

Rosamond Community Services District



Water and Sewer Rate Study Engineer's Report

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Introduction

The Rosamond Community Services District (RCSD) is responsible for providing water service to and collecting and treating wastewater from its customers in the Rosamond area. In order to provide a reliable and quality water supply for its service area, RCSD has planned and executed major projects to bank groundwater and reclaim wastewater.

The District is faced with many important issues ranging from water rights, water quality, growth, to potential annexation and probably most important, adequate financing. Continued regulation and emphasis on water quality will place financial burdens on all water and sewer agencies. The scarcity of water will add to this burden.

Without an adequate water supply, no community can truly survive. RCSD has built up reserves over the past years. However, escalating operating costs are now exceeding operating revenues. This system is beginning to age and will require incremental replacement.

Each of these issues contributes to the complications of adequately providing customer service at the lowest cost possible.

In the effort to proactively address the issue of fair and equitable rates, RCSD has commissioned a water and sewer rate study which complies with the following policies, laws and standards.

General Rate Policies and Objectives

Custom rate structures are used to accommodate various mixes of users. Rate policy objectives need to take into consideration the following:

- **Revenue stability** – A rate that provides relatively consistent revenue throughout the year is desirable in cash flow planning.
- **Administrative Feasibility** – There are many software packages that can accommodate very complicated rate structures. Complex rate structures are an attempt to create rate equity; however they may overly complicate rate administration.
- **Equity** – California law requires equity and proportionality in the rate setting process. However, it also recognizes that the cost of achieving “perfect” equity may outweigh the advantages.
- **Public Understanding** – This is an extremely important issue. The public has to be shown that the rates are fair and equitable. A very complex rate intended to create equity may result in confusion and an appearance of inequity.

- **Affordability** – This is a difficult objective, in that sufficient revenue has to be raised to meet expenses. Thus there may not be much latitude in addressing this policy.
- **Economic Development** – Developing a rate structure that complies with the law usually results in charges for industrial waste that are appreciably higher than those for residential dischargers.
- **Water Conservation** – A structure that takes into account water conservation complements potable water rates that encourage water conservation. Less water use results in less discharge to the sewer.

Financial Reserves

The maintenance of reserves can be defined generally as the amount of money necessary to address changes which are not predictable, such as damage from natural disasters, sudden increases in energy costs, etc. Also, as a system ages, there is more likelihood of major breakdowns and the need for a large unplanned expenditures.

Reserve funds are generally categorized as follows:

- **General operating reserves** for unexpected loss, or to demonstrate fiscal strength for a financing, etc.
- **Emergency capital reserves** for capital construction as a result of an unplanned breakdown or natural disaster.
- **Rate Stabilization reserve** to avoid or mitigate abrupt rate increases resulting from sudden increases in energy or other operating costs.
- **Debt Reserve fund** required in most borrowings to insure the bond holders that payment will be made even if there is a financial problem, such as a high delinquency rate among users.

RCSD Reserve Policy

For projecting reserve requirements, RCSD's Board of Directors set a minimum goal for the operating reserve of 25% of the annual operating expenses.

Adopted Law

Fairness and Notification

As previously discussed, rate design in California must comply with State statutes. The policies and desires of the public agency providing service must also conform to the dictates of law. Prior to the passage of Propositions 13 and 218, rates and charges could be established under more general guidelines. However, this is very difficult to achieve while complying with

the legal requirement of these propositions that the charge must reflect the “reasonable cost” to provide the service.

California voters have enacted constitutional amendments that require public agencies to clearly identify and separately account for funds collected for the construction and development of new infrastructure. The law also requires that fees and charges be based on a clearly defined statement of actual needs and costs that have been presented to the public. Further, water and sewer service charges likewise have to be accounted for separately in order to charge the “reasonable” cost of providing the service.

GASB 34/ Depreciation

The adoption of Governmental Accounting Standards Boards statement 34 (GASB 34) has placed greater emphasis on the reporting of the condition of a public agency’s physical facilities and requires a forecast for the replacement of those facilities.

Putting it in simple terms, the thrust of GASB 34 is to inform the public as to the utility’s condition. Is it in better or worse shape than before? It requires public agencies to account for facilities that are wearing out. This requires an inventory and assessment of the agency’s facilities and local policy, and then requires choosing a method of either depreciating them or funding some level of replacement as determined by the governing body. Each year it is necessary to report if the plan has been followed as adopted.

As noted by Patrick Taylor and Linda Jordan:

GASB-34’s main goal is to make the financial statements reflect the financial health of government offices. An informed user should be able to review this new statement format and determine the overall conditions of a government or a public water system, especially concerning its progress toward infrastructure repair or replacement.¹

¹ “What on Earth is GASB-34 and why should you care?”, West Virginia Department of Health and Human Resources ,October 6, 2001

RCSD's Water Supply

RCSD's water supply comes from local groundwater and imported water from Antelope Valley East Kern Water Agency (AVEK). AVEK is one of 29 State Water Contractors for the importation of water from the State Water Project (SWP).

The groundwater basin from which RCSD obtains its water has been going through a legal process to establish the rights of those users who draw water from the basin. Due to this outstanding dispute, continuing drought conditions and new development within RCSD's service area, the proposed capital program includes a project to produce recycled water for non-potable uses and groundwater recharge. The drought, coupled with environmental restrictions to protect the Delta Smelt, has also reduced the availability of imported water.

The reliability of the SWP has been decreasing rather than increasing as the demands for water increase. A critical element of the SWP would be the peripheral canal to move water around the delta and increase delivery capacity to southern California. At this time, it does not appear that this critically needed facility will be constructed in the near future due to environmental restrictions. This year the SWP will only deliver 40% of the requested amount. It is anticipated that deliveries from the SWP will be substantially reduced in future years. In order to make up for this loss, RCSD has developed a major groundwater banking project. The groundwater bank will allow RCSD to store either recycled water or imported water when available.

Groundwater Banking

Groundwater banking is one element of RCSD's plan to provide a reliable water supply. On July 28, 2008, RCSD entered into an agreement with the Semitropic-Rosamond Water Bank Authority that provided the District a "First Priority Right" to specific interests in the Stored water Recovery Unit of the Semitropic Water Bank ("SWRU), and rights in the Antelope Valley Water Bank ("AVWB") in the northwestern part of the Antelope Valley in Kern County for Delivery, Storage, and Recovery and Return Capacity.

