

CARMICHAEL WATER DISTRICT

RESOLUTION 06222009-2

**A RESOLUTION ADOPTING THE CARMICHAEL WATER DISTRICT
2009 WATER RATE STUDY**

WHEREAS, the Board of Directors accept the 2009 Water Rate Study report as accurately reflecting the issues, deliberations and decisions held by the Board, staff, and public; and

WHEREAS, the Board of Directors hereby support and approve the findings and recommendations for revising the District's water rate structure as presented in the report.

BE IT RESOLVED, that the Board of Directors hereby adopts the District's 2009 Water Rate Study attached as Exhibit "A" hereto.


PASSED AND ADOPTED by the Board of Directors on this 22nd day of June 2009, by the following vote:

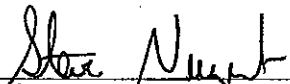
Board Vote: AYE: 4 NO: 0 ABSENT: 1 ABSTAIN: 0

Mark Emmerson	Aye	<u>X</u>	No	_____	Absent	_____	Abstain	_____
Ron Greenwood	Aye	_____	No	_____	Absent	<u>X</u>	Abstain	_____
Sanford Kozien	Aye	<u>X</u>	No	_____	Absent	_____	Abstain	_____
Paul Selsky	Aye	<u>X</u>	No	_____	Absent	_____	Abstain	_____
John Wallace	Aye	<u>X</u>	No	_____	Absent	_____	Abstain	_____

Passed Unanimously: Yes X

Signed after its passage this 22nd day of June 2009:


Ron Greenwood, President by Mark Emmerson, Vice-President
Board of Directors

ATTEST: 
Steve Nugent, Secretary

Carmichael Water District

Rate Study

For

2009-2014 Water Rates

By: Steve Nugent
General Manager

April 2008- April 2009

Table of Contents

Acknowledgments.....	3
Glossary of Terms.....	4
Purpose of Rate Study.....	5
Goal of Rate Study.....	5
Process of Rate Setting.....	5
History of Carmichael Water District.....	6
Revenue Requirements.....	8
Debt Service	
O&M Expense	
Planned System Maintenance	
Water Supply & Usage.....	12
Source of Supply	
Historical Usage	
Estimated Future Usage	
Usage by Customer Class	
Rate Alternative Structure Review.....	19
Drought Pricing Rate Surcharges.....	31
Lifeline Rate Structures	32
Fire Protection Service Rates	33
Rates Structure Selection	36
Recommendations	38

Acknowledgments

American Water Works Association:

Principles of Water Rates, Fees, and Changes

Carmichael Water District Staff:

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Kennedy/Jenks Consultants

CWD District Master Plan 2003-2103

Bob Reed, The Reed Group

Stone & Youngberg, LLC

Debt Financing

Glossary of Water Utility Terms

Ac	Acre = 43,560 square feet
AF	Acre-foot = 325,828 gallons
AWWA	American Water Works Association
Bi-mo	Bimonthly
CCF	100 cubic feet = 748 gallons
CFS	Cubic feet per second
COP	Certificates of Participation
Cons	Consumption
CWD	Carmichael Water District
DSC	Debt Service Charge
EDU	Dwelling Unit
FTE	Full time equivalent
FY	Fiscal Year
Gals	Gallons
Gpd	Gallons per Day
MF	Multi-family
MG	Million Gallons
MGD	Million Gallons per Day
SF	Single Family

Rate Study

Purpose of Study:

In providing adequate water service to its customers, every water utility must receive sufficient total revenue to ensure proper operation and maintenance (O&M) development and perpetuation of the system, and preservation of the utility's financial integrity. In meeting the goal of receiving adequate revenue the district must strive to achieve rate equity between customer classes.

Goal of Rate Study:

The Goal of the Rate Study is to begin the detail discussion for water rates for fiscal years 2009-2013. Over the next year these discussions will lead to the next five year financial and rate plan for Carmichael Water District (CWD).

The Process for Rate Setting:

The District Board, staff and the customers of CWD will review information presented in this report. If additional information is required for the study, staff will provide that information. CWD will then conduct workshops over the next year to discuss the rate structure with the public.

Once a rate structure has been selected staff will notify the public through individual letters explaining the rate structure and any increases or decreases that the new structure and financial plan will have over the next five years.

CWD will then conduct a public hearing or hearings to again here from the public on the rate structure and financial plan. After listening to input from the district customers the Board will then schedule the new rate structure and financial plan for an action item at a regularly scheduled Board Meeting. Once a plan has been adopted staff will make the change to the rate structure within 60 business days.

History of Carmichael Water District

Carmichael has a relatively brief recorded history in the region. Prior to European settlements, the area was home to the Maidu Indians (archaeological sites have been identified in the area, especially close to the American River).

With the onset of European settlement, land ownership in the area was vested through Mexican land grants. Two land grants encompassed most of the area of Sacramento County north of the American River and east of the Sacramento River, including the area now known as Carmichael. One was the Rancho Del Paso Grant, 44,371 acres located between old Marysville Road and Manzanita Avenue, and its southerly extension along Fair Oaks Boulevard to the American River. The other was the Rancho San Juan Grant, 19,982 acres extending east from Manzanita Avenue to about Folsom Dam, and extending north well beyond Carmichael's boundaries.

The San Juan Grant lands began to be broken up in about 1875 and the Rancho Del Paso Grant in about 1908. Some of the lands were leased for farming prior to 1900. Jacob Heintz moved to California about 1870 and settled in the northern area of Carmichael, leasing about 4,400 acres within the two land grants on much of what was to become Carmichael. The John and William Barrett family came to the area about 1890, farming approximately 80 acres along Barrett Road.

Among other early settlers of Carmichael were Charles W. and Mary A. Deterding, who purchased 42 acres along the north bank of the American River in 1907. A major portion of their Deterding Ranch was eventually sold and is now Ancil Hoffman Park.

In 1909, a real estate developer by the name of Dan Carmichael purchased 2,000 acres of the San Juan Grant lands, lands that became Carmichael Colony No. 1. Two years later, Dan Carmichael purchased 1,000 acres of the Rancho Del Paso Grant, adjoining his prior purchase. The second purchase was Carmichael Colony No. 2.

Dan Carmichael divided the 3,000 acres into 10-acre parcels, and placed ads in Midwestern and eastern newspapers - "Lots for sale in Carmichael California - 10-acre tracts for \$1500 with 10% down on terms of \$10 a month at 6% interest.

In the shelter of rolling foothills, secure from frosts, the woods hereabouts are stocked with game birds, quail, etc. and the streams are stocked with trout for rod and ducks for gun."

Dan Carmichael never lived in his Carmichael Colonies, instead making his home in Sacramento, where he served a term as mayor from 1917-1919, along with many other civic activities. He left the area in 1923 and later settled in San Francisco.

The origin of the District dates to July 3, 1915, when the Carmichael Colonies, Improvement Club appointed a committee to investigate the possible formation of an irrigation district, constructing a 10 mile pipeline to bring water directly to Carmichael from an upstream penstock, and pumping water for irrigation purposes from the American River. The committee hired Albert Givan, Civil Engineer, of Sacramento to study the engineering feasibility of the projects.

The committee report was completed October 28, 1915, and printed as a supplement to the Fair Oaks Citizens newspaper on November 1, 1915. The report provides some insight into the impetus for the committee's work. "An inspection of the distribution system of the American Irrigation Company will readily determine that this system was laid out to supply Fair Oaks Colonies and was never intended when built to accommodate the various colonies and subdivisions that it is now attempting to supply; the same conditions hold good for the distributing system in Carmichael Colony in regard to Carmichael Colony No. 2". "It is evident to all of you that if the water situation in the Colonies goes on for but a few more seasons more than it has in the past, disaster will quickly overtake us, individually and collectively. We must have relief..."

Albert Givan's engineering report was published as part of the committee's report. This report analyzed three main alternatives for Carmichael water supply: The penstock alternative, requiring a 10 mile pipeline to an upstream penstock where adequate American River supplies could be obtained; a river supply, involving pumping water from the American River at Carmichael; and a combined supply, where the American Irrigation Company (which bought foreclosed assets of the North Fork Ditch Company in 1914) would be relied on a continuous supply of 4 cfs, and the major irrigation supply would be pumped from the American River at Carmichael for 16 hours per day during the six month irrigation season.

