Section 6 – Water Conservation Rates

Content

a. Water Rates (code)
b. Sewer Rates (code)
c. 2007 Cost of Service Report

Summary

In early 2007, the City of Lubbock completed a cost of service study and a water conservation study for the water and sewer rates. This was the culmination of over 3 years of work by a Citizens Task Force on water rates, by the Lubbock Water Advisory Commission, by the City Council, and by city staff.

Prior to 1991, the City of Lubbock had a decreasing water block rate. This means that customers pay a lower rate per 1,000 gallons as they use high amounts of water. In 1991 the City took the first step towards a water conservation rate by adopting a uniform rate. Under this plan all customers would not pay a lower rate for use of high amounts of water. Now 16 years later, the City of Lubbock has taken the next step towards water conservation rates by adopting an increasing block rate. This rate provides the lowest rate for essential life and business use. A second and higher rate is charged for outside irrigation and other reasonable peak use. A third and higher rate is charged for what is considered excessive use.

The City also took one additional step towards conservation by adopting what is called an Average Winter Consumption block rate. Under this plan, block one volume is defined by each customers winter use. The volume in block one is set by determining the average use of each customer for the months of September through February.

The new rates should help all customers have a greater interest in water conservation and in the management of this significant and necessary resource.

Section 6 – Water Conservation Rates

a. Water Rates (code of ordinances)

DIVISION 2.

RATES AND CHARGES

Sec. 28-51. Power of city manager to fix.

The city manager shall have authority to decide any question which may arise and which is not fully covered by any of the provisions of this article and he shall have the right to fix and determine any water rate not provided for in this article and his decision in such cases shall be final, subject to modification by the mayor and City Council.

(Ord. No. 348, § 13, 8-5-26; Code 1959, § 34-13)

Sec. 28-52. Water base charge.

(a) The city, through the city manager, shall charge and collect from every customer and every customer shall pay a monthly base charge for water which shall be billed to all customers based upon the water meter size as follows:

Meter Size	Water Base Charge
Three-quarter-inch (3/4") meter	$7.66
One-inch (1") meter	$12.79
One-and-a-half inch (1.5") meter	$25.51
Two-inch (2") meter	$40.83
Three-inch (3") meter	$81.73
Four-inch (4") meter	$127.69
Six-inch (6") meter	$255.31
Eight-inch (8") meter	$408.51
Ten-inch (10") meter	$587.29

(b) The water base charge as set forth in this section shall be effective April 1, 2007.

(Ord. No. 1241, § 3, 6-26-52; Ord. No. 1882, § 1, 4-26-56; Ord. No. 4229, § 1, 10-24-63; Ord. No. 5694, § 1, 7-2-69; Ord. No. 7488, § 1, 7-14-77; Ord. No. 8046, § 2, 5-22-80; Ord. No. 8082, § 2, 8-28-80; Ord. No. 8454, § 1, 6-23-83; Ord. No. 9102, § 2(1), 8-27-87; Ord. No. 9301, § 7, 8-10-89; Ord. No. 9551, § 1, 9-10-92; Ord. No. 10183, § 1, 8-26-99; Ord. No. 2001-O0078, § 1, 9-13-01; Code 1959, § 3-11; Ord. No. 2002-O0097, § 1, 9-17-02; Ord. No. 2005-O0113, § 1, 10-13-05; Ord. No. 2006-O0097, § 1, 9-13-06; Ord. No. 2007-O0010, §§ 1, 3, 2-22-07)

Sec. 28-53. Water volume rate generally.

(a) In addition to the base charge, the city, through the city manager, shall determine the amount of water used by each customer through monthly meter readings and shall charge to and collect from every customer and every customer shall pay for water furnished by the city to the customer. The water furnished by the city shall be measured on a per one thousand (1,000) gallons basis and billed as follows:

Block 1	$2.09 per 1,000 gallons
Block 2	$2.61 per 1,000 gallons
Block 3	$3.61 per 1,000 gallons

(1) Single-family residential. The Block 1 volume is the amount of water used up to 100% of the average winter consumption (AWC) of each respective customer's premises, the AWC being the average volume of water used as measured by the nonirrigation meter readings for the months of September, October, November, December, January and February, and updated in March of each respective year; the Block 2 volume is the amount of water used in addition to the Block 1 volume up to an additional 40,000 gallons; and the Block 3 volume is the volume of water used in excess of the Block 1 and Block 2 volumes. For new customers that do not have an AWC calculated for their service, an AWC of seven thousand (7,000) gallons shall be used for Block 1 volume purposes.

(2) Single-family residential irrigation. Does not include a Block 1 volume; the Block 2 volume of water is from 1,000 gallons used up to 40,000 gallons; and the Block 3 volume is the amount of water used in excess of the Block 2 volume.

(3) Multi-family residential, commercial and public. The Block 1 volume is the amount of water used up to 100% of the average winter consumption (AWC) of each multi-family residential, commercial and public premises, respectively, the AWC being the average volume of water used as measured by the nonirrigation meter readings for the months of September, October, November, December, January and February, and updated in March of each respective year; the Block 2 volume is the amount of water used in addition to the Block 1 volume up to an additional 50% of the AWC (total of Block 1 and Block 2 is equal to 150% of the AWC); and the Block 3 volume is the amount of water used in excess of the Block 1 and Block 2 volumes.

(4) Nonresidential irrigation. Does not include a Block 1 volume; the Block 2 volume of water shall be the average monthly use by all nonresidential irrigation users by meter size for nonresidential irrigation services. The Block 3 volume is the volume of water used in excess of Block 2 volume.

(5) Schools. All water used will be charged at a Block 1 rate.

(b) The water volume rates as set forth in this section shall be effective April 1, 2007.

(Ord. No. 1241, § 1, 6-26-52; Ord. No. 1882, § 1, 4-26-56; Ord. No. 4229, § 1, 10-24-63; Ord. No. 5694, § 1, 7-24-69; Ord. No. 7488, § 1, 7-14-77; Ord. No. 8046, § 1, 5-22-80; Ord. No. 8082, § 1, 8-28-80; Ord. No. 8454, § 2, 6-23-83; Ord. No. 9102, § 2(2), 8-27-87; Ord. No. 9301, § 8, 8-10-89; Ord. No. 9551, § 2, 9-10-92; Ord. No. 10183, § 2, 8-26-99; Ord. No. 2001-O0078, § 1, 9-13-01; Code 1959, § 34-10; Ord. No. O0097, § 2, 9-17-02; Ord. No. 2005-O0113, § 2, 10-13-05; Ord. No. 2006-O0097, § 2, 9-13-06; Ord. No. 2007-O0010, §§ 2, 3, 2-22-07)

Sec. 28-54. Texas Tech University.

The rate for water supplied to Texas Tech University shall be the same rate as established for and applicable to schools in sections 28-52 and 28-53 of the Code of Ordinances of the City of Lubbock.

(Ord. No. 1241, § 5, 6-26-52; Ord. No. 1258, 8-4-52; Ord. No. 1882, § 1, 4-26-56; Ord. No. 4229, § 1, 10-24-63; Ord. No. 5035, § 1, 6-23-66; Ord. No. 7488, § 1, 7-14-77; Ord. No. 8046, § 3, 5-22-80; Ord. No. 8082, § 3, 8-28-80; Ord. No. 8454, § 3, 6-23-83; Ord. No. 9551, § 3, 9-10-92; Code 1959, § 34-12)

Sec. 28-55. Lubbock Christian University.

The rate for water supplied to Lubbock Christian University shall be the same rate as established for and applicable to schools in sections 28-52 and 28-53 of the Code of Ordinances of the City of Lubbock.

(Ord. No. 5558, § 1, 10-24-68; Ord. No. 9551, § 4, 9-10-92; Code 1959, § 34-12.2)

Sec. 28-56. Buckner Baptist Home.

The rates for water supplied to the Buckner Baptist Home shall be the same rate as established for and applicable to multiple-family in sections 28-52 and 28-53 of the Code of Ordinances of the City of Lubbock.

(Ord. No. 5255, 5-25-67; Ord. No. 9551, § 5, 9-10-92; Code 1959, § 34.12.1)

Sec. 28-57. When bills due and payable.