The ability to store water during times of surplus will provide additional assurance of a consistent water supply to Rosamond. A reliable water supply is critical to Rosamond's service area, and the water bank is one element of RCSD's plan to address that requirement.

Recycled Water Program

RCSD commissioned a study to evaluate an alternative wastewater treatment process to produce Title 22 water. This level of treatment produces water that is suitable for non-potable uses and groundwater recharge. The treatment facility is anticipated to be operational in late summer. This can also provide a revenue source for RCSD. One anticipated use for recycled water is for a solar powered generation facility.

Water Demand

Currently, RCSD sells 3,700 AF of water to its customers each year (1 acre foot [AF] = 325,830 gallons). It has been projected that this demand could double by the year 2020.

RCSD currently serves close to 5,000 households and businesses. A single family home uses approximately 0.5 AF to 1 AF annually, depending upon landscaping area and use of water for cooling.

Water Rate Development Requirements and Considerations

Water Rate Development Overview

The art of rate design involves developing rates that are balanced between potentially conflicting objectives, the desires of the users and requirements of the law, in a manner that suits a particular community. The unique nature of a community and its customers must be considered when selecting a rate structure.

RCSD has not had a rate increase since FY 2003-04. During the five years since then, operating costs have increased such that current revenue does not cover current costs. Reserve funds have been used to make up the short fall of revenue. Thus, it is necessary to increase the revenue to cover the daily operating and maintenance costs, to begin funding a replacement program and to restore reserves.

In order to address the revenue shortfall, RCSD determined to undertake a rate study to analyze the revenue requirements of RCSD's water operations. The objective of the study is to develop sufficient stable revenues to properly operate and maintain the water system, and to ensure a safe and reliable supply to accommodate current and future customers.

Elements to Consider

- 1 Classes of customers
- 2 Major customers
- 3 Water resources
- 4 Level of current and future costs
- 5 Socioeconomic status and concerns of customers
- 6 Developing stable revenue stream
- 7 Discouraging wasteful use
- 8 Promoting fairness and equity
- 9 Maintaining simplicity
- 10 Compliance with the law

Developing the Water Rate Structure

The foundation for a water and sewer rate study considers but is not limited to the following information:

- Annual Operating and Non-Operating Budget
- Current Cash reserves
- Capital Replacement Plan (The replacement of existing facilities)
- Capital Improvement Plan (Includes those facilities necessary to accommodate growth or new regulatory requirements)
- Current customer database by month by account
- Projected Agency growth
- Other pertinent data unique to the Agency

System Replacement

The previously discussed goals of a rate study are translated into rates and charges by examining the operating and non-operating budget as well as the capital replacement and improvement program.

The facilities necessary to provide the water supply are expensive and have a prescribed life cycle. Pipes and tanks can last 40 to 50 years, while electric controls and pumps may last only 5 to 20 years. In order to obtain the maximum useful life, it is necessary to properly maintain the facilities.

Traditionally, depreciation was used as a guide in this effort. However, it is readily apparent that setting aside the original depreciated amount will not fund current construction of the same facilities. As an example, during the 1960s pipelines were installed for about \$1/diameter inch per foot. An eight inch pipe would cost about \$8.00/ft to install. Today, that same pipe costs closer to \$9.00/diameter inch/ft or \$72.00 per foot. Since these facilities have a long life, it is sound practice to set aside a certain amount of money each year in anticipation of their

replacement. The GASB-34 accounting standards are placing greater emphasis on reporting system condition and planning for eventual replacement:

Accountability is the paramount objective of governmental financial reporting – the objective from which all other financial reporting objectives flow. Governments’ duty to be accountable includes providing financial information that is useful for economic, social and political decisions. Financial reports that contribute to these decisions include information useful for (a) comparing actual financial results with the legally adopted budget, (b) assessing financial condition and results of operations, (c) assisting in determining compliance with finance-related laws, rules, and regulations, and (d) assisting in evaluating efficiency and effectiveness.”²

Current Rate Structure

RCSD is already using a tiered water rate structure based on the commodity rates shown in the table below.

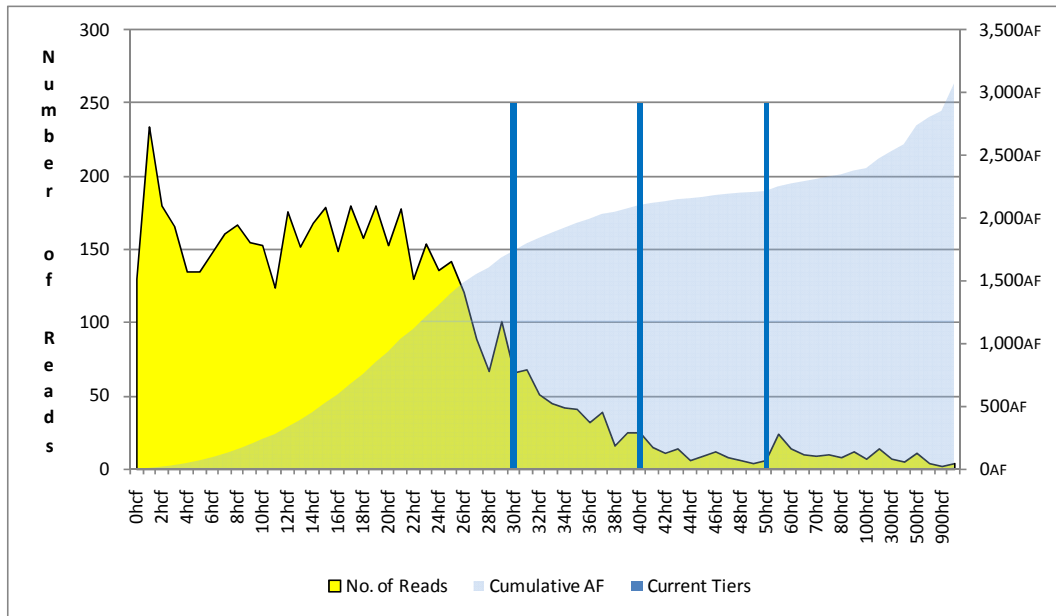
Current Commodity Rates		
	Max HCF	Price per HCF
Tier 1	30 HCF	\$1.06
Tier 2	40 HCF	\$1.19
Tier 3	50 HCF	\$1.37
Tier 4	>51 HCF	\$1.56

It should also be noted that there is no charge for the first 3 HCF.

