

CITY OF RIO VISTA

WASTEWATER RATE ANALYSIS FINAL REPORT

March 30, 2009



Corporate Office:

27368 Via Industria
Suite 110
Temecula, CA 92590
Tel: (951) 587-3500
Tel: (800) 755-MUNI (6864)
Fax: (951) 587-3510

Office Locations:

Anaheim, CA
Lancaster, CA
Oakland, CA

Sacramento, CA
Orlando, FL
Memphis, TN

www.willdan.com

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Executive Summary

This study of wastewater rates was conducted for the City of Rio Vista to determine wastewater revenue requirements, costs of services, appropriate, fair and equitable rates and rate structure, and to maintain the wastewater utility on a financially sound and stable basis over the next five fiscal years. The study encompassed the design of separate rate structures for each of the wastewater treatment plants in the Rio Vista wastewater system; these treatment plants are the Beach Treatment Plant and the Northwest Treatment Plant. The study was conducted using historical and projected data on operating and non-operating expenses, debt service, and capital expenditures.

The City retained Willdan Financial Services (formerly MuniFinancial) to prepare a wastewater rate analysis that will include new wastewater rate schedules that meet current and near-term projected system revenue requirements. For purposes of determining annual revenue requirements as a basis to set future wastewater rates, we used a study period of five years, spanning fiscal years 2009/2010 through 2013/2014.

Assumptions

This section presents the assumptions used in the wastewater rate analysis.

1. The proposed budget for fiscal year ending June 30, 2009 was used as the base year.
2. The customer growth rate is assumed flat (0%) throughout the study period for the Beach Treatment Plant. Customer growth for the Northwest Treatment Plant is flat for commercial, while residential growth ranges between four and eight percent (4-8%)
3. A cost of living factor of four percent (4%) was used to project future expenses (depreciation expense is assumed to remain constant throughout the study period). Note that a factor of five percent (5%) was used to project future personnel costs.
4. The wastewater utility currently pays debt service on Wastewater Revenue Bonds, which began in fiscal year 2001 and will continue through fiscal year ending June 30, 2031. These bonds funded construction projects solely associated with the Beach Treatment Plant.
5. The ending operating fund balance for fiscal year 2008/2009 is estimated at \$(2,897,769), which has been split evenly between the two treatment plants for the purposes of rate setting (note that this is an unaudited estimate).
6. Multi-family units discharge 76.07% of single family unit. (Beach Only)
7. Population growth for the City of Rio Vista is projected at two and a half percent (2.5%) for 2009/2010 and five percent (5%) for 2010-2014. Commercial growth is projected to be flat, for both Beach and Northwest treatment plants, over the course of the study.
8. All anticipated (residential) growth in the City is expected to be served by the Northwest treatment plant, not the Beach treatment plant, so it is assumed that all of the City's projected growth will be served by the Northwest treatment plant.
9. Due to lack of substitutes and necessity –wastewater rates are assumed to be price inelastic – i.e. a rate increase will not lower discharge.

Findings

This section presents the findings of the wastewater rate analysis.

1. The wastewater utility's current financial condition is not viable since revenues will not be able to keep up with rising costs, such as facility repair and maintenance, labor, and materials.
2. Existing rates generate a negative net income.
3. Existing rates do not fund system replacement.
4. Existing rates do not adequately fund reserve fund balances.
5. The enterprise's operating fund deficit will continue to increase unless wastewater rates are adjusted to meet revenue requirements.

Recommendations

The findings of this wastewater rate analysis indicate the City should consider adoption of the following recommendations:

1. Funds equaling a percentage of depreciation expense should be set-aside to provide for future system repairs and replacement.
2. Adopt a rate structure that adequately provides for ongoing costs and debt service and allows for funding of reserves for unscheduled expenses.
3. Adopt a policy of maintaining a designated balance in the operating fund (such as three months of operating expenses or any other amount approved by the Council); in order to satisfy expense obligations as cash flow fluctuates during the year.
4. Review current commercial users' classification (low, domestic, and high strength) and reclassify current users if necessary. Afterwards, the City may find it necessary to update the rate model as the loading and unit rate calculation is an underlying driver of the wastewater rate calculation.
5. To be consistent between the Water and Sewer billings, update the per unit charge to HCF (hundred cubic feet) rather than per 1,000 gallons. One HCF is equivalent to 748 gallons.
6. Annually update the Wastewater model, provided by Willdan Financial, to ensure assumption and cost estimates are updated and accurate.

Introduction

This report documents the results of the wastewater rate study conducted for the City of Rio Vista. The primary purpose of this study is to develop wastewater rate structures that will adequately fund the annual operations of the two wastewater treatment plants (the Beach Treatment Plant and the Northwest Treatment Plant) that comprise the wastewater utility system.

The rate study has used utility revenues, operating expenses, debt service, and capital expenditures data provided by the City through City Engineer and Wastewater Operator. The objective of the rate study is to develop rate schedules for the wastewater utility that are equitable and proportionate to the cost of service for each customer class. The projected rate schedule is designed to produce revenues for the wastewater utility to pay administrative, operations, maintenance, capital improvement, and debt service expenditures, in addition to maintaining fund balances at reasonable operating levels.

The results of the rate study are derived from projected financial analyses of the wastewater utility based upon the budgeted revenues and expenses of the fiscal year ending June 30, 2009 (the base year). A five-year projection of operating results to determine future revenue requirements was developed for the wastewater utility for the fiscal years ending June 30, 2010 through 2014. The projections also determine the amounts required to maintain sufficient balances in the wastewater utility's operating fund.

Beach Treatment Plant

Projected Number of Connections and Wastewater Discharge

Table 1 shows the projected number of wastewater connections by customer class. Table 2 shows the projected amount of discharge for the residential and commercial classes (residential discharge is calculated using a 16 month average of discharge into the treatment plant less commercial discharge. Commercial discharge based on annual water consumption). Note that the number of connections and discharge for each customer class was projected using a flat growth factor (0%).

Table 1: Projected Number of Connections – Beach Treatment Plant

Customer Class	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Residential					
Single Family	1,604	1,604	1,604	1,604	1,604
Multi-Family	279	279	279	279	279
Commercial					
Low Strength	5	5	5	5	5
Domestic Strength	97	97	97	97	97
High Strength	19	19	19	19	19
Total	2,004	2,004	2,004	2,004	2,004

Sources: The City of Rio Vista; Willdan Financial Services

Table 2: Projected Wastewater Discharge from Commercial Customers (in gallons) – Beach Treatment Plant

Customer Class	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Residential					
Single Family	142,266,780	142,266,780	142,266,780	142,266,780	142,266,780
Multi-Family	18,821,735	18,821,735	18,821,735	18,821,735	18,821,735
Commercial					
Low Strength	1,461,000	1,461,000	1,461,000	1,461,000	1,461,000
Domestic Strength	18,192,000	18,192,000	18,192,000	18,192,000	18,192,000
High Strength	4,925,000	4,925,000	4,925,000	4,925,000	4,925,000
Total	185,666,515	185,666,515	185,666,515	185,666,515	185,666,515

Notes:

- Single Family discharge data based on assumption of 243 GPD.
- Multi-Family assumes .7607 of Single Family consumption, or 184.83 GPD.
- Commercial discharge based on fiscal year 07/08 billing records.

Sources: The City of Rio Vista; Willdan Financial Services

Annual Revenue Requirements

As in most cities, the wastewater utility operates on an enterprise basis with expenses and revenues accounted for separately from the City's general and other funds. The City's wastewater enterprise fund must receive sufficient total revenue to ensure proper operation and maintenance of the utility as well as preserve the financial integrity of the utility and the fund. Adequacy of wastewater revenues can be measured by comparing the wastewater utility's revenue requirements to be met from the wastewater rates it charges to its customers.

Approaches to Determining Revenue Requirements

In order to develop adequate revenues from a system of wastewater rates, the annual revenue requirements of the wastewater utility must be determined. There are two commonly accepted bases for determining annual revenue requirements in order to develop a financially sound wastewater rate structure. These approaches are the "cash needs" approach and the "utility" approach.

The "cash needs" basis is typically used by municipally-owned wastewater utilities when establishing rates for their customers. Under this approach, the basic revenue-requirement components include:

- ◆ Operating and maintenance (O&M) expenses
- ◆ Debt service costs (principal and interest on wastewater utility-related debt instruments)
- ◆ Capital expenditures funded directly from current revenues or accruals on a pay-as-you-go basis
- ◆ Other elements such as interdepartmental expenses (cost allocation) and interest earnings (considered as a credit to the expenses)

The "utility" basis for determining annual revenue requirements is typically used by regulated investor-owned utilities and regulated municipal utilities. Items normally included in annual revenue requirements based on this approach include:

- ◆ Operating and maintenance (O&M) expenses
- ◆ Depreciation expense
- ◆ Fair rate of return on the rate base

To determine the revenue requirements for the wastewater utility we have used the "cash needs" basis.

Current and Future Revenue Requirements

The annual revenue requirements are derived from maintenance and operations costs, debt service expenses, and required fund balances. Interest earnings, fines and forfeitures, and other miscellaneous income may offset some of these expenses, but the majority of the costs should be recovered via customer rates and charges.