The third (combined supply) alternative, being the most cost-effective, was recommended and adopted; the formation of the irrigation district was initiated; and Albert Givan filed for 15 cfs water right from the American River on behalf of the District. The Carmichael Irrigation District was formed on January 3, 1916 and held its first official meeting on February 8, 1916.

The District was formed under the provisions of the California Irrigation Law pursuant to California Water Code Sections 20500 et seq. Today CWD covers approximately 5,415 acres and serves an estimated population of 40,000.

**Revenue Requirement
For Fiscal Years
2009-2013**

In providing adequate water service to its customers, every water utility must receive sufficient total revenue to ensure proper operation and maintenance (O&M) development and perpetuation of the system, and preservation of the utility's financial integrity.

Debt Service:

In 1999 the District received proceeds from a Certificate of Participation (COP's) Bond Sale. The Bonds will be paid off in 2029. The amount of the Bond sale was \$35,000,000. The proceeds went to fund construction of the Bajamont Water Surface Water Treatment Plant, 2300 feet of 48" diameter raw water piping system, and new raw water caissons. The original bid from Kiewit was \$18,756,000. An additional \$5,365,000 went to purchase the US Filter Memcor microfiltration system. Included was a project contingency of \$870,000.00 - for a total estimated construction cost of \$25,000,000 during a 28 month construction period.

\$1,700,000 of the proceeds was used to pay off a short term loan that was used to purchase the land for the new corporation yard. In addition \$535,000 was used for site improvements for the new corporation yard which include vehicle and material storage buildings and concrete block sound walls.

\$2,882,000 was used to install over 9,000 feet of water main to increase water pressure in the northern portion of the service area.

Debit Service for Fiscal Years 2009-2013:

Sept/March	Principal	Interest	Total Payments
2009	850,000.00	1,531,963.76	2,381,963.76
2010	890,000.00	1,491,588.76	2,381,588.76
2011	930,000.00	1,451,538.76	2,381,538.76
2012	970,000.00	1,408,758.76	2,378,758.76
2013	1,015,000.00	1,363,168.76	2,378,168.76

Debt Service Rate Covenant:

The Installment Sale Agreement will require the District, to the fullest extent permitted by law, to fix, prescribe and collect rates and charges for its Water Service which will be at least sufficient to yield during each fiscal year Net

Revenues equal to 120 percent of the Debt Service for such fiscal year (the Required Coverage Ratio). Net Revenues (excluding any transfers from the Rate Stabilization Fund) shall provide coverage of at least one hundred percent of annual Debt Service for any Fiscal Year and any such transfers from a Rate Stabilization Fund shall be limited to demonstrating only of that portion of the Required Coverage Ratio which exceeds 100 percent.

Required Rate Covenant Coverage for Fiscal Years 2009-2013:

Sept/March	Total Payments	120% Rate Coverage
2009	2,381,963.76	2,858,356.51
2010	2,381,588.76	2,857,906.51
2011	2,381,538.76	2,857,846.51
2012	2,378,758.76	2,854,542.91
2013	2,378,168.76	2,853,802.51

Sinking Fund for Membrane Replacement for the Water Treatment Plant:

The life expectancy for the membrane models was originally estimated at five years. Based on the last seven years of operation the life expectancy has been 3.5 to 4 years. Because of this shorten life expectancy CWD will need to place an additional amount into the sinking fund in order to maintain operation at the Water Treatment Plant. The table below will identify the total required sinking fund for membrane replacement:

Total # of Membranes	Cost for individual membrane	Total Replacement Cost	Annual Sinking Fund Requirement
1440	650.00	936,000.00	267,428.58 (3.5)
108	1,100.00	118,800.00	29,700.00 (4)
1,548		1,054,800.00	297,128.58 (A)

(A) Annually

Operation & Maintenance Expense:

O & M Expenses are the necessary costs to operate and maintain treatment plants, wells, pumping, transmission, distribution facilities, and the cost of customer service, administrative, general expenses, insurance, payroll, and benefits. Below is the table identifying the O& M costs for fiscal years 2009-2013:

O&M	2009	2010	2011	2012	2013
Admin	1,860,599	1,897,810	1,935,766	1,974,481	2,013,970
Distribution	800,000	816,000	832,320	848,966	865,945
Production	1,856,977	1,894,116	1,931,998	1,970,638	2,010,051
Cust. Serv.	625,000	637,500	650,250	663,255	676,520
Total	5,142,576	5,245,426	5,350,334	5,457,340	5,566,486

Planned System Maintenance (Capital Improvements Plan):

In 2003 the District contracted with Kennedy/Jenks Consultants to develop a Master Plan. The goal was to document planning objectives addressing the long-term sustainability of District infrastructure while remaining committed to programs such as meter retrofit, water conservation, and regional planning goals. The District is also committed to obtaining rate stability and addressing customer interests in rate control. The Master Plan defines the condition and replacement liability associated with the District Infrastructure over the life of the facilities and has identified capital projects to address the District assets, some of which are at or beyond their useful life.

The findings from the Master Plan noted that the District infrastructure liability still exceeds the revenue base necessary to replace assets as they wear out. Significant improvements have been completed with respect to water supply, transmission, and level of service; however, more work needs to be done.

In 2003 the Master Plan set a minimum level of Planned System Maintenance for pipeline replacement at \$500,000/year with a full implementation at \$1,500,000.

In 2004 the District moved to ramp up the meter installation completion date from 2017 to 2013. Due to the increase in meter retrofit, the pipeline replacement would fall to the minimum level for the remaining five years of metered installation.

Beginning 2009 the district will have approximately 5,082 one (1) inch meters left to install. The average meter installation cost is \$1,075.00 for labor and materials for a total cost of \$5,463,150 or \$1,092,630/year.

Once meter installation is completed then pipeline replacement needs to return to the level of \$1,500,000 per year. In 2003 replacing 10,000 feet of pipeline cost approximately \$1,500,000. Due to increases in construction costs, pipeline replacement of approximately 10,000 feet of pipeline today would cost \$1,879,554 and by 2014 the cost is estimated to be \$2,115,455.

Other equipment purchased is estimated at about \$125,000.00/year to maintain the existing level of District operation. Identified below is the table for planned system maintenance costs for 2009-2013.

PSM	2009	2010	2011	2012	2013
Meters	1,092,630	1,114,482	1,167,771	1,191,126	1,214,948
Pipeline	250,000	350,000	450,000	550,000	595,337
Other Equip	125,000	127,500	130,000	132,600	135,252
Total	1,467,630	1,591,982	1,747,771	1,873,726	1,945,537

Total Revenue Requirement for 2009-2013:

Based on the requirements for the debt service, membrane replacement fund, O & M, and PSM the total revenue requirement for 2009-2013 is identified below:

	2009	2010	2011	2012	2013
Debt Serv.	2,381,964	2,381,589	2,381,589	2,378,759	2,378,169
Mem Fund	297,129	297,129	297,129	297,129	297,129
O&M	5,142,576	5,245,426	5,350,334	5,457,340	5,566,486
PSM	1,467,630	1,591,982	1,747,771	1,873,726	1,945,537
Total	9,289,299	9,516,126	9,776,823	10,006,954	10,187,321

Water Supply & Usage

Source of Supply:

The primary source of water supply for CWD is the American River. Approximately 75% of all CWD supplies come from the American River. This year CWD expanded its Bajamont Way Water Treatment Plant to 22 mgd per day capacity. In the future 85%-90% of all CWD supplies will come from the American River.

CWD has surface water entitlements consisting of two water right licenses and one water right permit. The State Water Resources Control Board is the administrative agency responsible for all applications for the appropriation of water and the regulation of such appropriations once permitted or licensed. The District has surface water entitlements from the American River totaling 50 cubic feet per second ("cfs") which equates to 32.1 million gallons per day or approximately 32,000 acre feet per year. The license and permit is described below:

- License 1387, issued in 1933, and licensed the entitlements granted under permit 67. Permit 67 was originally issued on February 11, 1916 for the diversion of 15 cfs of water from the American River from January 1st through December 31st each year, which equates to 9.6 mgd or 10,754 acre feet.
- License 8731, issued in 1948, and licensed the entitlements granted under permit 2498. This permit was originally issued on May 31, 1946 for a 10 cfs diversion from the American River from May 1st through November 1st each year, which equates to approximately 6.46 mgd or 3,648 acre feet.
- Permit 7356, issued April 22, 1949, and permitted a 25 cfs diversion from the American River from January 1st through December 31st, which equates to approximately 16.1 mgd or 18,000 acre feet. This permit is currently up for renewal.