The existing rate structure was adopted at a time when the water supply was not in question. A major element in the current water rate design is recognition of a continuing reduction in the water supply. It is now necessary to develop a tiered rate structure that rewards lower water consumption. This is accomplished by examining current water use patterns. Water use under current tiered rate system is shown in the graphic on page 8. The vertical blue lines indicate the point at which the rate per HCF goes up.

² Statement No. 34 of the Governmental Accounting Standards Board, Basic Financial Statements, June 1999.

Profile of Water Use by RCSD Customers



The typical bell shaped curve that demonstrates “Normal Distribution” is absent in this water use profile. The RCSD use curve is not bell shaped but rather broad. This anomaly may be due to the use of evaporative coolers (SWAMP) instead of conventional air-conditioning. Air conditioning uses energy, which is more costly than water at present. As a result, more water is used, putting a further burden on the water supply.

On the chart, the existing tiers are shown by the vertical blue bars. Note that the increased rates do not become effective until 30 HCF is consumed. As the cost of additional water supplies increases, the tiers need to be adjusted to reflect that increased cost and encourage conservation.

Water Service Cost Allocation

The foundation of the rate study is RCSD’s budget and capital plan. This approach is sometimes referred to as the “Cash Needs Approach”.

Utilities that determine revenue requirements using the cash-needs approach do so in conjunction with the budgetary process. This is the case whether they operate as a part of a general municipal government or as a separate enterprise. The budget sets out the use of funds to meet the capital-related costs of principal and interest payments

on debt, contributions to specific reserves, and the portion of capital replacement and improvements, which is not debt-financed.”³

RCSD’s budget was analyzed to determine those costs that are fixed regardless of volume of water sold, and those costs that are directly related to the volume such as purchased water and energy.

Fixed costs include such items as insurance, communications, salaries, fringe benefits, heat, light, and system maintenance.

³ “Principles of Water Rates, Fees, and Charges”, Manual of Water Supply Practices M1, AWWA

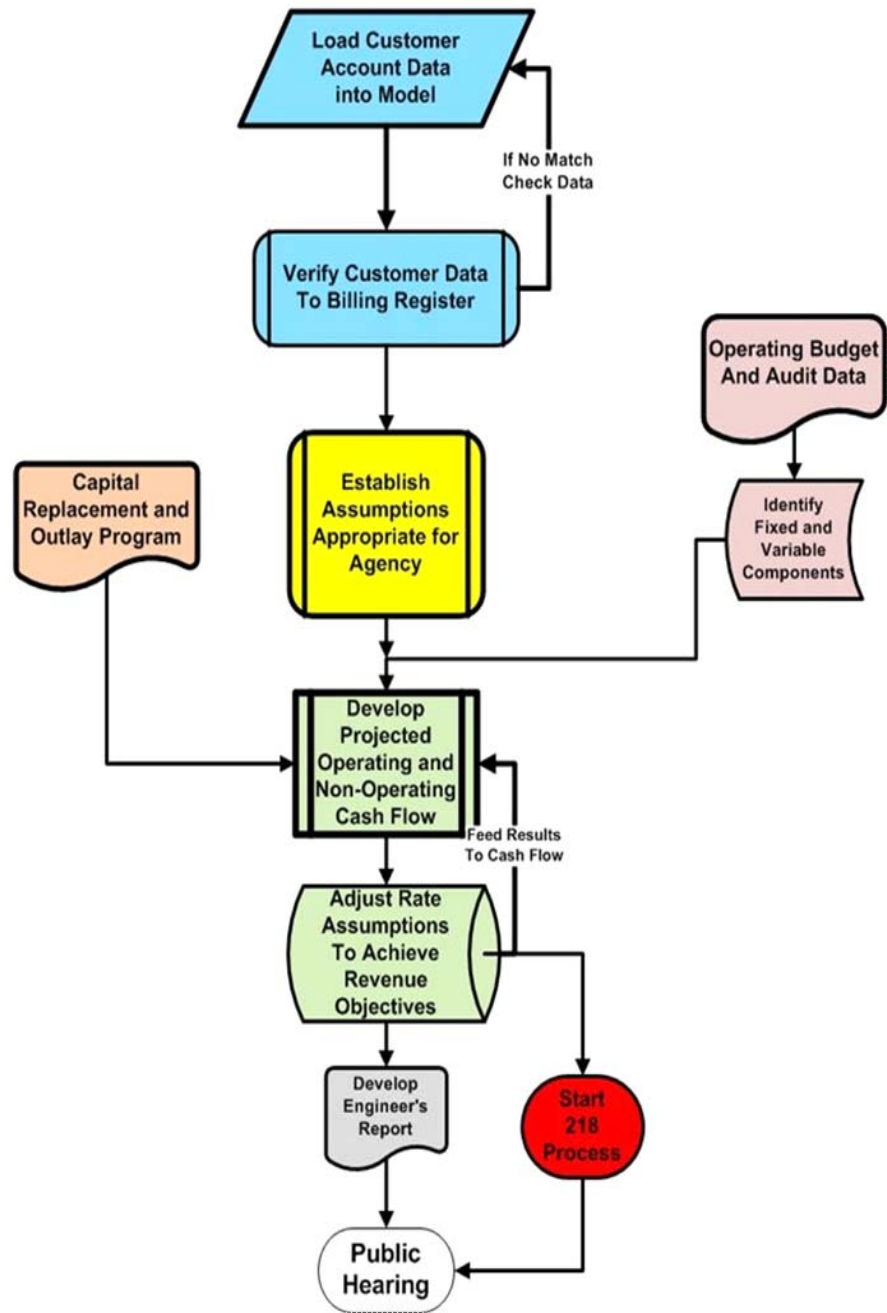
Rate Model

The flow chart on page 11 depicts how rates are developed. A critical item is the acquisition of the customer database and verification of accuracy. This process not only provides the basis for forecasting the effect of any rate change, but also reveals accounts that may have bad data, missed meter reads, etc. A careful analysis of the data will reveal customer use patterns and the potential effect of conservation or special rates on the individual customer as well as the revenue stream.