The wastewater utility prepares an annual budget that itemizes all the expenditures for each fiscal year. These expenses include personnel costs, maintenance and operations, and equipment repair and replacement. For the study we also added a repair and replacement reserve fund collection, to account for depreciation expenses at facilities and lift stations, and an operating reserve fund collection. The wastewater utility activities included in our analysis were gathered from the City's annual operating budget and audited financial statements.

Historical Revenues and Expenses

Base year income and expense data for the wastewater utility were obtained for fiscal year 2008/2009 using the wastewater utility budget for that year and audited financial statements ending June 30, 2006. This analysis is not a restatement of the City's audits or budgets, but does rely heavily on these data sources.

Our analysis revealed that the enterprise's operating fund deficit will continue to increase unless wastewater rates are adjusted to meet revenue requirements.

Future Revenue Requirements

An evaluation of future revenue requirements should focus on four specific areas. These areas are increases in operating expenses, capital improvement costs, requirements for debt service, and the maintenance of reserve funds. The following sections discuss the impact of these factors on the wastewater utility revenue requirements.

Operating Expense Projections

For purposes of determining annual revenue requirements as a basis to set future wastewater rates, we used a study period of five years. During this period (fiscal year 2009/2010 through fiscal year 2013/2014), costs are naturally assumed to increase due to inflationary pressures. Historical review of the CPI data from San Francisco and Oakland from 1984 through April 2008 showed an average annual increase of four percent (4%); therefore, we have projected future revenue requirements of the wastewater utility by applying a cost of living factor of four percent (4%) to operating expense line items. Note that a higher factor of five percent (5%) was used to project future personnel costs.

Capital Improvement Costs

The City maintains a Capital Improvement Plan (CIP) for the funding of annual capital projects. The City has capital improvement projects for operations related requirements. Because we are only analyzing annual operations requirements, we included the CIP program costs associated with operations only. Table 3 presents the operations CIP over the five-year planning period of this study (note that it is assumed that all operations-related CIP costs will be funded on a "pay-as-you-go" basis).

Debt Service

The wastewater utility currently pays debt service on Wastewater Revenue Bonds, which began in fiscal year 2001 and will continue through fiscal year ending June 30, 2031, as illustrated in Table 4. These bonds funded construction projects solely associated with the Beach Treatment Plant.

Table 3: Capital Improvement Projects Related to Operations – Beach Treatment Plant

PROJECT	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Beach WWTP					
Vactor repairs	\$ -	\$ -	\$ -	\$ 4,000	\$ 4,000
Equipment (vehicle, tools, backhoe)	-	3,850	3,850	3,850	3,850
Standby Generator at Marina & City hall	170,000	-	-	-	-
Clean & CCTV inspect sewer collection syst	250,000	-	-	-	-
Integrate the collection system in GIS format	156,750	-	-	-	-
Standby Generator at Airport, River Rd & 2nd St.	-	150,000	-	-	-
Marina Control Replacement	35,000	-	-	-	-
River road Pump Station Eval.	-	50,000	-	-	-
St. Franics/PG&E Area	-	300,000	180,000	-	-
Highway 12/Gardiner Area	-	200,000	-	-	-
Replace River Rd & relocate homecoming to NW 7th, California to Bruning	-	-	320,000	-	-
Bruning/Front Street Area	-	-	125,000	-	-
Hydro Vac Truck	-	-	110,000	-	-
Main Street, Front to City Hall	-	-	-	180,000	-
Front Street North of Main	-	-	-	50,000	410,000
7th St to St. Joseph St.	-	-	-	-	50,000
Pipe Repairs after inspection	-	-	-	-	99,900
On-going CCTV	-	-	-	27,500	27,500
Manhole replacement/covers/seals	-	40,000	40,000	32,000	28,000
Stormdrain Program	-	2,750	2,750	2,750	2,750
Total	\$ 611,750	\$ 746,600	\$ 781,600	\$ 600,100	\$ 926,000

Note:

Construction cost estimates were escalated annually by a factor of 0%

Source: City of Rio Vista

Table 4: Current Debt Service Schedule

Year	Due Date	Principal Pmt Due	Coupon Rate	Interest Pmt Due	Period Total	FY Total	Bond Balance	FYE
1	1-Oct-00			\$ 38,561	\$ 38,561			
	1-Apr-01			42,583	42,583	\$ 81,143	\$ 1,550,000	6/30/2001
2	1-Oct-01	\$ 25,000	4.20%	42,583	67,583			
	1-Apr-02			42,058	42,058	109,640	1,525,000	6/30/2002
3	1-Oct-02	25,000	4.30%	42,058	67,058			
	1-Apr-03			41,520	41,520	108,578	1,500,000	6/30/2003
4	1-Oct-03	25,000	4.40%	41,520	66,520			
	1-Apr-04			40,970	40,970	107,490	1,475,000	6/30/2004
5	1-Oct-04	25,000	4.45%	40,970	65,970			
	1-Apr-05			40,414	40,414	106,384	1,450,000	6/30/2005
6	1-Oct-05	30,000	4.50%	40,414	70,414			
	1-Apr-06			39,739	39,739	110,153	1,420,000	6/30/2006
7	1-Oct-06	30,000	4.60%	39,739	69,739			
	1-Apr-07			39,049	39,049	108,788	1,390,000	6/30/2007
8	1-Oct-07	30,000	4.70%	39,049	69,049			
	1-Apr-08			38,344	38,344	107,393	1,360,000	6/30/2008
9	1-Oct-08	30,000	4.80%	38,344	68,344			
	1-Apr-09			37,624	37,624	105,968	1,330,000	6/30/2009
10	1-Oct-09	35,000	4.90%	37,624	72,624			
	1-Apr-10			36,766	36,766	109,390	1,295,000	6/30/2010
11	1-Oct-10	35,000	5.00%	36,766	71,766			
	1-Apr-11			35,891	35,891	107,658	1,260,000	6/30/2011
12	1-Oct-11	35,000	5.10%	35,891	70,891			
	1-Apr-12			34,999	34,999	105,890	1,225,000	6/30/2012
13	1-Oct-12	40,000	5.15%	34,999	74,999			
	1-Apr-13			33,969	33,969	108,968	1,185,000	6/30/2013
14	1-Oct-13	40,000	5.50%	33,969	73,969			
	1-Apr-14			32,869	32,869	106,838	1,145,000	6/30/2014
15	1-Oct-14	40,000	5.50%	32,869	72,869			
	1-Apr-15			31,769	31,769	104,638	1,105,000	6/30/2015
16	1-Oct-15	45,000	5.50%	31,769	76,769			
	1-Apr-16			30,531	30,531	107,300	1,060,000	6/30/2016
17	1-Oct-16	45,000	5.50%	30,531	75,531			
	1-Apr-17			29,294	29,294	104,825	1,015,000	6/30/2017
18	1-Oct-17	50,000	5.75%	29,294	79,294			
	1-Apr-18			27,856	27,856	107,150	965,000	6/30/2018
19	1-Oct-18	50,000	5.75%	27,856	77,856			
	1-Apr-19			26,419	26,419	104,275	915,000	6/30/2019
20	1-Oct-19	55,000	5.75%	26,419	81,419			
	1-Apr-20			24,838	24,838	106,256	860,000	6/30/2020
21	1-Oct-20	60,000	5.75%	24,838	84,838			
	1-Apr-21			23,113	23,113	107,950	800,000	6/30/2021
22	1-Oct-21	60,000	5.75%	23,113	83,113			
	1-Apr-22			21,388	21,388	104,500	740,000	6/30/2022
23	1-Oct-22	65,000	5.75%	21,388	86,388			
	1-Apr-23			19,519	19,519	105,906	675,000	6/30/2023
24	1-Oct-23	70,000	5.75%	19,519	89,519			
	1-Apr-24			17,506	17,506	107,025	605,000	6/30/2024
25	1-Oct-24	75,000	5.75%	17,506	92,506			
	1-Apr-25			15,350	15,350	107,856	530,000	6/30/2025
26	1-Oct-25	80,000	5.75%	15,350	95,350			
	1-Apr-26			13,050	13,050	108,400	450,000	6/30/2026
27	1-Oct-26	80,000	5.80%	13,050	93,050			
	1-Apr-27			10,730	10,730	103,780	370,000	6/30/2027
28	1-Oct-27	85,000	5.80%	10,730	95,730			
	1-Apr-28			8,265	8,265	103,995	285,000	6/30/2028
29	1-Oct-28	90,000	5.80%	8,265	98,265			
	1-Apr-29			5,655	5,655	103,920	195,000	6/30/2029
30	1-Oct-29	95,000	5.80%	5,655	100,655			
	1-Apr-30			2,900	2,900	103,555	100,000	6/30/2030
31	1-Oct-30	100,000	5.80%	2,900	102,900			
	1-Apr-31					102,900	-	6/30/2031
		\$ 1,550,000		\$ 1,728,508	\$ 3,278,508	\$ 3,278,508		

Source: The City of Rio Vista

Reserve Funds

The operating fund for the wastewater utility has a balance of \$(2,897,768), as of June 30, 2008, according to the City (note that this is an unaudited estimate). Of this amount, half, or \$(1,448,884), is attributed to the Beach Treatment Plant. It is recommended that the City adopt a policy of maintaining a designated balance in the operating fund (such as three months of operating expenses or any other amount approved by the Council), in order to satisfy expense obligations as cash flow fluctuates during the year. The rate study projects that with the revenue increase outlined in Table 5, the balance in the operating fund should meet the desired balance requirement by the end of the study period. In addition, funds equaling a percentage of depreciation expense should be collected in order to ensure the availability of funds for necessary system repair and maintenance (repair & replacement reserve collection averages to be \$106,756 throughout the study period). Having adequate reserves makes emergency cash available and helps reduce future rate shocks.

