

FINAL

EXECUTIVE SUMMARY

of

WATER COST OF SERVICE AND RATE DESIGN STUDY

for

CITY OF CHINO HILLS



by



March 3, 2011

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Background

Since the City of Chino Hills' last water rate study in October 2007, the economy has taken a dramatic downturn. New construction and building activity is virtually non-existent, thus very few new meter installations are occurring. Building and economic forecasts throughout the region are not optimistic for a recovery in the near future. Some economists are calling current conditions 'The New Normal'.

As a result, the growth assumed and used as a basis for Chino Hills in the 2007 study did not materialize. In addition, wholesale water costs have risen appreciably and water sales have dropped as a result of regional water shortages, conservation and, more recently, higher rainfall. The combination of increased costs and reduced revenues has resulted in the need to reduce the water department's operating budget, defer capital projects, and not fund depreciation or the rate stabilization fund. It has also been necessary to draw down working capital in order to cover operating expenses.

From a water supply standpoint, the City is fortunate in that it has multiple sources of water supply: groundwater, the Monte Vista Water District (MVWD), the Water Facilities Authority (WFA), Chino Desalter Authority (CDA), and the Inland Empire Utilities Agency (IEUA). These five sources provide the City with over 41 million gallons per day capacity (MGD). However, the WFA source obtains its water from the Metropolitan Water District of Southern California (MWD) and thus MWD availability and cost is a major factor in the cost of the water supply.

Recent state legislation mandating reduced urban water usage statewide is also a factor that was not anticipated when the last rate study was completed. These requirements will also impact future water rates and charges.

This update is being developed to allow the City to adequately fund the following:

- 1 Daily operation and maintenance
- 2 Critical capital projects
- 3 Working capital
- 4 Depreciation
- 5 Rate stabilization fund
- 6 Debt coverage

Rate Development Process

This study is designed to address the above needs and allocate the revenue requirements to the various benefitting customer classes, while complying with state law, current City policies and its specific service area characteristics.

The rate development process consists of the following steps

- 1 Determine revenue requirement to fund:
 - a. Operations and Maintenance
 - b. Depreciation
 - c. Debt (Insure adequate coverage)
 - d. Working Capital
 - e. Rate stabilization fund
- 2 Forecast of customers and water demand
 - a. New accounts
 - b. Water sales (with conservation)
- 3 Allocation of cost to rate classes
 - a. Use of cost of service analysis (modified to comply with conservation)
 - b. Distribution of cost of O & M
 - c. Distribution of debt and capital
 - d. Develop portion of total revenue requirement to be recovered from monthly service charge
 - e. Develop portion of total revenue requirement to be recovered from commodity charge
- 4 Develop rates by class
- 5 Test rates in rate model to verify revenue and demonstrate impact on customer

Determine Revenue Requirement

The first step in the study is to determine the amount of revenue required for the next five years. Because of the dramatic drop in revenue, the operating and non-operating budgets were reduced and capital projects deferred. In addition, it is necessary to restore working capital and fund depreciation.

Table 1 below is a summary of the revenue needs projected for the next five years. In order to avoid initial rate shock, it is necessary to phase in the funding of depreciation and the Capital Improvement Program (CIP). In addition, \$1,650,000 of working capital will be used in order to avoid a large rate increase.

Further, future rate increases will be necessary to develop sufficient revenue to fund the department's needs. The goal is to develop a uniform annual increase for the next four years to reach the City's revenue requirement.

Any funds drawn from working capital are to be replenished by the end of the study period.

Table 1 – Summary of Revenue Needs, Next 5 Years

Use of Funds	FY 11-12 Total	FY 12-13 Total	FY 13-14 Total	FY 14-15 Total	FY15-16 Total
O&M Expense	\$19,680,268	\$20,321,317	\$21,279,968	\$22,234,489	\$22,955,576
Debt Service Existing	\$2,234,600	\$2,234,600	\$2,231,600	\$2,235,100	\$2,233,000
Transfer to Capital Improvement Program	\$1,739,200	\$1,739,200	\$1,739,200	\$1,739,200	\$1,739,200
Transfer to Depreciation Fund	\$0	\$1,000,000	\$1,000,000	\$2,000,000	\$2,500,000
Transfer to Rate Stabilization Fund	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Subtotal	\$23,754,068	\$25,395,117	\$26,350,768	\$28,308,789	\$29,527,776

Source of Funds					
Sale of Water	\$1,000,000	\$1,000,000	\$1,000,000		
From Working Capital	\$1,650,000				
Miscellaneous Charges	\$749,200	\$749,200	\$749,200	\$737,200	\$737,200
Interest Income	\$128,800	\$128,800	\$128,800	\$128,800	\$128,800
Subtotal	\$3,528,000	\$1,878,000	\$1,878,000	\$866,000	\$866,000
Revenue Requirement through Rates and Charge:	\$20,226,068	\$23,517,117	\$24,472,768	\$27,442,789	\$28,661,776

Operations and Maintenance Cost

Fixed versus Variable Costs

The majority of costs to properly operate and maintain a water system are fixed. The water system is constructed to provide reliable service 24 hours a day throughout the year. Millions of dollars have been invested in pipe lines, storage tanks, pumps, wells and control systems that all have to be maintained regardless of water sales. Likewise, the indirect costs of labor, insurance, administration, equipment and structural maintenance exist to provide water service and are only slightly affected by actual water sales.

The major variable costs are energy to transport the water, any chemicals used to treat the water and the cost to purchase imported water.

Variable Water Supply Cost

The City has five sources of water. The cost per acre foot varies rather dramatically as noted in Table 2 below. The annual cost of water is dependent upon the blend of source and amount.