The development of the rate model includes downloading RCSD's water sales by account by month into the rate model. RCSD's current rate schedule is then applied to the customer data. This will produce an annual revenue figure that should equal what RCSD billed. This step validates the data, brings to light any unusual consumption or basic data errors, and insures that the data has been correctly input.

Once the data has been verified and revenue validated, the model is ready for use. The next step is to develop projected growth and operating expenses. This stage takes into consideration, operating and non-operating expenses as well as capital needs, debt and any reserves balances that are deemed appropriate. The model is then used to establish rates that will meet all the previously discussed objectives as well as distribute the costs equitably and proportionally to all customers.

Rate Model Flow Chart



Rate Structure

The proposed rate structure for water services has two components:

- (1) A fixed monthly service charge component (the “Monthly Service Charge”); and
- (2) A variable water usage charge component (the “Usage Charge”).

Monthly Service Charge

The Monthly Service Charge is a fixed amount established on the basis of the meter size of the property receiving water service from RCSD. The rates for the Meter Charge are calculated to recover and proportionately allocate a portion of fixed costs of RCSD, including, but not limited to billing, collections, customer service, meter reading, meter maintenance, insurance, labor, equipment, debt service payments, and capital infrastructure replacement costs. The majority of the costs are fixed and are not a function of the amount of water a customer uses.

The distribution of a portion of the fixed costs to a monthly service charge is based on the potential demand or capacity requirements placed on the water system by a customer. The 5/8” or ¾” meter is considered the base upon which other meter size charge are calculated. The larger the meter size, the greater demand can be placed upon the water system.

The American Water Works Association (AWWA) has published meter capacity ratios which are widely used for determining meter equivalents.

Meter Size	Capacity GPM	Meter Equivalent
5/8	15 gpm	1.00
3/4	30 gpm	1.00
1	50 gpm	1.67
1 1/2	100 gpm	3.33
2	160 gpm	5.33
3	500 gpm	16.67
4	1,000 gpm	33.33
6	1,600 gpm	53.33
8	1,800 gpm	60.00

As noted in table above, the 5/8” and ¾” meters are assigned a meter equivalent of 1. As the meter size increases, it is capable of delivering more water. The 2” meter can deliver 160 GPM or 5.33 times that of the standard meter. Thus, it is assigned a meter equivalency of 5.33.

Based on the ratio, the following table was developed using RCSD's meter count. This, in turn, was developed into meter equivalents.

Meter Size	Capacity-GPM	Meter Cap Ratio	No. Meters	No. Equivalent Meters
5/8"	15	1.00	4,961	4,961
3/4"	30	1.00	34	34
1"	50	1.67	77	128
1.5"	100	3.33	27	90
2"	160	5.33	44	234
3"	500	16.67	7	117
4"	1,000	33.33	8	267
6"	1,600	53.33	3	160
Total			5,161	5,946

That portion of the fixed costs to be recovered in the monthly service charge is divided by the number of Meter Equivalents to arrive at the base cost for a 5/8" or 3/4" meter. Using the ratios described above results in the monthly charges shown in the table below. Note that the table shows rate increases for 5 years. To minimize rate shock, the District established a five year rate increase program.

Meter Size	Current	1-Oct-09	1-Oct-10	1-Oct-11	1-Oct-12	1-Oct-13
0.63	\$ 10.00	\$16.00	\$17.00	\$18.00	\$19.00	\$20.00
0.75	\$ 10.68	\$16.68	\$17.68	\$18.68	\$19.68	\$20.68
1.00	\$ 14.53	\$24.53	\$26.20	\$27.86	\$29.53	\$31.20
1.50	\$ 17.83	\$37.83	\$41.16	\$44.50	\$47.83	\$51.16
2.00	\$ 29.16	\$61.16	\$66.49	\$71.83	\$77.16	\$82.49
3.00	\$ 43.79	\$143.79	\$160.46	\$177.12	\$193.79	\$210.46
4.00	\$ 58.42	\$158.42	\$175.09	\$191.75	\$208.42	\$225.09
6.00	\$ 87.68	\$183.68	\$199.68	\$215.68	\$231.68	\$247.68

Commodity Charge (HCF) Water Usage Charge

The Usage Charge component is structured to recover and proportionately allocate the costs of providing water to customers, to deter waste, encourage efficiency, and manage RCSD's water resources.

The Usage Charge includes the cost of energy necessary to pump water and the direct costs to purchase water. Since RCSD has a limited groundwater supply, it is necessary to purchase imported water at a much higher cost. The availability of imported water is diminishing as a result of drought and environmental restrictions. The cost of imported water will continue to increase as a result of future costs of solving the water quality and levee problems in the Delta. These costs will be reflected in the cost of imported water.

Wastewater Reclamation Facility

As previously discussed, RCSD is constructing a wastewater reclamation facility for the purpose of producing reclaimed water that will either be sold directly for non-potable uses or used for groundwater recharge. This has resulted in the need to borrow money for the facility and make debt payments. The cost of the debt service is included in the non-operating costs for water operations as this facility provides another source of water. The operating costs of the facility are included in the operating budget.

Conservation Goals

The Governor has set as goal a 20% reduction in residential water use by 2020. Unfortunately, since most of the costs are fixed, decreased water use and the resulting reduction in water sales will not result in reduced fixed costs.

