



Stantec

HANSFORD ECONOMIC
CONSULTING

City of Newman Water Rate Study

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Prepared for
City of Newman

Prepared by
Stantec Consulting Services Inc.
and Hansford Economic Consulting

3875 Atherton Road
Rocklin, CA 95765

916.773.8100 TEL
916.773.8448 FAX

www.stantec.com

Water Rate Study

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Introduction and Summary of Findings

1.1 BACKGROUND

The City of Newman (City) has analyzed the adequacy of revenues to meet projected expenditures of the water enterprise fund (the Fund) to determine whether the Fund will be adequate to cover recurring operating and maintenance costs as well as needed capital costs while supporting debt service obligations through Fiscal Year 2021-22.

This Study provides an explanation and justification of calculated water rates through Fiscal Year 2021-22. Specifically, this Study reviews the Fund's historical revenues and expenses and projects future year revenue requirements to be collected through water sales. Monthly customer water rates are calculated to ensure there are sufficient revenues to cover costs, including debt service payments.

1.2 ORGANIZATION OF THE REPORT

This report is divided into five sections.

Following this introduction and summary of findings, Section 2 provides an overview of the City's water system, information on existing water enterprise fund debts, anticipated major facilities and costs per the City's Water Master Plan and updated Capital Improvement Program, and information on the meter replacement program and calculated fees to support that program.

Section 3 discusses historical City population growth and water use, the current rate structure, and summarizes customer account information, including water customer categories and projected water demand through the Study period.

Section 4 details the methodology of the water rate analysis and presents detailed calculations of the water rates. A projected cash flow for the Fund through Fiscal Year 2021-22 is presented.

Section 5 compares the calculated water rates with current Newman water rates and residential and commercial water rates in comparable jurisdictions. Total water rate burden to a typical Newman residential home is presented as a percentage of income to provide a test of affordability.

Appendix A includes support tables for the analysis.

1.3 MAJOR ASSUMPTIONS

There are several assumptions or criteria that define the scope of this report and the findings herein. They are noted as follows:

1. **Revised Rate Structure** – This Study represents a full cost of service study, which has not been conducted for the City for many years, and it comprises an evaluation of alternative rate structures to meet City water system objectives. This Study recommends revising the rate structure from a base charge with a base allowance of water per month to a monthly service charge with no water allowance, and charging total water use on a tiered structure rather than a uniform rate per hundred cubic feet. A uniform rate is still recommended for industrial use to continue to encourage industrial uses, recognizing that industrial water use is a function of production only, and not application to landscapes.
2. **New Meter Replacement Program** – With the useful service life of a meter being approximately 15 years, the City is instituting a routine meter replacement program, replacing about seven percent of the meters in the system each year. There are approximately 3,200 meters to be serviced with an approximate annual cost of \$46,000 in 2011 dollars. The meter replacement program is shown in the calculated rates as a separate fee.
3. **Capital Improvement Financing** – The City’s capital improvements program includes existing system rehabilitation which will be funded by existing customers through operating reserves and new rate revenues. New facilities and associated costs include hydrologic investigations, a tank project, other water-related City projects, and planning costs for a future new surface water treatment plant to provide a portion of the City’s future water supply and to meet water quality objectives related to discharge from the City’s wastewater treatment plant. The rate study assumes that the water enterprise fund will pay for 70 percent, and the wastewater enterprise fund will pay for 30 percent of costs related to the surface water project since a primary reason for the water treatment plant is to meet water quality discharge requirements.

The Study assumes that the tank project will be financed with a California Department of Public Health (CDPH) State Revolving Fund loan. The Study also assumes that a CDPH planning loan and construction loan will be secured for the surface water treatment plant.

4. **Costs are Shifted Gradually from the Base Charge to Use Charges over the Study Period** – Under the current cost structure, 45 percent of the annual costs that must be recovered through water sales (the “revenue requirement”) are collected through water use and 55 percent of costs are collected through the monthly service charges. This Study determined 48% of operating costs are variable. The Study gradually shifts collection of the revenue requirement from 55 percent monthly service charges to 44 percent minimum monthly charges for two reasons:
 - (1) Although not a requirement for the City, the California Urban Water Conservation Council Best Management Practice 11 requires no more than 30 percent of revenue requirement collected through minimum (or base) monthly charges. State loan and grant programs are becoming increasingly stringent regarding water conservation measures; compliance with BMP 11 may be necessary in future years.
 - (2) The City may add surface water treatment plant operation in the future. Surface water operations typically increase the share of operating costs that vary with consumption.
5. **Projections of Water Demand** – Projected water demands incorporate customer reaction to price increases in future years, and assume the General Plan growth of 3.5 percent per year, beginning in fiscal year 2012-13.

6. **Existing Customers Support Future Bond Sales for the next three years**– The analysis relies on existing and projected customers’ water sales to support bond sales for the next three years due to the current state of the economy and money markets. As the economy returns to a more normal state, the City should re-evaluate this assumption and include some or all projections of new user fees or use any such fees to buy-down outstanding debt thereby reducing the annual debt burden on existing customers. The Study assumes that a portion of debt service is made with future users’ connection fees in years 4 through 10.
7. **Build Up Operating Reserves** – Large necessary system rehabilitation costs will be incurred through fiscal year 2016-17 which will substantially draw-down reserves. Reserves need to be built back up for the following reasons:
 - The addition of tiers to the pricing structure increases variability in the revenue stream due to fluctuations in weather and associated water sales. Increased operating reserves are necessary to avoid sudden rate increases during drought periods.
 - Increased variability in the revenue stream is anticipated as the City gradually collects a greater portion of the water system costs through use charges rather than fixed monthly charges.
 - In some years the City will have to collect more in revenues than annual expenses to meet bond covenants (primarily for debt service coverage).
8. **Depreciation Included in the Cost Structure of the Fund** – The City currently reports on the value of water infrastructure assets to meet accounting standards; however, it does not collect revenues to support replacement of those assets. This Study includes depreciation in the rate-setting process to support the costs of future system rehabilitation.¹ There is no legal restriction on use of funds collected for system rehabilitation; if necessary, the City could use depreciation funds for other general operating purposes or debt service.

1.4 SUMMARY OF FINDINGS

During the course of this Study, several rate structure alternatives were presented to the City for consideration. Following are the key objectives identified for the City in revising the rate structure:

- Rates must be capable of generating sufficient revenues to meet all annual financial obligations of the water enterprise fund
- The rate structure should encourage water efficiency and conservation
- Changes to the rate structure must be administratively feasible (compatible with the existing billing system and straightforward to explain to customers)
- The rate structure should be as representative of local customer water use patterns as possible, without getting complex

¹ Per Governmental Accounting Standards Board (GASB) 34, local governments must report on the value of their infrastructure assets and plan for asset maintenance (including collecting sufficient revenue) to obtain good credit when issuing bonds or procuring other forms of financing for long-term construction projects.

- Revised rates must be supportive of City economic development goals, keeping within affordability guidelines and remaining competitive with local jurisdictions to retain and/or attract commerce

This Study presents the results of the analysis for the rate structure that best meets these objectives. The recommended rate structure removes the base monthly water allowances and adds tiers to the use charges. Under this rate structure, each customer pays for each unit of water consumed.

Figure 1-1 shows the projection of operating expenses and revenues with and without a rate increase. Without a rate increase, revenues will be insufficient to continue to operate the water system. Projected revenues are greater than operating expenses because of the need to collect revenue for depreciation and operating reserves, for reasons provided above. Also shown is the draw on reserves through 2017 to pay for existing system capital improvement projects.

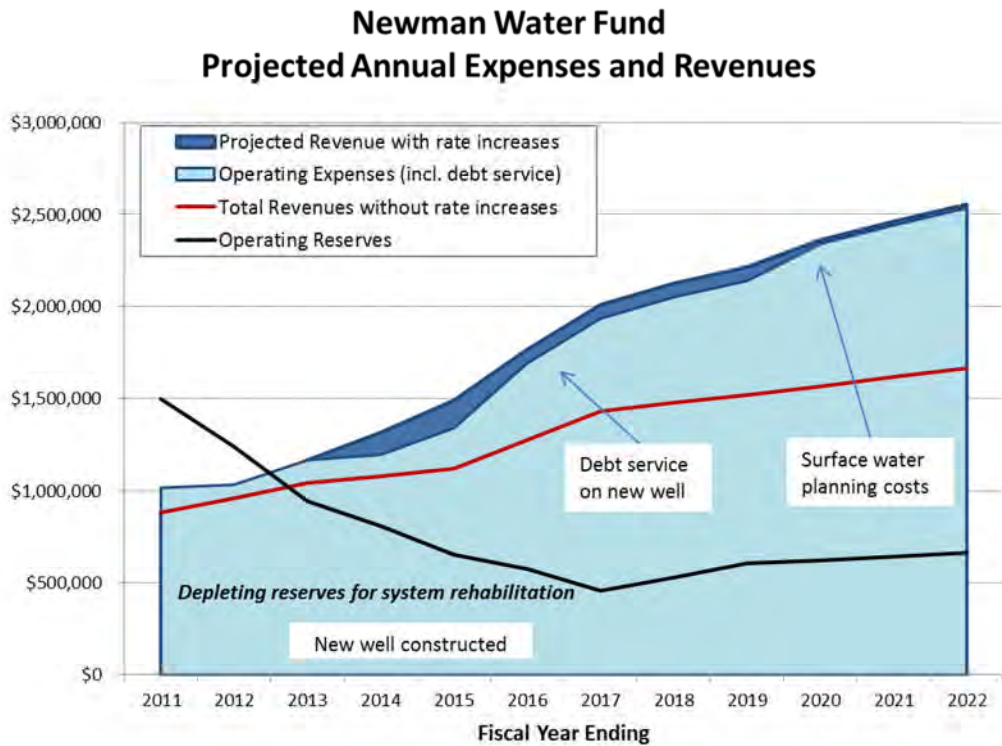


Figure 1-1
Newman Water Fund – Projected Annual Expenses and Revenues

1.4.1 CALCULATED RATES

The new rate structure is assumed to be in effect July 2012 for fiscal year 2012-13.