Table 2 – Cost of Water Supply by Source

Source	AF Projected	Variable Cost per AF	Cost per CCF
Chino Basin WM	2,900	\$265.25	\$0.61
MVWD	8,350	\$617.10	\$1.42
WFA	750	\$580.00	\$1.33
CDA	4,200	\$320.00	\$0.73
IEUA (Recycled)	2,000	\$115.00	\$0.26

Note: The variable cost per acre foot does not include other associated fixed costs

Fixed Costs

As a matter of industry practice, a portion of the fixed costs are recovered in the monthly service charge. The State of California has encouraged water conservation legislatively and through the California Urban Water Conservation Council (CUWCC) and their development of Best Management Practices. Best Management Practice 11 (BMP 11) encourages recovering the maximum amount for revenue from the commodity charge. However, it also recognizes financial and legal constraints¹. The amount in Table 3 represents the fixed cost of the revenue requirement.

Table 3- Fixed Costs

Fixed Costs	Amount
Customer Service	\$752,400
Meters	\$1,366,610
Admin	\$2,492,192
Debt & CIP	\$3,973,800
T&D Product less Water	\$3,678,867
Fixed Water	\$2,920,591
Total	\$15,184,459

The collection of the fixed cost is based on the relative delivery capacity of each meter in the City's system. As noted in Table 4 below, the City has meter sizes ranging from 5/8" to 10".

¹ In Bighorn-Desert View Water Agency v. Virjil the California Supreme Court applied Proposition 218's* provisions embodied in Articles XIII C and D of the California Constitution to ongoing water service. In addition, Article XIII D, Section 6 imposes procedural and substantive requirements on new or increased fees or charges for on-going water service. The Council considers the conservation principles of BMP 11 to be compatible with the cost of service requirements of Proposition 218. However, should a case arise in which a Water Agency's good faith efforts were unable to meet BMP 11's requirements due to legal constraints (e.g. Proposition 218), this would be grounds for exemption, as specified in MOU Section 4.5.

The delivery capacity of each meter is noted based on American Water Works Association (AWWA) Manual M6. The 3/4” meter is used as the base for the calculation of the relative capacity of larger sizes. This develops a meter equivalency for each meter size. The equivalency is multiplied by the number of meters to determine the total meter equivalents. The portion of the fixed cost to be recovered from the monthly service charge is then developed by dividing that portion by the number of meter equivalents. In turn, that cost is multiplied by the number of meter equivalents for each meter size and divided into a monthly service charge.

Table 4 – Monthly Service Charge per Meter Size

Meter Size	Capacity GPM	Capacity Meter Equivalent	No Meters	Capacity Meter Equivalents	Annual Fixed Cost Meter Equivalent	Monthly Service Charge per Meter
5/8	15 gpm	0.67	4,291	2,875	\$766,902	\$14.89
3/4	30 gpm	1.00	12,146	12,146	\$3,239,959	\$22.23
1	50 gpm	1.67	3,628	6,047	\$1,612,955	\$37.05
1 1/2	100 gpm	3.33	421	1,403	\$374,341	\$74.10
2	160 gpm	5.33	520	2,773	\$739,790	\$118.56
3	350 gpm	11.67	26	303	\$80,915	\$259.34
4	600 gpm	20.00	38	745	\$198,676	\$435.69
6	1,250 gpm	41.67	35	1,418	\$378,349	\$900.83
8	1,800 gpm	60.00	106	5,660	\$1,509,918	\$1,187.04
10	2,900 gpm	96.67	9	783	\$208,866	\$1,933.95
Total			21,220	34,154	\$9,110,671	
<i>Less adjustment of Fire Service- 17% of comparable meter size</i>					\$1,460,525	
Net					\$7,650,146	

City policy is to charge Fire Service a monthly fee which is 17% of the monthly cost of the comparable meter size for other deliveries. After adjusting for this factor, net revenues from service charges amount to \$7,650,146 or about 38% of total revenues.

The remaining amount of the revenue requirement will be distributed over the charge per ccf by user class.

Table 5 – 5 Year Monthly Service Charge

Meter Size	Current		9.94%	9.94%	9.94%	9.94%
	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
5/8	\$13.60	\$14.89	\$16.37	\$18.00	\$19.79	\$21.76
3/4	\$20.36	\$22.23	\$24.44	\$26.87	\$29.54	\$32.47
1.00	\$34.00	\$37.05	\$40.73	\$44.78	\$49.23	\$54.12
1.50	\$67.99	\$74.10	\$81.46	\$89.56	\$98.46	\$108.25
2.00	\$108.79	\$118.56	\$130.34	\$143.30	\$157.54	\$173.20
3.00	\$206.59	\$259.34	\$285.12	\$313.46	\$344.62	\$378.87
4.00	\$345.19	\$435.69	\$479.00	\$526.61	\$578.96	\$636.51
6.00	\$692.99	\$900.83	\$990.37	\$1,088.82	\$1,197.05	\$1,316.03
8.00	\$1,142.94	\$1,187.04	\$1,305.03	\$1,434.76	\$1,577.37	\$1,734.16
10.00	\$1,714.41	\$1,933.95	\$2,126.18	\$2,337.52	\$2,569.87	\$2,825.32

Table 6 – 5 Year Monthly Service Charge – Fire Meters

Meter Size	17.00% of Regular				
	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
4.00	\$74.07	\$81.43	\$89.52	\$98.42	\$108.21
6.00	\$153.14	\$168.36	\$185.10	\$203.50	\$223.73
8.00	\$201.80	\$221.86	\$243.91	\$268.15	\$294.81
10.00	\$328.77	\$361.45	\$397.38	\$436.88	\$480.30

New Accounts and Water Sales

Chino Hills is primarily a residential community with some commercial and institutional users.