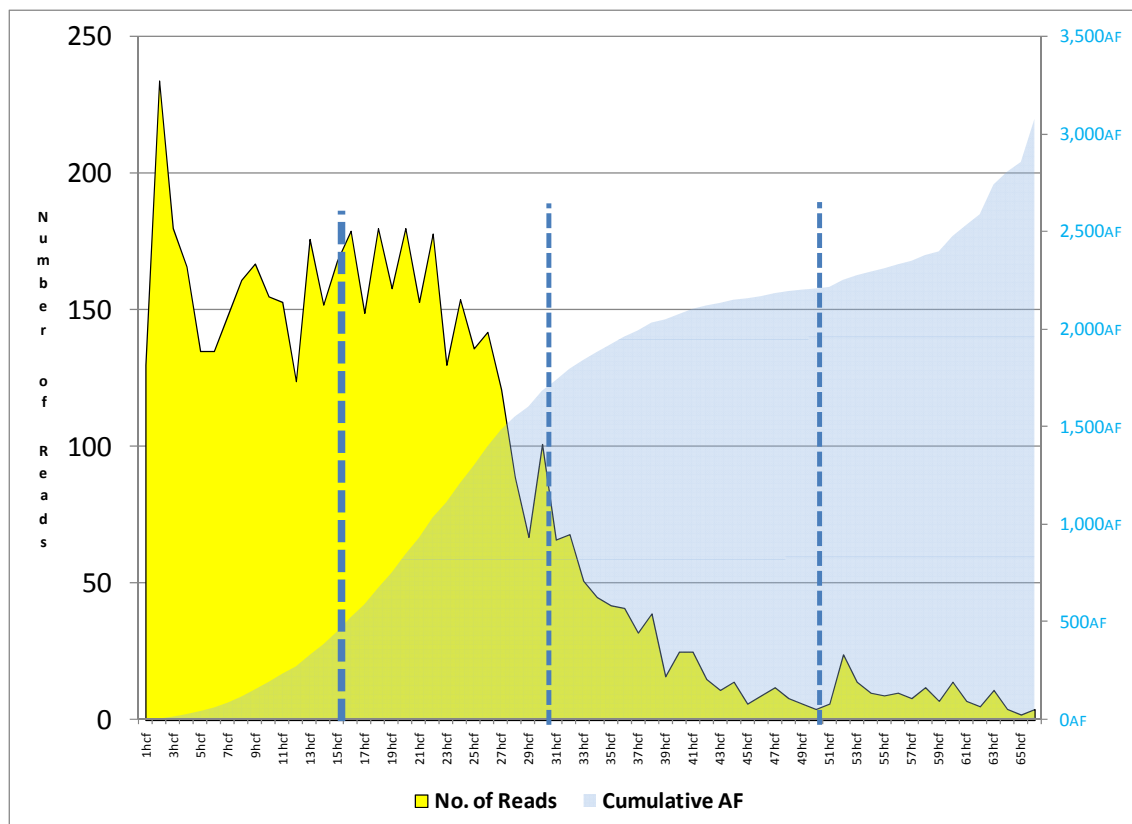
Proposed Rate Structure

In order to cover the cost of the new wastewater reclamation facility and encourage water conservation, it is proposed that RCSD's tiered water rate structure be changed as noted in the figure below.

CONSERVATION TIERED STRUCTURE

Proposed Commodity Rates		
	Max HCF	Oct. 1 09
Tier 1	15 hcf	\$1.30
Tier 2	30 hcf	\$1.43
Tier 3	50 hcf	\$1.61
Tier 4	>50 hcf	\$1.80

These proposed tiers are graphically shown by the vertical blue lines on the figure below.



This graphic reflects the customer profile of water use under the proposed conservation tiered rate structure. Again, as reflected in the current water use figure on page 8, the typical bell shaped curve that demonstrates "Normal Distribution" is absent due to the use of evaporative coolers (SWAMP) coolers.

The table below is the proposed Commodity Rate (\$/HCF)

Current Tier	Effective Oct. 1, 2009	Effective Oct. 1, 2010	Effective Oct. 1, 2011	Effective Oct. 1, 2012	Effective Oct. 1, 2013
1	\$1.30	\$1.60	\$1.97	\$2.17	\$2.24
2	\$1.43	\$1.73	\$2.10	\$2.30	\$2.37
3	\$1.61	\$1.91	\$2.28	\$2.48	\$2.55
4	\$1.80	\$2.10	\$2.47	\$2.67	\$2.74

Projected Operating Results

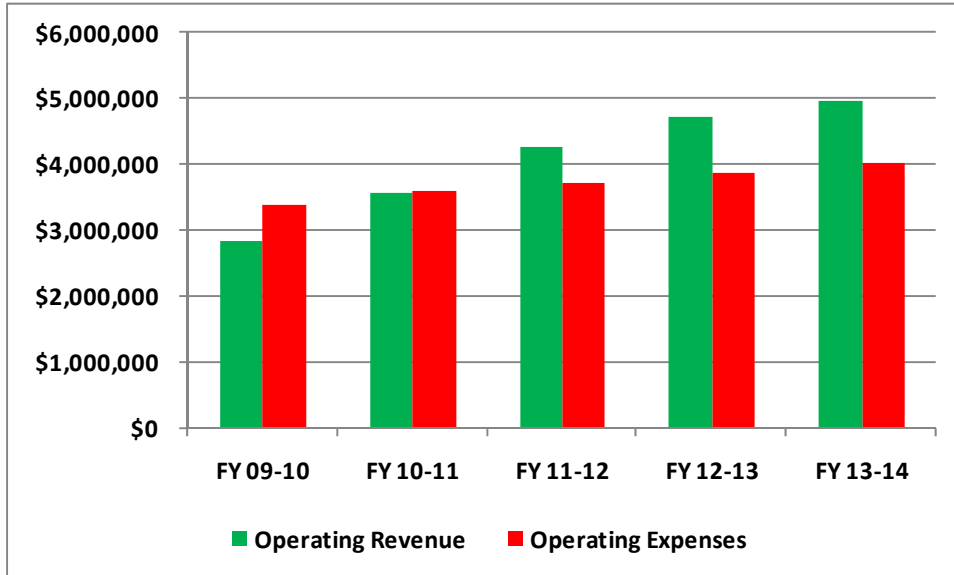
Using the modified tiered rate structure, projected operating results are as follows:

	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14
I. OPERATING					
Operating Beginning Balance	\$2,631,900	\$1,745,593	\$1,179,769	\$1,117,418	\$1,158,726
ACFT Sales	3,421	3,455	3,490	3,525	3,560
% ACFT Change <u>From Prior Year</u>	101.00%	101.00%	101.00%	101.00%	101.00%
Operating Revenue					
Commodity Charge	\$2,000,338	\$2,407,805	\$2,915,907	\$3,281,378	\$3,457,765
Service Charge	\$802,747	\$1,124,930	\$1,206,324	\$1,289,233	\$1,373,680
Bulk Water+Recycled Water	\$33,626	\$34,191	\$134,676	\$140,897	\$146,947
Projected Operating Revenues	\$2,836,711	\$3,566,926	\$4,256,908	\$4,711,507	\$4,978,391
Revenue Change	17.20%	25.74%	19.34%	10.68%	5.66%
Operating Expenses					
Fixed Expense total (From District Input)	2,817,078	2,979,886	3,089,999	3,204,230	3,322,735
All Variable Expense (From District Input)	\$578,665	\$612,108	\$634,727	\$658,191	\$682,534
Total Operating Expenses	\$3,395,743	\$3,591,994	\$3,724,726	\$3,862,422	\$4,005,269
Net Before Transfer	(\$559,032)	(\$25,068)	\$532,182	\$849,086	\$973,122
Transfer to Non-Operating [II.]	(\$327,275)	(\$540,757)	(\$594,533)	(\$807,777)	(\$911,624)
Transfer from Rate Stabilization [V.]					
Net Annual After Transfers	(\$886,307)	(\$565,824)	(\$62,351)	\$41,308	\$61,498
Operating Ending Balance	\$1,745,593	\$1,179,769	\$1,117,418	\$1,158,726	\$1,220,224
Desired Minimum Operating Balance	\$1,018,723	\$1,077,598	\$1,117,418	\$1,158,727	\$1,201,581
Check Point: O & M Coverage	0.84	0.99	1.14	1.22	1.24

It is good practice to maintain an operating ratio of 1.2 or greater. This means the operating revenue is at least 20% more than the operating expense. This will build operating reserves and fund depreciation.

Operating Revenue vs Operating Expenses

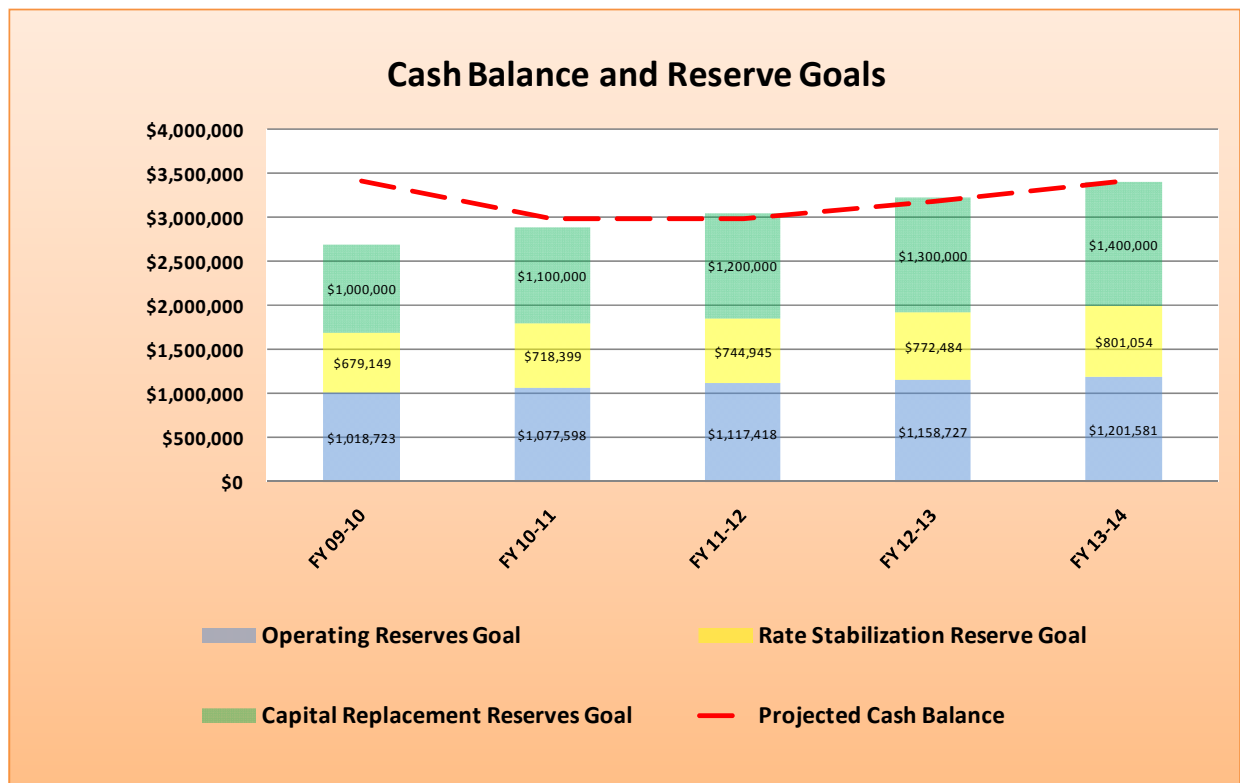
The graph below demonstrates that the operating revenue exceeds operating expenses by FY 11-12 and thereafter begins to provide funds for capital replacement and reserves.



Cash Balance and Operating Reserve

The figure below provides a summary of the projected cash flow. The goal was to establish a minimum operating reserve and develop a capital replacement program, while also developing a rate stabilization fund. The minimum operating reserve along with a rate stabilization fund is designed to provide sufficient funds to accommodate a major system failure or an abrupt change in operating expense, such as a spike in the cost of energy or imported water. This protects the ratepayer from an immediate rate change to accommodate such an event.

It can be noted in figure below that by FY 11-12, the ending Balance matches the projected operating reserve, and by FY 12-13, sufficient revenue has been generated to cover operating expenses and begin funding the non-operating portion of the budget that includes capital replacement and debt service.



The District obtained a low interest loan from the State of California for funding of the recycled water project. Since the project is intended to develop additional water supply, all the operational costs and 80% of the debt service are included in the water operating and non-operating budget. The other 20% of the debt service has been allocated to the sewer department, as the project will defer the construction of another pond for wet weather flows.