(a) All bills for water consumed shall be due and payable twenty-one (21) days after issuance. Simple interest of five (5) percent shall be charged to the consumer if the consumer pays his bill after twenty-one (21) days from issuance. The five (5) percent interest on late payments shall apply to all classes of consumers served. Provided, however, that this section shall be subject to Chapter 182, subchapter A of the Texas Utilities Code, "Payment of Utility Bill for Elderly Individual."

(b) As used in this section, date of issuance shall mean the date when a bill is placed in the United States Mail, properly addressed to the consumer.

(Ord. No. 1241, § 2, 6-26-52; Ord. No. 8389, § 1, 1-27-83; Ord. No. 2001-O0044, § 2, 6-26-01; Code 1959, § 34-14)

Section 6 – Water Conservation Rates

b. Sewer Rates (code of ordinances)

DIVISION 2.

SEWER SERVICE AND CHARGES

Sec. 28-86. Rates charged for sewer service.

(a) The City, through the City Manager, shall charge and collect from every customer and every customer shall pay a monthly base charge for sewer service which shall be billed to all customers based upon the water meter size as follows:

Meter Size	Base Charge
Three-quarter-inch (3/4") meter	$4.62
One-inch (1") meter	$5.63
One-and-a-half-inch (1.5") meter	$8.14
Two-inch (2") meter	$11.16
Three-inch (3") meter	$18.21
Four-inch (4") meter	$28.28
Six-inch (6") meter	$53.44
Eight-inch (8") meter	$83.64
Ten-inch (10") meter	$118.88

(b) In addition to the base charge, the City, through the City Manager shall determine the volume of sewer flow produced by each customer as described herein and each customer shall pay the sewer volume rate per one thousand (1,000) gallons, which shall be as follows:

Flow Rate: $1.69

The volume of sewer flow produced by a single family residential customer and customers not required to meter as provided in Section 28-88 of the Code of Ordinances of the City of Lubbock shall be determined by calculating the average water volume used as measured by the nonirrigation meter readings for the months of November, December, January and February. This volume shall be defined as the Average Winter Consumption (AWC), and it shall be updated for billing purposes in March of each year. In the event a residential customer or premises (i.e., a new premises) does not have a water consumption history for such months, a water volume of 7,000 gallons per month shall be utilized by default. The volume of sewer flow produced by other customers shall be determined as provided for in Section 28-88 of the Code of Ordinances of the City of Lubbock.

(c) Surcharge: Sewer customers or others discharging wastes to the sanitary sewer system which do not exceed the limits established in 28-99 and which do not exhibit any of the characteristics of wastes prohibited by sections 28-98 and 28-100 but have concentration(s) in excess of "normal domestic sewage", shall pretreat the wastes to meet the concentrations of "normal domestic sewage"; however, such excessive BOD and TSS wastes may be accepted for treatment if all of the following requirements are met:

(1) The wastes will not cause damage to the wastewater collection system;

(2) The wastes will not impair the city's treatment process;

(3) The wastes will not cause contamination of POTW sludges thus limiting sludge disposal options or practices;

(4) The person(s) or owner(s) responsible for the wastes pays a surcharge, in addition to the regular water and sewer rates, in accordance with the following cost factors and formula:

V = Volume reported in millions of gallons (MG)

BOD = Biochemical oxygen demand analyzed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", or the latest EPA approved method, and reported in units of milligrams per liter (mg/l).

TSS = Total suspended solids analyzed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", or the latest EPA approved method, and reported in units of milligrams per liter (mg/l).

Cost Factor BOD = 55% of the total budgeted costs for operating and maintaining the wastewater treatment facilities divided by total pounds BOD treated.

Cost Factor TSS = 45% of the total budgeted costs for operating and maintaining the wastewater treatment facilities divided by total pounds TSS treated.

Surcharge = Surcharge computed in dollars as follows:

BOD Surcharge = V x (B -- C) x 8.34 x Cost Factor BOD

TSS Surcharge = V x (B -- C) x 8.34 x Cost Factor TSS

Where:

B = Total contribution from user (mg/l).

C = Normal domestic sewage strength (two hundred fifty (250) mg/l).

8.34 = Pounds per gallon of water (conversion).

(d) The surcharge rate for sewer service as shown in paragraph (c), shall be determined each year following city council approval of the annual operations budget. The surcharge rate shall be examined by the city manager, or his designee, and such adjustments shall be made to the sewer surcharge rate on October 1 of each year.

(Ord. No. 9294, § 1, 8-10-89; Ord. No. 9473, § 1, 8-22-91; Ord. No. 9733, § 1, 9-8-94; Ord. No. 9802, § 7, 5-11-95; Ord. No. 9932, § 1, 8-22-96; Ord. No. 10182, § 1, 8-26-99; Ord. No. 2001-O0077, § 1, 9-13-01; Ord. No. 2002-O0098, § 1, 9-17-02; Ord. No. 2005-O0114, § 1, 10-13-05; Ord. No. 2007-O0011, § 1, 1-25-07)

Sec. 28-87. Measurement of wastewater flow of commercial or industrial users.

It shall be the responsibility of all the commercial or industrial users to provide an approved metering device for the sewage flow or metering for the private water supplier to determine the quantity discharged. In the event the metering measurement is not provided, sewer service shall be determined and assessed by the city until such a measuring device is provided. Measuring devices shall be installed by the user within ninety (90) days of official notice from the city.

(Ord. No. 9294, § 1, 8-10-89)

Sec. 28-88. Measurement of wastewater flow of commercial or industrial users with irrigation, in plant, in process or in product water losses.

It shall be the responsibility of all the commercial and/or industrial users with substantial irrigation, in plant, in process or in product water losses, to provide an approved metering device to determine the quantity of sewage discharged. Such metering devices, quantities, and exemptions claimed shall be approved by the director of water utilities prior to incorporation into the billing process. In the event the metering measurement is not provided, the service charge shall be determined and assessed by the city until such a measuring device is provided. Measuring devices shall be installed by the user, and at the user's expense, within ninety (90) days of official notice from the city.

(Ord. No. 9294, § 1, 8-10-89)

Sec. 28-89. Disconnection for nonpayment for service.

(a) In the event any person, firm or institution presently connected with city water service fails or refuses to pay the assessed sewer charge within fifteen (15) days after due date, water and sewer service shall be discontinued at the premises assessed and not be renewed until payment of the assessed charges plus the conditions and charges for reestablishment of water service as provided in 28-24 of this Code.

(b) In the event any person, firm or institution not connected with city water service fails or refuses to pay the assessed sewer charge within fifteen (15) days after due date, sewer service shall be discontinued for those residences or businesses assessed and not less than a fifty-dollar ($50.00) or greater than a five hundred-dollar ($500.00) reconnect charge shall be due with all back payments before reconnect will be made.

(Ord. No. 9294, § 1, 8-10-89)

Section 6 – Water Conservation Rates

c. 2007 Cost of Service Study

City of Lubbock, Texas

Water and Wastewater Cost of Service and Rate Study

December 2006

Report Prepared By:

RED OAK CONSULTING
A DIVISION OF MALCOLM PIRNIE

3921-004

Contents

1. Executive Summary

1.1. Introduction

The City of Lubbock (City) serves approximately 75,300 water customers and 70,600 wastewater customers. The City's water and wastewater operations are intended to be financially self-sufficient with funding for capital and operating requirements derived primarily from monthly user charges assessed based on service provided.

The City authorized Red Oak Consulting (Red Oak) to complete this study to recommend water and wastewater user charges that, based on projected customer data (number of accounts, water use, and wastewater billing units), will generate sufficient revenue to meet the annual revenue requirements and meet reserve requirements as projected by the City. This study includes the following:

- Review of the City-prepared 10-year financial plan.
- Preparation of a fiscal year (FY) 2007 cost of service analysis.
- Design of water and wastewater rates based on the FY 2007 cost of service analysis.

1.2. Study Findings and Recommendations

1.2.1. Water Rate Study

The principal findings of the water rate study are as follows:

- Revenue under existing water rates is inadequate to meet projected revenue requirements during the study period. The revenue increases shown below are indicated to meet future water utility expenses and provide adequate reserves and to maintain the financial integrity of the Water Fund. The City should annually review the timing and magnitude of these increases to determine their appropriateness.

Fiscal Year	Water Sales Revenue Increase (%)	Fiscal Year	Water Sales Revenue Increase (%)
2007[1]	11.0	2012	4.0
2008	12.0	2013	9.0
2009	4.0	2014	4.0
2010	5.0	2015	0.0
2011	6.0	2016	0.0

(1) The fiscal year 2006-07 increase went into effect on October 1, 2006, the start of the City's fiscal year.