Since October 2007, the City has added only 200 new connections, resulting in a total of 21,220 active customer accounts. In 2007, it was projected that the City would have 24,705 accounts in 2010-2011. This reduction of 3,485 accounts (14.11%) in forecasted accounts has dramatically affected revenues.

The construction of new homes remains stagnant. Real estate forecasts indicate that a recovery in new home construction may take a considerable time, thus the projected new connections have been revised downward to less than 1% per year. Table 7 below shows the projected number of new accounts over the next five years used in this study.

Table 7 – Projection of New Accounts

		Additional Meter sets annual growth				
		0.00%	0.75%	0.75%	0.75%	0.75%
Description		FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
1	Single Family Residential	19,495	19,641	19,789	19,937	20,086
2	Multi-Family Residential	612	617	621	626	631
3	Non Residential	287	289	291	294	296
4	Construction	0	0	0	0	0
5	Institutional	46	46	47	47	47
6	Dedicated Irrigation	556	560	564	569	573
7	Agricultural	3	3	3	3	3
8	Recycled Water	102	103	104	104	105
9	Recycled Water (Construction)	0	0	0	0	0
10	Fire lines	119	120	121	122	123
11	Total	21,220	21,379	21,539	21,701	21,864

Table 8 includes the study assumptions for future water sales. Note that the sales volume is projected to remain flat. The study assumes that the combination of slower growth coupled with the mandate to reduce urban per capita consumption will result in little or no increase in sales volume. It should be noted that the new state conservation legislation requires a reduction in water use by 2015. Further, previous experience has indicated that an increase in rates frequently results in a voluntary reduction in use. This is considered a conservative forecast because an increase in sales above what is assumed will have a positive effect on revenues.

Table 8 – Forecast of Future Water Sales

Description		FY 11 - 12	FY 12 - 13	FY 13 - 14	FY 14 - 15	FY 15 - 16
1	Single Family Residential	4,383,309	4,383,309	4,383,309	4,383,309	4,383,309
2	Multi-Family Residential	333,841	333,841	333,841	333,841	333,841
3	Non Residential	534,571	534,571	534,571	534,571	534,571
4	Construction	0	0	0	0	0
5	Institutional	48,681	48,681	48,681	48,681	48,681
6	Dedicated Irrigation	980,746	980,746	980,746	980,746	980,746
7	Agricultural	13,097	13,097	13,097	13,097	13,097
8	Recycled Water	497,091	497,091	497,091	497,091	497,091
9	Recycled Water (Construction)	0	0	0	0	0
10	Fire Protection	52,957	52,957	52,957	52,957	52,957
11	Total CCF	6,844,292	6,844,292	6,844,292	6,844,292	6,844,292
12	Acre Feet	15,712	15,712	15,712	15,712	15,712

Allocation of Cost to Rate Class

The allocation of cost to user classes is determined in conformance with AWWA Manual M1, modified to comply with California state laws that mandate the development of fees and charges not exceed the reasonable cost of the service (Proposition 218)², case law, AB 2882³ and SBX7-7⁴.

Existing Customer Classes

The City's current rate schedule includes the following customer classes:

- **Residential**
 - Single Family Residential - Low zone
 - Single Family Residential - Intermediate zone
 - Single Family Residential - High Zone
 - Multi Family - Low Zone
 - Multi Family - Intermediate Zone
 - Multi Family - High Zone
- **Non-Residential**
 - Low Zone
 - Intermediate Zone
 - High Zone
 - Temporary (Construction)
 - Agricultural
- **Institutional**
 - Low Zone
 - Intermediate Zone
 - High Zone
- **Recycled Water**
 - Low Zone
 - Intermediate Zone
 - High Zone
 - Temporary (Construction)
 - Agricultural
- **Private Fire Protection**

² California Constitution Article 13D

³ AB 2882 Water Code Allocation Based Water Conservation Pricing

⁴ SB 7 Water Conservation, Water Code Section 10608

The City's existing customer classes includes dedicated irrigation in the Non-Residential class. Most of the water sold in this class is for median strips and City landscaping.

The City has three customers participating in the MWD Interim Agricultural Water Program. This program is being phased out by MWD, however, the City opted out of the program in 2008, resulting in the City subsidizing these agriculture customers. We are proposing to transition the existing agriculture customers to the non-residential rate over the next five years.

Service Areas - Elevation

The City is relatively new and is comprised of recent development as well as established areas. Its topography varies in elevation, which means that water must be pumped to two elevations or pressure zones. The intermediate zone requires a pump lift of 226 feet and the next lift is an additional 232 feet. The energy to provide this lift is charged to the customers in the respective pump zones.

The AWWA Base Extra Capacity method was used in the study to distribute costs to the various user classes. This approach has been slightly modified to take into consideration particular characteristics of the service area and compliance with conservation goals. The development of the rates by class takes into consideration their relative use of the City's water facilities. Since the City does not have actual field data, it was necessary to use standard industry data.

Use of System

Distribution of cost of the water system is calculated based on use of that system by various user classes. This was accomplished by developing a matrix of customer classes, determining the amount of water used by each class and then verifying the relative peaking demands on the system by each class of user. This data provided the foundation for distributing costs to Base Water Use (Total Use), Maximum Day and Maximum Hour.

The annual costs for Operations and Maintenance were distributed based on the foregoing calculations, as was capital/debt. The results of the distributions were then combined to provide a unit cost that could be applied to the specific user class.

Water Conservation Legislation and its Impact on Rate Setting

In the development of the recommended rates, compliance with the Water Conservation Act of 2009 was taken into account. The cost of service had to include provisions for conservation incentives. The City has access to various quantities of water at various prices (see Table 2). The exact mixture at any one time is difficult to predict, as the selection is dependent upon system operations. With that in mind, it was determined that a weighted average of water sources would be used to reflect the added cost of water at higher volumes.