Groundwater Sources of Supply:

CWD current owns and operates eight (8) groundwater wells of which four (4) are considered to be active wells. Those active wells are:

- Willow Park constructed in 1993
- Barrett School Well constructed in 1991
- La Vista constructed in 1982
- Garfield wells constructed in 1957.

Of the District's other wells, two are for emergencies backup supply. Those backup wells are:

- Winding Way constructed in 1959
- Ladera constructed in 1988.

The final two (2) wells are not operated at this time due to water quality issues:

- Barrett Road Well has been off for four (4) years.
- Dewey Well has been off for seven (7) years

Reliable groundwater capacity is 5.7 mgd or 6,400 acre feet.

Total Water Supply:

License 1387	9,600,000 gpd	10,754 acre feet/year
License 8731	6,460,000 gpd	3,648 acre feet/year
Permit 7356	16,100,000 gpd	18,000 acre feet/year
Groundwater	5,713,000 gpd	6,400 acre feet/year
Total Supply	37,873,000 gpd	38,802 acre feet/year

Historical Usage:

Year	Average Daily Demand	Max Day Demand	Annual Demand
2000	9.87 mgd	22.3 mgd	11,061 acre feet
2001	11.24 mgd	22.1 mgd	12,598 acre feet
2002	11.85 mgd	23.9 mgd	13,273 acre feet
2003	11.22 mgd	22.5 mgd	12,576 acre feet
2004	12.20 mgd	23.1 mgd	13,676 acre feet
2005	11.12 mgd	21.9 mgd	12,457 acre feet
2006	11.15 mgd	21.7 mgd	12,496 acre feet
2007	11.05 mgd	21.3 mgd	12,377 acre feet
Average	11.23 mgd	22.3 mgd	12,591 acre feet

Currently CWD's usage is measured at the source. Through the Leak Detection Analysis it is predicted that CWD has approximately 5% unaccounted for water due to flushing and water leakage. For example, the average production is 12,591 AF – 629 AF = consumption of 11,962 AF.

CWD highest recorded usage was 25.1 mgd in 1997.

Highest annual demand was 14,425 AF in 1976.

Estimated Future Usage 2009-2013:

Future usage for CWD will be impacted by two factors: 1) weather and 2) the installation of water meters. Water meter installation has had a historical effect of lowering demand by approximately 7%. In reviewing the last seven years of weather data comparing with CWD's demand, weather can have an impact of plus or minus 8.5%. After meter installation is completed it is estimated that CWD will see a 7% overall decrease in usage but with weather impacts the range could be from a 15.5% decrease to an 8% increase in overall demand. . The expected range in usage would be from 10,568 AF per year to 13,520 AF per year.

Usage by Customer Class:

For this study, metered customer classes are broken into class type and service connection size. The Classes that are used are:

- Residential ¾", 1", 1.5", and 2"
- Multi-Family ¾", 1", 1.5", 2", and 4"
- Condos, ¾", 1", 1.5", and 4"
- Apartments ¾", 1", 1.5", 2", 3", 4", 6", and 8"
- Commercial ¾" 1", 1.5", 2", 3", 4", 6", and 8"
- School ¾", 1", 1.5", 2", 3", 4", and 6"
- Parks ¾", 1", 1.5", 2", 4", 6", and 12"
- Irrigation ¾", 1", 1.5", and 2"

Single Family Residential Customer Class:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾"	143	25,968	224	224	19,424,064	59.61
1.0	3473	1,152,364	354	258	861,968,272	2,645.47
1.5	71	77,234	1,128	726	57,770,032	177.30
2.0	17	33,258	1,506	594	24,876,984	76.35
Total	3704	1,288,824	803	450	964,039,352	2,958.73

Single Family Residential FY 2008-2009 Transitional Customer Class:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾"	10	3,544	348	300	2,650,912	8.13
1.0	589	322,021	582	330	240,871,708	739.26
1.5	40	32,728	930	552	24,805,544	75.13
2.0	21	19,204	1,044	528	14,364,592	44.08
Total	660	377,497	726	427	282,692,756	866.60

Multi – Family Residential Customer Class:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾	17	1,861	270	120	1,392,028	4.27
1.0	577	180,187	330	258	134,779,876	413.65
1.5	13	8,041	642	606	6,014,668	18.45
4.0	1	643	643	643	480,964	1.47
Total	608	190,732	471	406	142,667,536	437.84

Condos Customer Class:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾	13	11,585	180	72	8,665,580	26.59
1.0	267	16,400	90	60	12,267,200	37.64
1.5	38	2,246	318	102	1,680,008	5.15
4.0	8	4,845	605	343	3,624,060	11.12
Total	326	35,076	298	144	26,236,848	80.50

Condos Master Metered:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾	2	204	102	102	152,592	.46
1.0	20	3,058	152	94	2,287,384	7.02
2.0	7	4,450	629	350	3,328,600	10.21
6.0	2	25,074	4,179	3,788	18,755,352	57.56
Total	31	32,786	1,265	1,083	24,523,928	75.25

Apartment's Customer Class:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾	59	Bypass	BP	BP	BP	BP
1.0	29	9,828	684	276	7,352,017	22.56
1.5	58	49,273	948	576	36,856,204	113.11
2.0	107	132,993	1,344	948	99,479,247	305.31
3.0	12	25,292	4,398	3,696	18,918,416	58.06
4.0	51	208,322	1,896	798	55,825,236	478.22
6.0	11	35,202	1,974	780	26,331,538	80.81
8.0	3	4,029	132	117	3,011,714	9.24
Total	330	464,939	1,715	1,150	347,774,372	1,067.31

Commercial Customer Class:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
$\frac{3}{4}$	20	BP	BP	BP	BP	BP
1.0	257	89,318	364	168	66,809,864	205.04
1.5	73	58,154	888	600	43,499,192	133.50
2.0	84	96,230	1,224	636	71,980,040	220.91
3.0	4	5,846	2,544	1,578	4,371,686	13.41
4.0	15	69,613	3,828	1,662	52,070,898	159.81
6.0	3	11,148	786	780	8,339,078	25.58
8.0	1	6,645	4,848	5,580	4,970,834	15.25
Total	457	336,954	2,030	1,530	252,041,592	773.50

Parks:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
$\frac{3}{4}$	3	BP	BP	BP	BP	BP
1.0	6	2,483	504	348	1,859,528	5.70
1.5	1	1,680	1,830	1,872	1,259,632	3.86
2.0	4	11,952	3,570	2,958	8,940,096	27.43
4.0	4	14,884	3,721	3,205	11,133,232	34.16
6.0	3	59,737	9,816	7,560	44,683,276	137.13
12.0	1	196,935	32,822	32,822	147,307,380	452.10
Total	22	287,671	7,617	7,004	215,183,144	660.38

Schools:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
$\frac{3}{4}$	10	BP	BP	BP	BP	BP
1.0	3	169	654	312	126,412	.38
2.0	7	7,951	1,266	606	5,947,348	18.25
3.0	3	3,602	990	738	2,694,670	8.27
4.0	5	26,763	5,232	3,204	20,019,098	61.43
6.0	4	66,965	18,270	13,770	50,090,568	153.72
Total	32	105,452	4,530	3189	78,878,096	242.05

Irrigation:

Connection	Number	Usage CCF	Mean CCF	Median CCF	Total Usage Gals.	Total AF
$\frac{3}{4}$	5	2,585	606	246	1,933,580	5.93
1.0	16	8,064	564	204	6,031,872	18.51
1.5	5	13,397	2,646	2,250	10,020,956	30.75
2.0	5	3,976	1,446	1,002	2,974,048	9.12
Total	31	28,022	1,315	925	20,960,456	64.31

Combined Usage by Size:

Connection	Number	Usage CCF	Average of the Mean CCF	Median CCF	Total Usage Gals.	Total AF
¾	282	43,162	835	586	32,285,176	99.08
1.0	5,237	1,783,892	443	228	1,334,353,133	4,095.26
1.5	299	242,753	1,092	934	181,906,236	558.28
2.0	252	310,014	1,704	1,111	234,134,091	713.69
3.0	19	35,377	2,644	2,004	25,984,772	81.42
4.0	84	325,070	2,654	1,642	176,703,472	747.27
6.0	23	198,126	8,727	6,922	148,199,812	454.87
8.0	4	10,674	2,490	2,848	7,982,548	24.50
12.0	1	196,935	47,945	47,945	147,307,380	452.10
Total	6,201	3,147,953			2,354,998,080	7,226.47

Combined Usage by Class:

Class	Number	Usage CCF	Average of the Mean CCF	Median CCF	Total Usage Gals.	Total AF
Resident	3,704	1,288,824	803	450	964,040,352	2,958.73
Res Tran	660	377,497	726	427	282,367,756	866.60
Multi-Fam	608	190,732	471	406	142,885,268	437.84
Condos	326	35,076	298	144	26,239,848	80.50
Con Mast	31	32,786	1,265	1,083	24,523,928	75.25
Apartment	330	464,939	1,715	1,150	347,774,372	1,067.31
Commer.	457	336,954	2,030	1,530	252,041,592	773.50
Parks	22	287,671	7,617	7,004	215,193,144	660.38
School	32	105,452	4,530	3,189	78,878,096	242.05
Irrigation	31	28,022	1,315	925	20,960,456	64.31
Total	6,201	3,147,953			2,354,998,080	7,226.47

Total Usage:

We now know that the annual average usage for CWD is 12,591 AF- 629 AF for unaccounted for water = 11,962 AF for consumption and that 7226.47 AF is documented usage from the charts above. Since there is only residential customers under ½ acre that do not have meters installed the remaining usage must be accounted for by that class.