Table 1-1 shows calculated water rates through fiscal year 2021-22. Landscape customers have been separated from their current categorization within the multi-family and commercial accounts. Landscape customers have been separated because the City requires separate meters for irrigation and this customer type is likely to grow as existing commercial customers separate irrigation and building water connections.

Table 1-2 compares the calculated water rates for July 2012 with the current rate schedule by customer category.

Table 1-3 shows that a residential home with a 5/8-inch meter averaging 19.32 hundred cubic feet per month² currently would pay \$19.33 per month. Under the new rate structure that customer would pay \$26.27 in July 2012. A commercial customer with a 1" meter using 26.34 hundred cubic feet per month² currently would pay \$23.19 per month. Under the new rate structure that customer would pay \$29.83 in July 2012. The primary reasons for the increase in water bills are fully funding increased operations costs and paying for rehabilitation of existing water mains.

1.4.2 ADOPTION OF NEW RATES

This study provides a basis for adoption of a new rate schedule from 2012 through 2022; however, actual adopted rates need not be for the exact same amounts shown and need not be for entire time period provided in this report. Rates are typically adopted for a five-year period. This Study recommends adoption of five years of rates (effective July 2012, 2013, 2014, 2015 and 2016).

² Average monthly use using historical data (2003 through 2010).

**Table 1-1
Summary of Calculated Water Rates**

Water Charges	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Consumption Charges	Per hundred cubic feet									
Industrial Customers	\$0.63	\$0.74	\$0.86	\$0.93	\$0.99	\$1.03	\$1.06	\$1.11	\$1.13	\$1.13
All Other Customers	see below [1] for block limits									
Tier 1	\$0.55	\$0.65	\$0.76	\$0.82	\$0.87	\$0.91	\$0.93	\$0.98	\$0.99	\$1.00
Tier 2	\$0.66	\$0.78	\$0.91	\$0.99	\$1.04	\$1.09	\$1.11	\$1.17	\$1.19	\$1.20
Tier 3	\$0.77	\$0.90	\$1.06	\$1.15	\$1.22	\$1.27	\$1.30	\$1.37	\$1.39	\$1.40
Meter Replacement Charges	Per meter per month									
5/8"	\$1.07	\$1.10	\$1.13	\$1.17	\$1.21	\$1.25	\$1.29	\$1.33	\$1.37	\$1.41
3/4"	\$1.32	\$1.36	\$1.40	\$1.45	\$1.49	\$1.54	\$1.59	\$1.64	\$1.69	\$1.75
1"	\$1.75	\$1.80	\$1.86	\$1.92	\$1.98	\$2.04	\$2.11	\$2.18	\$2.25	\$2.32
1-1/2"	\$3.50	\$3.61	\$3.73	\$3.85	\$3.97	\$4.10	\$4.23	\$4.36	\$4.50	\$4.65
2"	\$5.04	\$5.20	\$5.37	\$5.54	\$5.72	\$5.90	\$6.09	\$6.28	\$6.49	\$6.69
3"	\$8.91	\$9.20	\$9.49	\$9.79	\$10.11	\$10.43	\$10.76	\$11.11	\$11.46	\$11.83
4"	\$13.65	\$14.09	\$14.54	\$15.00	\$15.48	\$15.98	\$16.49	\$17.01	\$17.56	\$18.12
6"	\$32.36	\$33.39	\$34.46	\$35.56	\$36.69	\$37.87	\$39.08	\$40.33	\$41.62	\$42.95
8"	\$35.37	\$36.50	\$37.66	\$38.87	\$40.11	\$41.39	\$42.71	\$44.08	\$45.49	\$46.94
10"	\$48.37	\$49.92	\$51.51	\$53.16	\$54.86	\$56.61	\$58.42	\$60.29	\$62.22	\$64.20
Service Charges	Per meter per month									
5/8"	\$13.54	\$14.20	\$14.88	\$16.24	\$17.03	\$17.62	\$17.89	\$18.65	\$19.15	\$19.56
3/4"	\$13.54	\$14.20	\$14.88	\$16.24	\$17.03	\$17.62	\$17.89	\$18.65	\$19.15	\$19.56
1"	\$13.54	\$14.20	\$14.88	\$16.24	\$17.03	\$17.62	\$17.89	\$18.65	\$19.15	\$19.56
1-1/2"	\$27.09	\$28.39	\$29.75	\$32.47	\$34.06	\$35.24	\$35.78	\$37.30	\$38.30	\$39.12
2"	\$43.34	\$45.43	\$47.60	\$51.95	\$54.49	\$56.38	\$57.25	\$59.68	\$61.29	\$62.59
3"	\$94.81	\$99.37	\$104.13	\$113.65	\$119.20	\$123.33	\$125.23	\$130.56	\$134.06	\$136.92
4"	\$162.53	\$170.35	\$178.51	\$194.83	\$204.33	\$211.42	\$214.68	\$223.82	\$229.82	\$234.72
6"	\$338.60	\$354.89	\$371.89	\$405.89	\$425.70	\$440.45	\$447.25	\$466.28	\$478.80	\$488.99
8"	\$487.59	\$511.05	\$535.52	\$584.48	\$613.00	\$634.25	\$644.04	\$671.45	\$689.47	\$704.15
10"	\$785.56	\$823.35	\$862.78	\$941.66	\$987.62	\$1,021.85	\$1,037.63	\$1,081.78	\$1,110.82	\$1,134.46

Source: HEC.

"all sum"

[1]	Block 1 (hcf)	Block 2 (hcf)	Block 3 (hcf)	
Single Family [a]	up to 10	10.1 to 44	Over 44	[a] Calculated on a per unit basis.
Multi-family [a]	up to 5	5.1 to 17	Over 17	[b] Calculated on a per connection basis.
Commercial < 4" [b]	up to 26	26.1 to 49	Over 49	
Commercial 4"+ [b]	up to 257	257.1 to 1,303	Over 1,303	
Landscape [b]	up to 173	173.1 to 822	Over 822	

Table 1-2
Current and Calculated July 2012 Water Rates

Customer Category	Current Rate Schedule				Calculated July 2012					
	Monthly Charges [1]			Monthly Allowance in HCF [3]	Monthly Charges [1]			Tier 1	Tier 2	Tier 3
	Meter Replacement Charge	Service Charge	Use Rate per HCF		Meter Replacement Charge	Service Charge	Use Rate per HCF (no monthly allowance)			
INDUSTRIAL										
3/4" Meter [2]	n.a.	n.a.	n.a.	n.a.	\$1.32	\$13.54	\$0.63			
3/4" Meter with 4" Meter	n.a.	\$76.55	\$0.55	34.00	\$13.65	\$162.53	\$0.63			
1" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.75	\$13.54	\$0.63			
2" Meter	n.a.	\$30.62	\$0.55	11.00	\$5.04	\$43.34	\$0.63			
3" Meter [2]	n.a.	n.a.	n.a.	n.a.	\$8.91	\$94.81	\$0.63			
4" Meter	n.a.	\$65.65	\$0.55	30.00	\$13.65	\$162.53	\$0.63			
6" Meter [2]	n.a.	n.a.	n.a.	n.a.	\$32.36	\$338.60	\$0.63			
8" Meter [2]	n.a.	n.a.	n.a.	n.a.	\$35.37	\$487.59	\$0.63			
10" Meter [2]	n.a.	n.a.	n.a.	n.a.	\$48.37	\$785.56	\$0.63			
All Other Customers										
RESIDENTIAL										
1" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
2" Meter	n.a.	\$30.62	\$0.55	11.00	\$5.04	\$43.34	\$0.55	\$0.66	\$0.77	
3/4" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.32	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter x 2 connections	n.a.	\$21.80	\$0.55	4.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
MULTIPLE DWELLING										
1" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
2" Meter	n.a.	\$30.62	\$0.55	11.00	\$5.04	\$43.34	\$0.55	\$0.66	\$0.77	
1" Meter x 2 connections	n.a.	\$21.80	\$0.55	4.00	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
6" up to 2,700 units	n.a.	\$294.27	\$0.55	60.00	\$32.36	\$338.60	\$0.55	\$0.66	\$0.77	
1 1/2" Meter	n.a.	\$20.41	\$0.55	4.00	\$3.50	\$27.09	\$0.55	\$0.66	\$0.77	
5/8" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter x 2 connections	n.a.	\$21.80	\$0.55	4.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter x 4 Apts	n.a.	\$43.60	\$0.55	5.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter x 3 connections	n.a.	\$32.70	\$0.55	8.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
COMMERCIAL										
1" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
2" Meter	n.a.	\$30.62	\$0.55	11.00	\$5.04	\$43.34	\$0.55	\$0.66	\$0.77	
4" Meter	n.a.	\$65.65	\$0.55	30.00	\$13.65	\$162.53	\$0.55	\$0.66	\$0.77	
1" Meter x 2 conn.	n.a.	\$21.80	\$0.55	4.00	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
3/4" Meter with 4" Meter	n.a.	\$76.55	\$0.55	34.00	\$13.65	\$162.53	\$0.55	\$0.66	\$0.77	
3" Meter	n.a.	\$43.72	\$0.55	30.00	\$8.91	\$94.81	\$0.55	\$0.66	\$0.77	
1" Meter x 4 conn.	n.a.	\$43.60	\$0.55	4.00	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
6" Meter up to 2,700 units	n.a.	\$294.27	\$0.55	60.00	\$32.36	\$338.60	\$0.55	\$0.66	\$0.77	
1 1/2" Meter	n.a.	\$20.41	\$0.55	4.00	\$3.50	\$27.09	\$0.55	\$0.66	\$0.77	
3/4" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.32	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter	n.a.	\$10.90	\$0.55	4.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter x 2 connections	n.a.	\$21.80	\$0.55	4.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
5/8" Meter x 3 connections	n.a.	\$32.70	\$0.55	8.00	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
LANDSCAPE [2]										
5/8" Meter	n.a.	n.a.	n.a.	n.a.	\$1.07	\$13.54	\$0.55	\$0.66	\$0.77	
3/4" Meter	n.a.	n.a.	n.a.	n.a.	\$1.32	\$13.54	\$0.55	\$0.66	\$0.77	
1" Meter	n.a.	n.a.	n.a.	n.a.	\$1.75	\$13.54	\$0.55	\$0.66	\$0.77	
2" Meter	n.a.	n.a.	n.a.	n.a.	\$5.04	\$43.34	\$0.55	\$0.66	\$0.77	
3" Meter	n.a.	n.a.	n.a.	n.a.	\$8.91	\$94.81	\$0.55	\$0.66	\$0.77	
4" Meter	n.a.	n.a.	n.a.	n.a.	\$13.65	\$162.53	\$0.55	\$0.66	\$0.77	