Revenue Requirements Analysis

Table 5 presents the five-year projected revenue requirements for the Beach Wastewater Treatment Plant. This table includes annual revenues projected to be raised using the current rate structure, the additional revenue required to meet projected wastewater utility expenditures, the projected operating and non-operating expenses, and fund balance information based on the revenues generated from rate and fee increases.

Rows 1 through 4 of this table show the revenue generated using current rates and fees; a zero percent (0%) population growth factor was used in the projection of these rates and fees, reflecting recent population growth experienced by the City. These rates and fees do not produce enough revenue to maintain a positive operating fund balance. The section below the current revenues (rows 5 through 12) incorporates the revenue generated by the proposed rate and fee increases. As the table illustrates, total system revenues must be increased by one-hundred-thirteen percent (113%) in fiscal year 2009/2010, fourteen percent (14%) in fiscal year 2010/2011, five percent (5%) in fiscal year 2011/2012 and ten percent (10%) in both fiscal years 2012/2013 and 2013/2014 in order to have a positive net income.

Total operating expenses are shown in row 59, net income is found in row 74, and the operating fund balance is detailed near the bottom of the table in row 80.

Repair and replacement reserve collection (row 72) is a new line-item in the budget. This captures a percentage of the depreciation cost associated with the wastewater utility. Additionally, the City maintains the line-item for unplanned repairs (row 57).

A line for the targeted operating fund balance (row 82) is also included in the table. This shows the minimum amount of funds the City should try to maintain in its operating fund, to address annual cash flow requirements that may arise for the wastewater utility.

Table 5a: Beach Treatment Plant Revenue Requirements

	Base Year					
	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
1 Operating Revenue						
2 Utility Service Fees	\$ 955,670	\$ 955,670	\$ 955,670	\$ 955,670	\$ 955,670	\$ 955,670
3 Total Operating Funds	955,670	955,670	955,670	955,670	955,670	955,670
4 Additional Revenue Required						
5 Year	Revenue Increase	Months Effective				
6 FY 2008-2009	0%	0	-	-	-	-
6 FY 2009-2010	113%	12	-	1,075,205	1,075,205	1,075,205
7 FY 2010-2011	14%	12	-	277,214	277,214	277,214
8 FY 2011-2012	5%	12	-	-	103,864	103,864
9 FY 2012-2013	10%	12	-	-	238,783	238,783
10 FY 2013-2014	10%	12	-	-	-	261,098
11 Total Additional Operating Revenue	-	1,075,205	1,352,420	1,456,284	1,695,067	1,956,165
12 Total Operating Revenue (Required Revenue)	\$ 955,670	\$ 2,030,875	\$ 2,308,089	\$ 2,411,953	\$ 2,650,737	\$ 2,911,834
13 Operating Expenses						
14 Accounting & Auditing	4,035	4,236	4,448	4,671	4,904	5,149
15 Administrative Expense	2,461	2,584	2,713	2,849	2,991	3,141
16 Salaries & Wages	127,686	134,070	140,773	147,812	155,203	162,963
17 Temporary Staffing	-	-	-	-	-	-
18 Overtime	7,456	7,829	8,220	8,631	9,063	9,516
19 Clothing & Work Boots	153	161	169	177	186	195
20 Dental Insurance	3,517	3,693	3,878	4,072	4,275	4,489
21 Health Insurance	26,450	27,773	29,161	30,619	32,150	33,758
22 Life Insurance	313	329	345	363	381	400
23 Employee Assistance Program	56	58	61	64	67	71
24 Vision Insurance	462	485	510	535	562	590
25 PERS Retirement	23,851	25,043	26,296	27,610	28,991	30,440
26 Social Security/FICA	9,171	9,630	10,111	10,617	11,148	11,705
27 Workers Comp. Insurance	16,064	16,867	17,711	18,596	19,526	20,503
28 State Unemployment Insurance	11,660	12,243	12,855	13,498	14,172	14,881
29 Uniform Allowance	-	-	-	-	-	-
30 Car Allowance	140	146	152	158	164	171
31 Legal Fees	3,825	3,978	4,137	4,303	4,475	4,654
32 Printing	918	955	993	1,033	1,074	1,117
33 Bad Debt Expense	-	-	-	-	-	-
34 Chemicals & Gases	108,000	112,320	116,813	121,485	126,345	131,399
35 Conferences & Meetings	-	-	-	-	-	-
36 Contractual Services	632,000	657,280	683,571	710,914	739,351	768,925
37 Equipment Rental	10,200	10,608	11,032	11,474	11,933	12,410
38 Equipment (Non-Capital, <\$5,000)	4,653	4,839	5,033	5,234	5,443	5,661
39 Fuel & Mileage	3,900	4,056	4,218	4,387	4,562	4,745
40 Flood & Fire Insurance	14,241	14,810	15,403	16,019	16,660	17,326
41 Liability Insurance	16,907	17,583	18,286	19,018	19,778	20,569
42 Laboratory Testing	-	-	-	-	-	-
43 M&R Machinery & Equipment	4,488	4,668	4,854	5,048	5,250	5,460
44 M&R Real Property	8,306	8,638	8,984	9,343	9,717	10,106
45 M&R Vehicles	713	741	771	801	834	867
46 Meals	-	-	-	-	-	-
47 Membership Dues	255	265	276	287	298	310
48 Misc. Services & Supplies	-	50,000	-	-	-	-
49 Office Supplies & Materials	51	53	55	57	60	62
50 Indirect Cost Allocation	-	-	-	-	-	-
51 Permits & Licenses	8,441	8,778	9,129	9,494	9,874	10,269
52 Postage	3,417	3,554	3,696	3,844	3,997	4,157
53 Safety Equipment	26	27	28	29	30	31
54 Telephone	18,404	19,140	19,906	20,702	21,530	22,391
55 Utilities - PG&E	187,405	204,272	222,656	242,695	264,538	288,346
56 Miscellaneous Expense	103,823	-	-	-	-	-
57 Unplanned Repairs	200,000	155,178	155,178	155,178	155,178	105,178
58 Total Operating Expenses	1,563,446	1,526,890	1,542,422	1,611,617	1,684,710	1,711,955
59 Net Operating Income (Loss)	(607,776)	503,985	765,668	800,337	966,027	1,199,880

Table 5b: Beach Treatment Plant Revenue Requirements

	Base Year					
	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
60 Debt Service						
61 Current Bonds	105,968	156,025	189,001	246,558	249,636	247,506
62 Proposed Bonds	-	-	-	-	-	-
63 Total Debt Service	105,968	156,025	189,001	246,558	249,636	247,506
64 Debt Service Coverage Ratio	(5.74)	3.23	4.05	3.25	3.87	4.85
65 Non-Operating Revenues						
66 Penalties	21,785	21,785	21,785	21,785	21,785	21,785
67 Interest Income	-	-	-	-	-	-
68 Less Reserved Fund Balance	-	-	-	-	-	-
69 Total Non-Operating Revenue	21,785	21,785	21,785	21,785	21,785	21,785
70 Capital Projects Funded by Rates						
71 CIP PAYGO projects	\$ -	\$ 311,750	\$ 546,600	\$ 481,600	\$ 600,100	\$ 926,000
72 Repair & Replacement Reserve Collection	-	53,578	48,078	42,078	122,078	42,078
73 Total Non-Operating Expenses	-	365,328	594,678	523,678	722,178	968,078
74 Net Income (Loss)	(691,958)	4,418	3,775	51,886	15,999	6,082
75 Operating Fund	Targeted balance not met	Targeted balance not met	Targeted balance not met	Targeted balance not met	Targeted balance not met	Targeted balance not met
76 Total Funds	(691,958)	4,418	3,775	51,886	15,999	6,082
77 Wastewater Enterprise Fund						
78 Beginning Operating Fund Balance	(1,448,884)	(2,140,843)	(2,136,425)	(2,132,650)	(2,080,764)	(2,064,766)
79 Deposit (Withdrawals)	(691,958)	4,418	3,775	51,886	15,999	6,082
80 Ending Operating Fund Balance	(2,140,843)	(2,136,425)	(2,132,650)	(2,080,764)	(2,064,766)	(2,058,684)
81 Fund Balance Percent of O&M	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
82 Targeted Operating Fund Balance	390,861	381,722	385,605	402,904	421,178	427,989

Sources: The City of Rio Vista; Willdan Financial Services

Allocation of Beach Treatment Plant Costs

Wastewater rates in California are considered property-related fees and are, consequently, subject to repeal by initiative pursuant to Section 3 of Article XIII C of the California Constitution. Furthermore, the substantive and procedural requirements of California Constitution Articles XIII C and XIII D (Proposition 218) apply to wastewater rate setting. Section 6 of Article XIII D states:

The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.