12,591.00 AF Total Annual Production
 - 629.00 AF Estimated unaccounted for water
-7,226.47 AF Documented Water Use
 4,735.53 AF Remaining residential homes under ½ acre.

Total number of connections at the writing of this report is 11,921. With 6,201 meters installed there is a total of 5,720 meters to be installed on single family homes under ½ acres.

Now for the first time we can see the distribution of usage for each customer class. Since there is 5% unaccounted for water in the system a total of 629 AF will be distributed by class usage.

Distribution by Customer Class:

Customer Class	Connect.	AF	Percentage Based On 11,962 AF	Unaccounted Water In AF	New Class Usage
Residential	10,084	8,560.86	71.56	450.1	9,010.96
Multi-Family	608	437.84	3.66	23.0	460.84
Condos	357	155.84	1.30	8.2	164.04
Apartments	330	1,067.31	8.92	56.1	1,123.41
Commercial	457	773.50	6.47	40.7	814.20
Parks	22	660.38	5.52	34.7	695.08
Schools	32	242.05	2.03	12.8	254.85
Irrigation	31	64.31	.54	3.4	67.65
Total	11,921	11,962.00	100.00	629.0	12,591.03

In addition we will look at the distribution by service size. In this table the unaccounted for water will be distributed by service size usage.

Distribution by Service Size:

Service Size	Connect.	AF	Percentage Based On 11,962 AF	Unaccount Water AF	New Class Usage
¾	282	99.08	.83	5.22	104.30
1.0	10,957	8,830.79	73.82	464.32	9,295.11
1.5	299	558.28	4.66	29.31	587.59
2.0	252	713.69	5.96	37.50	751.19
3.0	19	81.42	.68	4.27	85.69
4.0	84	747.27	6.24	39.24	786.51
6.0	23	454.87	3.80	24.00	478.87
8.0	4	24.50	.23	1.44	25.94
12.0	1	452.10	3.78	23.70	475.80
Total	11,921	11,962.00	100.00	629.00	12,591.00

With the information on usage by customer class, and by service connection size, and the required revenue of the district; we can now begin to develop the alternate rate structures to capture the necessary revenue to meet the requirements of the district.

Rate Alternative Structure Review

In providing adequate water service to its customers, every water utility must receive sufficient total revenue to ensure proper operation and maintenance (O&M) development and perpetuation of the system, and preservation of the utility's financial integrity. In meeting the goal of receiving adequate revenue, the District must strive to achieve rate equity between customer classes.

After reviewing the revenue requirement of the district and the usage patterns of the district customer, staff has come up with four (4) rate alternatives for your review and assessment.

Once the metered rate structure is established it will be used to calculate the remaining flat rate structure.

First Alternative:

The first alternative is based solely on consumption - no service charges or other related fees, just water consumption. A rate structure solely based on consumption allows the customer to pay directly for their individual usage.

The equation is really very simple. You must take the amount of required revenue and divided it by the water produced in CCF.

The usage in CCF = 12,591 AF - 629 AF for unaccounted water = 11,962 AF x 325,828 gals/AF = 3,897,554,536 gallons divided by 748 gals/CCF = 5,210,634 CCF.

Total Revenue Requirement for 2009-2013:

	2009	2010	2011	2012	2013
Debt Serv.	2,381,964	2,381,589	2,381,589	2,378,759	2,378,169
Mem Fund	297,129	297,129	297,129	297,129	297,129
O&M	5,142,576	5,245,426	5,350,334	5,457,340	5,566,486
PSM	1,467,630	1,591,982	1,747,771	1,873,726	1,945,537
Total	9,289,299	9,516,126	9,776,823	10,006,954	10,187,321

Based on the revenue requirement above the cost per CCF would be as follows for the next five years:

Years	Revenue	Usage in CCF	Cost per CCF
2009	9,289,299	5,210,634	\$1.78
2010	9,516,126	5,210,634	\$1.82
2011	9,776,823	5,210,634	\$1.87
2012	10,006,954	5,210,634	\$1.92
2013	10,187,321	5,210,634	\$1.95

For this alternative we have two sub alternatives: Alternative 1A is based on proportional usage by customer class; and Alternative 1B is based on the proportional usage by service size.

Alternative 1A - proportional usage by customer class:

2009 Individual Average Annual Water Bill by Customer Class:

Class	CCF	1.78/CCF	Connect	Annual	Bimonthly
Residential	3,729,101	6,637,799	10,084	658.25	109.70
Mutli	190,722	339,485	608	588.36	93.06
Condos	67,883	120,742	357	338.21	56.36
Apartments	464,919	827,556	330	2,507.77	417.96
Commercial	336,935	599,744	457	1,312.35	218.72
Parks	287,661	512,036	22	23,274.39	3,879.06
Schools	105,436	187,676	32	5,864.87	977.49
Irrigation	28,013	49,863	31	1,608.48	268.08

Alternative 1B - proportional usage by service size:

2009 Individual Average Annual Water Bill Based on Service Size:

Ser Size	CCF	1.78/CCF	Connect	Annual	Bimonthly
$\frac{3}{4}$	43,162	76,828	282	272.43	45.40
1.0	3,846,684	6,847,090	10,957	624.90	104.15
1.5	242,753	432,100	299	1,445.15	240.85
2.0	310,014	551,824	252	2,189.78	364.96
3.0	35,377	62,971	19	3,314.26	552.37
4.0	325,070	578,624	84	6,888.38	1,148.06
6.0	198,126	352,664	23	15,333.21	2,555.53
8.0*	20,648	36,753	4	9,188.25	1,531.37
12.0	196,935	350,544	1	350,544.00	58,424.00

Summary for Tables Alternative 1A and 1B:

1A Individual Average Bimonthly Water Bill by Customer Class:

Class	2009	2010	2011	2012	2013
Residential	109.70	112.17	115.25	118.33	121.41
Mutli	93.06	95.17	97.76	100.58	102.98
Condos	56.36	57.67	59.26	60.84	62.43
Apartments	417.96	427.34	439.09	450.83	462.57
Commercial	218.72	223.64	229.78	235.92	242.07
Parks	3,879.06	3,966.23	4,075.19	4,184.16	4,293.12
Schools	977.49	999.44	1,026.90	1,054.36	1,081.81
Irrigation	268.08	274.10	281.63	289.16	296.69

1B Individual Average Bimonthly Water Bill by Service Size:

Ser Size	2009	2010	2011	2012	2013
¾	45.40	46.42	47.70	48.97	49.74
1.0	104.15	106.49	109.41	112.34	114.09
1.5	240.85	246.27	253.03	259.80	263.86
2.0	364.96	373.16	383.41	393.66	459.34
3.0	552.57	564.79	580.30	595.81	605.13
4.0	1,148.06	1,173.86	1,206.11	1,238.36	1,257.71
6.0	2,555.53	2,612.96	2,684.74	2,756.53	2,799.60
8.0*	1,531.37	1,568.53	1,608.79	1,651.83	1,677.62
12.0	58,424.00	59,736.95	61,378.00	63,019.20	64,003.83

Risk with Consumption Only Rate Structures:

There is an inherit risk with consumption only rate structures. Since a majority of the District revenue would be collected through consumption, the District would be at the mercy of weather conditions. Weather has a huge impact on the amount of water customer's use. As explained earlier in this report CWD can see a 15% swing in usage from year to year. This is largely based on weather conditions. If the District went to this type of rate structure we would need a significant rate stabilization fund to avoid emergency rate increases because demand had fallen by 15%; or CWD would need a surcharge during the time of low demand to make up for the difference in revenue.

