and services that support other City activities were \$5,811,150. City activities that benefit from the above listed departments and services include not only the Water, Sewer and Sanitation Funds, but also streets, engineering, community development and others. The sewer cost allocation to due to the General Fund for the General Fund activities that support the Sewer Fund is \$524,102 with an additional \$111,859 for customer service costs (sewer portion based on percentage of water versus sewer accounts) for a total of \$635,961. The General Fund cost allocation calculations are show in Appendix B.

2.1.6. Water Recharge Credits

The State requires the City recharge water into the State system based on the amount of water drawn annually. The City's sewer system is projected to discharge water (reclaimed water) back into the ground in an amount roughly equal to 1,960 acre feet (AF) in FY 2011-12. If the City was to purchase water credits on the open market the water credit would cost \$403 per AF in FY 2011-12. The City has elected therefore to "purchase" or pay the Sewer Fund for the amount of reclaimed water that is discharged back into the ground and pay the prevailing market rate. This amounts to \$789,880 in FY 2011-12. The cost of water per AF is anticipated to increase in the future as is the amount of reclaimed water discharged by the sewer system. By the end of the study

period FY 2019-20, the annual payment from Water Fund to the Sewer Fund will be \$1,710,669. The sale of water recharge credits by the Sewer Fund is a direct offset to the purchase from the Water Fund and allows the City to minimize rate increases in the Sewer Fund in the future.

2.2. Cost-of-Service

Red Oak completed a cost-of-service analysis for the FY 2011-12 test year to identify the cost to provide service to each sewer customer class, summarized in Appendix C.

2.2.1. Revenue Requirements

The total FY 2011-12 revenue requirements consist of \$1,910,485 in operating costs and \$3,441,809 in capital (CIP and debt service) costs. These costs are offset by miscellaneous non-rate revenues and WIFA loans for the Sewer Fund. Sewer user charge revenue of \$2,918,963 is required to fund the remaining revenue requirements.

2.2.2. Allocation to Functional Cost Components

As was the case for water, different customer classes often place different demands on sewer systems. In some cases the cost to treat residential sewer flows is different than the cost to serve commercial sewer flows. In order to determine the equitable cost allocations across customer classes it is necessary to first functionalize cost components. Various functions are involved in providing sewer service to customers. Functional costs apply to both operating and capital costs. Red Oak functionalized or allocated City operating costs to the following categories:

- Treatment
- Collection
- Interceptors
- Lift Stations
- Administrative
- Customer Accounts
- Meters and Services

Red Oak grouped existing assets into similar functions for the cost-of-service analysis.

2.2.3. Allocation of Costs to Customer Classes

The City currently provides service to the following two classes:

- Residential
- Commercial

The classes group together customers with similar service requirements characteristics and provide a means for allocating costs to customers.

Revenue requirements are generally allocated to functional cost components which are then used to determine a unit cost per function. Treatment costs, for example, are measured as a unit cost per 1,000 gallons of treated flow.

Class cost-of-service then is the product of unit cost-of-service and class units of service.

2.3. Rate Alternatives

Appendix C contains the detailed rate alternative calculations. The two rate design alternatives are discussed in detail in the balance of this section of the report.

2.3.1. Current Rates

The City’s current Sewer rate structure consists of:

- A uniform base charge for all meter sizes and customer classes
- A uniform flow charge that is constant across the residential and commercial classes

Table 2-2 provides a summary of the City’s current residential rates, billed monthly.

**Table 2-2:
Current Sewer Monthly Base Charges**

<u>Customer Class</u>	<u>Meter Size</u> (inches)	<u>Charge</u>
Residential	5/8	\$4.75
and	3/4	4.75
Commercial	1	4.75
	1 1/2	4.75
	2	4.75
	3	4.75
	4	4.75
	6	4.75
	7	4.75
	10	4.75

The City's volume rates which are illustrated in Table 2-3.