This utility rate study was performed to allocate the costs of providing service to users in order to ensure that rates are equitable and not unduly discriminatory, thereby satisfying the Proposition 218 requirements. The total cost of serving each customer class is determined by distributing each of the utility cost components among the user classes based upon the respective service requirements of each customer class. Therefore, a true cost of service rate study enables a wastewater utility to adopt rates based on the true costs to each user class. The purposes of this wastewater utility cost of service study include:

- ◆ Proportional allocation of the costs of service to users.
- ◆ Derivation of unit costs to support the development of wastewater rates.

Cost of Service Procedure

A cost of service analysis converts enterprise-related financing documents to costs incurred by user classes for which rates can be developed. The cost of service study for the City of Rio Vista is performed in three basic steps.

The first step is called functionalization, which categorizes cost data in terms of functions performed by a wastewater utility system. The functions identified in this study include operating costs, capital projects to be funded by rates, debt service, and reserve requirements.

The second step classifies operating and non-operating expenses of the utility to the cost components of flow and strength of wastewater effluent. The cost components are defined as follows:

- ◆ Flow Costs: Volume or flow related costs vary with the discharge of wastewater by users over a specified period of time, typically a year.
- ◆ Strength Costs: Strength costs vary with the quality of wastewater discharged as measured by the biochemical oxygen demand (BOD) and suspended solids (SS) content of the discharged sewage.

The final step in this analysis allocates costs of service to each customer class. This step is accomplished through the development of volume and strength related allocation factors for each customer class.

Cost Classification Methodology

For compliance with State and Proposition 218 guidelines, a wastewater utility is required to utilize a cost allocation approach that fairly allocates costs among customer classes. This is accomplished by allocating costs into the treatment parameters of flow and strength. These costs are to be allocated in proportion to the percentage that each cost parameter represents. When divided by the wastewater loadings of each user class, unit costs of service are obtained. All costs incurred by a wastewater utility system can be allocated to one or more cost parameters. The allocation of each cost item between flow, BOD, and SS is based on industry standards of treatment parameter data. Tables 6 and 7 present the functionalization and loading calculations used to determine the allocation factors (shown in Table 8). The required revenue allocations for each customer class are shown below in Table 9 for each year of the study period.

Rate Design

The rate design breaks down commercial and residential into sub-groups to more accurately show costs of service:

Residential Rates

The new rate structure refines residential in order to show the assumed difference in discharge between single family and multi-family units. Due to lack of metered residential account data and to be consistent with the recent Water Rate Study, the rates assume multi-family units discharge 76.07% of a single family unit. Multi-family units, in general, have fewer fixtures and bathrooms as well as lower densities. A flat-monthly fee design was implemented as 94% of the City's water accounts are unmetered.

Commercial Rates

The new rate structure divides commercial users into three groups; Low, Domestic, and High Strengths. The ranges for the BOD and SS characteristics are consistent with the State Water Resources Board and are considered industry standard. Because the commercial accounts are metered, their monthly charge will be volume based. Commercial accounts will be billed based on their water consumption.

Table 6: Functionalization of Beach Treatment Plant Revenue Requirements

Description	Classification				FYE 2010 to 2014 AVG			
	Flow	BOD	SS	Total	Flow	BOD	SS	Total
Operating Expenses								
Accounting & Auditing	80%	10%	10%	100.0%	\$ 3,745	\$ 468	\$ 468	\$ 4,682
Administrative Expense	80%	10%	10%	100.0%	2,284	286	286	2,855
Salaries & Wages	80%	10%	10%	100.0%	118,531	14,816	14,816	148,164
Temporary Staffing	80%	10%	10%	100.0%	-	-	-	-
Overtime	80%	10%	10%	100.0%	6,921	865	865	8,652
Clothing & Work Boots	80%	10%	10%	100.0%	142	18	18	178
Dental Insurance	80%	10%	10%	100.0%	3,265	408	408	4,081
Health Insurance	80%	10%	10%	100.0%	24,554	3,069	3,069	30,692
Life Insurance	80%	10%	10%	100.0%	291	36	36	363
Employee Assistance Program	80%	10%	10%	100.0%	52	6	6	64
Vision Insurance	80%	10%	10%	100.0%	429	54	54	536
PERS Retirement	80%	10%	10%	100.0%	22,141	2,768	2,768	27,676
Social Security/FICA	80%	10%	10%	100.0%	8,514	1,064	1,064	10,642
Workers Comp. Insurance	80%	10%	10%	100.0%	14,913	1,864	1,864	18,641
State Unemployment Insurance	80%	10%	10%	100.0%	10,824	1,353	1,353	13,530
Uniform Allowance	50%	25%	25%	100.0%	-	-	-	-
Car Allowance	50%	25%	25%	100.0%	79	40	40	158
Legal Fees	50%	25%	25%	100.0%	2,155	1,077	1,077	4,309
Printing	50%	25%	25%	100.0%	517	259	259	1,034
Bad Debt Expense	50%	25%	25%	100.0%	-	-	-	-
Chemicals & Gases	50%	25%	25%	100.0%	60,836	30,418	30,418	121,672
Conferences & Meetings	50%	25%	25%	100.0%	-	-	-	-
Contractual Services	50%	25%	25%	100.0%	356,004	178,002	178,002	712,008
Equipment Rental	50%	25%	25%	100.0%	5,746	2,873	2,873	11,491
Equipment (Non-Capital, <\$5,000)	50%	25%	25%	100.0%	2,621	1,311	1,311	5,242
Fuel & Mileage	50%	25%	25%	100.0%	2,197	1,098	1,098	4,394
Flood & Fire Insurance	50%	25%	25%	100.0%	8,022	4,011	4,011	16,044
Liability Insurance	50%	25%	25%	100.0%	9,523	4,762	4,762	19,047
Laboratory Testing	50%	25%	25%	100.0%	-	-	-	-
M&R Machinery & Equipment	50%	25%	25%	100.0%	2,528	1,264	1,264	5,056
M&R Real Property	50%	25%	25%	100.0%	4,679	2,339	2,339	9,357
M&R Vehicles	50%	25%	25%	100.0%	401	201	201	803
Meals	50%	25%	25%	100.0%	-	-	-	-
Membership Dues	50%	25%	25%	100.0%	144	72	72	287
Misc. Services & Supplies	50%	25%	25%	100.0%	5,000	2,500	2,500	10,000
Office Supplies & Materials	50%	25%	25%	100.0%	29	14	14	57
Indirect Cost Allocation	50%	25%	25%	100.0%	-	-	-	-
Permits & Licenses	50%	25%	25%	100.0%	4,755	2,377	2,377	9,509
Postage	50%	25%	25%	100.0%	1,925	962	962	3,850
Safety Equipment	50%	25%	25%	100.0%	14	7	7	29
Telephone	50%	25%	25%	100.0%	10,367	5,183	5,183	20,734
Utilities - PG&E	50%	25%	25%	100.0%	122,251	61,125	61,125	244,502
Miscellaneous Expense	50%	25%	25%	100.0%	-	-	-	-
Unplanned Repairs	50%	25%	25%	100.0%	72,589	36,295	36,295	145,178
Payment in Lieu	50%	25%	25%	100.0%	-	-	-	-
Total Operating Expenses					\$ 888,986	\$ 363,266	\$ 363,266	\$1,615,519
Non-Operating Expenses								
Total Debt Service	50%	25%	25%	100.0%	108,872	54,436	54,436	217,745
CIP PAYGO projects	50%	25%	25%	100.0%	286,605	143,303	143,303	573,210
Repair & Replacement Reserve Collection	50%	25%	25%	100.0%	30,789	15,394	15,394	61,578
Total Non-Operating Expenses					\$ 426,266	\$ 213,133	\$ 213,133	\$ 852,533
Wastewater Utility Gross Revenue Requirement					\$1,315,253	\$ 576,399	\$ 576,399	\$2,468,051
Classification Factor					53.3%	23.4%	23.4%	100.0%

Sources: The City of Rio Vista; Willdan Financial Services

Table 7: Beach Treatment Plant Loading and Unit Rate Calculations

Customer Class	Projected		Concentration		Calculated Loading			
	Discharge (hcf)	Flow Factor	BOD (mg/l)	SS (mg/l)	BOD (lb/yr)	BOD Factor	SS (lb/yr)	SS Factor
Residential								
Single Family	190,196	76.6%	200	225	237,301	67.9%	266,964	71.2%
Multi-Family	25,163	10.1%	200	225	31,395	9.0%	35,319	9.4%
Commercial								
Low Strength	1,953	0.8%	150	150	1,828	0.5%	1,828	0.5%
Domestic Strength	24,321	9.8%	250	250	37,930	10.9%	37,930	10.1%
High Strength	<u>6,584</u>	<u>2.7%</u>	1,000	800	<u>41,075</u>	<u>11.8%</u>	<u>32,860</u>	<u>8.8%</u>
Total	248,217	100.0%			349,528	100.0%	374,900	100.0%

Notes:
 Single Family discharge data based on assumption of 243 GPD.
 Multi-Family assumes .7607 of Single Family consumption, or 184.83 GPD.
 Commercial discharge based on fiscal year 07/08 billing records.