- Red Oak developed FY 2006-07 (FY 2007) water rates that are revenue neutral and recover costs in a fair and equitable manner. "Revenue neutral" means that the rates calculated under the proposed structure were developed to generate the same amount of revenue as the rates adopted by the City and effective October 1, 2006.

  The recommended retail rate structure includes a base charge (a fixed dollar amount per month), which recovers the costs associated with billing and meter maintenance, and a volume charge (a dollar rate per 1,000 gallons of metered water use; the City reads and bills monthly), which recovers that costs associated with treatment and distribution of water in three increasing rate, water usage blocks. The first usage block is equal to the average winter consumption (AWC) of each individual customer. The second block consists of the next 25 thousand gallons (kgal) for single family customers and 50 percent of the AWC for other customers. The third block is for any usage greater than AWC plus 25 kgal for single family customers or 150 percent of AWC for other customers. **Tables 1-1** and **1-2** compare existing and proposed FY 2007 Water Base Charges and Volume Rates.

Table 1-1.
Water

Comparison of Existing and Proposed FY 2007 Base Charges

Meter Size	Existing	Proposed	Percent Change
3/4"	$ 11.11	$ 6.81	(38.7%)
1" – SF Residential	$ 14.14	$ 11.37	(19.6%)
1" – Irrigation – Res./Com.	$ 13.21	$ 11.37	(13.9%)
1" – Other	$ 23.71	$ 11.37	(52.0%)
1 1/2"	$ 44.71	$ 22.68	(49.3%)
2"	$ 70.07	$ 36.30	(48.2%)
3"	$ 151.80	$ 72.66	(52.1%)
4"	$ 396.37	$ 113.52	(71.4%)
6"	$ 787.72	$ 226.98	(71.2%)
8"	$ 999.49	$ 363.18	(63.7%)
10"	$ 1,994.13	$ 522.12	(73.8%)

Table 1-2.
Water

Comparison of Existing and Proposed FY 2007 Volume Rates ($/1,000 gallons)

Customer Class	Existing	Proposed		
		Block 1	Block 2	Block 3
Single Family Residential	$ 2.03	$ 2.06	$ 2.58	$ 4.52
Irrigation – SFR	$ 2.38	N/A	$ 2.58	$ 4.52
Multifamily Residential	$ 1.73	$ 2.06	$ 2.58	$ 4.52
Commercial	$ 1.88	$ 2.06	$ 2.58	$ 4.52
Public	$ 1.88	$ 2.06	$ 2.58	$ 4.52
Municipal	$ 1.88	$ 2.06	$ 2.58	$ 4.52
Irrigation–Non-residential	$ 2.38	N/A	$ 2.58	$ 4.52
Irrigation – Municipal	$ 1.88	N/A	$ 2.58	$ 4.52
Lubbock Independent School District	$ 1.73	$ 1.73	N/A	N/A
Wholesale – Ransom/Buffalo	$ 1.53	$ 2.01	N/A	N/A
Wholesale – New Deal	$ 0.76	$ 1.91	N/A	N/A

- **Table 1-3** compares typical monthly single family residential water bills under existing and proposed FY 2007 rates. Based on an average winter consumption of 7,000 gallons and an average monthly usage of 11,000 gallons, single family bills are estimated to decrease $1.89 per month – from $33.44 under existing rates to $31.55 based on the proposed FY 2007 user charges.

Table 1-3.
Water

Comparison of Monthly Bills under Existing and Proposed Rates Single Family Residential

	Winter			Summer		
	Usage (kgal)	Existing	Proposed	Usage (kgal)	Existing	Proposed
Low	5	$ 21.26	$ 17.11	8	$ 27.35	$ 23.29
Average	7	$ 25.32	$ 23.29	15	$ 41.56	$ 41.35
High	25	$ 61.86	$ 67.15	50	$ 112.61	$ 164.63
Very High	100	$ 214.11	$ 390.63	200	$ 417.11	$ 842.63

1.2.2. Wastewater Rate Study

The principal findings of the wastewater rate study are as follows:

- Revenue under existing wastewater rates is inadequate to meet revenue requirements during the study period. The annual revenue increases shown below are indicated to meet future wastewater utility expenses and provide adequate reserves and to maintain the financial integrity of the Wastewater Fund. The City should annually review the timing and magnitude of these increases to determine their appropriateness.

Fiscal Year	Wastewater Sales Revenue Increase (%)	Fiscal Year	Wastewater Sales Revenue Increase (%)
2007	0.0	2012	0.0
2008	5.0	2013	0.0
2009	16.0	2014	0.0
2010	16.0	2015	0.0
2011	16.0	2016	0.0

- Red Oak developed FY 2007 wastewater rates that are revenue neutral and maintain the existing rate structure. **Table 1-4** compares existing and proposed FY 2007 wastewater rates. No change in the current structure is being proposed – the current two-part Base Charge and Volume Rate structure should be retained, although the values should be modified to more accurately reflect the cost or providing service.

Table 1-4.
Wastewater

Comparison of Existing and Proposed FY 2007 User Charges

Rate Type	Existing	Proposed	Percent Change
Base Charge:			
3/4"	$ 3.94	$ 4.65	18.0%
1"	$ 9.20	$ 5.67	(38.4%)
1 ½"	$ 17.97	$ 8.19	(54.4%)
2"	$ 28.49	$ 11.23	(60.6%)
3"	$ 61.82	$ 18.33	(70.3%)
4"	$ 175.81	$ 28.47	(83.8%)
6"	$ 351.18	$ 53.79	(84.7%)
8"	$ 438.88	$ 84.19	(80.8%)
10"	$ 877.32	$ 119.67	(86.4%)
Volume Rate ($/kgals)	$ 1.67	$ 1.69	1.2%

- **Table 1-5** compares typical monthly single family residential wastewater bills under existing and proposed FY 2007 rates. Based on an average monthly contribution of 7,000 gallons, single family bills are expected to increase $0.85 from $16.48 under existing rates to $15.63 based on the proposed user charges.

Table 1-5.
Wastewater

Comparison of Monthly Bills under Existing and Proposed Rates
Single Family Residential

	Usage (kgal)	Existing	Proposed
Low	5	$ 12.29	$ 13.10
Average	7	$ 15.63	$ 16.48
High	20	$ 37.34	$ 38.45
Very High	50	$ 87.44	$ 89.15

2. Water Financial Plan

The City's Water Fund is a self-supporting enterprise fund. **Table 2-1** shows the 10-year financial forecast for the Water Fund. Red Oak used assumptions and estimates from the City's existing financial plan (dated October 31, 2006) to develop the plan shown in **Table 2-1**. Recent adjustments to the City's plan are not reflected in **Table 2-1**. Revenue from metered services was calculated based on the projected number of accounts and water usage in future years and does not match projected revenues in the City's financial plan.

2.1. Revenues

The Water Fund cash balance as of September 30, 2005, is $17,037,085. The target minimum reserve is equal to 25 percent of total revenues. Revenue sources include metered services, government fund fees, rentals, junk sales, department operations, investment earnings, and transfers from other funds.

Water service charges (revenues from the Base Charge and the Volume Rate) represent the most significant source of revenue to the Water Fund, averaging approximately 95 percent of total revenue during the 10-year study period. This revenue is derived from existing rates and projected rate increases.

Water service charges revenue under existing rates is based on water account projections and a detailed analysis of historical utility billing records, i.e., water use data. The number of water accounts is expected to increase annually at a rate of 1 percent from FY 2006 through FY 2016. Water use per customer is projected to remain at current levels.

2.2. Revenue Requirements

Water Fund revenue requirements include operation and maintenance (O&M) expenses, capital outlay, debt service principal and interest payments, transfers to other funds, and master lease payments.

Projected O&M expenses consist of salaries, benefits, supplies, maintenance, and other charges related to the treatment and distribution of water. An average annual inflation allowance of 3 percent has been included in O&M projections. Approximately 47 percent of study period revenue requirements are for O&M expenses.