RCSD's Sewer System

RCSD's sewer system is comprised of 71 miles of collector and trunk sewers. The sewage flows to the Treatment facility which is comprised of a grinder, influent pumps and automatic influent sampling. The bar screen and grinding facility remove large objects from the stream flow. The sewage then flows to a series of treatment ponds, where it is naturally stabilized and eventually evaporates. This process is relatively simple and low cost. Even though this process is land intensive; RCSD has sufficient land to provide this level of treatment. The process is in conformance with all regulatory agencies' requirements. At this time, there is no indication that this system will not provide adequate treatment.

Basic Wastewater Rate Components

Cash Needs

The projected operating and non-operating cash needs are the basis for establishing the sewer rates. In order to provide sufficient revenue to fund daily operations and maintenance as well as establish funds for system replacement, a rate increase is necessary. In order to mitigate rate shock, a multiyear rate increase is proposed. By Fiscal Year 2012-2013, sufficient revenue should be generated such that the daily operating expenses are covered and cash is available to begin funding system replacement.

System Maintenance

The sewer pipe lines have to be cleaned on a periodic basis. The cost of this activity has increased, as has the need to clean some areas of the system more frequently. RCSD is growing and adding more commercial activities. Restaurants, Laundromats, etc discharge such substances as fat, oil and grease which clog sewer lines. Sections of the sewer system that service these facilities require more frequent cleaning and, in turn, experience more cost.

Flow Charge

This charge is based on the variable portion of Operating Expenses. The variable component is the cost of treatment and pumping. Whereas the base charge (above) was calculated using the fixed costs incurred regardless of quantity discharged. The flow charge is calculated on the basis of the quantity of sewage a customer discharges ("flow") into the sewer system. Discharge is measured in hundred cubic foot ("HCF") increments (one HCF = 748 gallons). In addition to proportionately allocating the variable costs of sewer service to those customers who put the most demand on the system, this charge will also reward the efforts of those who conserve water by taking into account the amount of wastewater they discharge into the sewer system.

Sewer Rate Development

As in water rate development, “the ‘art’ of rate making involves designing rates that balance potentially conflicting objectives in a manner that reflects community values. At a minimum, utility rates should be sufficient to generate revenues required to support operations, develop capital infrastructure, and preserve (or enhance) the financial integrity of the utility system. Revenue generation should also provide for effective asset management and adequate renewal and replacement of aging infrastructure.”⁴

Proposed Rate Structure

Traditionally, wastewater rate structures have been set at a flat charge. However, in order to address legal considerations and encourage conservation, rate structures now often have a fixed and a variable component for residential and commercial discharges.

The base charge is calculated to recover the fixed costs. The variable charge is designed to cover the cost of sewage treatment and disposal which is variable depending upon the amount of sewage discharged and treated. The table below breaks out fixed and variable operating costs in RCSD’s projected operating budget for FY 09-10

	FY09-10 Fixed Op Cost	FY09-10 Variable
Salaries -Wages& Fringe	\$1,166,308	
Energy		\$67,600
Equipment Lease	\$61,479	
Permits	\$2,484	
Security Services	\$12,420	
Safety & Training	\$2,691	
Tests		\$7,245
Equipment Expense	\$31,050	
Treatment Plant Operations		\$0
G & A	\$394,184	
Uniforms	\$6,210	
Replacement		
Operating Expense	\$1,676,826	\$74,845

It can be noted above that most of the costs associated with the sewer service are fixed. Distributing those costs over 4,931 accounts would result in a dramatic increase in the monthly fixed charge. During Board workshops, it was decided that the rate increase be phased in over several years as noted in the table below.

⁴ Financing and Charges for Wastewater Systems”, Water Environment Federation Manual of Practice 27

Rate Increase Phase In – Based on Customer Classification

Customer Classification	Effective Date of Rate					
	Current	Oct 1, 2009	Oct. 1, 2010	Oct. 1, 2011	Oct. 1, 2012	Oct. 1, 2013
Base Charge						
Residential	\$18.89	\$24.00	\$29.33	\$34.21	\$36.97	\$39.80
Commercial I	varies	\$24.00	\$29.33	\$34.21	\$36.97	\$39.80
Commercial II	varies	\$24.00	\$29.33	\$34.21	\$36.97	\$39.80
HCF Charge						
Residential*	\$0.00/HCF	\$0.11/HCF	\$0.11/HCF	\$0.12/HCF	\$0.12/HCF	\$0.13/HCF
Commercial I*	\$0.00/HCF	\$0.11/HCF	\$0.11/HCF	\$0.12/HCF	\$0.12/HCF	\$0.13/HCF
Commercial II**	\$0.00/HCF	\$0.44/HCF	\$0.44/HCF	\$0.48/HCF	\$0.48/HCF	\$0.52/HCF
* For residential customers and Commercial I customers who are not connected to RCSD's water system, the HCF charge assumes \$/9 HCF. For similarly situated schools, the HCF charge assumes 391 HCF						
** For Commercial II customers who are not connected to RCSD's water system, the HCF charge assumes \$/9 HCF.						

As noted in the table above, the flow charge rate for Residential and Commercial I is the same. However, Commercial Class II takes into consideration those classes of customers that discharge fat, oil and grease which increase maintenance cost. This class of users generally discharges constituents that are 4 times greater than those found in domestic sewage.^{5 6}

The variable cost is relatively low when compared to other agencies. As previously discussed, the District is able to use ponds for sewage treatment. The cost to treat the sewage in this fashion is approximately 10% of the normal treatment process.

The California State Water Resources Control Board User Charge Survey Report for Kern County⁷ lists the monthly service charge for single family residences ranges from a low of \$9.35 per month to a high of \$62.67 per month.

⁵ "CMOM - Commercial and Residential FOG, Corrosion, and Sewer Maintenance Personnel and Pretreatment Personnel Communication", Monitoring and Management Services, 2007

⁶ Barnstable County Health/USGS Water Contaminant Study, 2004

⁷ Wastewater User Charge Survey Report FY 2007-08, May 2008

Customer Rate Classes

RCSD sewer customers can be grouped into three classes for purposes of establishing rates:

- Residential
- Commercial Class I
- Commercial Class II

Residential

A Residential customer is defined as any single-family, multi-family, apartment, condominium or mobile home property owner or customer.