Rate Alternative Two:

The second rate Alternative is the typical service charge and consumption charge rate structure. This alternative will be based on using 40% fixed rate and 60% consumptive rate to determine service charges and consumptive charges. The reason 40% fixed and 60% consumptive were chosen was to give customers more control over the individual rates and also to get close to the California Urban Conservation Counsel's proposed 30% fixed and 70% consumptive charge that may be imposed on the District through State Law.

For this alternative we have two sub alternatives: Alternative 2A is based on proportional usage by customer class; and Alternative 2B is based on the proportional usage by service size.

Required Revenue for 2009-2013:

Rate	2009	2010	2011	2012	2013
Fixed(40%)	3,715,720	3,806,450	3,910,729	4,002,781	4,074,928
Cons(60%)	5,573,579	5,709,676	5,866,094	6,004,173	6,112,393
Revenue	9,289,299	9,516,126	9,776,823	10,006,954	10,187,321

Alternative 2A - proportional usage by customer class:

2009 Fixed Service Charge (40% Revenue=3,715,720)

Customer Class	%	Amount	# in Class	Fixed Cost Class	Bimonthly
Residential	71.56	2,658,969	10,084	263.68	43.94
Multi-Family	3.66	135,995	608	223.67	37.28
Condos	1.30	41,284	357	115.64	19.27
Apartments	8.92	331,442	330	1,004.37	167.39
Commercial	6.47	240,407	457	526.05	87.67
Parks	5.52	205,107	22	9,323.07	1,553.84
Schools	2.03	75,429	32	2,357.15	392.85
Irrigation	.54	20,064	31	647.25	107.87

2009 Consumption (60% Revenue = 5,573,579)

[\$5,573,579 divided by 5,210,634 CCF = \$1.06 CCF]

Customer Class	CCF	Cost/CCF	# in Class	Cons Cost/class	Bimonthly cons	Bimonthly
Residential	3,729,101	3,952,847	10,084	391.99	65.33	109.27
Multi-Family	190,722	202,165	608	332.50	55.41	92.69
Condos	67,883	71,955	357	201.55	33.59	52.86
Apartments	464,919	492,814	330	1,493.37	248.89	416.28
Commercial	336,935	357,151	457	781.51	130.25	217.92
Parks	287,661	304,920	22	13,860.03	2,310.00	3,863.45
Schools	105,436	111,762	32	3,492.56	582.09	974.94
Irrigation	28,013	29,694	31	957.87	159.64	267.51

Alternative 2B:

2009 Fixed Service Charge (40% Revenue= \$3,715,720)

Ser Size	%	Amount	Connect	Ser/Cost	Bimonthly
¾	.83	30,840	282	109.36	18.22
1.0	73.82	2,742,944	10,957	250.00	41.73
1.5	4.66	173,152	299	579.00	96.51
2.0	5.96	221,456	252	878.00	146.46
3.0	.68	25,266	19	1329.00	221.63
4.0	6.24	231,860	84	2,760.00	460.04
6.0	3.80	141,197	23	6,139.00	1,023.16
8.0	.23	8,546.15	4	2,136.53	356.08
12.0	3.78	140,454	1	140,454.00	23,400.00

2009 Consumption (60% Revenue = 5,573,579)

[\$5,573,579 divided by 5,210,634 CCF = \$1.06 CCF]

Ser Size	CCF	Cost CCF	Connect	Cons/Cost	Bi-mo/ Cons	Total Bi-mo
¾	43,162	45,751	282	171.97	28.66	46.88
1.0	3,846,684	4,088,085	10,957	373.10	62.10	103.83
1.5	242,753	257,318	299	860.59	143.43	239.94
2.0	310,014	328,614	252	1,304.02	217.33	438.96
3.0	35,377	37,499	19	1,973.66	328.94	550.57
4.0	325,070	344,574	84	4,102.07	683.67	1,143.71
6.0	198,126	210,013	23	9,131.02	1,521.83	2,544.99
8.0*	10,674	52,974	4	13,243.50	2,207.25	2,563.33
12.0	196,935	208,751	1	208,751.00	34,791.85	58,191.85

* 8.0 are fire protection and water service.

Summary for Tables Alternative 2A and 2B:

2A Individual Average Bimonthly Water Bill by Customer Class:

Class	2009	2010	2011	2012	2013
Residential	109.27	112.20	115.28	118.21	120.30
Mutli	92.69	95.16	97.78	100.27	102.04
Condos	52.86	57.64	59.22	60.73	61.80
Apartments	416.28	427.42	439.16	450.34	458.29
Commercial	217.92	223.74	229.84	235.75	239.91
Parks	3,863.45	3,967.16	4,076.15	4,180.02	4,253.78
Schools	974.94	1,001.01	1,028.51	1,054.72	1,073.33
Irrigation	267.51	274.67	282.21	289.39	294.51

2B Individual Average Bimonthly Water Bill by Service Size:

Ser Size	2009	2010	2011	2012	2013
¾	46.88	48.97	51.17	53.36	54.89
1.0	103.83	106.51	109.44	112.22	114.96
1.5	239.94	246.36	253.14	259.48	264.15
2.0	338.96	373.52	381.79	393.57	400.51
3.0	550.51	565.29	580.82	595.62	606.13
4.0	1,143.71	1,174.29	1,206.55	1,237.30	1,259.13
6.0	2,544.99	2,613.05	2,684.83	2,753.25	2,801.83
8.0*	2,563.33	2,185.87	2,216.49	1,480.99	1,140.12
12.0	58,191.85	59,757.13	61,398.06	63,013.33	64,074.16

Alternative # 3:

Alternative # 3 is based on three components: 1) recovering the Debt Service payment and the sinking fund for membrane replacement - spread evenly across all connections = which will be called the debt service charge (DSC); 2) the meter charge - the cost of reading the meter, sending out the water bill, metered maintenance, and the cost of the meter and installation; and 3) the usage charge per CCF.

Debt Service Charge Calculation:

	2009	2010	2011	2012	2013
Debit	2,381,964	2,381,589	2,381,538	2,378,758	2,378,168
SF	297,126	297,126	297,126	297,126	297,126
Total	2,679,090	2,678,715	2,678,664	2,675,911	2,675,294
DSC	37.45/Bi-mo	37.45/Bi-mo	37.45/Bi-mo	37.41/Bi-mo	37.40/Bi-mo

Meter Charge Calculation:

Size	Meter Cost	Parts	Labor	Total	Bimonthly*	Meter Read	Total Bi-mo
¾	142.00	53.25	20.83	216.08	5.14	1.88	7.02
1.0	159.00	125.58	20.83	305.41	7.27	1.88	9.15
1.5	334.87	227.56	83.32	645.75	15.37	1.88	17.25
2.0	447.06	460.00	83.32	990.38	23.58	1.88	25.46
3.0	760.00	325.00	499.92	1,584.92	37.73	1.88	39.61
4.0	1,234.00	475.00	499.92	2,208.92	52.59	1.88	54.47
6.0	2,334.00	555.00	999.84	2,988.84	71.16	1.88	73.04
8.0	3,500.00	672.00	999.84	5,171.84	123.13	1.88	125.01
12.0	8,677.00	795.00	1,333.12	10,795.12	257.02	1.88	258.90

* Based on a seven year meter life

Meter Charge for 2009-2013:

Size	2009	2010	2011	2012	2013
¾	7.02	7.23	7.44	7.67	7.90
1.0	9.15	9.42	9.70	9.99	10.29
1.5	17.25	17.76	18.30	18.84	19.40
2.0	25.46	26.22	27.01	27.82	28.65
3.0	39.61	40.79	42.02	43.28	44.58
4.0	54.47	56.10	57.78	59.52	61.30
6.0	73.04	75.23	77.48	79.81	82.20
8.0	125.01	128.76	132.62	136.01	140.69
12.0	258.90	266.66	274.66	282.90	291.39

Consumptive Charge Calculation:

	2009	2010	2011	2012	2013
DSC	2,679,090	2,678,715	2,678,664	2,675,911	2,675,294
Meter Chg	724,069	745,791	768,164	791,209	814,946
CCF/Chg	5,886,140	6,091,620	6,329,995	6,539,834	6,697,081
Revenue	9,289,299	9,516,126	9,776,823	10,006,954	10,187,321
Cons Chrg*	1.13/CCF	1.17/CCF	1.22/CCF	1.26/CCF	1.29/CCF

*5,210,634 CCF

2009 Average Bimonthly Water Bill:

Size	DSC	MC	CCF	# Connect	Cost/Con	Total
¾	37.45	7.02	43,162	282	28.82	73.29
1.0	37.45	9.15	3,846,684	10,957	66.11	112.71
1.5	37.45	17.25	242,753	299	152.90	207.60
2.0	37.45	25.46	310,014	252	231.69	294.60
3.0	37.45	39.61	35,377	19	350.66	427.72
4.0	37.45	54.47	325,070	84	728.82	820.74
6.0	37.45	73.04	198,126	23	1,622.33	1,732.82
8.0	37.45	125.01	10,674	4	502.56	665.02
12.0	37.45	258.90	196,935	1	37,089.42	37,385.77

Summary of Alternative #3 Average Bimonthly Water Bill:

Size	2009	2010	2011	2012	2013
¾	73.29	74.52	76.01	77.22	78.20
1.0	112.71	115.32	118.53	121.12	123.70
1.5	207.60	213.52	220.83	226.74	231.35
2.0	294.60	303.56	314.60	323.57	330.54
3.0	427.72	441.31	458.06	473.56	482.29
4.0	820.74	848.26	882.10	909.60	930.72
6.0	1,732.82	1,792.44	1,866.47	1,926.19	1,971.64
8.0	665.02	686.56	712.66	733.80	751.81
12.0	37,385.77	40,043.45	40,355.56	41,676.66	42,519.11

Alternative #4:

Alternative # 4 is based on four components: 1) recovering the Debt Service payment and the sinking fund for membrane replacement spread evenly across all connections – which is the debt service charge (DSC); 2) the meter charge - the cost of reading the meter, sending out the water bill, meter maintenance, and the cost of the meter and installation; 3) 50% of the required revenue for PSM; and 4) the usage charge per CCF.

Debt Service Charge Calculation:

	2009	2010	2011	2012	2013
Debit	2,381,964	2,381,589	2,381,538	2,378,758	2,378,168
SF	297,126	297,126	297,126	297,126	297,126
Total	2,679,090	2,678,715	2,678,664	2,675,911	2,675,294
DSC	37.45/Bimon	37.45/Bimon	37.45/Bimon	37.41/Bimon	37.40/Bimon

Meter Charge Calculation:

Size	Meter Cost	Parts	Labor	Total	Bimonthly*	Meter Read	Total Bi-mo
¾	142.00	53.25	20.83	216.08	5.14	1.88	7.02
1.0	159.00	125.58	20.83	305.41	7.27	1.88	9.15
1.5	334.87	227.56	83.32	645.75	15.37	1.88	17.25
2.0	447.06	460.00	83.32	990.38	23.58	1.88	25.46
3.0	760.00	325.00	499.92	1,584.92	37.73	1.88	39.61
4.0	1,234.00	475.00	499.92	2,208.92	52.59	1.88	54.47
6.0	2,334.00	555.00	999.84	2,988.84	71.16	1.88	73.04
8.0	3,500.00	672.00	999.84	5,171.84	123.13	1.88	125.01
12.0	8,677.00	795.00	1,333.12	10,795.12	257.02	1.88	258.90

* Based on a seven year meter life

Meter Charge for 2009-2013:

Size	2009	2010	2011	2012	2013
¾	7.02	7.23	7.44	7.67	7.90
1.0	9.15	9.42	9.70	9.99	10.29
1.5	17.25	17.76	18.30	18.84	19.40
2.0	25.46	26.22	27.01	27.82	28.65
3.0	39.61	40.79	42.02	43.28	44.58
4.0	54.47	56.10	57.78	59.52	61.30
6.0	73.04	75.23	77.48	79.81	82.20
8.0	125.01	128.76	132.62	136.01	140.69
12.0	258.90	266.66	274.66	282.90	291.39

PSM Charge Calculation:

	2009	2010	2011	2012	2013
PSM	1,467,630	1,591,982	1,747,771	1,873,726	1,945,537
50%	733,815	795,991	873,856	936,863	972,769
Per/Con	10.25/bimon	11.12/bimon	12.21/bimon	13.09/bimon	13.60/bimon

Consumptive Charge Calculation:

	2009	2010	2011	2012	2013
DSC	2,679,090	2,678,715	2,678,664	2,675,911	2,675,294
Meter Chg	724,069	745,791	768,164	791,209	814,946
PSM	733,815	795,991	873,856	936,863	972,769
CCF/Chg	5,151,579	5,295,675	5,456,139	5,602,971	5,724,312
Revenue	9,289,299	9,516,126	9,776,823	10,006,954	10,187,321
Cons Chrg*	.98/CCF	1.02/CCF	1.05/CCF	1.08/CCF	1.10/CCF

*5,210,634 CCF

2009 Average Bimonthly Water Bill:

Size	DSC	MC	PSM	CCF	# Connect	Cost/Cons	Total
¾	37.45	7.02	10.25	43,162	282	24.99	79.71
1.0	37.45	9.15	10.25	3,846,684	10,957	57.34	114.19
1.5	37.45	7.25	10.25	242,753	299	132.60	187.55
2.0	37.45	25.46	10.25	310,014	252	200.93	274.09
3.0	37.45	39.61	10.25	35,377	19	304.11	391.42
4.0	37.45	54.47	10.25	325,070	84	632.08	734.25
6.0	37.45	73.04	10.25	198,126	23	1,406.98	1,527.72
8.0	37.45	125.01	10.25	10,674	4	435.85	608.56
12.0	37.45	258.90	10.25	196,935	1	32,166.05	32,472.65

Summary of Alternative #4 Average Bimonthly Water Bill:

Size	2009	2010	2011	2012	2013
¾	79.71	81.81	83.88	85.72	86.96
1.0	114.19	117.67	120.79	123.68	125.65
1.5	187.55	204.35	210.03	215.47	219.24
2.0	274.09	283.92	291.95	299.75	305.18
3.0	391.42	405.89	417.52	428.93	436.55
4.0	734.25	749.65	784.66	806.59	821.77
6.0	1,527.72	1,588.20	1,634.62	1,680.86	1,691.56
8.0	608.56	630.97	649.26	666.84	680.91
12.0	32,472.65	33,799.18	34,787.94	35,781.70	36,447.09

Rate Alternative #4.1:

Alternative # 4 is based on four components: 1) recovering the Debt Service payment and the sinking fund for membrane replacement spread proportionally across all connections based on usage – which is the debt service charge (DSC); 2) the meter charge - the cost of reading the meter, sending out the water bill, meter maintenance, and the cost of the meter and installation; 3) 50% of the required revenue for PSM spread proportionally across all connections based on usage; and 4) the usage charge per CCF.

Debt Service (DS) Calculations based on proportional usage:

Size	Connect.	AF	Gallons/yr/con	%EDU'S	EDU"s**	Bi/mon/EDU
¾	282	99.08	114,478	.43	121	\$12.71
1.0	10,957	8,830.79	262,601	1.0	10,957	\$29.64
1.5	299	558.28	608,372	2.3	687	\$68.10
2.0	252	713.69	922,778	3.5	882	\$103.74
3.0	19	81.42	1,396,258	5.3	100	\$156.00
4.0	84	747.27	2,898,589	11.0	968	\$341.56
6.0	23	454.87	6,443,886	24.53	563	\$725.53
8.0*	4	24.50	1,995,696	54.7	218	\$1,615.38
12.0	1	452.10	147,307,290	568.0	568	\$16,835.52
Total	11,921	11,962.00			15,064	

*8.0 connections were normalized.