The study takes into consideration SBX7-7, The Water Conservation Act of 2009, which mandates a 20% reduction in urban per capita consumption by 2020. In Chapter 3 of SBX7-7, Urban Retail Water Suppliers are advised as follows:

- (b) An urban water retailer shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):
 - (1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.
 - (2) The per capita daily water use that is estimated using the sum of the following performance standards:
 - a. For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the legislature by statute.
 - b. For landscape irrigation through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7."
 - c. For commercial, industrial, and institutional, a 10 percent reduction in water use from the baseline commercial, industrial, and institutional use by 2020.
 - (3) Ninety-five percent of the applicable state hydrologic region target as set forth in the state's draft 20x2020 Water Conservation Plan.
 - (4) A method that shall be identified and developed by the department, through a public process."

Cost and Rate by User Class and Elevation

The City primarily provides service to residential and some commercial-institutional customers. Based on the City's master plans⁵, peaking characteristics were used to determine Maximum Day and Maximum Hour demands. These factors were used to distribute the operations, maintenance and capital/debt costs to the major cost centers. This was then distributed to the customer classes using industry peaking ratios for customer classes.

⁵ Water and Sewer Master Plan PBS&J October 2005

Each customer class was allocated its respective unit demand. This was used to create unit costs for the development of the cost for each customer class' use of the system based on "Base Demand, Maximum and Hourly Demand".

The unit costs were then multiplied by each customer class' system demand and spread over the amount of water used. This resulted in a cost/ccf by customer class.

The first tier is intended to provide water for basic indoor use. Southern California indoor per capita consumption is about 55 gallons per person per day. The City's demographics indicate 3.3 persons per household. For one month, this is equal to 5,445 gallons or 7.5 ccf of water used.

The next step was to determine the cost of water for higher consumption levels and to encourage conservation. Tiers 1 through 3 were adjusted accordingly. For single family residential, Tier 1 will remain at 0-12 ccf, Tier 2 is proposed to be lowered by 5 ccf to 13-30 ccf and Tier 3 is proposed to be 30+ ccf. For multi-family residential, Tier 1 is proposed to be 0-7 ccf, Tier 2 is proposed to be 8-20 ccf, and Tier 3 is proposed to be 20+ ccf.

The final step was to add the cost of energy to the pumping zones (Intermediate and High). The City pumps water from elevation 828' to 1054' then to 1286'. A small amount of water is pumped to elevation 1502'. This expense was determined from City records for energy use and cost. The cost to pump to the intermediate zone is \$0.13/ccf; it is another \$0.20/ccf to the combined height zones.

Table 9 is a summary of current and proposed commodity charge schedules.

Table 9 – Summary of Current and Proposed Commodity Charges

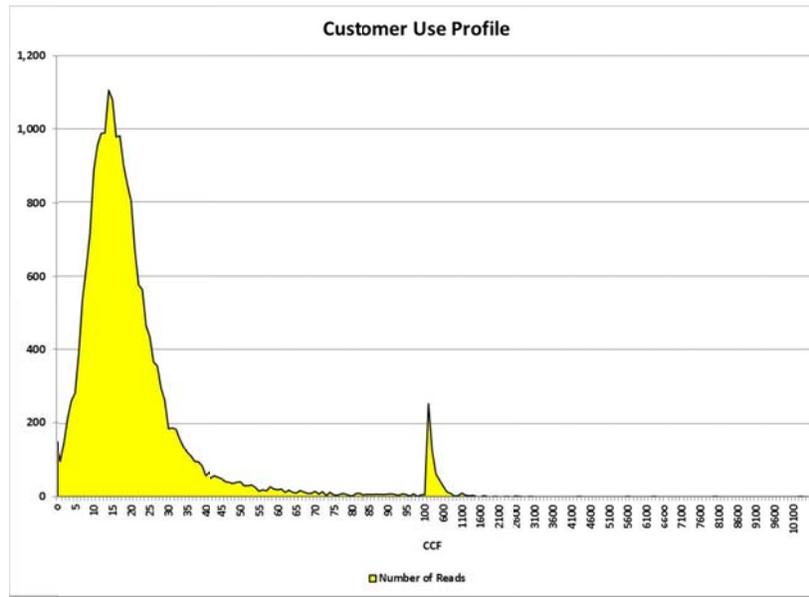
Residential	SFR	MFR	Current		Proposed FY 11-12		% Increase 9.94%		Proposed FY 13-14		% Increase 9.94%		Proposed FY 15-16		% Increase 9.94%	
			\$/ccf SFR	\$/ccf MFR	\$/ccf SFR	\$/ccf MFR	\$/ccf	\$/ccf	\$/ccf	\$/ccf	\$/ccf	\$/ccf	\$/ccf	\$/ccf	\$/ccf	\$/ccf
Low Zone																
Tier 1	12	7	\$1.40	\$1.40	\$1.56	\$1.56	\$1.72	\$1.72	\$1.89	\$1.89	\$2.08	\$2.08	\$2.28	\$2.28		
Tier 2	30	20	\$1.62	\$1.62	\$1.78	\$1.78	\$1.96	\$1.96	\$2.15	\$2.15	\$2.37	\$2.37	\$2.60	\$2.60		
Tier 3	Inf	Inf	\$2.00	\$2.00	\$2.49	\$2.49	\$2.74	\$2.74	\$3.01	\$3.01	\$3.31	\$3.31	\$3.64	\$3.64		
Intermediate Zone																
Tier 1	12	7	\$1.72	\$1.72	\$1.69	\$1.69	\$1.86	\$1.86	\$2.04	\$2.04	\$2.25	\$2.25	\$2.47	\$2.47		
Tier 2	30	20	\$1.92	\$1.92	\$1.91	\$1.91	\$2.10	\$2.10	\$2.31	\$2.31	\$2.54	\$2.54	\$2.79	\$2.79		
Tier 3	Inf	Inf	\$2.31	\$2.31	\$2.62	\$2.62	\$2.88	\$2.88	\$3.17	\$3.17	\$3.48	\$3.48	\$3.83	\$3.83		
High Zone																
Tier 1	12	7	\$1.75	\$1.75	\$1.89	\$1.89	\$2.08	\$2.08	\$2.29	\$2.29	\$2.51	\$2.51	\$2.76	\$2.76		
Tier 2	30	20	\$1.99	\$1.99	\$2.11	\$2.11	\$2.32	\$2.32	\$2.55	\$2.55	\$2.81	\$2.81	\$3.09	\$3.09		
Tier 3	Inf	Inf	\$2.34	\$2.34	\$2.82	\$2.82	\$3.10	\$3.10	\$3.41	\$3.41	\$3.75	\$3.75	\$4.12	\$4.12		
Non-Residential																
Low Zone			\$1.52		\$1.87		\$2.05		\$2.26		\$2.48		\$2.73			
Intermediate Zone			\$1.84		\$2.00		\$2.20		\$2.42		\$2.66		\$2.92			
High Zone			\$1.87		\$2.20		\$2.42		\$2.66		\$2.92		\$3.21			
Temporary			\$2.06		\$2.26		\$2.48		\$2.73		\$3.00		\$3.30			
Agricultural			\$1.04		\$1.49		\$1.75		\$2.03		\$2.36		\$2.73			
Institutional																
Low Zone			\$1.52		\$1.87		\$2.05		\$2.26		\$2.48		\$2.73			
Intermediate Zone			\$1.84		\$2.00		\$2.20		\$2.42		\$2.66		\$2.92			
High Zone			\$1.87		\$2.20		\$2.42		\$2.66		\$2.92		\$3.21			
Recycled Water																
Low Zone			\$1.22		\$1.49		\$1.64		\$1.81		\$1.99		\$2.18			
Intermediate Zone			\$1.46		\$1.60		\$1.76		\$1.93		\$2.12		\$2.34			
High Zone			\$1.51		\$1.76		\$1.93		\$2.13		\$2.34		\$2.57			
Temporary			\$1.66		\$1.81		\$1.98		\$2.18		\$2.40		\$2.64			
Agriculture			\$0.85													
Private Fire Protection			\$1.40		\$2.82		\$3.10		\$3.41		\$3.75		\$4.12			