Source: City of Newman

"struct_comp"

[1] Monthly charges on a PER METER basis.

[2] Proposed new customer category.

[3] Allowance for multiple dwelling multiplied by the number of units in the complex.

Table 1-3
Comparison of Current and Calculated Future Average Monthly Bills

Customer Type	Avg. Month Use (in HCF)	Calculated Future Average Monthly Rate										
		Current	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Single Family Home (5/8" meter)	19.32	\$19.33	\$26.27	\$28.99	\$32.09	\$34.81	\$36.66	\$38.09	\$38.84	\$40.67	\$41.49	\$42.10
Commercial (Retail / Office with 1" meter)	26.34	\$23.19	\$29.83	\$33.07	\$36.78	\$39.85	\$41.97	\$43.63	\$44.51	\$46.62	\$47.54	\$48.21
Large Industrial (4" meter)	11,182	\$6,216	\$7,180	\$8,405	\$9,845	\$10,656	\$11,280	\$11,768	\$12,035	\$12,660	\$12,834	\$12,936

Source: City of Newman and HEC.

"avg_bill"

The City Water System and Enterprise Fund

The City's water system is supplied entirely by groundwater that is pumped by four operational wells and distributed to customers. In March 2008, ECO:LOGIC Engineering completed a Water Master Plan Update outlining the need for future facility improvements including additional wells and integrating surface water supply to meet City water quality needs and projected future growth water demands. The surface water supply alternative was included to meet discharge requirements at the City's wastewater treatment plant.

In December 2011 the City modified the capital improvement plan for the water system as hydrologic investigations have found new good water quality groundwater supplies. The revised capital improvement program continues to prepare the City for the addition of a surface water supply but construction of the surface water treatment plant is not anticipated within the Study time period.

2.1 WATER FACILITY SYSTEM COSTS

Water facility system costs include operation and maintenance and equipment items which are fairly consistent year to year, and major improvements to the distribution system and (potentially, in the future) a water treatment plant. The distribution system costs and water treatment plant costs in any one year are dependent on the state of the current infrastructure to serve existing customers, and necessary improvements to accommodate potential new customers.

Water facility improvements are typically funded through a combination of funding sources which may include cash, bonds, or loan programs. In 1982 the City sold revenue bonds which were purchased by the United States Department of Agriculture to finance water system improvements. **Table A-1** in the appendix shows remaining debt service on the 1982 revenue bonds. Of the total principal amount of \$1,050,000, \$508,000 remains outstanding.

A projection of capital improvement costs and associated operations and maintenance costs through fiscal year 2021-22 is shown in **Table 2-1**. CIP funding sources (cash from rates, cash from existing reserves, and financing) is also summarized. A discussion of the CIP components is described in the following sub-sections.

2.1.1 SYSTEM REHABILITATION

The City must replace major water mains within the existing system over the next four years. Total costs are estimated at approximately \$906,000.

**Table 2-1
Projected CIP Costs and Associated Increased O&M Costs**

Item / Assumptions	Share of Cost		Source	Funding	Inflated \$'s Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Existing	Future				FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22
Population (estimated to increase 3.5% per year)					10,224	10,582	10,952	11,336	11,732	12,143	12,568	13,008	13,463	13,934	14,422
Average Day Production (constant 238 gpcd)					2,440,000	2,526,000	2,614,000	2,706,000	2,800,000	2,898,000	3,000,000	3,105,000	3,213,000	3,326,000	3,442,000
System Rehabilitation	100%	0%	City estimate	Cash	\$905,820	\$250,000	\$238,218	\$284,275	\$133,327	\$0	\$0	\$0	\$0	\$0	\$0
Future Hydrogeologic Investigations															
Regional Aquifer Yield Investigation	0%	100%	Prelim. Eng. Est.	Cash	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Salinity Reduction Investigations	30%	70%	Prelim. Eng. Est.	Cash	\$70,715	\$50,000	\$20,715	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Test Hole	0%	100%	Prelim. Eng. Est.	Cash	\$83,330	\$0	\$0	\$0	\$83,330	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Future Hydrogeologic Investigations	10%	90%			\$204,044	\$100,000	\$20,715	\$0	\$83,330	\$0	\$0	\$0	\$0	\$0	\$0
Well, Tank & Booster Pump Station Project															
Well Construction	23%	77%	Prelim. Eng. Est.	Financed	\$1,379,753	\$0	\$414,292	\$965,461	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tank and Pump Station	23%	77%	Prelim. Eng. Est.	Financed	\$2,386,846	\$0	\$0	\$1,609,102	\$777,744	\$0	\$0	\$0	\$0	\$0	\$0
Transmission Pipeline	23%	77%	Prelim. Eng. Est.	Financed	\$333,319	\$0	\$0	\$0	\$333,319	\$0	\$0	\$0	\$0	\$0	\$0
Contingency	23%	77%	Prelim. Eng. Est.	Financed	\$647,540	\$0	\$51,786	\$429,094	\$166,659	\$0	\$0	\$0	\$0	\$0	\$0
Design, Admin, Legal	23%	77%	Prelim. Eng. Est.	Financed	\$523,545	\$50,000	\$310,719	\$107,273	\$55,553	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Well, Tank & Booster Pump Station Pr	23%	77%			\$5,271,002	\$50,000	\$776,797	\$3,110,930	\$1,333,275	\$0	\$0	\$0	\$0	\$0	\$0
Surface Water Supply Planning Activities [1]			70% of Total Costs												
Water Right Evaluations	30%	70%	Prelim. Eng. Est.	Cash	\$112,776	\$21,000	\$21,750	\$22,527	\$23,332	\$24,166	\$0	\$0	\$0	\$0	\$0
Pre-design / Environmental	30%	70%	Prelim. Eng. Est.	Financed	\$495,229	\$0	\$0	\$0	\$0	\$166,863	\$328,366	\$0	\$0	\$0	\$0
Design	30%	70%	Prelim. Eng. Est.	Financed	\$1,198,704	\$0	\$0	\$0	\$0	\$0	\$103,695	\$671,247	\$231,743	\$192,019	\$0
Subtotal Surface Water Supply Activities	30%	70%			\$1,806,709	\$21,000	\$21,750	\$22,527	\$23,332	\$24,166	\$166,863	\$432,061	\$671,247	\$231,743	\$192,019
Other City Projects															
Installation of meters parks & landscape sites	100%	0%	Prelim. Eng. Est.	Cash	\$25,000	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Share of New City Hall Purchase	100%	0%		Cash	\$273,500	\$19,500	\$19,500	\$19,500	\$19,500	\$195,500	\$0	\$0	\$0	\$0	\$0
Subtotal Other City Projects	100%	0%			\$298,500	\$44,500	\$19,500	\$19,500	\$19,500	\$195,500	\$0	\$0	\$0	\$0	\$0
Total Capital Outlay (CIP Program)	35%	65%			\$8,486,075	\$465,500	\$1,076,979	\$3,437,233	\$1,592,764	\$219,666	\$166,863	\$432,061	\$671,247	\$231,743	\$192,019
Existing Customers Share					\$2,979,877	\$327,300	\$449,120	\$1,026,047	\$466,480	\$202,750	\$50,059	\$129,618	\$201,374	\$69,523	\$57,606
Future Customers Share					\$5,506,198	\$138,200	\$627,859	\$2,411,186	\$1,126,284	\$16,916	\$116,804	\$302,443	\$469,873	\$162,220	\$134,413
Funding Source															
Cash (rates)					\$316,820	\$121,000	\$42,465	\$22,527	\$106,662	\$24,166	\$0	\$0	\$0	\$0	\$0
Cash (existing reserves)					\$1,204,320	\$294,500	\$257,718	\$303,775	\$152,827	\$195,500	\$0	\$0	\$0	\$0	\$0
Financed					\$6,964,935	\$50,000	\$776,797	\$3,110,930	\$1,333,275	\$0	\$166,863	\$432,061	\$671,247	\$231,743	\$192,019
Operations and Maintenance			Assumptions												
Increased Groundwater Pumping Utilities Costs			2011 utility costs per well		\$251,662	\$0	\$0	\$0	\$35,952	\$35,952	\$35,952	\$35,952	\$35,952	\$35,952	\$35,952
Increased O&M For New Well Facilities			Based on 2011 costs		\$69,677	\$0	\$0	\$0	\$9,954	\$9,954	\$9,954	\$9,954	\$9,954	\$9,954	\$9,954
Net Increase (Decrease) Operating Costs (2011 \$)					\$321,340	\$0	\$0	\$0	\$45,906	\$45,906	\$45,906	\$45,906	\$45,906	\$45,906	\$45,906
Net Increase in Future Dollars			5.0%		\$432,600	\$0	\$0	\$0	\$53,100	\$55,800	\$58,600	\$61,500	\$64,600	\$67,800	\$71,200