Sources: The City of Rio Vista; Willdan Financial Services

Table 8: Allocation Factors – Beach Treatment Plant

Customer Class	Flow Factors		
	Flow Factor	BOD Factor	SS Factor
Residential			
Single Family	76.6%	67.9%	71.2%
Multi-Family	10.1%	9.0%	9.4%
Commercial			
Low Strength	0.8%	0.5%	0.5%
Domestic Strength	9.8%	10.9%	10.1%
High Strength	2.7%	11.8%	8.8%
Functionalization Factors			
	Flow Factor	BOD Factor	SS Factor
FYE 2010 to 2014 AVG	53.3%	23.4%	23.4%
Allocation Factors			
Customer Class	Flow Factor	BOD Factor	SS Factor
Residential			
Single Family	40.8%	15.9%	16.6%
Multi-Family	5.4%	2.1%	2.2%
Commercial			
Low Strength	0.4%	0.1%	0.1%
Domestic Strength	5.2%	2.5%	2.4%
High Strength	1.4%	2.7%	2.0%

Sources: The City of Rio Vista; Willdan Financial Services

Table 9: Allocation of Beach Treatment Plant Revenue Requirements

FY 2009-2010				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential				
Single Family	\$ 829,293	\$ 322,010	\$ 337,745	\$ 1,489,049
Multi-Family	\$ 109,715	\$ 42,602	\$ 44,683	\$ 196,999
Commercial				
Low Strength	8,516	2,480	2,312	13,309
Domestic Strength	106,044	51,470	47,987	205,501
High Strength	<u>28,709</u>	<u>55,737</u>	<u>41,572</u>	<u>126,017</u>
Total	\$ 1,082,277	\$ 474,299	\$ 474,299	\$ 2,030,875

FY 2010-2011				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential				
Single Family	\$ 942,492	\$ 365,965	\$ 383,847	\$ 1,692,304
Multi-Family	\$ 124,691	\$ 48,417	\$ 50,783	\$ 223,890
Commercial				
Low Strength	9,679	2,819	2,628	15,125
Domestic Strength	120,519	58,496	54,537	233,552
High Strength	<u>32,627</u>	<u>63,345</u>	<u>47,246</u>	<u>143,219</u>
Total	\$ 1,230,007	\$ 539,041	\$ 539,041	\$ 2,308,089

FY 2011-2012				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential				
Single Family	\$ 984,904	\$ 382,433	\$ 401,120	\$ 1,768,457
Multi-Family	\$ 130,302	\$ 50,595	\$ 53,068	\$ 233,965
Commercial				
Low Strength	10,114	2,946	2,746	15,806
Domestic Strength	125,942	61,128	56,991	244,062
High Strength	<u>34,095</u>	<u>66,195</u>	<u>49,372</u>	<u>149,663</u>
Total	\$ 1,285,358	\$ 563,298	\$ 563,298	\$ 2,411,953

FY 2012-2013				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential				
Single Family	\$ 1,082,409	\$ 420,294	\$ 440,831	\$ 1,943,535
Multi-Family	\$ 143,202	\$ 55,604	\$ 58,321	\$ 257,127
Commercial				
Low Strength	11,116	3,237	3,018	17,371
Domestic Strength	138,410	67,180	62,633	268,224
High Strength	<u>37,471</u>	<u>72,749</u>	<u>54,260</u>	<u>164,480</u>
Total	\$ 1,412,608	\$ 619,064	\$ 619,064	\$ 2,650,737

FY 2013-2014				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential				
Single Family	\$ 1,189,027	\$ 461,693	\$ 484,253	\$ 2,134,973
Multi-Family	\$ 157,307	\$ 61,081	\$ 64,066	\$ 282,454
Commercial				
Low Strength	12,211	3,556	3,315	19,082
Domestic Strength	152,044	73,797	68,803	294,644
High Strength	<u>41,162</u>	<u>79,915</u>	<u>59,605</u>	<u>180,681</u>
Total	\$ 1,551,750	\$ 680,042	\$ 680,042	\$ 2,911,834

Sources: The City of Rio Vista; Willdan Financial Services

Proposed Wastewater Rates - Beach Treatment Plant

Based on the analysis conducted for the wastewater utility in this rate study, a rate schedule has been developed which, if implemented by the City, should generate enough revenue to cover estimated expenses and maintain the desired wastewater fund balances depicted in Table 5.

Wastewater Rate Calculations

The required revenue from the residential customer classes (shown in Table 9) are first divided by the number of residential connections and then divided by twelve (12) to calculate the monthly residential rates. The rates for the commercial customer classes are determined by dividing the required revenue of each class (shown in Table 9) by the corresponding amount of projected discharge of each class.

The proposed Wastewater Rate Schedule is shown below in Table 10 (note that the residential rates shown in the table are per customer, while the commercial rates are per HCF monthly consumption of water for sewage flow purposes).

Table 10: Proposed Wastewater Rates – Beach Treatment Plant

Customer Class	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Residential					
Single Family	\$ 77.36	\$ 87.92	\$ 91.88	\$ 100.97	\$ 110.92
Multi Family	58.84	66.87	69.88	76.80	84.37
Commercial					
Low Strength	6.81	7.74	8.09	8.89	9.77
Domestic Strength	8.45	9.60	10.04	11.03	12.11
High Strength	19.14	21.75	22.73	24.98	27.44

Note:

Residential rate is per customer account per month,
 Commercial rates are per monthly HCF (hundred cubic feet) consumption of water.
 There are 748 gallons per HCF

Sources: The City of Rio Vista; Willdan Financial Services

Northwest Treatment Plant

Projected Number of Connections and Wastewater Discharge

Table 11 shows the projected number of wastewater connections by customer class. Table 12 shows the projected amount of discharge for the commercial classes (discharge based on annual water consumption). As mentioned in the assumptions, the City's projected population growth is assumed to only be served by the Northwest Treatment Plant, as the Beach treatment plant is almost completely built out.

Table 11: Projected Number of Connections – Northwest Treatment Plant

Customer Class	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Residential	1,976	2,065	2,248	2,440	2,641	2,853
Commercial						
Low Strength	-	-	-	-	-	-
Domestic Strength	10	10	10	10	10	10
High Strength	1	1	1	1	1	1
Total	1,986	2,075	2,258	2,450	2,651	2,863
Projected Growth Rate	4.60%	4.51%	8.84%	8.53%	8.25%	8.01%

Sources: The City of Rio Vista; Willdan Financial Services

Table 12: Projected Wastewater Discharge from Commercial Customers (in gallons) – Northwest Treatment Plant

Customer Class	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Residential	71,969,669	78,331,788	85,013,490	92,027,102	99,398,473
Commercial					
Low Strength	-	-	-	-	-
Domestic Strength	2,624,180	2,624,180	2,624,180	2,624,180	2,624,180
High Strength	891,000	891,000	891,000	891,000	891,000
Total	75,484,849	81,846,968	88,528,670	95,542,282	102,913,653

Sources: The City of Rio Vista; Willdan Financial Services

Annual Revenue Requirements

As in most cities, the wastewater utility operates on an enterprise basis with expenses and revenues accounted for separately from the City's general and other funds. The City's wastewater enterprise fund must receive sufficient total revenue to ensure proper operation and maintenance of the utility as well as preserve the financial integrity of the utility and the fund. Adequacy of wastewater revenues can be measured by comparing the wastewater utility's revenue requirements to be met from the wastewater rates it charges to its customers.

Approaches to Determining Revenue Requirements

In order to develop adequate revenues from a system of wastewater rates, the annual revenue requirements of the wastewater utility must be determined. There are two commonly accepted bases for determining annual revenue requirements in order to develop a financially sound wastewater rate structure. These approaches are the "cash needs" approach and the "utility" approach.

The "cash needs" basis is typically used by municipally-owned wastewater utilities when establishing rates for their customers. Under this approach, the basic revenue-requirement components include:

- ◆ Operating and maintenance (O&M) expenses
- ◆ Debt service costs (principal and interest on wastewater utility-related debt instruments)
- ◆ Capital expenditures funded directly from current revenues or accruals on a pay-as-you-go basis
- ◆ Other elements such as interdepartmental expenses (cost allocation) and interest earnings (considered as a credit to the expenses)

The "utility" basis for determining annual revenue requirements is typically used by regulated investor-owned utilities and regulated municipal utilities. Items normally included in annual revenue requirements based on this approach include:

- ◆ Operating and maintenance (O&M) expenses
- ◆ Depreciation expense
- ◆ Fair rate of return on the rate base

To determine the revenue requirements for the wastewater utility we have used the "cash needs" basis.