2.3. Debt Service Coverage

This financial performance measure is an indication of the ability of a borrower to repay a debt obligation. Red Oak recommends the Water Fund maintain annual coverage of at

least 100 percent of net revenues. Debt service coverage is the ratio of net revenue (gross revenues less O&M expenses) to annual debt service (principal and interest payments). It is calculated by dividing net revenues by the current year's debt service requirements. Gross revenues include all water service charges, fees, investment income, and other revenue. Debt service coverage is expected to be adequate throughout the study period, ranging from 125 percent to 145 percent.

2.4. Indicated Water Sales Revenue Adjustments

Revenue under existing rates is inadequate to meet projected revenue requirements during the study period. The revenue increases shown below are indicated to meet future water utility expenses, provide adequate reserves, and to maintain the financial integrity of the Water Fund. The City should annually review the timing and magnitude of these increases to determine their appropriateness.

Fiscal Year	Water Sales Revenue Increase (%)	Fiscal Year	Water Sales Revenue Increase (%)
2007[1]	11.0	2012	4.0
2008	12.0	2013	9.0
2009	4.0	2014	4.0
2010	5.0	2015	0.0
2011	6.0	2016	0.0

(1) The fiscal year 2006-07 increase went into effect on October 1, 2006, the start of the City's fiscal year.

Table 2-1.
Water

Water Fund Financial Plan

DESCRIPTION	FY 2006-07	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Revenues:										
Government Fund Fees	$ 2,800	$ 2,884	$ 2,971	$ 3,060	$ 3,151	$ 3,246	$ 3,343	$ 3,444	$ 3,547	$ 3,653
Total Enterprise Fund Fees	0	0	0	0	0	0	0	0	0	0
Interest Revenues	723,300	744,999	767,349	790,369	814,081	838,503	863,658	889,568	916,255	943,743
Revenue from Rentals	71,750	77,490	83,689	90,384	97,615	105,424	113,858	122,967	132,804	143,428
Refunds and Recoveries	0	0	0	0	0	0	0	0	0	0
Revenue from Junk Sales	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
Revenue from Metered Services	37,016,222	41,498,886	46,943,539	49,309,494	52,292,718	55,984,584	58,806,207	64,739,754	68,002,637	68,682,663
Metered Revenue Increase	4,071,784	4,979,866	1,877,742	2,465,475	3,137,563	2,239,383	5,292,559	2,589,590	0	0
Revenue from Department Operations	1,645,000	1,681,350	1,718,736	1,757,187	1,796,736	1,587,415	1,629,257	1,672,296	1,716,812	1,762,855
Transfers from Other Funds	254,044	257,873	261,818	265,880	270,065	274,375	278,814	283,387	288,035	292,759
Total Funding Sources	**43,793,900**	**49,252,348**	**51,664,844**	**54,690,849**	**58,420,929**	**61,041,930**	**66,996,696**	**70,310,006**	**71,069,090**	**71,838,101**
Expenditures:										
Total Salaries	5,034,478	5,135,168	5,237,871	5,342,628	5,449,481	5,558,471	5,669,640	5,783,033	5,898,694	6,016,670
Total Benefits	2,304,855	2,434,566	2,575,232	2,727,910	2,893,758	3,074,052	3,270,194	3,483,724	3,711,197	3,953,524
Total Supplies	1,276,238	1,301,763	1,327,798	1,354,354	1,381,441	1,409,070	1,437,251	1,465,996	1,495,316	1,525,223
Total Maintenance	2,593,002	2,644,862	2,697,759	2,751,714	2,806,749	2,862,884	2,920,141	2,978,544	3,038,115	3,098,876
Total Other Charges	11,616,611	11,706,805	11,940,941	12,179,760	12,423,355	12,671,823	12,925,259	13,183,764	13,447,438	13,716,388
Total Capital Outlay	0	0	0	0	0	0	0	0	0	0
Total Bond Adjustments and Charges	0	0	0	0	0	0	0	0	0	0
Total Reimbursements	0	0	0	0	0	0	0	0	0	0
Total Transfers	6,914,874	7,189,994	7,478,104	7,779,926	8,096,227	8,427,820	8,775,570	9,140,396	9,712,903	10,323,465
Total Other Expenditures	0	0	0	0	0	0	0	0	0	0
Pay-As-You-Go Funding in CIP	0	0	0	0	0	0	0	0	0	0
Total Debt Service Annually	14,752,933	16,023,540	17,236,009	18,999,654	21,514,298	23,653,185	26,655,967	32,050,241	32,050,241	32,050,241
Total Debt Service New	618,494	649,522	970,084	1,307,259	1,511,660	1,528,110	2,715,835	0	0	0
Amendment	0	0	0	0	0	0	0	0	0	0
Total Master Lease	869,897	1,245,376	1,425,650	1,492,629	1,465,781	1,244,890	1,043,326	1,118,847	1,118,847	1,118,847
Total Expenditures	**45,981,382**	**48,331,596**	**50,889,448**	**53,936,834**	**57,542,750**	**60,430,305**	**65,413,183**	**69,204,545**	**70,472,751**	**71,803,234**
Total Increase/(Decrease) in Cash Balance	(2,187,482)	920,752	775,396	755,015	878,179	611,625	1,583,513	1,105,461	596,339	34,867
Beginning Cash Balance	13,761,566	11,574,084	12,494,835	13,270,231	14,025,246	14,903,424	15,515,049	17,098,562	18,204,022	18,800,362
Ending Cash Balance	11,574,084	12,494,835	13,270,231	14,025,246	14,903,424	15,515,049	17,098,562	18,204,022	18,800,362	18,835
Less Target Reserve Balance	(11,011,986)	(12,377,555)	(12,981,665)	(13,739,182)	(14,672,748)	(15,329,076)	(16,818,877)	(17,648,348)	(17,839,281)	(18,032,715)
Total Appropriable Net Assets	562,098	117,280	288,566	286,063	230,676	185,973	279,684	555,674	961,080	802,514
Debt Service Coverage	125%	145%	143%	137%	134%	130%	129%	126%	126%	125%

3. Water Cost of Service

Red Oak completed a cost of service analysis for the FY 2007 test year to identify customer, volume and private fire protection costs. These costs form the basis for designing the proposed FY 2007 water rates.

3.1. Cost of Service

The total FY 2007 revenue requirements or cost of providing water service is estimated at $41,780,090 and consists of $24,542,398 of O&M expenses and $15,371,427 of capital costs. These costs are projected to be funded from $41,088,006 of water sales revenue and $692,084 of other revenue sources. After adjustments for interest income, other revenues, transfers to other funds, and available reserves, the FY 2007 net cost of service is $41,088,010. **Table 3-1** summarizes the FY 2007 revenue requirements.

Table 3-1.
Water

FY 2007 Revenue Requirements

Line No.	Description	Total
	O&M:	
1	Supply	$ 4,664,154
2	Treatment	9,704,091
3	Distribution and Storage	4,219,521
4	Pumping	3,886,276
5	Billing and Customer Service	2,602,662
6	Meter Reading and Maintenance	885,449
7	Fire Protection	446,510
8	*Total O&M*	*26,408,663*
	Capital:	
9	Debt Service – Capital Projects	15,371,427
10	Debt Service – System Improvements	0
11	*Total Capital*	*15,371,427*
12	**Total Gross Revenue Requirements**	**41,780,090**
	Revenue Requirement Adjustments	
13	Interest Income	(723,300)
14	Other Revenues	(1,982,594)
15	Transfers to Other Funds	4,201,292
16	Transfer from Reserves	(2,187,478)
17	*Total Adjustments*	*(692,080)*
18	**Total Net Revenue Requirements**	**$ 41,088,010**

3.2. Units of Service

Service requirements for each class are based on the average daily water use projections and estimates of each class' maximum day and maximum hour demands and metering and billing requirements.

The base cost responsibility varies with annual class water usage. Average day quantities are based on a detailed analysis of the City's water billing records.

The responsibility for extra capacity costs varies with class extra capacity requirements for maximum day and maximum hour demands. Average day usage and capacity factors, representing the estimated relationship between individual class peak demand and average day usage, are used to develop extra capacity requirements for maximum day and maximum hour demands. The estimated capacity factors are based on an analysis of each class' monthly usage characteristics.

Fire protection costs are either direct or demand related. Direct costs relate to maintenance of fire hydrants. Demand related costs represent the portion of extra capacity costs related to meeting potential fire demands. Red Oak estimates that City peak fire flow requirements are 13,750 gallons per minute for four hours. Fire demand quantities are proportional to the number of equivalent 6-inch public and private fire hydrants.