**Table 2-3:
Current Sewer Volume Rates**

<u>Customer Class</u>	<u>Flows</u>	<u>Rate</u> (per kgal)
Residential	All	\$2.70
Commercial	All	2.70

2.3.2. Proposed Base Charge

Table 2-4 summarizes current and proposed sewer base charges for FY 2011-12. The base charge is assessed on a monthly basis. Alternative 1 is an across-the-board increase of 10% on all base charges. Alternative 2 is a cost-of-service based charge which increases for larger meter sizes. The base charge in Alternative 2 is intended to recover meter replacement and maintenance costs, customer service costs and administrative costs.

**Table 2-4:
Current and Proposed Sewer Base Charges**

<u>Class</u>	<u>Meter Size</u> (inches)	<u>Current</u>	<u>Alternative 1</u>		<u>Alternative 2</u>	
			<u>Proposed</u>	<u>Difference From Current</u>	<u>Proposed</u>	<u>Difference From Current</u>
Residential	5/8	\$4.75	\$5.23	\$ 0.48	\$3.29	(\$1.46)
and	3/4	4.75	5.23	0.48	4.93	0.18
Commercial	1	4.75	5.23	0.48	8.22	3.47
	1 1/2	4.75	5.23	0.48	16.45	11.70
	2	4.75	5.23	0.48	26.31	21.56
	3	4.75	5.23	0.48	52.63	47.88
	4	4.75	5.23	0.48	57.56	52.81
	6	4.75	5.23	0.48	164.46	159.71
	8	4.75	5.23	0.48	263.14	258.39
	10	4.75	5.23	0.48	378.26	373.51

The Alternative 1 base charge reflects a proposed revenue increase of 10.0% in FY 2011-12, uniformly applied to all customer classes, each year for the remainder of the study period. Alternative 2 is based on cost-of-service and is intended to recover customer billing, customer service and administrative related costs.

2.3.3. Proposed Volume Rate Structure

Red Oak developed two volume rate alternatives, the first is an update of the City’s current rate structure and the second is a cost-of-service based structure.

2.3.3.1. Alternative 1

Alternative 1 increases flow rates uniformly for all customer classes by the proposed FY 2011-12 revenue increase of 10.0%. Table 2-5 compares the flow rates between current and Alternative 1 rates.

**Table 2-5:
Current and Alternative 1 Flow Rates**

<u>Class</u>	<u>Flows</u> (gallons)	<u>Current</u> (\$/kgals)	<u>Alternative 1</u> (\$/kgals)	<u>Difference</u> (\$/kgals)
Residential	All	\$2.70	\$2.97	\$0.27
Commercial	All	2.70	2.97	0.27

This alternative maintains the current rate structure, while adjusting rates to reflect revenue increases required in FY 2011-12 to meet financial obligations.

2.3.3.2. Alternative 2

Alternative 2 seeks to meet class cost-of-service principles. There was no strength data to support a differential rate between residential and commercial classes, as such the same volume rate is proposed for both customer classes. Table 2-6 illustrates current and proposed Alternative 2 flow rate structures.

**Table 2-6:
Current and Alternative 2 Flow Rates**

<u>Class</u>	<u>Flows</u> (gallons)	<u>Current</u> <u>Rate</u> (\$/ kgals)	<u>Alternative 2</u> <u>Rate</u> (\$/kgals)	<u>Difference</u> (\$/kgals)
Residential	All	\$2.70	\$2.97	\$0.27
Commercial	All	2.70	2.97	0.27

While there is a difference in the base charges between Alternatives 1 and 2 the volume rate is the same resulting in an increase of \$0.27 per thousand gallons of contributed flow when compared to the City’s current volume rates.

2.3.4. Bill Impact Information

Figure 2-1 summarizes the monthly sewer bill with sewer flows between 0 and 25,000 gallons. The monthly bill for a residential customer with monthly contributed flows below 5,000 gallons will see a lower bill under Alternative 2 compared to the current rates; they will see a lower bill for monthly flows above 5,000 gallons under

Alternative 2. A customer will see a higher bill under Alternative 1 compared to the current rate structure regardless of sewer flows.