Current and Future Revenue Requirements

The annual revenue requirements are derived from maintenance and operations costs, debt service expenses, and required fund balances. Interest earnings, fines and forfeitures, and other miscellaneous income may offset some of these expenses, but the majority of the costs should be recovered via customer rates and charges.

The wastewater utility prepares an annual budget that itemizes all the expenditures for each fiscal year. These expenses include personnel costs, maintenance and operations, and equipment repair and replacement. For the study we also added a repair and replacement reserve fund collection, to account for depreciation expenses, and an operating reserve fund collection. The wastewater utility activities included in our analysis were gathered from the City's annual operating budget and audited financial statements.

Historical Revenues and Expenses

Base year income and expense data for the wastewater utility were obtained for fiscal year 2008/2009 using the wastewater utility budget for that year and audited financial statements ending June 30, 2006. This analysis is not a restatement of the City's audits or budgets, but does rely heavily on these data sources.

Our analysis revealed that the enterprise's operating fund deficit will continue to increase unless wastewater rates are adjusted to meet revenue requirements.

Future Revenue Requirements

An evaluation of future revenue requirements should focus on four specific areas. These areas are increases in operating expenses, capital improvement costs, requirements for debt service, and the maintenance of reserve funds. The following sections discuss the impact of these factors on the wastewater utility revenue requirements.

Operating Expense Projections

For purposes of determining annual revenue requirements as a basis to set future wastewater rates, we used a study period of five years. During this period (fiscal year 2009/2010 through fiscal year 2013/2014), costs are naturally assumed to increase due to inflationary pressures. Historical review of the CPI data from San Francisco and Oakland from 1984 through April 2008 showed an average annual increase of four percent (4%); therefore, we have projected future revenue requirements of the wastewater utility by applying a cost of living factor of four percent (4%) to operating expense line items. Note that a higher factor of five percent (5%) was used to project future personnel costs.

Capital Improvement Costs

The City maintains a Capital Improvement Plan (CIP) for the funding of annual capital projects. The City has capital improvement projects for operations related requirements. Because we are only analyzing annual operations requirements, we included the CIP program costs associated with operations only. Table 13 presents the operations CIP over the five-year planning period of this study (note that it is assumed that all operations-related CIP costs will be funded on a "pay-as-you-go" basis).

Debt Service

The wastewater utility currently pays debt service on Wastewater Revenue Bonds, which began in fiscal year 2001 and will continue through fiscal year ending June 30, 2031, as illustrated in Table 4. These bonds funded construction projects solely associated with the Beach Treatment Plant; therefore there is no debt service costs included in the Northwest Treatment Plant rate calculations.

Table 13: Capital Improvement Projects Related to Operations – Northwest Treatment Plant

PROJECT	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
Northwest WWTP					
Northwest Wastewater Treatment Plant	\$ -	\$ -	\$ -	\$ -	\$ -
Water conserv/Manhole	-	10,000	10,000	8,000	7,000
On Going CCTV	-	-	-	22,500	22,500
Prepare System Eval., capacity -collection	128,250	-	-	-	-
Intergrate collection system in GIS format	-	-	-	-	-
Pipe Repairs	-	-	-	-	-
Tools/Vactor Repairs	-	3,150	3,150	4,150	4,150
Hydro Vac Truck	-	-	90,000	-	-
Storn Drain	-	2,250	2,250	2,250	2,250
Total	\$ 128,250	\$ 15,400	\$ 105,400	\$ 36,900	\$ 35,900

Note:

Construction cost estimates were escalated annually by a factor of 0%.

Source: City of Rio Vista

Reserve Funds

The operating fund for the wastewater utility has a balance of \$(2,897,768), as of June 30, 2008, according to the City (note that this is an unaudited estimate). Of this amount, half, or \$(1,448,884), is attributed to the Northwest Treatment Plant. It is recommended that the City adopt a policy of maintaining a designated balance in the operating fund (such as three months of operating expenses or any other amount approved by the Council), in order to satisfy expense obligations as cash flow fluctuates during the year. The rate study projects that with the revenue increase outlined in Table 14, the balance in the operating fund should meet the desired balance requirement by the end of the study period. In addition, funds equaling a percentage of depreciation expense should be collected in order to ensure the availability of funds for necessary system repair and maintenance (average annual depreciation expense is assumed to be \$179,571 throughout the study period). Having adequate reserves makes emergency cash available and helps reduce future rate shocks.

Revenue Requirements Analysis

Table 14 presents the five-year projected revenue requirements for the Northwest Wastewater Treatment Plant. This table includes annual revenues projected to be raised using the current rate structure, the additional revenue required to meet projected wastewater utility expenditures, the projected operating and non-operating expenses, and fund balance information based on the revenues generated from rate and fee increases.

Rows 1 through 3 of this table show the revenue generated using current rates and fees; applying the assumed population growth factor, shown in Table 11, in the projection of these rates and fees. These rates and fees do not produce enough revenue to maintain a positive operating fund balance or net income. The section below the current revenues (rows 5 through 12) incorporates the revenue generated by the proposed rate and fee increases. As the table illustrates, total system revenues must be increased by ninety-five percent (95%) in fiscal year 2009/2010, a nine percent (9%) in fiscal year 2010/2011 and fiscal year 2011/2012, and an eight percent (8%) in fiscal years 2012/2013 and 2013/14 in order to generate a positive net income by the end of the study period.

Total operating expenses are shown in row 56, net income is found in row 72, and the operating fund balance is detailed near the bottom of the table in row 78.

Repair and replacement reserve collection (row 70) is a new line-item in the budget. This captures a percentage of the depreciation cost associated with the wastewater utility. Additionally, the City maintains the line-item for unplanned repairs (row 55).

A line for the targeted operating fund balance (row 80) is also included in the table. This shows the minimum amount of funds the City should try to maintain in its operating fund, to address annual cash flow requirements that may arise for the wastewater utility.

Table 14a: Northwest Treatment Plant Revenue Requirements

	Base Year					
	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
1 Operating Revenue						
2 Utility Service Fees	\$ 706,963	\$ 706,963	\$ 706,963	\$ 706,963	\$ 706,963	\$ 706,963
1 Total Operating Funds	706,963	706,963	706,963	706,963	706,963	706,963
2 Additional Revenue Required						
3	Year	Revenue Increase	Months Effective			
4	FY 2008-2009	0%	0	-	-	-
5	FY 2009-2010	95%	12	-	671,021	671,021
6	FY 2010-2011	9%	12	-	121,952	121,952
7	FY 2011-2012	9%	12	-	128,394	128,394
8	FY 2012-2013	8%	12	-	-	133,849
9	FY 2013-2014	8%	12	-	-	141,679
10	FY 2014-2015	1%	12	-	-	-
11	FY 2015-2016	3%	12	-	-	-
12	FY 2016-2017	0%	12	-	-	-
13	FY 2017-2018	3%	12	-	-	-
9 Total Additional Operating Revenue	-	671,021	792,972	921,367	1,055,216	1,196,895
10 Total Operating Revenue (Required Revenue)	\$ 706,963	\$ 1,377,984	\$ 1,499,935	\$ 1,628,330	\$ 1,762,178	\$ 1,903,858
11 Operating Expenses						
12 Accounting & Auditing	3,876	4,070	4,274	4,487	4,712	4,947
13 Administrative Expense	2,364	2,482	2,607	2,737	2,874	3,017
14 Salaries & Wages	33,278	34,942	36,689	38,524	40,450	42,473
15 Temporary Staffing	-	-	-	-	-	-
16 Overtime	1,962	2,060	2,163	2,272	2,385	2,504
17 Clothing & Work Boots	51	54	56	59	62	65
18 Dental Insurance	883	927	973	1,022	1,073	1,127
19 Health Insurance	6,540	6,867	7,210	7,571	7,949	8,347
20 Life Insurance	80	84	88	92	97	102
21 Employee Assistance Program	15	15	16	17	18	19
22 Vision Insurance	118	124	130	136	143	150
23 PERS Retirement	6,195	6,505	6,830	7,172	7,530	7,907
24 Social Security/FICA	2,350	2,467	2,591	2,720	2,856	2,999
25 Workers Comp. Insurance	4,187	4,396	4,616	4,847	5,089	5,343
26 State Unemployment Insurance	1,420	1,491	1,566	1,644	1,726	1,813
27 Uniform Allowance	-	-	-	-	-	-
28 Car Allowance	23	24	24	25	26	27
29 Legal Fees	3,675	3,822	3,975	4,134	4,299	4,471
30 Printing	882	917	954	992	1,032	1,073
31 Bad Debt Expense	-	-	-	-	-	-
32 Chemicals & Gases	-	-	-	-	-	-
33 Conferences & Meetings	-	-	-	-	-	-
34 Contractual Services	588,000	611,520	635,981	661,420	687,877	715,392
35 Equipment Rental	9,800	10,192	10,600	11,024	11,465	11,923
36 Equipment (Non-Capital, <\$5,000)	647	673	700	728	757	787
37 Fuel & Mileage	1,300	1,352	1,406	1,462	1,521	1,582
38 Flood & Fire Insurance	13,682	14,230	14,799	15,391	16,006	16,647
39 Liability Insurance	16,244	16,893	17,569	18,272	19,003	19,763
40 Laboratory Testing	-	-	-	-	-	-
41 M&R Machinery & Equipment	4,312	4,484	4,664	4,850	5,044	5,246
42 M&R Real Property	10,294	10,706	11,134	11,579	12,043	12,524
43 M&R Vehicles	238	247	257	267	278	289
44 Meals	-	-	-	-	-	-
45 Membership Dues	245	255	265	276	287	298
46 Misc. Services & Supplies	-	-	-	-	-	-
47 Office Supplies & Materials	49	51	53	55	57	60
48 Indirect Cost Allocation	-	-	-	-	-	-
49 Permits & Licenses	8,110	8,434	8,771	9,122	9,487	9,866
50 Postage	3,283	3,414	3,551	3,693	3,841	3,994
51 Safety Equipment	25	25	26	28	29	30
52 Telephone	3,506	3,646	3,792	3,944	4,102	4,266
53 Utilities - PG&E	159,642	174,009	189,670	206,741	225,347	245,628
54 Miscellaneous Expense	354,735	-	-	-	-	-
55 Unplanned Repairs	100,000	119,611	119,611	119,611	119,611	119,611
56 Total Operating Expenses	1,342,008	1,050,990	1,097,611	1,146,912	1,199,074	1,254,290
57 Net Operating Income (Loss)	(635,045)	326,993	402,324	481,417	563,104	649,568