** Based on actual usage

DS equals \$177.84/EDU/Year

Meter Charge Calculation:

Size	Meter Cost	Parts	Labor	Total	Bimonthly*	Meter Read	Total Bi-mo
¾	142.00	53.25	20.83	216.08	5.14	1.88	7.02
1.0	159.00	125.58	20.83	305.41	7.27	1.88	9.15
1.5	334.87	227.56	83.32	645.75	15.37	1.88	17.25
2.0	447.06	460.00	83.32	990.38	23.58	1.88	25.46
3.0	760.00	325.00	499.92	1,584.92	37.73	1.88	39.61
4.0	1,234.00	475.00	499.92	2,208.92	52.59	1.88	54.47
6.0	2,334.00	555.00	999.84	2,988.84	71.16	1.88	73.04
8.0	3,500.00	672.00	999.84	5,171.84	123.13	1.88	125.01
12.0	8,677.00	795.00	1,333.12	10,795.12	257.02	1.88	258.90

* Based on a seven year meter life

PSM Charge Calculation/ based on 50% of PSM per EDU:

Size	Connect.	AF	Gallons/yr/con	%EDU'S	EDU"s**	Bi/mon/EDU
¾	282	99.08	114,478	.43	121	\$3.48
1.0	10,957	8,830.79	262,601	1.0	10,957	\$8.12
1.5	299	558.28	608,372	2.3	687	\$18.65
2.0	252	713.69	922,778	3.5	882	\$28.41
3.0	19	81.42	1,396,258	5.3	100	\$42.72
4.0	84	747.27	2,898,589	11.0	968	\$93.55
6.0	23	454.87	6,443,886	24.53	563	\$198.72
8.0*	4	24.50	1,995,696	54.7	218	\$442.44
12.0	1	452.10	147,307,290	568.0	568	\$4,611.21
Total	11,921	11,962.00			15,064	

PSM equals \$48.71 EDU/Year

Consumption Charge:

Size	# of Connections	CCF	\$1.01/CCF	Bi/mon/Cost/Con
¾	282	43,162	\$43,593.62	\$25.76
1.0	10,957	3,846,684	\$3,885,150.84	\$59.09
1.5	299	242,753	\$245,180.53	\$136.66
2.0	252	310,014	\$313,114.14	\$207.10
3.0	19	35,377	\$35,690.37	\$313.07
4.0	84	325,070	\$328,320.70	\$651.42
6.0	23	198,126	\$200,107.26	\$1,450.05
8.0*	4	10,674	\$10,780.74	\$449.19
12.0	1	196,935	\$198,904.35	\$33,150.72
Total	11,921		\$5,258,842.22	

2009 Average Bimonthly Water Bill:

Size	DSC	MC	PSM	CCF	Bi/Mon/Cost	Current/Rate
¾	12.71	7.02	3.48	25.76	\$48.97	\$59.11
1.0	29.64	9.15	8.12	59.09	\$106.00	\$105.32
1.5	68.10	17.25	18.65	136.66	\$240.66	\$216.72
2.0	103.74	25.46	28.41	207.10	\$364.71	\$334.22
3.0	156.00	39.61	42.72	313.07	\$551.40	\$589.53
4.0	341.56	54.47	93.55	651.42	\$1,141.00	\$1,032.33
6.0	725.53	73.04	198.72	1,450.05	\$2,447.34	\$2,167.60
8.0	1,615.38	125.01	442.44	449.19	\$2,632.02	\$2,346.62
12.0	16,855.52	258.90	4,611.21	33,150.72	\$54,876.35	\$28,463.42

Summary of Alternatives 1- 4.1:

Comparison 2009 Alternatives 1A 2A average bi-monthly bill:

Class	2009/1A	2009/2A
Res	109.70	109.27
MF	93.06	92.69
Con	56.36	52.86
AP	417.36	416.28
Com	218.72	217.92
PK	3879.06	3863.45
Sch	977.49	974.97
Irr	268.08	267.51

Alternative 1A is based on the proportional usage by customer class is 100% consumption charge at \$1.78/CCF:

Alternative 2A is based on the usage by customer class with a 40% fixed cost and 60% consumptive charge at \$1.06/CCF

Comparison 2009 Alternatives 1B, 2B, 3, 4 and 4.1 average bi-monthly bill:

Size	Conn	Cur/ Rate	1B	2B	3	4	4.1
¼	282	59.11	45.40	46.88	73.29	79.71	48.97
1.0	10957	105.32	104.15	103.83	112.71	114.19	106.00
1.5	299	216.72	240.85	239.94	207.60	187.55	240.66
2.0	252	334.22	364.96	338.96	294.60	274.09	364.71
3.0	29	589.53	552.57	550.51	427.72	391.42	551.40
4.0	84	1,032.33	1,148.06	1,143.71	820.74	734.25	1,141.00
6.0	23	2,162.60	2,555.53	2,544.99	1,732.82	1,527.72	2,447.34
8.0	4	2,346.62	1,531.37	2,563.33	665.02	608.56	2,632.02
12.	1	28,463.42	58,424.00	58,191.85	37,385.77	32,472.65	54,876.35

Current Rate based upon 55% Fixed cost and 45% consumptive cost

Alternative 1B is based on the proportional usage by service size connection 100% consumptive charge at \$1.78/CCF

Alternative 2B is based upon proportional based 40% fixed charge and 60% consumptive charge.

Alternative 3 is based on three components recovering debit service, membrane replacement (DS), meter charge (MC), and consumptive charge (CCF) of \$1.13 CCF.

Alternative 4 is based on four components recovering debit service, membrane replacement (DS), meter charge (MC), covering 50% of Planned System Maintenance (PSM) and a (CCF) charge of \$.98/CCF

Alternative 4.1 is based on four components recovering debit service, membrane replacement, (DS) based on actual proportional usage, meter charge (MC), covering 50% of Planned System Maintenance (PSM) based on actual proportional usage, and a (CCF) charge of \$1.01/CCF

Drought Pricing Surcharges:

During drought situations, a water utility typically has two needs. One is to reduce the water demand of its customers. This reduction happens either through voluntary measures to reduce water demand or by limiting or placing mandatory restrictions on discretionary water uses, like outside irrigation, and car washing and increasing or adding surcharges as incentives to reduce water demands.

The second need is to maintain adequate revenues to meet the financial requirements of the District. While meeting the first goal of reducing water demand it becomes correspondingly more difficult to meet the second. To deal with this type of situation water districts develop specific rate stabilization funds to provide funds during conservation years or they develop drought pricing designed to recover revenue shortfalls.

Drought Pricing Rate Structure:

There are many options for drought pricing **General rate surcharge**, **Individualized rate surcharge**, **Class based rate surcharges**, and **Rate stabilization fund**.

The General rate surcharge:

The General rate surcharge is perhaps the most widely accepted method. In this method you would implement a drought surcharge on all commodity rates. The goal would be to increase the commodity rate to yield an acceptable level of reduction and generate the required revenues. As the level of conservation increases the cost of the commodity rates would also increase. While surcharges are never popular with the customers it is more acceptable because the public perceives that all customers are being treated equally.

Individualized rate surcharge:

This method would apply a surcharge to customers who exceed a specified percentage of their based-period water use. For example the District might apply a 25% surcharge to any customer with a water use greater than 80% of the customer's average demand during a previous base year. This approach sets clear water reduction targets for each individual customer and conservation incentives. However a significant disadvantage is that customers who have already undertaken conservation measures and use water efficiently have the lowest potential for avoiding surcharges.

Class based rate surcharges:

A variation of the surcharge approach is to establish quantity limits per customer class for different classes of users and to apply a surcharge to any user exceeding the limit for that class.

Rate stabilization fund:

Rate stabilization fund can be an alternative to implementing drought pricing. This would mean the District would be reaching its demand management goals through other methods.

The reserve fund maybe based on surcharges added to rates during non drought years and removed when a specified ceiling is achieved or it can be factored into the calculation base charges. This approach has advantage of avoiding the controversy that may accompany drought pricing, but it does not achieve reduction in water use.

Lifeline Rate Structure:

If the cost water service grows to a significant portion of a household's disposable income, then the customer will have difficulty paying the bill. Customers with limited resources often must choose which bill to pay first. Because water is a necessity, permanently discontinuing service is not feasible.

Less affluent households have less flexibility in their budgets to absorb water bill increases. Because there are no real substitutes for potable water, customers cannot choose lower priced alternatives.

Lifeline rates help both the targeted customers and the District. When customers have trouble paying utility bills, the cost to the utility increases in late payments, disconnection notices, and service terminations. The associated increase collection costs increase the over all bills to the customer.

Proposition 218 limits the District in what structure they can develop for Lifeline Rates. There are two methods that can be used effectively and remain within Proposition 218.

Lifeline Rate Alternative #1:

In this alternative the District would calculate a percentage of usage into the base rate based on basic human consumption which is typically between 8-10 CCF bimonthly. Then apply a higher consumptive charge for the remainder of usage. This way everyone would experience the same rate calculation per CCF.