Source: Stantec, Inc. and the City of Newman

"cip_proj"

[1] Surface water planning costs split 70% to the water fund and 30% to the wastewater fund. Costs shown only include the water fund portion of costs.

2.1.2. HYDROLOGIC INVESTIGATIONS

Future hydrologic investigations will be necessary for aquifer yield estimates and salinity reduction investigations. Hydrologic investigations are estimated to cost \$204,000 over the next four years.

2.1.3 GROUNDWATER FACILITIES

Improvements to the groundwater system are currently in the planning stage; they include construction of a new well, a 1.1 million gallon tank and booster pump station. The new well will make up for potential deficiency in meeting maximum day demand. The booster pump station will provide additional fire flow protection, and both the booster pump and tank will be integrated into the surface water supply during peak demand periods in the future.

The total cost estimate for these facilities is \$5.27 million, of which 30 percent has been assigned to existing customers and 70 percent to future customers based on share of use³. The new well, tank, and booster station improvements will be financed through a bond sale or a loan with an agency (such as the California Department of Public Health's Revolving Fund or the I-Bank). For purposes of this Study a CDPH loan is assumed.

Table 2-2 provides an estimate of the total costs financed, and annual debt service of \$375,430 for the first ten years of the loan. The second ten years of the loan will have lower annual debt service as the reserve requirement will have been met.

Table 2-2
Estimated Bond Funding of Groundwater Facilities

Cost Component	Assumptions	Estimated Total Cost
CDPH Planning and Construction Loan(s)		\$5,271,002
Capitalized Interest	<i>0 months</i>	\$0
Issuance Costs	<i>min</i>	\$0
Underwriter's Discount	<i>0%</i>	\$0
Estimated Bond Size	<i>[2]</i>	\$5,271,000
Bond Size Adjusted for Rounding		\$5,271,000
Principal		\$5,271,002
Interest		\$4,967,998
Estimated Annual Debt Service		\$341,300
CDPH Debt Service first 10 years to collect for reserve		\$375,430

Source: HEC and Stantec, Inc.

"well_bond"

[1] Assumes a CDPH loan is obtained. Actual financing may be one or combination of programs available through DWR, CDPH, or I-Bank.

[2] Bond Size Assumptions:

Interest Rate	2.60%
Term	20 years
Bond Load	1

³ Although new growth will pay for the additional capacity to serve new growth through connection and/or development impact fees, the timing of when costs must be incurred and the pace of development is unlikely to provide sufficient funds to construct the new facilities. Existing customers' revenues only will be pledged toward repayment of bonds for at least the next three years until the economy returns to a more normal pace of growth. New development fees that are collected will be used to contribute to debt service or to buy down bonds in the future as they become available and are included in the Study in years 4 through 10.

2.1.4 SURFACE WATER FACILITIES

Partial conversion of the City's water supply from groundwater to surface water has been identified as the most cost effective means to remedy compliance issues associated with the wastewater treatment plant, based on current regulations governing wastewater treatment and disposal. Improving the quality of the water supply also provides higher quality drinking water to residents. The 2008 Water Master Plan provides a conceptual plan to develop the City's future water supply, including the integration of surface water in the future. Due to the size and complexity of the project, implementation of the surface water supply is contingent on a number of factors. Some examples of issues that may affect the implementation schedule include:

- Availability of the surface water supply from the Central California Irrigation District (CCID)
- Project funding
- Potential involvement of neighboring communities in a regional water supply project
- Environmental permitting
- Regulatory requirements related to salt in the Central and San Joaquin Valleys

The City is currently in the planning phase of the project including evaluation of wastewater permitting requirements, discussions with CCID regarding the purchase of raw water, and preliminary engineering. There may also be an opportunity to involve other communities in the area that are facing similar issues at their wastewater facilities caused in part by their water supply in a regional water supply project. A regional project could reduce the overall cost to each community, provide a higher quality and more reliable water supply, and improve the overall quality of the treated wastewater discharged throughout the region, which currently has the potential to degrade groundwater.

The total cost estimate for planning activities associated with a potential future surface water plant through the Study period is \$1.8 million. The cost estimate reflects a cost share with the wastewater enterprise fund with the water fund allocated 70% of the total cost. CDPH loans have also been assumed for purposes of financing the surface water treatment plant costs. Estimated annual debt service is calculated in **Table 2-3**. Debt service payments will not be due until after project costs are incurred; however, interest payments on loans will be due semi-annually.

2.1.4 CITY PROJECTS

The City is installing meters at all park and landscaped facilities owned and maintained by the City. This project is currently in progress and will be completed by the end of fiscal year 2012-13. The water fund has also been allocated one-third of City Hall acquisition and improvement costs spread over the first five years of the rate study; detail of City Hall costs are provided in Appendix A **Table A-2**. In total, City projects costs are estimated at less than \$300,000.

Table 2-3
Estimated Financing of Surface Water Treatment Plant Costs

Cost Component	<i>Assumptions</i>	Estimated Total Cost
Planning Loan for Water Fund Share of Costs [1]		\$495,229
Capitalized Interest	<i>0 months</i>	\$0
Issuance Costs	<i>min</i>	\$0
Underwriter's Discount	<i>0%</i>	\$0
Estimated Bond Size	<i>[2]</i>	\$495,230
Bond Size Adjusted for Rounding		\$495,300
Principal		\$495,229
Interest		\$39,271
Estimated Annual Debt Service		\$106,900
CDPH SRF Financing for Construction / Final Design		\$1,198,704
Capitalized Interest	<i>0 months</i>	\$0
Issuance Costs	<i>min</i>	\$0
Underwriter's Discount	<i>0%</i>	\$0
Estimated Bond Size	<i>[2]</i>	\$1,198,700
Bond Size Adjusted for Rounding		\$1,198,800
Principal		\$1,198,704
Interest		\$353,296
Estimated Annual Debt Service		\$77,600
CDPH Debt Service first 10 years to collect for reserve		\$85,360

Source: HEC and Stantec, Inc.

"surface_bond"

[1] Maximum CDPH planning loans are for \$500,000.

[2] Bond Size Assumptions:	Planning Loan	Construction
Interest Rate	2.60%	2.60%
Term	5 years	20 years
Bond Load	1	1

2.2 WATER METER REPLACEMENT PROGRAM

The City is embarking on a comprehensive water meter replacement program. Each year City crews will replace older water meters that are near the end of their useful life, or which are inaccurately measuring water flow. The cost to replace meters by size of meter is estimated in **Table 2-4** for the current inventory of City water meters.

The meter replacement fee is projected through the study period using an annual escalation factor of 3.2 percent as shown in **Table 2-5**. The annual escalation factor is the Engineering News Record historical average annual increase in the Construction Cost Index over the past twenty years (1991 to 2011).

Meter replacement program costs will increase as the number of City water meters increases and as the cost of installation increase. It is estimated that the meter replacement program will increase from approximately \$46,400 per year in 2012 to \$65,400 per year in 2022 as shown in **Table 2-6**.

2.3 HISTORICAL WATER FUND REVENUES AND EXPENSES

An enterprise fund is a fund that is intended to recover its costs through user fees and charges. Enterprise funds also provide the repayment capacity for, and make debt service payments on, any debt incurred for capital projects⁴.

The City's water enterprise fund has maintained a steady fiscal position. **Table 2-7** shows net income and losses for the prior five fiscal years. The table does not show unrestricted cash and assets of the water system, which were approximately \$1.5 million June 30, 2011.