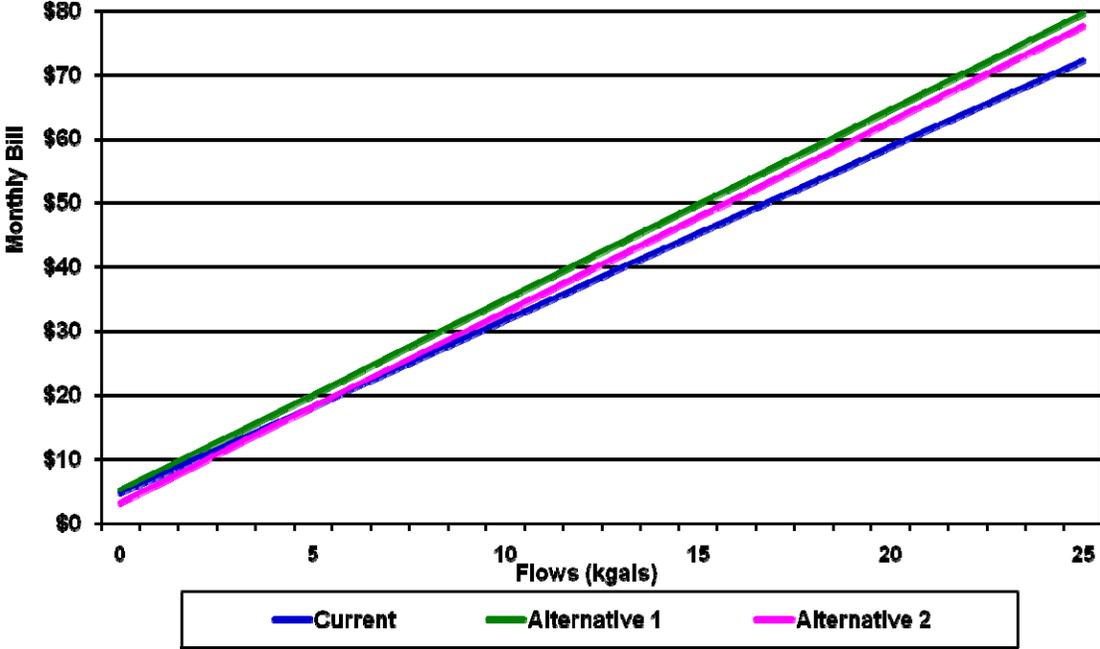


Figure 2-1: Sewer Residential Customer Impacts

3. Sanitation Financial Plan

3.1. Financial Plan

The financial plan is comprised of a single Sanitation Fund. The sanitation rate revenue requirements of the City's sanitation operations represent the cost of providing service through a contracted entity that provides trash collection and City costs associated with administration and customer service.

3.1.1. Cash Flow

Beginning of year cash balance for the Sanitation Fund, provided by the City, was \$0 as of July 1, 2010.

Two cash flows were developed for the City. One plan that proposes a future recycling program and one that maintains the current status quo.

3.2. Financial Plan Without Recycling Program

With a 10.0% rate increase effective FY 2011-12, sanitation charge revenues are estimated at \$1,204,500 in FY 2011-12 an increase of \$109,500 over the prior fiscal year. Table 3-1 provides a summary of sanitation rate revenue increases over the FY 2010-11 through FY 2019-20 study period.

**Table 3-1:
Projected Sanitation Rate Revenue Increase**

<u>Fiscal Year</u>	<u>Increase</u>	<u>Fiscal Year</u>	<u>Increase</u>
2010-11	0.0%	2015-16	0.0%
2011-12	10.0%	2016-17	3.0%
2012-13	10.0%	2017-18	8.7%
2013-14	0.0%	2018-19	5.7%
2014-15	0.0%	2019-20	4.6%

The proposed rate revenue increases are necessary to fund operating expenditures throughout the study period and is proposed to be applied to the City's current sanitation rates.

While a rate revenue increase has been projected for 6 years of the study period, adjustments to the proposed rate increases may also be necessary depending upon the level of future expenditures such as landfill fees and costs of containers.

At minimum, annual reviews should be conducted to assess the condition of the Sanitation Fund and necessity of future rate revenue adjustments.

Appendix A summarizes the Sanitation financial plan without the recycling program.