Lifeline Rate Alternative #2:

In this alternative the District would have two tiered consumptive rate structure. First tier would be for basic human needs which is typically between 8-10 CCF bimonthly. The first tier could be price at or discounted for example by 20%. The second tier then would have to recover the cost of the first tier and would need to be increased accordingly. Since all customers would be charged at the same rate this would be allowable under proposition 218.

Private Fire Protection Charges:

In order to address private fire connection charges we must calculate what percentage of the system (Distribution, Storage, Treatment, and Fire Hydrants) are allocated for fire protection. The tables below is the allocations for the Distribution system

Pipe Diameter	Max Day 5fps (GPM)	Peak hr. (@7.5 fps) gpm	Max. Day + Fire Flow 1500 gpm
6	441	661	1941
8	783	1175	2283
10	1224	1836	2724
12	1762	2644	3262
14	2399	3598	3899
18	3965	5948	5465
20	4896	7343	6396
22	5924	8885	7424
24	7050	10574	8550

Fire protection is referenced in District Master Plan Section 4.3.2

Pipe Diameter	Cost	Diameter Ratio	Allocated Cost
6	30,764,544	0.3333	10,254,848
8	21,789,792	0.2500	5,447,448
10	9,389,520	0.2000	1,877,904
12	9,548,208	0.1667	1,591,368
14	3,764,544	0.1429	537,792
18	4,985,888	0.1111	553,988
20	2,278,080	0.1000	227,808
22	696,432	0.0909	63,312
24	3,231,936	0.0833	269,328
Total	86,448,944		20,823,795

Cost figure come from the GIS replacement cost tables. Diameter Ratio is based on 2" capacity for fire flow allocation.

Amortized Capital Cost (30 years at 5%)

Present Worth	A/P factor (30-5)	Annual Cost	Total # equivalent 1" connections
\$20,823,795	0.0651	\$1,355,629	15,829

Annual Cost	Total Equivalent 1" connections	Yearly cost by connection	Bimonthly cost
\$1,355,629	15,829	\$85.64	\$14.27

The table below is the allocations for the Storage System.

Facility	Cost	Allocation	Allocated Cost
Dewey Tank	\$2,500,000	33%	\$825,000
La Vista Tank	\$8,500,000	33%	\$2,805,000
Total	\$11,000,000		\$3,630,000

Amortized Capital Cost (30 years at 5%)

Present Worth	A/P factor (30-5)	Annual Cost	Total # equivalent 1" connections
\$3,630,000	0.0651	\$236,313	15,829

Annual Cost	Total Equivalent 1" connections	Yearly cost by connection	Bimonthly cost
\$236,313	15,829	\$14.92	\$2.48

The table below is the allocations for the Treatment System

Facility	Cost	Allocation	Allocated Cost
Bajamont	18,800,000	33%	6,204,000

Amortized Capital Cost (30 years at 5%)

Present Worth	A/P factor (30-5)	Annual Cost	Total # equivalent 1" connections
\$6,204,000	0.0651	\$403,880	15,829

Annual Cost	Total Equivalent 1" connections	Yearly cost by connection	Bimonthly cost
\$403,880	15,829	\$25.51	\$4.25

The table below is the allocations for the Fire Hydrants:

Fire hydrants	Cost \$4800/ea	Allocation	Allocation Cost
1292	6,201,600	95%	5,891,520

Amortized Capital Cost (30 years at 5%)

Present Worth	A/P factor (30-5)	Annual Cost	Total # equivalent 1" connections
\$5,891,520	0.0651	\$383,537	15,829

Annual Cost	Total Equivalent 1" connections	Yearly cost by connection	Bimonthly cost
\$383,537	15,829	\$24.23	\$4.03

Total Bimonthly Cost for Fire Protection per equivalent 1" connection:

Distribution	\$14.27
Storage	\$ 2.48
Treatment	4.25
<u>Fire Hydrants</u>	<u>\$ 4.03</u>
Total	\$25.03

Rate Structure for Private Fire Protection:

Size	Bi-Monthly Rate
1.0"	\$ 25.03
1.5"	\$ 37.54
2.0"	\$ 50.06
3.0"	\$ 75.09
4.0"	\$100.12
6.0"	\$150.18
8.0"	\$200.24
10.0"	\$250.30
12.0"	\$300.36

Rate Structure Selection

From October of 2008 through March of 2009 the Board held discussion's on the rate structure alternative's that had been presented by staff and the public, a total of eight rate structure were reviewed and discussed. At the March 16th 2009 Board meeting the Board agreed to move one rate structure forward, that alternative was 2A.

In order for this new rate to take effect the staff has sent out notification to all district customers about the new structure and the rate plan for the 2009-2014. Shown below will be the metered, flat, and fire flow rate structure proposed for the next five years based on the proposed budget.

District Rate Structure Five Year Budgets FY 2009-2010 thru 2013-2014

Revenue Requirement:

The majority of the District's revenue comes from the water sales which are billed bimonthly to the District customers. The total water sales revenue for the five year budgets FY 2009-2010 thru 2013-2014 will be based on the fixed (service charge) and consumption components.

The fixed component makes up 40% of the water sales revenue and the consumption component makes up 60%.

Below is a table showing the breakdown for each budget year:

Metered Water Rates - Structure					
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Water Sales Revenue	8,605,385	8,949,600	9,218,088	9,540,722	9,898,499
Fixed (40%)	3,442,154	3,579,840	3,687,235	3,816,289	3,959,400
Consumption (60%)	5,163,231	5,369,760	5,530,853	5,724,433	5,939,099

Alternative Selection:

During the past year the District staff and Board and the public reviewed a total of eight different rate structures. On March 16, 2009 the Board agreed to move one alternative forward, that alternative is 2A.

Alternative 2A is classified by customer class with a 40% fixed and 60% consumption split. The proposed rates per alternative 2A is the combination of the following 2 tables:

Metered Water Rates - Alternative 2A						
Bimonthly Service Charges						
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	
Residential	42.16	43.85	45.16	46.74	48.50	
Multi-Family	34.53	35.91	36.99	38.28	39.72	
Condo	20.89	21.73	22.38	23.16	24.03	
Apartment	155.07	161.27	166.11	171.92	178.37	
Commercial	81.22	84.47	87.00	90.05	93.42	
Park	717.12	745.80	768.18	795.07	824.88	
School	448.20	466.13	480.11	496.92	515.55	
Irrigation	99.93	103.93	107.05	110.79	114.95	
Commodity Rate	Per CCF	1.02	1.06	1.09	1.13	1.17

Metered Water Rates - Alternative 2A Adjustment due to size					
Bimonthly Adjustment					
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
3/4"	(2.13)	(2.22)	(2.28)	(2.36)	(2.45)
1"	-	-	-	-	-
1.5"	8.10	8.42	8.68	8.98	9.32
2"	16.31	16.96	17.47	18.08	18.76
3"	30.46	31.68	32.63	33.77	35.04
4"	45.32	47.13	48.55	50.25	52.13
6"	63.89	66.45	68.44	70.83	73.49
8"	115.86	120.49	124.11	128.45	133.27
10"	165.85	172.48	177.66	183.88	190.77
12"	249.75	259.74	267.53	276.90	287.28

Flat Rate Prior to Transitioning:

The District will continue to have flat rate accounts until the final phase 4 customers are transitioned. The proposed flat rates are shown in the table below:

Residential Flat Water Rates					
Bimonthly Service Charges					
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
SF11	107.82	112.13	115.49	119.53	124.02
SF12	136.66	142.13	146.39	151.52	157.20
SF13	191.27	198.92	204.89	212.06	220.01
SF52	193.23	200.96	206.99	214.23	222.26

Fire Service:

The private fire service protections are charged per diameter inch for fire protection. The proposed private fire service protection rates are shown in the table below:

Private Fire Service Protection					
Bimonthly Service Charges					
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
1"	25.03	26.03	26.81	27.75	28.79

Recommendations for Rate Structure:

1. Alternative # 2A
2. Drought Pricing Rate Structure General Rate surcharge:
3. Private Fire Protection Charges:

The private fire service protections are charged per diameter inch for fire protection. The proposed private fire service protection rates are shown in the table below:

Private Fire Service Protection	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
<i>Bimonthly Service Charges</i>					
1"	25.03	26.03	26.81	27.75	28.79

4. Lifeline Rate Structure:
At this time I am not proposing a separate life line rate structure. Once CWD is fully metered the District can address this issue.