Note: Current rates reflect effective rates scheduled for July 1, 2011.

User Profile

Knowledge of the service area's use pattern is an important guide in developing tiered rates for water conservation. In addition, knowledge as to how much water is consumed by each customer assists in the development of the appropriate tiers.

The following chart is a user profile for the service area.



It can be noted that the number of occurrences of specific water consumption produced a bell shaped curve. The median is 16 ccf, with an average monthly usage of 22 ccf. There are also sales as high as 600 ccf per month or more. For the most part, these large uses are a result of master meter multi-housing.

In compliance with the conservation legislation and BMP, the City uses a three tier system for water pricing.

Rates are developed taking into consideration the customer class and pumping zone. Likewise, tiers are determined in such a manner that the first tier provides water to meet indoor needs, the second tier is designed to provide landscaping for an average home, and the top tier is priced to encourage conservation.

Testing of Rates

Once a schedule of rates has been developed, the projected rates are input into a model that contains all the City's active meters for the test year FY 09-10. The model is then run to verify revenue generation and to demonstrate impact on customers by calculating a new bill by meter size and use. It should be noted that the model includes only active meters.

Projected Results

The projected revenue is entered into a projected operating results cash flow to demonstrate the financial results on a year by year basis for the study period. The results demonstrate the cash balance and the revenue program's ability to fund what is required while at the same time providing proper debt coverage. (Table 10)