3.3. Allocation to Cost Components

3.3.1. Functional Cost Components

There are four basic functional water cost components: base, extra capacity, customer, and direct fire protection. Base costs vary directly with the quantity of water used under average day load conditions. Extra capacity costs represent those costs incurred due to customer peak daily and hourly demands for water in excess of average day usage. Customer costs include utility billing, meter reading, and meter repair and replacement costs. Direct fire protection costs are associated with maintenance of fire hydrants.

3.3.2. Allocation Factors

In order to provide adequate water service to its customers at all times, the water utility must be capable not only of providing the total amount of water used, but also of supplying water at maximum rates of demand.

Comparison of historical system coincidental maximum day and maximum hour demands to average day demands results in appropriate ratios for the allocation of capital costs and operating expenses to base and extra capacity cost components. A maximum day to average day ratio of 2.00 is used based on demands experienced in the City's system. This indicates that approximately 50 percent of the capacity of facilities designed and

operated for maximum day demand is needed for average or base use. Accordingly, the remaining 50 percent is for maximum day extra capacity requirements.

Since maximum hour water usage also utilizes facilities designed and operated for average day and maximum day demands, the costs associated with meeting maximum hour demand are allocated to base, maximum day extra capacity, and maximum hour extra capacity. A ratio of maximum hour to annual average day water use of 3.00 is based on demands experienced in the City's system. This ratio indicates that 33 percent of the capacity of facilities designed and operated for maximum hour demand is needed for average or base use, 33 percent is required to meet maximum day extra capacity demand, and the remaining 33 percent is for maximum hour extra capacity demand.

3.3.3. Allocation to Functional Cost Components

Red Oak allocated net revenue requirements to cost components using either the ratios developed above or direct assignment. **Table 3-2** shows the allocation of FY 2007 revenue requirements to cost components.

Revenue requirements are generally allocated to the functional cost components that reflect the design parameter of the associated facility. For example, treatment expenses are related to the facilities that provide treated water to the City's system. These facilities are designed to meet average and maximum day demands. Thus, treatment expenses are allocated to the base and maximum day cost components. In similar manner, distribution and storage expense is allocated to base, maximum day, and maximum hour cost components.

Some of the revenue requirements can be directly assigned to a specific cost component. Hydrant maintenance, meters and services, and customer billing expenses are directly allocated to the appropriate component.

Administration and general expenses are identified with system facilities or activities to the extent possible to simplify the allocation process. Those expenses that are not specifically assigned are allocated in proportion to all other operating expenses. Capital is allocated to base, maximum day, and maximum hour cost components on the basis of total operating expenses.

Net revenue requirements equal total cost to provide service less adjustments for miscellaneous revenue sources. The allocation of adjustments to cost components is based on total allocated cost of service less the customer and fire protection costs.

Table 3-2.
Water

Allocation of FY 2007 Revenue Requirements to Functional Categories

Line No.	Operating Center	Supply	Treatment	Dist./ Storage	Pumping	Billing/ Cust. Svc.	Meter Reading/ Maint.	Fire Protection	Total
1	Administration	40%	25%	30%	5%	0%	0%	0%	100%
2	Water Conservation and Education	40%	25%	30%	5%	0%	0%	0%	100%
3	Engineering	40%	25%	30%	5%	0%	0%	0%	100%
4	Metering & Customer Service	0%	0%	0%	0%	50%	50%	0%	100%
5	Equipment Maintenance	40%	25%	30%	5%	0%	0%	0%	100%
6	Pipeline Maintenance	0%	0%	95%	0%	0%	0%	5%	100%
7	Water Treatment Lab	0%	100%	0%	0%	0%	0%	0%	100%
8	Pumping & Control	0%	0%	95%	0%	0%	0%	5%	100%
9	Water Treatment	0%	100%	0%	0%	0%	0%	0%	100%
10	Water Production	95%	0%	0%	0%	0%	0%	0%	100%
11	Water Reservoir	100%	0%	0%	0%	0%	0%	0%	100%
12	Utility Billing	0%	0%	0%	0%	100%	0%	0%	100%
13	Indirect Cost Allocation	100%	0%	0%	0%	0%	0%	0%	100%
14	Master Lease Agreement	21%	5%	45%	17%	4%	4%	3%	100%

3.3.4. Unit Cost of Service

Unit costs of service form the basis for rate design and are the quotient of net revenue requirements or cost of service divided by the applicable units of service. **Table 3-3** shows the FY 2007 unit cost of service.

Table 3-3.
Water

FY 2007 Unit Costs of Service

Line No.	Description	Allocated to All Customer Classes					Not Allocated to Wholesale			Not Allocated to New Deal			Public Fire Protection	Total Cost of Service
		Base	Extra Capacity		Customer Costs		Base	Extra Capacity		Base	Extra Capacity			
			Max Day	Max Hour	Meters & Services	Billing & Collecting		Max Day	Max Hour		Max Day	Max Hour		
	O&M:													
1	Supply	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 4,664,154	$ 0	$ 0	$ 0	$ 4,664,154
2	Treatment	4,852,046	4,852,046	0	0	0	0	0	0	0	0	0	0	9,704,092
3	Distribution & Storage	0	0	0	0	0	1,406,507	1,406,507	1,406,507	0	0	0	0	4,219,521
4	Pumping	1,943,138	1,943,138	0	0	0	0	0	0	0	0	0	0	3,886,276
5	Billing & Customer Service	0	0	0	0	2,602,662	0	0	0	0	0	0	0	2,602,662
6	Meter Reading & Maintenance	0	0	0	885,449	0	0	0	0	0	0	0	0	885,449
7	Fire Protection	0	0	0	0	0	0	0	0	0	0	0	446,510	446,510
8	*Total O&M*	*6,795,184*	*6,795,184*	*0*	*885,449*	*2,602,662*	*1,406,507*	*1,406,507*	*1,406,507*	*4,664,154*	*0*	*0*	*446,510*	*26,408,664*
9	Weighted Average Allocation	26%	26%	0%	3%	10%	5%	5%	5%	18%	0%	0%	2%	100%
10	Weighted Average Allocation – B/MD/MH	30%	30%	0%			6%	6%	6%	21%	0%	0%		100%
	Capital:													
11	Debt Service – Capital Projects	4,647,658	4,647,658	0	0	0	962,000	962,000	962,000	3,190,111	0	0	0	15,371,427
12	Debt Service – System Improvements	0	0	0	0	0	0	0	0	0	0	0	0	0
13	*Total Capital*	*4,647,658*	*4,647,658*	*0*	*0*	*0*	*962,000*	*962,000*	*962,000*	*3,190,111*	*0*	*0*	*0*	*15,371,427*
14	**Total Gross Revenue Requirements**	**11,442,842**	**11,442,842**	**0**	**885,449**	**2,602,662**	**2,368,507**	**2,368,507**	**2,368,507**	**7,854,265**	**0**	**0**	**446,510**	**41,780,091**
	Revenue Requirement Adjustments:													
15	Interest Income	(218,695)	(218,695)	0	0	0	(45,267)	(45,267)	(45,267)	(150,110)	0	0	0	(723,300)
16	Other Revenues	(599,451)	(599,451)	0	0	0	(124,078)	(124,078)	(124,078)	(411,458)	0	0	0	(1,982,594)
17	Transfers to Other Funds	1,270,290	1,270,290	0	0	0	262,932	262,932	262,932	871,916	0	0	0	4,201,292
18	Transfer from Reserves	(661,399)	(661,399)	0	0	0	(136,900)	(136,900)	(136,900)	(453,979)	0	0	0	(2,187,478)
19	*Total Adjustments*	*(209,255)*	*(209,255)*	*0*	*0*	*0*	*(43,313)*	*(43,313)*	*(43,313)*	*(143,631)*	*0*	*0*	*0*	*(692,080)*
20	**Total Cost of Service**	**$ 11,233,587**	**$ 11,233,587**	**$ 0**	**$ 885,449**	**$ 2,602,662**	**$ 2,325,194**	**$ 2,325,194**	**$ 2,325,194**	**$ 7,710,634**	**$ 0**	**$ 0**	**$ 446,510**	**$ 41,088,011**
21	Billing Units	13,285,684 (kgal)	40,653 (kgpd)	38,526 (kgpd)	107,156 (meters)	1,285,874 (bills)	12,849,719 (kgal)	38,642 (kgpd)	36,923 (kgpd)	13,250,107 (kgal)	40,521 (kgpd)	38,411 (kgpd)	3,915 (connections)	
22	**Unit Cost**	**$ 0.85**	**$ 276.33**	**$ 0.00**	**$ 8.26**	**$ 2.02**	**$ 0.18**	**$ 60.17**	**$ 62.97**	**$ 0.58**	**$ 0.00**	**$ 0.00**	**$ 114.04**	

3.4. Allocation of Costs to Customer Classes

The City serves single family residential, multifamily residential, commercial, public, municipal, and irrigation customer classes. The classes group together customers with similar service requirement characteristics and provide a means for allocating costs to customers. Class costs of service are the product of unit cost of service and class units of service.