REVENUES

Operating revenues are primarily water sales (through collections of monthly bills). Historically 65 percent of operating revenue has been derived from water sales. Other operating revenue includes charges for services, such as delinquent charges, reconnection fees, and other miscellaneous revenues. Developer fees have contributed 27 percent of total revenues over the past five years. Percentage share of historical revenues by revenue source is shown in **Figure 2-1**.

EXPENSES

Annual costs include all water system operating expenses and capital outlay. Expenditures were grouped into seven categories:

- Salaries and Benefits
- Maintenance and Operations
- Capital Acquisitions
- Debt Service
- Utilities
- Fleet Expense
- Transfers Out

⁴ Thus, any water enterprise fund bond-funded projects do not diminish the City's general fund debt capacity.

Table 2-4
Meter Replacement Program Cost Estimate

Item	Assumption /	Meter Size									
	Total	5/8"	3/4"	1"	1-1/2"	2"	3"	4"	6"	8"	10"
Average Cost for a New Meter [1]		\$90	\$125	\$185	\$430	\$645	\$1,185	\$1,785	\$4,395	\$4,815	\$6,630
Radio Transponder [1]		\$73	\$73	\$73	\$73	\$73	\$73	\$150	\$150	\$150	\$150
Installation Costs [2]	20%	\$18	\$25	\$37	\$86	\$129	\$237	\$357	\$879	\$963	\$1,326
Administration Costs	5%	\$5	\$6	\$9	\$22	\$32	\$59	\$89	\$220	\$241	\$332
Total Cost per Meter	\$210	\$186	\$230	\$305	\$611	\$880	\$1,555	\$2,381	\$5,644	\$6,169	\$8,438
Replacement Interval (years)		15	15	15	15	15	15	15	15	15	15
Cost per Meter per Year		\$12.39	\$15.30	\$20.30	\$40.72	\$58.64	\$103.64	\$158.75	\$376.25	\$411.25	\$562.50
Monthly Cost per Meter / Meter Replacement Fee		\$1.03	\$1.28	\$1.69	\$3.39	\$4.89	\$8.64	\$13.23	\$31.35	\$34.27	\$46.88
Total Number of Meters	3,163	3,062	13	29	4	45	1	7	2	-	-
Number of Billing Meters [3]	3,102	3,001	13	29	4	45	1	7	2	-	-
Annual Meter Replacement Fee Collection	\$42,750	\$37,167	\$199	\$580	\$166	\$2,632	\$106	\$1,133	\$768	\$0	\$0

Source: City of Newman and HEC.

"meter_prog"

[1] Approximate prices May 2010 for meters (excludes touch pads / radio transmitter) inflated to December 2011 using the ENR 20-city CCI.

[2] Actual installation costs vary by meter size as a percentage of meter cost.

[3] Accounts for residential and small commercial accounts vacancy rate of 2%.

Table 2-5
Projection of Meter Replacement Fees

Meter Size	FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
5/8"	\$1.03	\$1.07	\$1.10	\$1.13	\$1.17	\$1.21	\$1.25	\$1.29	\$1.33	\$1.37	\$1.41
3/4"	\$1.28	\$1.32	\$1.36	\$1.40	\$1.45	\$1.49	\$1.54	\$1.59	\$1.64	\$1.69	\$1.75
1"	\$1.69	\$1.75	\$1.80	\$1.86	\$1.92	\$1.98	\$2.04	\$2.11	\$2.18	\$2.25	\$2.32
1-1/2"	\$3.39	\$3.50	\$3.61	\$3.73	\$3.85	\$3.97	\$4.10	\$4.23	\$4.36	\$4.50	\$4.65
2"	\$4.89	\$5.04	\$5.20	\$5.37	\$5.54	\$5.72	\$5.90	\$6.09	\$6.28	\$6.49	\$6.69
3"	\$8.64	\$8.91	\$9.20	\$9.49	\$9.79	\$10.11	\$10.43	\$10.76	\$11.11	\$11.46	\$11.83
4"	\$13.23	\$13.65	\$14.09	\$14.54	\$15.00	\$15.48	\$15.98	\$16.49	\$17.01	\$17.56	\$18.12
6"	\$31.35	\$32.36	\$33.39	\$34.46	\$35.56	\$36.69	\$37.87	\$39.08	\$40.33	\$41.62	\$42.95
8"	\$34.27	\$35.37	\$36.50	\$37.66	\$38.87	\$40.11	\$41.39	\$42.71	\$44.08	\$45.49	\$46.94
10"	\$46.88	\$48.37	\$49.92	\$51.51	\$53.16	\$54.86	\$56.61	\$58.42	\$60.29	\$62.22	\$64.20

Source: HEC.

"m_fee_proj"

Note: Annual escalation factor is the historical average annual increase in the ENR 20-City CCI for the past 20 years (1991 to 2011):

**Table 2-6
Meter Replacement Fee Program Cost**

Item	Assumption	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
		FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22
City Water Meters in 2011		3,163	3,163	3,163	3,163	3,163	3,163	3,163	3,163	3,163	3,163	
Annual Growth in Meters			63	65	66	67	68	70	71	73	74	76
Projected Meters	<i>2.0% annual escalation</i>	3,163	3,226	3,291	3,357	3,424	3,492	3,562	3,633	3,706	3,780	3,856
Estimated Replacement Cost per Meter [1]	<i>3.2% annual escalation</i>	\$210	\$220	\$230	\$240	\$250	\$260	\$270	\$280	\$290	\$300	\$310
Percentage of Meters Replaced	<i>15-yr cycle</i>	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
Estimated Meter Replacement Program		\$46,390	\$46,390	\$48,500	\$50,610	\$52,720	\$54,830	\$56,930	\$59,040	\$61,150	\$63,260	\$65,370

Source: City of Newman and HEC.

"meter_cost"

[1] See table 2-4 for calculation of meter replacement cost.

**Table 2-7
Historical Revenues and Expenses**

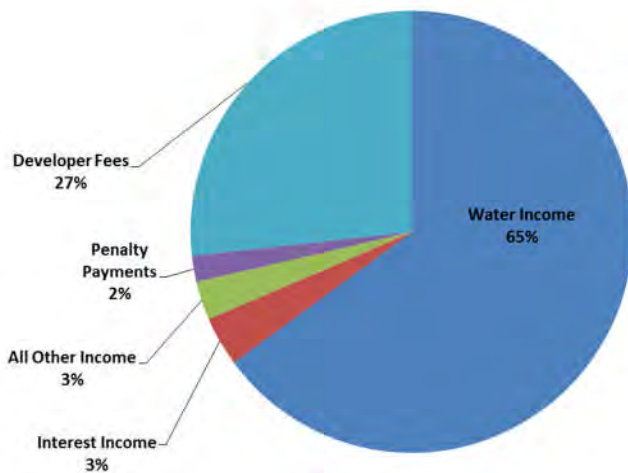
Revenues and Expenses	Fiscal Year Actuals				
	2006-07	2007-08	2008-09	2009-10	2010-11
Revenues					
Water Sales	\$640,570	\$646,948	\$854,427	\$820,354	\$824,634
Other Charges for Service	\$11,490	\$11,983	\$19,029	\$15,863	\$15,448
Water Charges Collected at Building Permit	\$1,441,514	\$63,812	\$22,272	\$119,184	\$179
Late Charges / Penalties	\$17,351	\$17,014	\$21,698	\$25,702	\$30,348
Miscellaneous	\$312	\$296	\$7	\$4,240	\$467
Interest Income	\$92,307	\$66,581	\$31,949	\$10,769	\$10,908
Total Revenues	\$2,203,544	\$806,634	\$949,382	\$996,112	\$881,985
Expenses					
Salaries and Benefits	\$279,991	\$342,237	\$395,213	\$346,446	\$410,058
Maintenance and Operations	\$238,401	\$298,920	\$235,133	\$193,621	\$305,404
Fleet	\$17,029	\$14,971	\$14,498	\$15,190	\$16,522
Utilities	\$128,480	\$157,750	\$133,251	\$140,472	\$143,807
Capital Acquisitions	\$17,619	\$89,842	\$26,282	\$40,820	\$62,695
Debt Service	\$33,830	\$32,552	\$59,975	\$60,475	\$27,929
Transfers Out	\$0	\$0	\$120,615	\$0	\$0
Total Expenses	\$715,350	\$936,272	\$984,967	\$797,024	\$966,415
Net Revenue (Losses) [1]	\$1,488,194	(\$129,638)	(\$35,585)	\$199,088	(\$84,430)

Source: City of Newman.

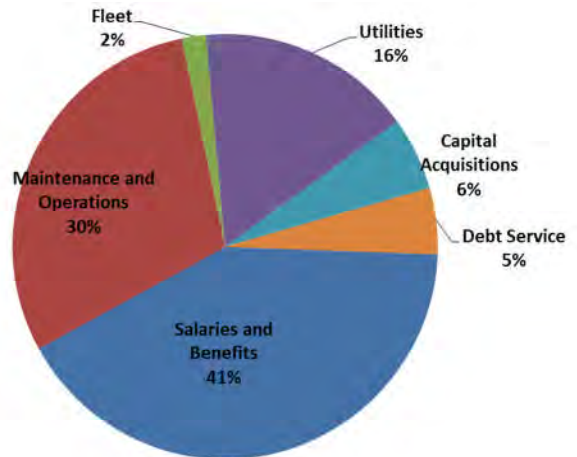
"history"

[1] Excludes depreciation.