Table 14b: Northwest Treatment Plant Revenue Requirements

	Base Year					
	FY 2008-2009	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014
58 Debt Service						
59 Current Bonds	-	-	-	-	-	-
60 Proposed Bonds	-	-	-	-	-	-
61 Total Debt Service	-	-	-	-	-	-
62 Debt Service Coverage Ratio	-	-	-	-	-	-
63 Non-Operating Revenues						
64 Forfeitures/ Penalties	9,003	9,409	9,799	9,771	9,746	9,725
65 Interest Income	-	-	-	-	-	-
66 Less Reserved Fund Balance	-	-	-	-	-	-
67 Total Non-Operating Revenue	-	-	-	-	-	-
68 Capital Projects Funded by Rates						
69 CIP PAYGO projects	\$ -	\$ 128,250	\$ 15,400	\$ 105,400	\$ 36,900	\$ 35,900
70 Repair & Replacement Reserve Collection	-	148,400	40,100	37,100	37,100	37,100
71 Total Non-Operating Expenses	-	276,650	55,500	142,500	74,000	73,000
72 Net Income (Loss)	(635,045)	50,343	346,824	338,917	489,104	576,567
73 Operating Fund	Targeted balance not met	Targeted balance not met	Targeted balance not met	Targeted balance not met	Targeted balance not met	Targeted balance not met
74 Total Funds	(635,045)	50,343	346,824	338,917	489,104	576,567
75 Water Enterprise Fund						
76 Beginning Operating Fund Balance	(1,448,884)	(2,083,930)	(2,033,587)	(1,686,762)	(1,347,845)	(858,742)
77 Deposit (Withdrawals)	(635,045)	50,343	346,824	338,917	489,104	576,567
78 Ending Operating Fund Balance	(2,083,930)	(2,033,587)	(1,686,762)	(1,347,845)	(858,742)	(282,174)
79 Fund Balance Percent of O&M	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
80 Targeted Operating Fund Balance	335,502	262,748	274,403	286,728	299,769	313,572

Sources: The City of Rio Vista; Willdan Financial Services

Allocation of Northwest Treatment Plant Costs

Wastewater rates in California are considered property-related fees and are, consequently, subject to repeal by initiative pursuant to Section 3 of Article XIII C of the California Constitution. Furthermore, the substantive and procedural requirements of California Constitution Articles XIII C and XIII D (Proposition 218) apply to wastewater rate setting. Section 6 of Article XIII D states:

The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.

This utility rate study was performed to allocate the costs of providing service to users in order to ensure that rates are equitable and not unduly discriminatory, thereby satisfying the Proposition 218 requirements. The total cost of serving each customer class is determined by distributing each of the utility cost components among the user classes based upon the respective service requirements of each customer class. Therefore, a true cost of service rate study enables a wastewater utility to adopt rates based on the true costs to each user class. The purposes of this wastewater utility cost of service study include:

- ◆ Proportional allocation of the costs of service to users.
- ◆ Derivation of unit costs to support the development of wastewater rates.

Cost of Service Procedure

A cost of service analysis converts enterprise-related financing documents to costs incurred by user classes for which rates can be developed. The cost of service study for the City of Rio Vista is performed in three basic steps.

The first step is called functionalization, which categorizes cost data in terms of functions performed by a wastewater utility system. The functions identified in this study include operating costs, capital projects to be funded by rates, debt service, and reserve requirements.

The second step classifies operating and non-operating expenses of the utility to the cost components of flow and strength of wastewater effluent. The cost components are defined as follows:

- ◆ Flow Costs: Volume or flow related costs vary with the discharge of wastewater by users over a specified period of time, typically a year.
- ◆ Strength Costs: Strength costs vary with the quality of wastewater discharged as measured by the biochemical oxygen demand (BOD) and suspended solids (SS) content of the discharged sewage.

The final step in this analysis allocates costs of service to each customer class. This step is accomplished through the development of volume and strength related allocation factors for each customer class.

Cost Classification Methodology

For compliance with State and Proposition 218 guidelines, a wastewater utility is required to utilize a cost allocation approach that fairly allocates costs among customer classes. This is accomplished by allocating costs into the treatment parameters of flow and strength. These costs are to be allocated in proportion to the percentage that each cost parameter represents. When divided by the wastewater loadings of each user class, unit costs of service are obtained. All costs incurred by a wastewater utility system can be allocated to one or more cost parameters. The allocation of each cost item between flow, BOD, and SS is based on industry standards of treatment parameter data. Tables 15 and 16 present the functionalization and loading calculations used to determine the allocation factors (shown in Table 17). The required revenue allocations for each customer class are shown below in Table 18 for each year of the study period.

Rate Design

The rate design breaks down commercial and residential into sub-groups to more accurately show costs of service:

Residential Rates

A flat-monthly fee design was implemented as 94% of the City's water accounts are unmetered. Currently, the Northwest treatment plant serves only single family residential units.

Commercial Rates

The new rate structure divides commercial users into three groups; Low, Domestic, and High Strengths. The ranges for the BOD and SS characteristics are consistent with the State Water Resources Board and are considered industry standard. Because the commercial accounts are metered, their monthly charge will be volume based. Commercial accounts will be billed based on their water consumption.