The Lubbock Independent School District (LISD) rate will remain unchanged per an agreement with the City. The wholesale rate for Ransom/Buffalo is set by contract at 81.17 percent of the average commercial Volume Rate. These restrictions require some costs associated with these two classes to be redistributed to the other retail classes. **Table 3-4** summarizes the calculation of class cost of service with these adjustments.

Table 3-4.
Water

FY 2007 Class Cost of Service

Line No.	Customer Class	Allocated Cost of Service	Adjustments	Redistribution of Adjustments	Revised Revenue Requirement
1	Single Family Residential	$ 23,778,494		$ 298,989	$ 24,077,483
2	Irrigation – SFR	1,266,426		15,924	1,282,350
3	Multifamily Residential	2,089,207		26,270	2,115,477
4	Commercial	6,703,133		84,285	6,787,418
5	Public	1,256,764		15,802	1,272,566
6	Municipal	888,015		11,166	899,181
7	Irrigation–Non-residential	2,626,012		33,019	2,659,031
8	Irrigation – Municipal	1,049,080		13,191	1,062,271
9	Lubbock ISD	1,067,258	(450,644)	0	616,614
10	Wholesale – Ransom/Buffalo	295,816	(48,002)	0	247,814
11	Wholesale – New Deal	67,806		0	67,806
12	**Total System**	**$ 41,088,011**	**($ 498,646)**	**$ 498,646)**	**$ 41,088,011**

4. Water Rate Design

4.1. Existing Rates

The existing water rates have been in effect since October 2006 and consist of a Base Charge and a Volume Rate. The Base Charge is assessed monthly and varies by meter size. The Volume Rate (a $/kgal rate based on monthly metered water use) is uniform and varies by customer class.

4.2. Proposed 2007 Rates

The revenue requirements and cost of service allocations described in previous sections of this report provide the basis for designing water user charges. The revenue requirements show the need for rate adjustment and the level of revenue required. The allocations provide the unit costs of service for the rate design process.

Red Oak designed the proposed FY 2007 rates to keep water sales revenue constant and to equitably recover customer and volume-related cost of service. The proposed rate structure for all retail customers except the Lubbock Independent School District is a three-block increasing structure. The charge for the second block is 25 percent greater than the charge for the first block, and the charge for the third block is 75 percent greater than the charge for the second block. Water use for irrigation customers is billed only in blocks 2 and 3. The rate structure for the Lubbock Independent School District and the wholesale customers remains uniform. **Tables 4-1** and **4-2** compare existing and proposed FY 2007 Base Charges and Volume Rates, respectively.

Table 4-1.
Water

Comparison of Existing and Proposed FY 2007 Base Charges

Meter Size	Existing	Proposed	Percent Change
3/4"	$ 11.11	$ 6.81	(38.7%)
1" – SF Residential	$ 14.14	$ 11.37	(19.6%)
1" – Irrigation – Res./Com.	$ 13.21	$ 11.37	(13.9%)
1" – Other	$ 23.71	$ 11.37	(52.0%)
1 1/2"	$ 44.71	$ 22.68	(49.3%)
2"	$ 70.07	$ 36.30	(48.2%)
3"	$ 151.80	$ 72.66	(52.1%)
4"	$ 396.37	$ 113.52	(71.4%)
6"	$ 787.72	$ 226.98	(71.2%)
8"	$ 999.49	$ 363.18	(63.7%)
10"	$ 1,994.13	$ 522.12	(73.8%)

Table 4-2.
Water

Comparison of Existing and Proposed FY 2007 Volume Rates ($/kgal)

Customer Class	Existing	Proposed		
		Block 1	Block 2	Block 3
Single Family Residential	$ 2.03	$ 2.06	$ 2.58	$ 4.52
Irrigation – SFR	$ 2.38	N/A	$ 2.58	$ 4.52
Multifamily Residential	$ 1.73	$ 2.06	$ 2.58	$ 4.52
Commercial	$ 1.88	$ 2.06	$ 2.58	$ 4.52
Public	$ 1.88	$ 2.06	$ 2.58	$ 4.52
Municipal	$ 1.88	$ 2.06	$ 2.58	$ 4.52
Irrigation–Non-residential	$ 2.38	N/A	$ 2.58	$ 4.52
Irrigation – Municipal	$ 1.88	N/A	$ 2.58	$ 4.52
Lubbock Independent School District	$ 1.73	$ 1.73	N/A	N/A
Wholesale – Ransom/Buffalo	$ 1.53	$ 2.01	N/A	N/A
Wholesale – New Deal	$ 0.76	$ 1.91	N/A	N/A

4.2.1. Base Charge

Proposed monthly Base Charges recover utility billing and collection costs, which do not vary by meter size, and meters and services costs, which do vary by meter size. Red Oak

used the AWWA *M6 Manual* meter flow equivalent ratios to differentiate costs for each meter size. **Table 4-3** shows the development of the proposed FY 2007 Base Charges.

Table 4-3.
Water

Development of FY 2007 Base Charges

Meter Size	Billing & Collection	Meters & Services	Total Base Charge
3/4"	$ 2.99	$ 3.82	$ 6.81
1"	$ 2.99	$ 8.38	$ 11.37
1 1/2"	$ 2.99	$ 19.69	$ 22.68
2"	$ 2.99	$ 33.31	$ 36.30
3"	$ 2.99	$ 69.67	$ 72.66
4"	$ 2.99	$ 110.53	$ 113.52
6"	$ 2.99	$ 223.99	$ 226.98
8"	$ 2.99	$ 360.19	$ 363.18
10"	$ 2.99	$ 519.13	$ 522.12

4.2.2. Volume Rates

Proposed Volume Rates recover base, extra capacity, and public fire protection costs. The Volume Rate is a 3-block increasing structure. Based on current usage patterns, the first block is intended to capture approximately 62 percent of total water use, the second block approximately 28 percent, and the third block approximately 10 percent of total water use. Red Oak recommends residential block rate differentials of 25% for Block 2 when compared to Block 1 and 75% for Block 3 when compared to Block 2.

The Lubbock Independent School District rate and the wholesale rates for Ransom/ Buffalo and New Deal will remain as uniform rates, i.e., all usage is billed at a single rate per 1,000 gallons.

4.3. Typical Monthly Water Bills

Table 4-4 compares monthly bills under existing and proposed FY 2007 rates for single family customers. Based on an average winter consumption of 7,000 gallons and an average monthly usage of 11,000 gallons, single family residential bills are expected to decrease $1.89 per month from $33.44 under existing rates to $31.55 under proposed rates.

Table 4-4.
Water

Comparison of Monthly Bills under Existing and Proposed Rates
Single Family Residential

	Winter			Summer		
	Usage (kgal)	Existing	Proposed	Usage (kgal)	Existing	Proposed
Low	5	$ 21.26	$ 17.11	8	$ 27.35	$ 23.29
Average	7	$ 25.32	$ 23.29	15	$ 41.56	$ 41.35
High	25	$ 61.86	$ 67.15	50	$ 112.61	$ 164.63
Very High	100	$ 214.11	$ 390.63	200	$ 417.11	$ 842.63

5. Wastewater Financial Plan

The City's Wastewater Fund is a self-supporting enterprise fund. **Table 5-1** shows the 10-year financial forecast for the Wastewater Fund. Red Oak used assumptions and estimates from the City's existing financial plan (dated October 31, 2006) to develop the plan shown in **Table 5-1**. Recent adjustments to the City's plan are not reflected in **Table 5-1**.

5.1. Revenues

The Wastewater Fund cash balance as of September 30, 2005, is $9,747,666. The target minimum reserve is equal to 25 percent of total revenues. Revenue sources include metered services, Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) surcharges, investment earnings, and non-metered revenue.