Historically, personnel costs (including salaries and benefits and insurance), maintenance and operations costs, and utilities (primarily well pumping) costs have been the largest expenditure items. Personnel costs have comprised approximately 41 percent of annual recurring costs. Percentage share of historical expenses by expense category is shown in **Figure 2-2**.



**Figure 2-1
Percentage Share of Historical Revenues by Revenue Source**



**Figure 2-2
Percentage Share of Historical Expenses by Expense Category**

Section 3

Newman Water Customers and Demand

The City of Newman has a population of approximately 10,200. Population growth was rapid between 2000 and 2006, reaching a peak of 10.3 percent growth between 2005 and 2006, per the California Department of Finance. The population growth during this time reflected the economic expansion in California; likewise growth rates fell to between 0.2 percent and 2.3 percent reflecting the recession which began in 2007. Annual water production also increased through 2007, but has since decreased, reflecting both the slow economy and water savings as a result of water conservation. **Table 3-1** shows the annual changes in population, housing units, water production and consumption per capita since 2000.

Table 3-1
Historical City Population and Water Demand

Year	Population		Housing Units		Persons per Occupied Unit	Water Production		Gallons per Capita per Day
	Persons	Annual % Change	Occupied Units	Annual % Change		Total	Annual % Change	
	<i>as of January 1</i>					<i>In Gallons</i>		[2]
2000	7,092		2,078		3.4			
2001	7,443	4.9%	2,177	4.8%	3.4			
2002	7,445	0.0%	2,181	0.2%	3.4			
2003	7,602	2.1%	2,231	2.3%	3.4	698,000,000		251.6
2004	8,099	6.5%	2,392	7.2%	3.4	755,000,000	8.2%	255.4
2005	8,798	8.6%	2,634	10.1%	3.3	833,000,000	10.3%	259.4
2006	9,704	10.3%	2,955	12.2%	3.3	865,000,000	3.8%	244.2
2007	9,799	1.0%	3,020	2.2%	3.2	922,284,000	6.6%	257.9
2008	10,029	2.3%	3,099	2.6%	3.2	861,198,000	-6.6%	235.3
2009	10,183	1.5%	3,158	1.9%	3.2	785,510,000	-8.8%	211.3
2010	10,208	0.2%	3,357	6.3%	3.0	723,162,000	-7.9%	194.1
2011	10,224	0.2%	3,431	2.2%	3.0			
Total Change 2003-2010	2,606		1,126			25,162,000		(57.5)
Average Annual Change 2003-2010 [1]	372	4.3%	161	6.0%		3,594,571	0.5%	(8.2)

Source: Department of Finance Schedules E-4 and E-5.

"stats"

[1] Average annual population increase from 2000 -2010 was **3.7%**

[2] Average gallons per capita per day 2003-2010 **238.6**

3.1 WATER SYSTEM PRODUCTION AND CONSUMPTION

Total water production has decreased over the past three years from a peak of 922 million gallons in 2007 to 723 million gallons in 2010 as shown in Table 3-2. Monthly water production data indicate an annual peaking period of May through September as temperatures increase and a greater portion of water is consumed by landscapes. During this peaking period 29% of the annual water consumption is delivered in addition to the base annual consumption. This ratio of base flow and additional flow during the peaking period is used to allocate costs between fixed costs and variable costs as more fully described in Section 4.

Table 3-2
Well Production Data

Month	2007	2008	2009	2010	2011	Avg. Annual Water Delivery (gallons)	Percent of Delivery by Month
Jan	43,032,000	39,434,000	33,436,000	30,087,000	5,585,000	30,314,800	4%
Feb	38,875,000	42,844,000	32,171,000	29,088,000	33,571,000	35,309,800	4%
Mar	64,475,000	54,445,000	45,609,000	39,882,000	34,843,000	47,850,800	6%
Apr	71,577,000	74,131,000	69,110,000	49,178,000	59,355,000	64,670,200	8%
May	93,590,000	95,354,000	88,221,000	65,290,000	74,759,000	83,442,800	10%
Jun	116,123,000	99,277,000	90,617,000	95,549,000	81,791,000	96,671,400	12%
Jul	112,370,000	103,974,000	107,836,000	108,398,000		108,144,500	13%
Aug	121,164,000	102,750,000	89,665,000	93,475,000		101,763,500	13%
Sep	82,281,000	83,036,000	82,330,000	83,888,000		82,883,750	10%
Oct	74,000,000	77,389,000	61,487,000	45,556,000		64,608,000	8%
Nov	59,882,000	46,405,000	45,082,000	44,403,000		48,943,000	6%
Dec	44,915,000	42,159,000	39,946,000	38,368,000		41,347,000	5%
Total	922,284,000	861,198,000	785,510,000	723,162,000		A 805,949,550	100%
Peaking Period (May through September inclusive)						B 472,905,950	59%
Base Monthly Flow					$C = (A-B)/7$	47,577,657	
Base Annual Flow					$D = C*12$	570,931,886	71%
Additional Flow					$E = A-D$	235,017,664	29%

Source: City of Newman

"delivery"

As provided in Table 3-3, comparing production and consumption of water for the past four fiscal years shows that in typical years approximately 17 percent to 20 percent of water is unaccounted for in the billing. Other uses of water, such as for hydrant flushing, fire suppression, City parks irrigation and construction water account for much of the 'missing' water. The inclusion of the unaccounted for water is important in the annual projection of water demand, detailed later in this section.

Table 3-3
Estimation of Unaccounted For Water

Month	Well Production				
	2007	2008	2009	2010	2011
<i>All Figures in Gallons</i>					
Jan	43,032,000	39,434,000	33,436,000	30,087,000	5,585,000
Feb	38,875,000	42,844,000	32,171,000	29,088,000	33,571,000
Mar	64,475,000	54,445,000	45,609,000	39,882,000	34,843,000
Apr	71,577,000	74,131,000	69,110,000	49,178,000	59,355,000
May	93,590,000	95,354,000	88,221,000	65,290,000	74,759,000
Jun	116,123,000	99,277,000	90,617,000	95,549,000	81,791,000
Jul	112,370,000	103,974,000	107,836,000	108,398,000	
Aug	121,164,000	102,750,000	89,665,000	93,475,000	
Sep	82,281,000	83,036,000	82,330,000	83,888,000	
Oct	74,000,000	77,389,000	61,487,000	45,556,000	
Nov	59,882,000	46,405,000	45,082,000	44,403,000	
Dec	44,915,000	42,159,000	39,946,000	38,368,000	
Total	922,284,000	861,198,000	785,510,000	723,162,000	
		FY 07-08	FY 08-09	FY 09-10	FY 10-11
Fiscal Year Production		900,097,000	814,877,000	735,420,000	703,992,000
Fiscal Year Consumption		722,356,316	675,440,260	547,201,644	563,407,812
Unaccounted For Water		20%	17%	26%	20%

Source: City of Newman.

"unacc"

3.2 CUSTOMER BILLING AND RATE STRUCTURE

Table 3-4 below presents the current rate structure and schedule.

Under the current metered rate structure all customers pay a base monthly charge plus a use charge above a base monthly allowance of water use. The rate per 100 cubic feet of use is the same regardless of customer type or meter size. For example a residential customer with a 5/8-inch meter pays a base charge of \$10.90 per month; this includes 400 cubic feet of usage. Any usage greater than 400 cubic feet per month is charged \$0.55 per hundred cubic feet.