3.2.1. Sanitation User Charges

The financial plan is premised upon the City's FY 2010-11 budgeted sanitation accounts. Future year revenues are adjusted based on future year rate revenue increases only as there is no growth in the number of sanitation accounts projected.

3.2.2. O&M

Projected O&M expenditures are based on the FY 2010-11 budget, adjusted for inflation at a rate of 3% per year. O&M expenses include costs associated such as containers and parts, landfill fees, contract costs and City administration costs.

3.2.3. General Fund Cost Allocation

Red Oak worked in conjunction with City staff to develop a General Fund cost allocation for water, sewer and sanitation to reflect the services provided to each of these utilities by the General Fund. General Fund departments or cost centers that had a portion of their costs allocated to other departments or City services include:

- Municipal Court
- General Administration
- Information Technology
- City Clerk
- Human Resources
- Finance
- Facilities Management
- Council
- Legal Services
- Safety and Loss

The above listed departments or City services maintain their own budgets and support the daily functioning of the City, but generally speaking do not have revenue streams to support themselves. The analysis determined that for FY 2009-10, the costs associated with these departments and services that support other City activities were \$5,811,150. City activities that benefit from the above listed departments and services include not only the Water, Sewer and Sanitation Funds, but also streets, engineering, community

development and others. The sanitation cost allocation due to the general fund is \$292,226. The General Fund cost allocation calculations are show in Appendix B.

3.3. Financial Plan With Recycling Program

While the City of El Mirage does not currently provide recycling service it is an option that is being considered in the future. In order to make an informed decision on whether or not to proceed with a recycling program the City asked Red Oak to develop a financial plan for sanitation that included a recycling plan.

This financial plan projects higher rate increases in the earlier years of the plan in order to finance the purchase for recycling containers for the recycling program.

With a 10.0% rate increase effective FY 2011-12, sanitation charge revenues are estimated at \$1,204,500 in FY 2011-12 an increase of \$109,500 over the prior fiscal year. Table 3-2 provides a summary of sanitation rate revenue increases over the FY 2010-11 through FY 2019-20 study period.

**Table 3-2:
Projected Sanitation Rate Revenue Increase**

<u>Fiscal Year</u>	<u>Increase</u>	<u>Fiscal Year</u>	<u>Increase</u>
2010-11	0.0%	2015-16	0.0%
2011-12	10.0%	2016-17	2.1%
2012-13	10.0%	2017-18	5.3%
2013-14	8.0%	2018-19	0.0%
2014-15	3.9%	2019-20	0.6%

The proposed rate revenue increases are necessary to fund operating expenditures throughout the study period and is proposed to be applied to the City’s current sanitation rates.

While a rate revenue increase has been projected for 7 years of the study period, adjustments to the proposed rate increases may also be necessary depending upon the level of future expenditures such as landfill fees and costs of containers.

At minimum, annual reviews should be conducted to assess the condition of the Sanitation Fund and necessity of future rate revenue adjustments.

Appendix A summarizes the Sanitation financial plan with the recycling program.

3.3.1. Sanitation User Charges

The financial plan is premised upon the City's FY 2010-11 budgeted sanitation accounts. Future year revenues are adjusted based on future year rate revenue increases only as there is no growth in the number of sanitation accounts projected.

3.3.2. O&M

Projected O&M expenditures are based on the FY 2010-11 budget, adjusted for inflation at a rate of 3% per year. O&M expenses include costs associated such as containers and parts, landfill fees, contract costs and City administration costs.

3.3.3. Capital

Under this plan the City is projected to acquire recycling containers in FY 2011-12 at an estimated cost of \$577,000 in current day dollars. This expenditure is proposed to be debt funded by a bank loan which is discussed in Section 3.1.6.

3.3.4. Debt

In order for the City to acquire the recycling containers a single loan issue (a bank loan) is projected for \$577,500 at an interest rate of 5% and a term of 7 years.

3.4. Customer Impacts

The projected revenue increase for FY 2011-12 is 10% under each alternative (with and without recycling). All customers would see their monthly sanitation bill increase from the current \$10.13 to \$11.14 per month.