Wastewater service charges (revenues from the Base Charge and the Volume Rate) represent the most significant source of revenue to the Wastewater Fund, averaging approximately 94 percent of total revenue during the 10-year study period. This revenue is derived from existing rates and projected rate increases.

Wastewater service charges revenue under existing rates is based on wastewater accounts projections and a detailed analysis of historical utility billing records, i.e., wastewater use data. The number of wastewater accounts is expected to increase annually at a rate of 1 percent from FY 2006 through FY 2016. Wastewater contribution per customer is projected to remain the same.

5.2. Revenue Requirements

Wastewater Fund revenue requirements include operation and maintenance (O&M) expenses, capital outlay, debt service principal and interest payments, transfers to other funds, and master lease payments.

Projected O&M consists of salaries, benefits, supplies, maintenance, and other charges related to the collection and treatment of wastewater. An average annual inflation allowance of 3 percent has been included in O&M projections. Approximately 40 percent of study period revenue requirements are for O&M expenses.

5.3. Debt Service Coverage

This financial performance measure is an indication of the ability of a borrower to repay a debt obligation. Red Oak recommends the City maintain annual coverage of at least 100 percent of net revenues. Debt service coverage is the ratio of net revenue (gross

revenues less O&M expenses) to annual debt service (principal and interest payments). It is calculated by dividing net revenues by the current year's debt service requirements. Gross revenues include all wastewater service charges, fees, investment income, and other revenue. Debt service coverage is expected to be adequate throughout the study period, ranging from 129 percent to 155 percent.

5.4. Indicated Wastewater Sales Revenue Adjustments

Revenue under existing rates is inadequate to meet projected revenue requirements during the study period. The revenue increases shown below are indicated to meet future wastewater utility expenses and provide adequate reserves and to maintain the financial integrity of the Wastewater Fund. The City should annually review the timing and magnitude of these increases to determine their appropriateness.

Fiscal Year	Wastewater Sales Revenue Increase (%)	Fiscal Year	Wastewater Sales Revenue Increase (%)
2007	0.0	2012	0.0
2008	5.0	2013	0.0
2009	16.0	2014	0.0
2010	16.0	2015	0.0
2011	16.0	2016	0.0

Table 5-1.
Wastewater Fund Financial Plan

DESCRIPTION	FY 2006-07	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Revenues:										
License and Permits	$ 2,000	$ 2,060	$ 2,122	$ 2,185	$ 2,251	$ 2,319	$ 2,388	$ 2,460	$ 2,534	$ 2,610
Governmental Fund Fees	0	0	0	0	0	0	0	0	0	0
Enterprise Fund Fees	0	0	0	0	0	0	0	0	0	0
Interest Revenues	330,000	336,600	343,332	350,199	357,203	364,347	371,634	379,066	386,647	394,380
Revenue from Rentals	0	0	0	0	0	0	0	0	0	0
Refunds and Recoveries	0	0	0	0	0	0	0	0	0	0
Revenue from Junk Sales	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Revenue from Metered Services	20,110,000	20,329,300	21,577,969	25,300,056	29,661,434	34,771,820	35,140,637	35,513,775	35,890,221	36,270,657
Gen. Consumption Revenue Increase	0	1,016,465	3,452,475	4,048,009	4,745,829	0	0	0	0	0
Revenue from Department Operations	1,510,000	1,529,460	1,549,245	1,569,363	1,589,821	1,610,627	1,631,787	1,653,311	1,674,804	1,696,576
Transfers from Other Funds	0	0	0	0	0	0	0	0	0	0
Total Funding Sources	**21,957,000**	**23,218,885**	**26,930,143**	**31,274,813**	**36,361,538**	**36,754,112**	**37,151,446**	**37,553,613**	**37,959,206**	**38,369,223**
Expenditures:										
Total Salaries	2,797,151	2,853,094	2,910,156	2,968,359	3,027,726	3,088,281	3,150,046	3,213,047	3,277,308	3,342,854
Total Benefits	1,305,628	1,381,337	1,463,520	1,552,803	1,649,872	1,755,484	1,870,470	1,995,743	2,135,445	2,284,926
Total Supplies	1,204,444	1,228,533	1,253,104	1,278,166	1,303,729	1,329,803	1,356,400	1,383,528	1,411,199	1,439,423
Total Maintenance	1,285,643	1,311,356	1,337,583	1,364,335	1,391,621	1,419,454	1,447,843	1,476,800	1,506,336	1,536,463
Total Other Charges	4,813,734	4,910,009	5,008,209	5,108,373	5,210,540	5,314,751	5,421,046	5,529,467	5,640,056	5,752,857
Total Capital Outlay	12,000	12,240	12,485	12,734	12,989	13,249	13,514	13,784	14,060	14,341
Total Bond Adjustments and Charges	0	0	0	0	0	0	0	0	0	0
Total Reimbursements	0	0	0	0	0	0	0	0	0	0
Total Transfers	3,881,533	4,030,219	4,185,300	4,347,084	4,515,895	4,692,074	4,875,981	5,067,994	5,270,714	5,481,543
Total Other Expenditures	0	0	0	0	0	0	0	0	0	0
Pay-As-You-Go Funding in CIP	0	0	0	0	0	0	0	0	0	0
Total Debt Service Annually	7,273,580	7,254,749	10,066,328	12,758,083	15,317,070	15,437,801	15,639,577	15,474,561	15,474,561	15,474,561
Total Debt Service New	133,231	1,522,982	1,538,483	1,359,637	179,588	193,918	0	0	0	0
Total Master Lease	584,710	721,645	900,040	965,013	957,930	994,266	1,028,817	1,101,575	1,178,685	1,261,193
Total Expenditures	**23,291,654**	**25,226,164**	**28,675,208**	**31,714,587**	**33,566,961**	**34,239,081**	**34,803,694**	**35,256,498**	**35,908,364**	**36,588,161**
Total Increase/(Decrease) in Cash Balance	(1,334,654)	(2,007,279)	(1,745,065)	(439,774)	2,794,577	2,515,031	2,347,752	2,297,114	2,050,842	1,781,062
Beginning Cash Balance	9,747,666	8,413,012	6,405,734	4,660,669	4,220,895	7,015,472	9,530,503	11,878,255	14,175,369	16,226,211
Ending Cash Balance	8,413,012	6,405,734	4,660,669	4,220,895	7,015,472	9,530,503	11,878,255	14,175,369	16,226,211	18,007,273
Less Target Reserve Balance	(5,489,250)	(5,804,721)	(6,732,536)	(7,818,703)	(9,090,385)	(9,188,528)	(9,287,862)	(9,388,403)	(9,489,802)	(9,592,306)
Total Appropriable Net Assets	2,923,762	601,012	(2,071,867)	(3,597,808)	(2,074,912)	341,975	2,590,393	4,786,966	6,736,409	8,414,967
Debt Service Coverage	142%	131%	129%	135%	153%	153%	153%	155%	155%	155%

6. Wastewater Cost of Service

Red Oak completed a cost of service analysis for the FY 2007 test year to identify customer and volume costs. These costs form the basis for designing the proposed FY 2007 wastewater rates.

6.1. Cost of Service

The total FY 2007 revenue requirements or cost of providing wastewater service is estimated at $23,291,655 and consists of $11,418,601 of O&M expenses and $7,406,811 of capital costs. These costs are projected to be met from $20,110,000 of wastewater charges revenue and $3,181,655 of other revenue sources. After adjustments for interest income and other revenues, the FY 2007 net cost of service is $20,534,655. **Table 6-1** summarizes FY 2007 cost of service.

6.2. Units of Service

Service requirements for each class are based on contributed wastewater volume and billing requirements.

The City incurs costs related to billing its wastewater customers. Each customer shares equally in these costs.

6.3. Allocation to Cost Components

6.3.1. Functional Cost Components

There are two basic functional wastewater cost components: volume and customer. Volume costs vary directly with the quantity of wastewater contributed. Customer costs vary in proportion to the number of customers served by the system.

6.3.2. Allocation to Functional Cost Components

Red Oak allocated net revenue requirements to cost components having the most significant influence on the magnitude of that expense. For example, collection system expense is allocated to volume since these facilities are designed to convey wastewater volume. **Table 6-2** shows the allocation of FY 2007 revenue requirements to cost components.