**Table 3-4
Current Rate Structure**

Customer Category	Class	Size	Basis of Charge	Current Rate Schedule		
				Base Rate	Usage Rate	Usage Rate
RESIDENTIAL						
1" Meter	01	01	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
2" Meter	01	02	Per Unit + Usage	30.62	0.55	each 100 cu.ft. above 1100
3/4" Meter	01	34	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
5/8" Meter	01	58	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
5/8" Meter x 2 connections	01	59	Per Unit + Usage	21.80	0.55	each 100 cu.ft. above 400
5/8" Meter x 3 connections	01	65	Per Unit + Usage	32.70	0.55	each 100 cu.ft. above 800
MULTIPLE DWELLING						
1" Meter	04	01	Per Unit	10.90	0.55	each 100 cu.ft. above 400
2" Meter	04	02	Per Unit	30.62	0.55	each 100 cu.ft. above 1100
1" Meter x 2 connections	04	05	Per Unit	21.80	0.55	each 100 cu.ft. above 400
6" up to 2,700 units	04	12	Per Unit	294.27	0.55	each 100 cu.ft. above 6000
1 1/2" Meter	04	15	Per Unit	20.41	0.55	each 100 cu.ft. above 400
5/8" Meter	04	58	Per Unit	10.90	0.55	each 100 cu.ft. above 400
5/8" Meter x 2 connections	04	59	Per Unit	21.80	0.55	each 100 cu.ft. above 400
5/8" Meter x 4 Apts	04	61	Per Unit	43.60	0.55	each 100 cu.ft. above 500
5/8" Meter x 3 connections	04	65	Per Unit	32.70	0.55	each 100 cu.ft. above 800
TOTAL MULTIPLE DWELLING						
COMMERCIAL						
1" Meter	02	01	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
2" Meter	02	02	Per Unit + Usage	30.62	0.55	each 100 cu.ft. above 1100
5/8" Meter min	02	03	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
4" Meter	02	04	Per Unit + Usage	65.65	0.55	each 100 cu.ft. above 3000
1" Meter x 2 conn.	02	05	Per Unit + Usage	21.80	0.55	each 100 cu.ft. above 400
3/4" Meter with 4" Meter	02	06	Per Unit + Usage	-	0.55	each 100 cu.ft. above 0
3" Meter	02	07	Per Unit + Usage	43.72	0.55	each 100 cu.ft. above 3000
1" Meter x 4 conn.	02	10	Per Unit + Usage	43.60	0.55	each 100 cu.ft. above 400
6" Meter up to 2,700 units	02	12	Per Unit + Usage	294.27	0.55	each 100 cu.ft. above 6000
1 1/2" Meter	02	15	Per Unit + Usage	20.41	0.55	each 100 cu.ft. above 400
3/4" Meter	02	34	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
5/8" Meter	02	58	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
5/8" Meter x 2 connections	02	59	Per Unit + Usage	21.80	0.55	each 100 cu.ft. above 400
5/8" Meter x 3 connections	02	65	Per Unit + Usage	32.70	0.55	each 100 cu.ft. above 800
5/8" up to 7,000 cu. Ft.	02	70	Per Unit + Usage	76.29	0.55	each 100 cu.ft. above 400
INDUSTRIAL						
1" Meter	03	01	Per Unit + Usage	10.90	0.55	each 100 cu.ft. above 400
2" Meter	03	02	Per Unit + Usage	30.62	0.55	each 100 cu.ft. above 1100
4" Meter	03	04	Per Unit + Usage	65.65	0.55	each 100 cu.ft. above 3000
3/4" Meter with 4" Meter	03	06	Per Unit + Usage	-	0.55	each 100 cu.ft. above 0
5/8" Meter x 2 connections	03	59	Per Unit + Usage	21.80	0.55	each 100 cu.ft. above 400

Source: City of Newman

"rates_current"

3.2.1 CUSTOMER ACCOUNT INFORMATION

There are currently approximately 3,100 water accounts in the City. Single family residential accounts for 94 percent of total water accounts, as depicted in the pie chart, **Figure 3-1**.

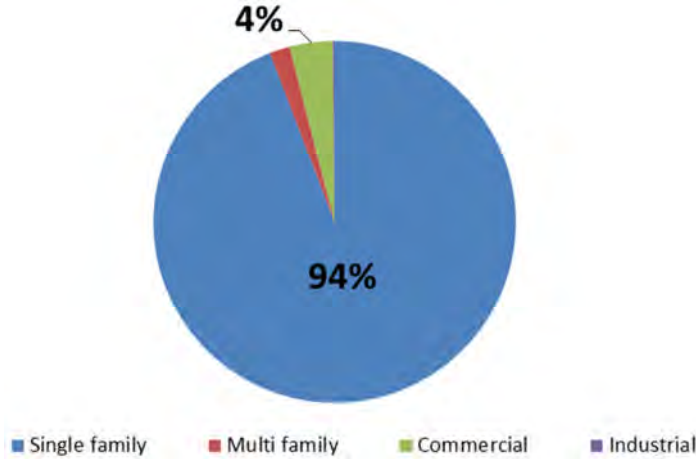


Figure 3-1

Number of Water Accounts by Customer Category

Table 3-5 provides summary statistics of customer water use based on metered water use data provided by the City from July 2003 through March 2010. Commercial customers have been divided into accounts with meters smaller than 4-inches, and accounts with meters 4-inches and larger. Landscape customers have been separated from their current categorization within the multi-family and commercial accounts. Landscape customers have been separated because the City requires separate meters for irrigation and this customer type is likely to grow significantly as existing commercial customers separate irrigation and building water connections.

Table 3-5 also shows the block limits used in this water rate study. The second block limit was set at a factor of 50 percent above the average monthly use during the peak season.

**Table 3-5
Summary Customer Water Use Factors and Block Limits**

Item	Residential		Commercial		Industrial	Landscape
	Single Family	Multi-Family	< 4" Meter	4" + Meter		
				[1]		[1]
			<i>Cubic Feet per Month</i>			
Monthly Use	per unit		per account			
Average Month [1]	1,839	776	2,634	25,675	239,490	17,299
Average Non-irrigation Month	1,015	556	2,137	9,310	200,549	1,968
Average Peak Irrigation Months	2,869	1,070	3,214	86,824	282,064	54,771
Block Limits						
Block 1 [2]	1,000	500	2,600	25,700	n.a.	17,300
Block 2 [3]	4,400	1,700	4,900	130,300	n.a.	82,200

Source: City of Newman and HEC.

"limits"

[1] Because the primary use for these accounts is irrigation, the average month for commercial meters 4"+ and landscape meters represents average usage for shoulder months (April, May, November, December).

[2] Block 1 represents an approximation of indoor use for residential use and a base level use for non-residential.

[3] Block 2 is set at a factor above the average monthly use during the height of the irrigation season. 50%

3.2.2 CUSTOMER WATER USE

Customer profiling of the metered data is summarized in **Table A-3**. Single family customers use almost three times the amount of water during the peak summer months as they do during the winter months. Industrial use is fairly stable year-round and is a reflection of the types of industry in the City. Commercial customer use per account per month is shown in the bottom portion of the table. Use by accounts with 4-inch and greater meters is much higher than commercial customers with smaller meters primarily because these are compound meters serving large landscaped areas as well as buildings.

Seventy percent of total water use, which excludes City water use for parks, construction water, and fire suppression, is by single family customers, as shown in **Figure 3-2**.

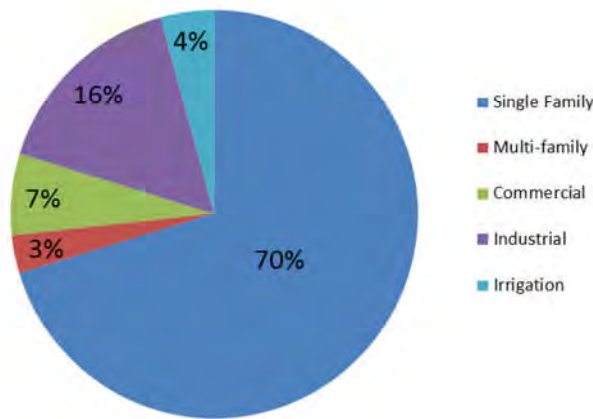


Figure 3-2
Percent of Total Water Use by Customer Category

Residential

The majority of single family residential customers has a 5/8-inch meter and consume, on average, 1,932 cubic feet per month. Multi-family units use approximately 776 cubic feet per month per unit. Multi-family units have less landscaping than single family units and do not have as strong seasonal usage as single family units.

Commercial

The commercial category includes all customers that would not be classified as residential, industrial, or landscape irrigation. These customers display strong correlation between meter size and water consumption. This customer category was further split between customers with meters smaller than 4-inches (106 meters), and customers with meters 4-inches and larger (8 meters) because of the water use differential between these two groups.

Average monthly water use by the larger groups of commercial customers (with smaller meters) is 2,634 cubic feet. The smaller group (with larger meters, including compound meters) uses an average of 25,675 cubic feet per month.

Industrial

Industrial customers place a more consistent monthly demand on the system with the exception of the tomato processing plant which is used seasonally. Currently there are 5 industrial customer accounts in the City using an average of 239,490 cubic feet per month. An industrial customer does not necessarily use more water than a commercial customer; the classification is based on type of business.

Irrigation

Irrigation accounts are used most heavily during the summer months, with 93 percent of water within this category consumed during the peaking period (May through September). The majority of irrigation accounts have 2-inch meters.

3.2.3 WATER USE BY BLOCK LIMIT

The quantity of water used within each block was calculated by customer type and is summarized in **Table 3-6**. These percentages are used to determine the rate per hundred cubic feet of water for each tier of the rate structure. Support tables are provided in Appendix A **Tables A-4** through **A-8**.

Table 3-6
Estimated Percentage of Water Billed by Block Limit

Scenario	Residential		Commercial		Industrial	Landscape
	Single Family	Multi-Family	< 4" Meter	4" + Meter		
Two Tiers						
Block 1	43%	45%	40%	28%	n.a.	31%
Block 2	57%	55%	60%	72%	n.a.	69%
Three Tiers						
Block 1	43%	45%	40%	28%	n.a.	31%
Block 2	50%	42%	14%	36%	n.a.	37%
Block 3	7%	14%	45%	36%	n.a.	32%

Source: HEC.

"blocks"

3.3 PROJECTED WATER DEMAND

A summary of projected water demands through the Study period is presented in **Table 3-7**. Water demands were estimated by applying water use factors to each account. Water use factors were developed for each customer type using metered customer water use data as described in Section 3.2.1; however, they were adjusted downwards to account for the reduction in water use between 2009 and 2011.

Water consumption (or deliveries) is projected to increase from 82.9 million cubic feet to 107.2 million cubic feet in fiscal year 2021-22. Actual growth may differ from the projected General Plan increase of 3.5 percent per year, and water consumption habits may change during this timeframe; however, it is a reasonable projection of water consumption based on historical water use and estimates of customer reactions to price increases.