Table 10 – Water Department Projected Operating Results

		FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16
\$5	Beginning Balance	\$20,512,554	\$19,055,574	\$18,200,569	\$18,713,793	\$18,819,544
\$6	Revenue					
\$7	Service Fee	\$ 7,650,146	\$ 8,623,790	\$ 9,552,103	\$ 10,580,344	\$ 11,719,270
\$8	Commodity	\$ 12,768,942	\$ 14,038,321	\$ 15,433,890	\$ 16,968,196	\$ 18,655,029
\$9	Sale of Water	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ -	\$ -
\$10	Misc	\$ 749,200	\$ 749,200	\$ 749,200	\$ 737,200	\$ 737,200
\$11	Interest	\$ 128,800	\$ 128,800	\$ 128,800	\$ 128,800	\$ 128,800
\$12	Total Revenue	\$22,297,088	\$24,540,111	\$26,863,993	\$28,414,539	\$31,240,299
\$13						
\$14	Expenses					
\$15	Production and Storage	\$ (12,111,627)	\$ (12,120,345)	\$ (13,147,418)	\$ (13,443,513)	\$ (14,052,998)
\$16	Pumping Power	\$ (1,021,300)	\$ (1,093,500)	\$ (1,170,000)	\$ (1,251,900)	\$ (1,339,500)
\$17	Transmission & Distribution	\$ (1,936,140)	\$ (2,290,795)	\$ (2,037,294)	\$ (2,212,678)	\$ (2,244,292)
\$18	Administration	\$ (2,492,192)	\$ (2,676,861)	\$ (2,684,010)	\$ (3,031,741)	\$ (2,945,022)
\$19	Meter Service	\$ (1,366,610)	\$ (1,409,416)	\$ (1,480,946)	\$ (1,507,757)	\$ (1,555,664)
\$20	Customer Service & Engineering	\$ (752,400)	\$ (730,400)	\$ (760,300)	\$ (786,900)	\$ (818,100)
\$21	Total Expenses	\$ (19,680,268)	\$ (20,321,317)	\$ (21,279,968)	\$ (22,234,489)	\$ (22,955,576)
\$22						
\$23	Net Revenue	\$2,616,820	\$4,218,795	\$5,584,025	\$6,180,050	\$8,284,723
\$24						
\$26	Non Operating Expense					
\$27						
\$28	Interest Payments	\$ (954,600)	\$ (909,600)	\$ (861,600)	\$ (810,100)	\$ (753,000)
\$29	Principal Payments	\$ (1,280,000)	\$ (1,325,000)	\$ (1,370,000)	\$ (1,425,000)	\$ (1,480,000)
\$30	CIP	\$ (1,739,200)	\$ (1,739,200)	\$ (1,739,200)	\$ (1,739,200)	\$ (1,739,200)
\$31		\$ -	\$ -	\$ -	\$ -	\$ -
\$32	Total Non Operating	\$ (3,973,800)	\$ (3,973,800)	\$ (3,970,800)	\$ (3,974,300)	\$ (3,972,200)
\$33						
\$34	Net Revenue	\$ (1,356,980)	\$ 244,995	\$ 1,613,225	\$ 2,205,750	\$ 4,312,523
\$35						
\$36	Other Uses					
\$37						
\$38	Depreciation Fund	\$ -	\$ (1,000,000)	\$ (1,000,000)	\$ (2,000,000)	\$ (2,500,000)
\$39	Rate Stabilization Fund	\$ (100,000)	\$ (100,000)	\$ (100,000)	\$ (100,000)	\$ (100,000)
\$40	Total Other Uses	\$ (100,000)	\$ (1,100,000)	\$ (1,100,000)	\$ (2,100,000)	\$ (2,600,000)
\$41						
\$42	Net Cash Flow	\$ (1,456,980)	\$ (855,005)	\$ 513,225	\$ 105,750	\$ 1,712,523
\$43						
\$44						
\$45	Ending Cash Balance	\$19,055,574	\$18,200,569	\$18,713,793	\$18,819,544	\$20,532,066
	* Note Cash Balance as of November 2010					

Impact on Single Family Residential User

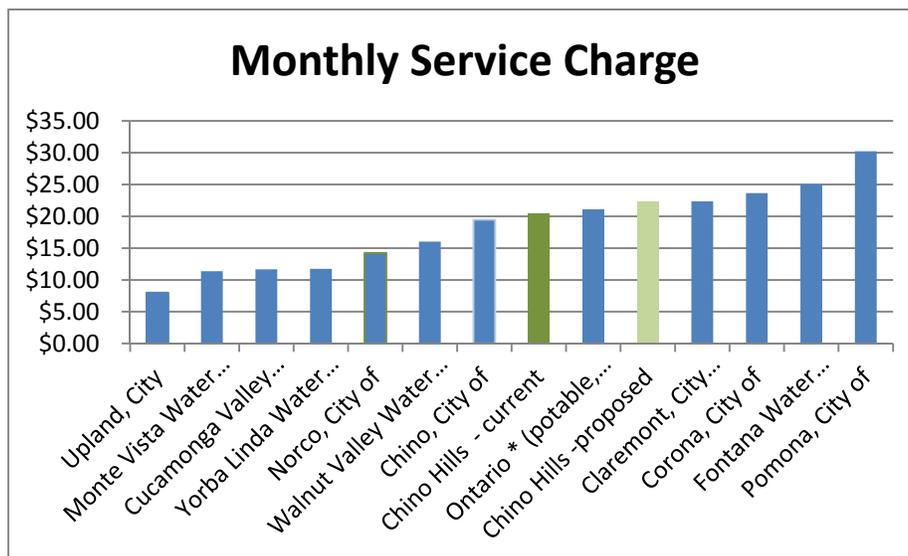
In order to develop tiers that reflect the service area, the City’s consumption data for FY 09-10 was loaded into a model to allow an analysis of how the water is being consumed. The FY 09-10 data will also be used to test any proposed rate to determine its ability to provide the required revenue and its impact on any particular customer.

Comparison of Current and Proposed Rates with Other Agencies

The tables below reflect the invoice components for the monthly service charge and commodity charge for a single family residential customer with a ¾” meter and monthly water consumption of 22 ccf. See Appendix for sample bills with proposed rates.

Table 11 – Comparative Residential Rates/Current and Proposed Monthly Service Charge