Administration and general expenses are identified with system facilities or activities to the extent possible to simplify the allocation process. Those expenses that are not specifically assigned are allocated in proportion to all other operating expenses.

Net revenue requirements equal total cost to provide service less adjustments for miscellaneous revenue sources. The allocation of adjustments to cost components is based on total allocated cost of service.

Table 6-1.
Wastewater

FY 2007 Revenue Requirements

Line No.	Description	Total
	O&M:	
1	Water Reclamation	$ 5,964,067
2	Wastewater Collection	1,458,847
3	Land Application	2,212,129
4	Industrial Monitoring/Pretreatment	466,498
5	Wastewater Laboratory	425,240
6	Sampling and Monitoring	891,820
7	*Total O&M*	*11,418,601*
	Capital:	
8	Debt Service – Existing	7,273,580
9	Debt Service – Future	133,231
10	*Total Capital*	*7,406,811*
	Fund Transfers:	
11	Indirect Cost Allocation	500,837
12	Master Lease	584,710
13	Utility Billing	1,074,669
14	Payment in Lieu of Property Tax	790,954
15	Transfer for Utility COB	1,515,073
16	*Total Fund Transfers*	*4,466,243*
17	**Total Gross Revenue Requirements**	**23,291,655**
	Revenue Requirement Adjustments	
17	BOD & TSS Surcharge	(910,000)
18	Non-metered Revenue	1,517,000
19	Interest Income	330,000
20	*Total Adjustments*	*(2,757,000)*
21	**Total Net Revenue Requirements**	**$ 20,534,655**

Table 6-2.
Wastewater

Allocation of FY 2007 Revenue Requirements to Functional Categories

Line No.	Operating Center	Volume	Billing and Collection	Meters and Services	Total
	O&M:				
1	Water Reclamation	100%	0%	0%	100%
2	Wastewater Collection	100%	0%	0%	100%
3	Land Application	100%	0%	0%	100%
4	Industrial Monitoring/ Pretreatment	60%	20%	20%	100%
5	Wastewater Laboratory	60%	20%	20%	100%
6	Sampling & Monitoring	60%	20%	20%	100%
7	*Total O&M*	*94%*	*3%*	*3%*	*100%*
	Capital:				
8	Debt Service – Existing	60%	20%	20%	100%
9	Debt Service – Future	60%	20%	20%	100%
10	*Total Capital*	*60%*	*20%*	*20%*	*100%*
	Fund Transfers:				
11	Indirect Cost Allocation	100%	0%	0%	100%
12	Master Lease	94%	3%	3%	100%
13	Utility Billing	0%	100%	0%	100%
14	Payment in Lieu of Property Tax	94%	3%	3%	100%
15	Transfer for Utility COB	94%	3%	3%	100%
16	*Total Fund Transfers*	*72%*	*26%*	*2%*	*100%*
17	Revenue Requirement Adjustments	79%	13%	8%	100%
18	**Total Revenue Requirements**	**79%**	**13%**	**8%**	**100%**

6.3.3. Unit Cost of Service

Unit costs of service form the basis for rate design and are the quotient of net revenue requirements or cost of service divided by the applicable units of service. **Table 6-3** shows the FY 2007 unit cost of service.

Table 6-3.
Wastewater

FY 2007 Unit Costs of Service

Line No.	Operating Center	Volume	Billing and Collection	Meters and Services	Total
	O&M:				
1	Water Reclamation	$ 5,964,067	$ 0	$ 0	$ 5,964,067
2	Wastewater Collection	1,458,847	0	0	1,458,847
3	Land Application	2,212,129	0	0	2,212,129
4	Industrial Monitoring/ Pretreatment	279,899	93,300	93,300	466,498
5	Wastewater Laboratory	255,144	85,048	85,048	425,240
6	Sampling & Monitoring	535,092	178,364	178,364	891,820
7	*Total O&M*	*10,705,178*	*356,712*	*356,712*	*11,418,601*
	Capital:				
8	Debt Service – Existing	4,364,148	1,454,716	1,454,716	7,273,580
9	Debt Service – Future	79,939	26,646	26,646	133,231
10	*Total Capital*	*4,444,087*	*1,481,362*	*1,481,362*	*7,406,811*
	Fund Transfers:				
11	Indirect Cost Allocation	500,837	0	0	500,837
12	Master Lease	548,178	18,266	18,266	584,710
13	Utility Billing	0	1,074,669	0	1,074,669
14	Payment in Lieu of Property Tax	741,536	24,709	24,709	790,954
15	Transfer for Utility COB	1,420,413	47,330	47,330	1,515,073
16	*Total Fund Transfers*	*3,210,964*	*1,164,974*	*90,305*	*4,466,243*
17	Revenue Requirement Adjustments	(2,173,274)	(355,467)	(228,259)	(2,757,000)
18	**Total Net Revenue Requirements**	**$ 16,186,954**	**$ 2,647,582**	**$ 1,700,120**	**$ 20,534,655**
19	Billing Units	9,627,659 (kgal)	847,080 (bills)	1,117,356 (meters)	
20	**Unit Cost**	**$ 1.68**	**$ 3.13**	**$ 1.52**	

7. Wastewater Rate Design

7.1. Existing Rates

The existing wastewater rates have been in effect since October 2006 and consist of a Base Charge and a Volume Rate. The Base Charge is assessed monthly and varies by meter size. The Volume Rate (a $/kgal rate based on monthly metered water use) is uniform and varies by customer class.

7.2. Proposed 2007 Rates

The revenue requirements and cost of service allocations described in previous sections of this report provide the basis for designing wastewater user charges. The revenue requirements show the need for rate adjustment and the level of revenue required. The allocations provide the unit costs of service for the rate design process.

Red Oak designed the proposed FY 2007 rates to keep wastewater sales revenue constant and to equitably recover customer and volume-related cost of service. The proposed rate structure for all customers remains the current uniform structure. **Table 7-1** compares existing and proposed FY 2007 Base Charges and Volume Rates.

Table 7-1.
Wastewater

Comparison of Existing and Proposed FY 2007 User Charges

Rate Type	Existing	Proposed	Percent Change
Base Charge:			
3/4"	$ 3.94	$ 4.65	18.0%
1"	$ 9.20	$ 5.67	(38.4%)
1 1/2"	$ 17.97	$ 8.19	(54.4%)
2"	$ 28.49	$ 11.23	(60.6%)
3"	$ 61.82	$ 18.33	(70.3%)
4"	$ 175.81	$ 28.47	(83.8%)
6"	$ 351.18	$ 53.79	(84.7%)
8"	$ 438.88	$ 84.19	(80.8%)
10"	$ 877.32	$ 119.67	(86.4%)
Volume Rate ($/kgals)	$ 1.67	$ 1.69	1.2%

Proposed monthly Base Charges recover utility billing and collection costs, which do not vary by meter size, and meters and services costs, which do vary by meter size. Red Oak used the AWWA *M6 Manual* meter flow equivalent ratios to differentiate costs for each meter size. **Table 7-2** shows the development of the proposed FY 2007 Base Charges.

Table 7-2.
Wastewater

Development of FY 2007 Base Charges

Meter Size	Billing & Collection	Meters & Services	Total
3/4"	$ 3.13	$ 1.52	$ 4.65
1"	$ 3.13	$ 2.54	$ 5.67
1 1/2"	$ 3.13	$ 5.06	$ 8.19
2"	$ 3.13	$ 8.10	$ 11.23
3"	$ 3.13	$ 15.20	$ 18.33
4"	$ 3.13	$ 25.34	$ 28.47
6"	$ 3.13	$ 50.66	$ 53.79
8"	$ 3.13	$ 81.06	$ 84.19
10"	$ 3.13	$ 116.54	$ 119.67

7.3. Typical Monthly Wastewater Bills

Table 7-3 compares monthly bills under existing and proposed FY 2007 rates for single family customers. Based on an average usage of 7,000 gallons, single family residential bills are expected to increase $0.85 per month from $16.48 under existing rates to $15.63 under proposed rates.

Table 7-3.
Wastewater

Comparison of Monthly Bills under Existing and Proposed Rates
Single Family Residential

	Usage (kgal)	Existing	Proposed
Low	5	$ 12.29	$ 13.10
Average	7	$ 15.63	$ 16.48
High	20	$ 37.34	$ 38.45
Very High	50	$ 87.44	$ 89.15