RCSD's service area is predominantly residential. Flows from residential users generally have similar characteristics and are assumed to have the same Total Suspended Solids (TSS) and Biological Oxygen Demand (BOD). However, it has been found that volume does vary between users.

Commercial Class I

A Commercial Customer I is any property owner or customer whose use of property for commercial, industrial, or institutional purposes does not discharge fat, oil, grease or chemicals into the sewer system in quantities that significantly impact the operations of the system.

Commercial Class II

A Commercial Customer II is any commercial, industrial or institutional property owner or customer who, as a result of his or her use of a parcel of property, discharges fat, oil, grease or chemicals into the sewer system in quantities that significantly impact the operations of the sewage system. The determination of this discharge is made by RCSD and/or through laboratory testing. Commercial Customer II classifications include but are not limited to any customer or property owner whose property has been or is being used as a restaurant, a commercial kitchen, a Laundromat, a commercial laundry facility, manufacturing facility, a hospital/clinic, or a commercial car wash that does not recycle its water.

Since RCSD has very few dischargers that exceed the normal constituent loading for domestic sewage, it is not cost effective to sample and measure them for billing purposes. However, the industry has developed data that can be used for billing for this type of discharge. For example, it is accepted that restaurant and Laundromat loadings are approximately four times that of a residential discharger.⁸ In order to account for this added loading to the system, the HCF rate for those dischargers will be four times the residential rate.

⁸ "Texas Restaurant Wastewater Analysis", John R. Blount, PE, Harris County Infrastructure Dept., 2003; "Food Service Establishment Wastewater Characterization" B J Lesikar, O A Garza, 1992

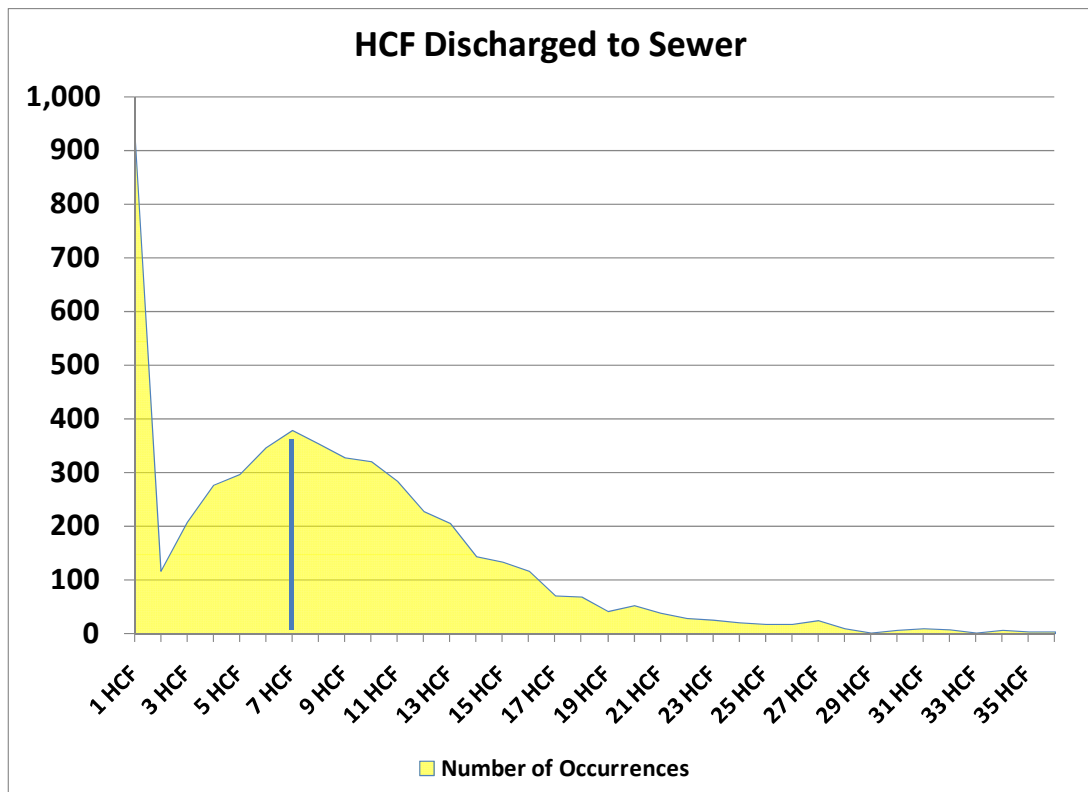
Industrial Waste

At this time, RCSD has no industrial dischargers. However, if industrial development occurs and results in a higher level of treatment, these costs would have to be collected from the respective dischargers.

Determination of Sewage Discharge Amount

RCSD will determine the quantity of wastewater discharged into the sewer system by examining the monthly water use of residential customers from December through March of the prior fiscal year. RCSD will identify the two lowest months of water usage and average the usage for those two months. Because these months are normally the wettest months for the region, resulting in less outdoor irrigation, they are the best reflection of the amount of water being returned to the sewer by residential customers.

The HCF Charge component of the rate structure will then be determined on the basis of each individual residential customer's water usage during those two months, with a monthly maximum not to exceed 20 HCF of water usage. The cap on maximum water usage recognizes that there may be some irrigation during the months of December through March. A typical residential customer uses about 7-9 HCF of water a month during the rainy season. Since homes don't have sewage meters, this method will be used to determine the amount of water used by the customer and discharged into the sewer system.



Note that median discharge is 7HCF per month.

For Commercial Classes I and II, the HCF Charge will be charged on all water discharged to the sewer based on the monthly metered flow to buildings. Water separately metered, used for irrigation, and not discharged into the sewer will not be included in the calculation of the HCF Charge.

Recommendation

In order to avoid an abrupt rate change, the development of both water and sewer charges has been structured with a five year implementation schedule. While this phasing will result in the use of some reserves, we believe this approach offers the least rate shock to the customers of RCSD. Based upon our analysis, it is recommended that the implementation of a five year phased-in tiered rate structure be adopted by the Rosamond Community Services District.