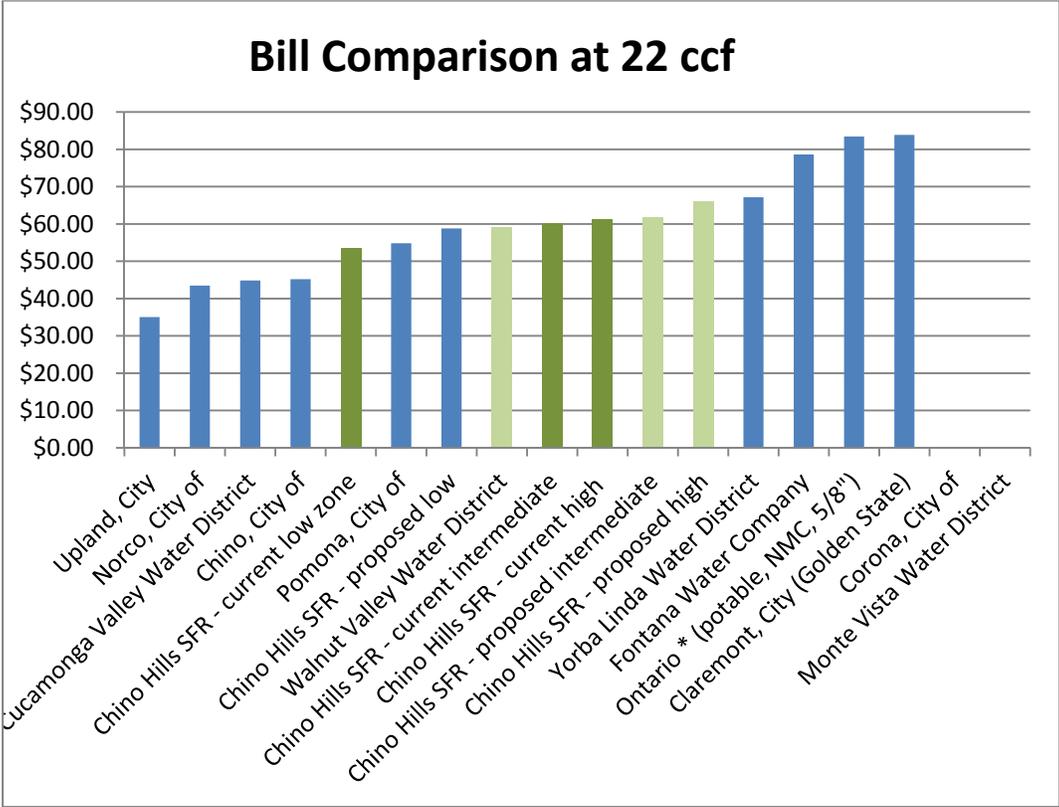
Agency/City	Fixed Charge
Upland, City	\$8.00
Monte Vista Water District	\$11.37
Cucamonga Valley Water District	\$11.67
Yorba Linda Water District	\$11.73
Norco, City of	\$14.23
Walnut Valley Water District	\$16.03
Chino, City of	\$19.47
Chino Hills - current	\$20.36
Ontario * (potable, NMC, 5/8")	\$21.10
Chino Hills -proposed	\$22.23
Claremont, City (Golden State)	\$22.35
Corona, City of	\$23.66
Fontana Water Company	\$25.04
Pomona, City of	\$30.23



**Table 12 – Comparative Current and Proposed Residential Customer Invoice
with 22 ccf Commodity Use**

Agency/City	Fixed Charge	Commodity Charge - 22 CCF	Total Invoice
Upland, City	\$8.00	\$27.06	\$35.06
Norco, City of	\$14.23	\$29.26	\$43.49
Cucamonga Valley Water District	\$11.67	\$33.20	\$44.87
Chino, City of	\$19.47	\$25.74	\$45.21
Chino Hills SFR - current low zone	\$20.36	\$33.00	\$53.36
Pomona, City of	\$30.23	\$24.62	\$54.85
Chino Hills SFR - proposed low	\$22.23	\$36.56	\$58.79
Walnut Valley Water District	\$16.03	\$42.90	\$58.93
Chino Hills SFR - current intermediate	\$20.36	\$39.84	\$60.20
Chino Hills SFR - current high	\$20.36	\$40.90	\$61.26
Chino Hills SFR - proposed intermediate	\$22.23	\$39.42	\$61.65
Chino Hills SFR - proposed high	\$22.23	\$43.82	\$66.05
Yorba Linda Water District	\$11.73	\$55.44	\$67.17
Fontana Water Company	\$25.04	\$53.61	\$78.65
Ontario * (potable, NMC, 5/8")	\$21.10	\$62.36	\$83.46
Claremont, City (Golden State)	\$22.35	\$61.50	\$83.85
Corona, City of	\$23.66	budget	budget
Monte Vista Water District	\$11.37	budget	budget

Note: The City of Corona and Monte Vista Water District have initiated water budgets for their billing; there is not a standard bill for specific water usage.



Conclusion

This cost of service and rate design study has been conducted with every effort made to understand and prioritize existing and impending conditions and demands on the City of Chino Hills' water department. The rate design included a revision to the tiering structure for all residential customers. For single family residential, Tier 1 will remain at 0-12 ccf, Tier 2 is proposed to be 13-30 ccf, and Tier 3 is proposed to be 20+ ccf. For multi-family residential, Tier 1 is proposed to be 0-7 ccf, Tier 2 is proposed to be 8-20 ccf, and Tier 3 is proposed to be 20+ ccf.

The City's current rate structure both for monthly service charge and mid-range commodity use is at the mid-point of costs currently charged by 12 other agencies in the region.

Due to an increase in the cost of wholesale water, conservation efforts and a drop in water sales, the total revenues received from water sales have not been adequate to meet the department's operating expenses. The City has had to reduce the budget, defer capital projects, not fund reserves and draw down working capital. This is not sustainable in the long term.

The rates and charges proposed for the City of Chino Hills for FY2011/12 through FY 2015/16 are shown on Table 5, 6 and 9. New rates will become effective July 1st of each year, beginning July 1, 2011. This study has also resulted in a financial planning model that the City will be able to use to determine the impact of specific rate changes on classes of users and individual customers.

Disclaimer

In developing our rate study for the City of Chino Hills, GMRA interviewed staff and reviewed books, records, agreements, capital improvement programs, customer sales and financial projections of the City's water division. We consider such documents and projections to be reliable, but did not verify the accuracy of the documents.