Table 15: Functionalization of Northwest Treatment Plant Revenue Requirements

Description	Classification				FYE 2010 to 2014 AVG			
	Flow	BOD	SS	Total	Flow	BOD	SS	Total
Operating Expenses								
Accounting & Auditing	80%	10%	10%	100.0%	\$ 3,598	\$ 450	\$ 450	\$ 4,498
Administrative Expense	80%	10%	10%	100.0%	\$ 2,195	\$ 274	\$ 274	\$ 2,743
Salaries & Wages	80%	10%	10%	100.0%	\$ 30,893	\$ 3,862	\$ 3,862	\$ 38,616
Temporary Staffing	80%	10%	10%	100.0%	-	-	-	-
Overtime	80%	10%	10%	100.0%	1,822	228	228	2,277
Clothing & Work Boots	80%	10%	10%	100.0%	47	6	6	59
Dental Insurance	80%	10%	10%	100.0%	819	102	102	1,024
Health Insurance	80%	10%	10%	100.0%	6,071	759	759	7,589
Life Insurance	80%	10%	10%	100.0%	74	9	9	93
Employee Assistance Program	80%	10%	10%	100.0%	13	2	2	17
Vision Insurance	80%	10%	10%	100.0%	109	14	14	137
PERS Retirement	80%	10%	10%	100.0%	5,751	719	719	7,189
Social Security/FICA	80%	10%	10%	100.0%	2,181	273	273	2,727
Workers Comp. Insurance	80%	10%	10%	100.0%	3,887	486	486	4,858
State Unemployment Insurance	80%	10%	10%	100.0%	1,319	165	165	1,648
Uniform Allowance	50%	25%	25%	100.0%	-	-	-	-
Car Allowance	50%	25%	25%	100.0%	13	6	6	25
Legal Fees	50%	25%	25%	100.0%	2,070	1,035	1,035	4,140
Printing	50%	25%	25%	100.0%	497	248	248	994
Bad Debt Expense	50%	25%	25%	100.0%	-	-	-	-
Chemicals & Gases	50%	25%	25%	100.0%	-	-	-	-
Conferences & Meetings	50%	25%	25%	100.0%	-	-	-	-
Contractual Services	50%	25%	25%	100.0%	331,219	165,609	165,609	662,438
Equipment Rental	50%	25%	25%	100.0%	5,520	2,760	2,760	11,041
Equipment (Non-Capital, <\$5,000)	50%	25%	25%	100.0%	364	182	182	729
Fuel & Mileage	50%	25%	25%	100.0%	732	366	366	1,465
Flood & Fire Insurance	50%	25%	25%	100.0%	7,707	3,854	3,854	15,414
Liability Insurance	50%	25%	25%	100.0%	9,150	4,575	4,575	18,300
Laboratory Testing	50%	25%	25%	100.0%	-	-	-	-
M&R Machinery & Equipment	50%	25%	25%	100.0%	2,429	1,214	1,214	4,858
M&R Real Property	50%	25%	25%	100.0%	5,799	2,899	2,899	11,597
M&R Vehicles	50%	25%	25%	100.0%	134	67	67	268
Meals	50%	25%	25%	100.0%	-	-	-	-
Membership Dues	50%	25%	25%	100.0%	138	69	69	276
Misc. Services & Supplies	50%	25%	25%	100.0%	-	-	-	-
Office Supplies & Materials	50%	25%	25%	100.0%	28	14	14	55
Indirect Cost Allocation	50%	25%	25%	100.0%	-	-	-	-
Permits & Licenses	50%	25%	25%	100.0%	4,568	2,284	2,284	9,136
Postage	50%	25%	25%	100.0%	1,849	925	925	3,699
Safety Equipment	50%	25%	25%	100.0%	14	7	7	28
Telephone	50%	25%	25%	100.0%	1,975	987	987	3,950
Utilities - PG&E	50%	25%	25%	100.0%	104,140	52,070	52,070	208,279
Miscellaneous Expense	50%	25%	25%	100.0%	-	-	-	-
Unplanned Repairs	50%	25%	25%	100.0%	59,805	29,903	29,903	119,611
Payment in Lieu	50%	25%	25%	100.0%	-	-	-	-
Total Operating Expenses					\$ 596,930	\$ 276,423	\$ 276,423	\$1,149,776
Non-Operating Expenses								
Total Debt Service	50%	25%	25%	100.0%	-	-	-	-
CIP PAYGO projects	50%	25%	25%	100.0%	32,185	16,093	16,093	64,370
Repair & Replacement Reserve Collection	50%	25%	25%	100.0%	29,980	14,990	14,990	59,960
Total Non-Operating Expenses					\$ 62,165	\$ 31,083	\$ 31,083	\$ 124,330
Wastewater Utility Gross Revenue Requirement					\$ 659,095	\$ 307,505	\$ 307,505	\$1,274,106
Classification Factor					51.7%	24.1%	24.1%	100.0%

Sources: The City of Rio Vista; Willdan Financial Services

Table 16: Northwest Treatment Plant Loading and Unit Rate Calculations

Customer Class	Projected		Concentration		Calculated Loading			
	Discharge (HCF)	Flow Factor	BOD (mg/l)	SS (mg/l)	BOD (lb/yr)	BOD Factor	SS (lb/yr)	SS Factor
Residential	88,015	94.9%	200	225	109,814	89.5%	123,540	91.5%
Commercial								
Low Strength	-	0.0%	150	150	-	0.0%	-	0.0%
Domestic Strength	3,508	3.8%	250	250	5,471	4.5%	5,471	4.1%
High Strength	<u>1,191</u>	<u>1.3%</u>	1,000	800	<u>7,431</u>	<u>6.1%</u>	<u>5,945</u>	<u>4.4%</u>
Total	92,715	100.0%			122,716	100.0%	134,956	100.0%

Sources: The City of Rio Vista; Willdan Financial Services

Table 17: Allocation Factors – Northwest Treatment Plant

Customer Class	Flow Factors		
	Flow Factor	BOD Factor	SS Factor
Residential	94.9%	89.5%	91.5%
Commercial			
Low Strength	0.0%	0.0%	0.0%
Domestic Strength	3.8%	4.5%	4.1%
High Strength	1.3%	6.1%	4.4%
Functionalization Factors			
	Flow Factor	BOD Factor	SS Factor
FYE 2009 to 2013 AVG	51.6%	24.2%	24.2%
Allocation Factors			
Customer Class	Flow Factor	BOD Factor	SS Factor
Residential	49.0%	21.6%	22.1%
Commercial			
Low Strength	0.0%	0.0%	0.0%
Domestic Strength	2.0%	1.1%	1.0%
High Strength	0.7%	1.5%	1.1%

Sources: The City of Rio Vista; Willdan Financial Services

Table 18: Allocation of Northwest Treatment Plant Revenue Requirements

FY 2009-2010				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential	\$ 676,700	\$ 297,609	\$ 304,443	\$ 1,278,752
Commercial				
Low Strength	-	-	-	-
Domestic Strength	26,973	14,828	13,483	55,285
High Strength	9,158	20,139	14,650	43,947
Total	\$ 712,831	\$ 332,576	\$ 332,576	\$ 1,377,984

FY 2010-2011				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential	\$ 736,588	\$ 323,948	\$ 331,386	\$ 1,391,922
Commercial				
Low Strength	-	-	-	-
Domestic Strength	29,360	16,141	14,677	60,177
High Strength	9,969	21,921	15,946	47,836
Total	\$ 775,917	\$ 362,009	\$ 362,009	\$ 1,499,935

FY 2011-2012				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential	\$ 799,566	\$ 351,645	\$ 359,720	\$ 1,510,931
Commercial				
Low Strength	-	-	-	-
Domestic Strength	31,870	17,521	15,931	65,322
High Strength	10,821	23,795	17,310	51,926
Total	\$ 842,258	\$ 392,961	\$ 392,961	\$ 1,628,180

FY 2012-2013				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential	\$ 865,370	\$ 380,586	\$ 389,325	\$ 1,635,281
Commercial				
Low Strength	-	-	-	-
Domestic Strength	34,493	18,963	17,243	70,699
High Strength	11,712	25,754	18,734	56,200
Total	\$ 911,575	\$ 425,302	\$ 425,302	\$ 1,762,179

FY 2013-2014				
	<u>Flow Factor</u>	<u>BOD Factor</u>	<u>SS Factor</u>	<u>Total</u>
Residential	\$ 934,859	\$ 411,147	\$ 420,588	\$ 1,766,594
Commercial				
Low Strength	-	-	-	-
Domestic Strength	37,263	20,485	18,627	76,376
High Strength	12,652	27,822	20,239	60,713
Total	\$ 984,775	\$ 459,454	\$ 459,454	\$ 1,903,682

Sources: The City of Rio Vista; Willdan Financial Services

Proposed Wastewater Rates – Northwest Treatment Plant

Based on the analysis conducted for the wastewater utility in this rate study, a rate schedule has been developed which, if implemented by the City, should generate enough revenue to cover estimated expenses and maintain the desired wastewater fund balances depicted in Table 14.

Wastewater Rate Calculations

The required revenue from the residential customer class (shown in Table 18) are first divided by the number of residential connections and then divided by twelve (12) to calculate the monthly residential rates. The rates for the commercial customer classes are determined by dividing the required revenue of each class (shown in Table 18) by the corresponding amount of projected discharge of each class. To clarify, after the initial increase, residential rates stay constant due to population growth countering the affects of both rate and cost increase.

The proposed Wastewater Rate Schedule is shown below in Table 19 (note that the residential rates shown in the table are per customer, while the commercial rates are per HCF monthly consumption of water for sewage flow purposes).

Table 19: Proposed Wastewater Rates – Northwest Treatment Plant

<u>Customer Class</u>	<u>FY 2008-2009</u>	<u>FY 2009-2010</u>	<u>FY 2010-2011</u>	<u>FY 2011-2012</u>	<u>FY 2012-2013</u>	<u>FY 2013-2014</u>
Residential	\$ 27.67	\$ 51.60	\$ 51.60	\$ 51.60	\$ 51.60	\$ 51.60
Commercial						
Low Strength	N/A	N/A	N/A	N/A	N/A	N/A
Domestic Strength	8.08	15.76	17.15	18.62	20.15	21.77
High Strength	18.93	36.89	40.16	43.59	47.18	50.97

Note:

Residential rate is per customer account per month; Commercial rates are per monthly HCF (hundred cubic feet) consumption of water.
 There are 748 gallons per HCF
 2008-2009 Commercial rate units are per 1,000 gallons, not HCF

Sources: The City of Rio Vista; Willdan Financial Services

Conclusion

The proposed wastewater rate schedules are based on the City's projected revenue requirements over the next five fiscal years. The proposed rates are designed to generate additional wastewater revenues to promote revenue adequacy throughout the five fiscal year planning period. In addition, the rates were designed to satisfy Proposition 218 regulations.

We recommend that the City adopt the proposed rate structures to ensure that the wastewater system has a stable cash flow stream in order to provide for ongoing costs and debt service and allow for the funding of reserves for unscheduled expenses. We also recommend setting a policy of maintaining a designated balance in the operating fund (such as three months of operating expenses or any other amount approved by the Council), in order to satisfy expense obligations as cash flow fluctuates during the year. Furthermore, we recommend funds equaling a percentage of depreciation expense should be set-aside in reserve funds to provide for future equipment and facilities replacement. Last, we recommend the City to review the commercial customers' classification (low, domestic, high strength) and update the fee model accordingly.