The projections and assumptions made in this report and in the model are intended to be forward looking statements. In developing them, GMRA has made assumptions with respect to future conditions and circumstances for the water department and the City. The methodology used in performing the analyses follows generally accepted practice for such projections. Rate changes were determined in conformance with City policy.

While we believe the assumptions are reasonable and valid, outcomes may differ from those projected as a result of actual conditions, events and circumstances. These conditions may include changing demand for water as a result of weather conditions and regulation. The projections may also be impacted by economic, legislative and legal decisions within and beyond the City.

Appendix - Sample Bills with Proposed Rates - Single Family Residential

Low Zone - 5/8" meter using 12 ccf

Monthly Service Charge

Meter Size	Current	Proposed	Increase
5/8	\$13.60	\$14.89	\$1.29
3/4	\$20.36	\$22.23	\$1.87
1	\$34.00	\$37.05	\$3.05
1 1/2	\$67.99	\$74.10	\$6.11
2	\$108.79	\$118.56	\$9.77
3	\$206.59	\$259.34	\$52.75
4	\$345.19	\$435.69	\$90.50
6	\$692.99	\$900.83	\$207.84
8	\$1,142.94	\$1,187.04	\$44.10
10	\$1,714.41	\$1,933.95	\$219.54

Single Month Bill Calculation			
Meter Size	HCF	Mo. Bill	
Low			
Service	5/8		\$ 13.60
Commodity	12 ccf		\$ 16.80
Total			\$ 30.40

Energy Zones

Zone: **Low**

Base Rev MFR
Council 2-8-11

\$2.011		Tier 1	Tier 2	Tier 3
SFR	Low End	0 HCF	13 HCF	36 HCF
	High End	12 HCF	35 HCF	+
Total Rate		\$1.40	\$1.62	\$2.00

Proposed		Low End	13 HCF	31 HCF
SFR	Low End	0 HCF	13 HCF	31 HCF
	High End	12 HCF	30 HCF	+
Total Rate		\$1.56	\$1.78	\$2.49
% Rate Chg		11.55%	9.98%	24.59%

Proposed		Variance		Percent
Service	5/8	\$ 14.89	\$ 1.29	9.51%
Commodity	12 ccf	\$ 18.74	\$ 1.94	11.55%
Total		\$ 33.63	\$ 3.23	10.64%

Intermediate Zone – 3/4” meter using 22 ccf

Monthly Service Charge

Mo
Svc Chg

Meter Size	Current	Proposed	Increase
5/8	\$13.60	\$14.89	\$1.29
3/4	\$20.36	\$22.23	\$1.87
1	\$34.00	\$37.05	\$3.05
1 1/2	\$67.99	\$74.10	\$6.11
2	\$108.79	\$118.56	\$9.77
3	\$206.59	\$259.34	\$52.75
4	\$345.19	\$435.69	\$90.50
6	\$692.99	\$900.83	\$207.84
8	\$1,142.94	\$1,187.04	\$44.10
10	\$1,714.41	\$1,933.95	\$219.54

Single Month Bill Calculation			
Meter Size	HCF	Mo. Bill	
Intermediate			
Service	3/4	\$ 20.36	
Commodity	22 ccf	\$ 39.84	
Total		\$ 60.20	

Energy Zones

Zone: Intermediate

Base Rev MFR
Council 2-8-11

\$2.011		Tier 1	Tier 2	Tier 3
SFR	Low End	0 HCF	13 HCF	36 HCF
	High End	12 HCF	35 HCF	+
Intermediate				
Total Rate		\$1.72	\$1.92	\$2.31

Proposed		Low End	0 HCF	13 HCF	31 HCF
SFR	High End		12 HCF	30 HCF	+
	Intermediate				
Total Rate			\$1.69	\$1.91	\$2.62
% Rate Chg			-1.64%	-0.43%	13.50%

Proposed		Variance		Percent
Service	3/4	\$ 22.23	\$ 1.87	9.18%
Commodity	22 ccf	\$ 39.42	\$ (0.42)	-1.06%
Total		\$ 61.65	\$ 1.45	2.40%

High Zone - 3/4" meter using 22 ccf

Monthly Service Charge

Mo Svc Chg			
Meter Size	Current	Proposed	Increase
5/8	\$13.60	\$14.89	\$1.29
3/4	\$20.36	\$22.23	\$1.87
1	\$34.00	\$37.05	\$3.05
1 1/2	\$67.99	\$74.10	\$6.11
2	\$108.79	\$118.56	\$9.77
3	\$206.59	\$259.34	\$52.75
4	\$345.19	\$435.69	\$90.50
6	\$692.99	\$900.83	\$207.84
8	\$1,142.94	\$1,187.04	\$44.10
10	\$1,714.41	\$1,933.95	\$219.54

Single Month Bill Calculation			
Meter Size	HCF	Mo. Bill	
High			
Service	3/4	\$ 20.36	
Commodity	22 ccf	\$ 40.90	
Total		\$ 61.26	

Energy Zones

Zone: High

Base Rev MFR

Council 2-8-11

\$2,011		Tier 1	Tier 2	Tier 3
SFR	Low End	0 HCF	13 HCF	36 HCF
	High End	12 HCF	35 HCF	+
Total Rate		\$1.75	\$1.99	\$2.34

Proposed		Low End	0 HCF	13 HCF	31 HCF
SFR	High End	12 HCF	30 HCF	+	
	Total Rate	\$1.89	\$2.11	\$2.82	
% Rate Chg		8.10%	6.12%	20.59%	

Proposed		Variance		Percent
Service	3/4	\$ 22.23	\$ 1.87	9.18%
Commodity	22 ccf	\$ 43.82	\$ 2.92	7.14%
Total		\$ 66.05	\$ 4.79	7.82%