Detailed calculation of projected water demands by year is shown in appendix **Table A-9**. The calculations incorporate price-elasticity. When rates are increased customers will reduce water use. This effect is termed “price elasticity”. Price elasticity measures the change in water use resulting from a price increase, all other things held equal. Price elasticity factors vary by location, pricing structure of both water and sewer rates, time of year, and customer type. The price elasticity factors used in the analysis are within the range of industry standards and are shown for each customer type in Appendix **Table A-10**.

Price elasticity is only applied to real price increases; that is the price increase adjusted for inflation, to keep the effect of the price of water independent of total cost increases. For example, in Fiscal Year 2012-13 the price increase necessary to meet the revenue requirement is 25.6 percent but assuming inflation is 2.5 percent, any change in water demand as a result of a price increase is calculated on a 23.0 percent increase. With a negative price elasticity of 0.15, a single family residential customer is expected to decrease water use by 1.5 percent when price increases 10 percent. Landscape irrigation customers are anticipated to show greatest response to water price increases.

Table 3-7
Summary of Total Flow by Customer Type through 2019-2020

Customer Type	Base Year FY 10-11	Estimated FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Residential												
Single Family	58,281,551	58,281,551	57,610,309	59,301,319	61,029,626	62,888,165	64,906,542	67,038,271	69,308,307	71,554,426	73,977,419	76,504,183
Multi-family	2,470,656	2,470,656	2,451,686	2,528,264	2,606,884	2,690,223	2,779,170	2,872,445	2,970,801	3,069,644	3,174,754	3,284,083
Subtotal Residential	60,752,207	60,752,207	60,061,995	61,829,583	63,636,510	65,578,388	67,685,712	69,910,716	72,279,107	74,624,071	77,152,172	79,788,266
Commercial												
Smaller than 4"	3,084,471	3,084,471	3,037,105	3,120,534	3,205,390	3,298,146	3,400,804	3,510,052	3,627,577	3,742,004	3,867,297	3,998,300
4" and Larger	2,309,151	2,309,151	2,273,691	2,336,150	2,399,676	2,469,116	2,545,971	2,627,758	2,715,741	2,801,405	2,895,205	2,993,278
Subtotal Commercial	5,393,622	5,393,622	5,310,796	5,456,684	5,605,066	5,767,262	5,946,775	6,137,810	6,343,318	6,543,409	6,762,502	6,991,578
Industrial	13,227,608	13,227,608	12,770,572	13,001,179	13,227,834	13,510,370	13,865,478	14,261,049	14,711,489	15,111,979	15,589,317	16,095,465
Irrigation	3,527,610	3,527,610	3,405,725	3,467,224	3,527,670	3,603,018	3,697,720	3,803,213	3,923,339	4,030,144	4,157,443	4,292,425
Estimated Total Water Deliveries	82,901,047	82,901,047	81,549,087	83,754,670	85,997,080	88,459,038	91,195,686	94,112,787	97,257,254	100,309,603	103,661,433	107,167,735
Estimated Loss /Unaccounted for Water [1]	17,113,951	17,113,951	16,834,855	17,290,172	17,753,091	18,261,334	18,826,282	19,428,484	20,077,622	20,707,744	21,399,690	22,123,525
Total Estimated Water Production	100,014,999	100,014,999	98,383,942	101,044,842	103,750,171	106,720,372	110,021,968	113,541,271	117,334,876	121,017,347	125,061,124	129,291,261

Source: City of Newman and HEC.

"sum_demand"

[1] Estimated at 17% of total water produced. See Table 3-3.

Water Rate Analysis

This section of the Study describes the analysis performed to calculate water rates through Fiscal Year 2021-22. Future facility cost estimates in Section 2 and customer use characteristics described in Section 3 are incorporated into the rate analysis.

4.1 FINANCIAL PROJECTIONS

4.1.1 BASE YEAR FINANCIALS

Fiscal Year 2010-11 revenues and expenses are presented in **Table 4-1**. Adjustments to the figures were made to determine a 'Base Year' of financials for purposes of projecting revenues and expenditures over the Study period and comparing alternative rate structures.

Base year revenues include all City Funds 63 and 64 revenues. The Fiscal Year 2010-11 financials totaled \$882,000 in revenue. Projected meter replacement fees were added to the base year, and fees collected at building permit were excluded. After adjustments the base year revenues are \$924,600.

Fiscal Year 2010-11 expenditures were adjusted for the meter replacement program and system rehabilitation using the City's depreciation schedule for water system assets provided in the annual audited financials. With the inclusion of other minor adjustments, total operating expenses increase from \$954,600 to \$956,600. **Table 4-1** also includes \$20,000 to build up operating reserves. Depreciation estimates for the Study period are provided in appendix **Table A-11**.

Expenses and non-water sales revenues are projected from the base year financials to determine the revenue requirement in each projected year. The revenue requirement is the amount of revenue that must be generated through water sales and is the basis for calculating water rates.

4.1.2 PROJECTED REVENUES

To be conservative, non-water sales revenue projections, which include water reconnection fees, refunds / reimbursements, interest income, and miscellaneous revenues, are assumed to remain at the base year levels through Fiscal Year 2021-22.

Table 4-1
Base Year Financials

Revenues and Expenses	Actual FY 2010-11	Adjustments	Base for Projections
Revenues		[1]	
Water Sales	\$824,634	\$0	\$824,634
Meter Replacement Fee [2]	\$0	\$42,750	\$42,750
Other Charges for Service [3]	\$15,448	\$0	\$15,448
Water Charges Collected at Building Permit [4]	\$179	(\$179)	\$0
Late Charges / Penalties	\$30,348	\$0	\$30,348
Miscellaneous	\$467	\$0	\$467
Interest Income	\$10,908	\$0	\$10,908
Total Revenues	\$881,985	\$42,570	\$924,555
Expenses			
Salaries and Benefits	\$410,058	\$0	\$410,058
Maintenance and Operations	\$305,404	(\$16,143)	\$289,261
Billing Software	\$16,143	\$0	\$16,143
Meter Replacement Program [2]	\$0	\$46,390	\$46,390
Fleet [5]	\$16,522	\$0	\$16,522
Utilities [6]	\$143,807	\$0	\$143,807
Capital Acquisitions [7]	\$6,390	(\$6,390)	\$0
CIP Projects and System Rehabilitation [8]	\$56,305	\$24,543	\$80,848
Subtotal Expenses	\$954,628	\$48,401	\$1,003,029
Operating Reserves	\$0	\$20,000	\$20,000
Debt Service	\$59,900	\$0	\$59,900
Total Expenses	\$1,014,528	\$68,401	\$1,082,929
Net Revenues (Expenses)	(\$132,544)	(\$25,830)	(\$158,374)

Source: City of Newman Water Accounts 63 and 64 and HEC.

"adjust"

[1] Adjustments are made to reflect discontinuation of one-time revenues and expenses, to reflect historical levels of revenues and expenses, and for rounding.

[2] Estimated cost for a routine annual meter replacement program.

[3] Includes water reconnection fee and refunds / reimbursements.

[4] Includes utility application fee, meter fees, development impact fees, connection fees and developer contributi

[5] Vehicle maintenance and fuel.

[6] Electric bills and natural gas.

[7] Capital acquisitions will vary from year to year; capital acquisitions are rolled in with system rehabilitation.

[8] CIP projects rate-funded will vary from year to year.

4.1.3 PROJECTED EXPENSES

With the exception of the meter replacement program, CIP costs cash-funded and debt service, expenses were projected 5% per year based on the City's historical average annual increase in operating expenses and other relevant price indices (see **Table A-11**). In addition, one additional full-time equivalent employee is anticipated to be needed beginning fiscal year 2016-17.

Well Project Additional Annual Expenses

Additional costs to operate a new well are included in years 4 through 10 of the Study using current well pumping costs and maintenance costs and are inflated 5% per year for future year estimates.

Depreciation

Depreciation is used as the basis for which to collect rates to cover system rehabilitation costs. The Study recommends including 100% of depreciation for existing system assets, and increasing the portion of depreciation for new capital facilities through the Study period (see **Table A-12**). Water sales revenues collected for depreciation will be available for strengthening and replacing water mains and other major water system facility assets, and/or other purposes.

Bond-funded Capital Facilities

Existing debt service is approximately \$60,000 per year. Additional debt service of approximately \$375,400 per year is projected to finance the well and tank project. A planning loan for surface water treatment plant costs is projected to add debt service of approximately \$106,900. In addition, all three CDPH loans will accrue interest payable semi-annually prior to project completion.

4.2 REVENUE REQUIREMENT

Table 4-2 provides the projection of annual costs and revenues and the resulting revenue requirement (amount of revenues generated through water sales) through Fiscal Year 2021-22.

Total revenue requirement is projected to increase from \$1,064,200 in fiscal year 2012-13 to \$2,170,600 in fiscal year 2021-22.

Table 4-2
Projected Revenue Requirement

Revenues and Expenses	Assumptions	Base Year	Estimated FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
		<i>inflated 6 mo</i>											
Operating Expenses													
Salaries and Benefits [1]	5.0%	\$410,058	\$420,300	\$441,300	\$463,400	\$486,600	\$510,900	\$636,400	\$668,200	\$701,600	\$736,700	\$773,500	\$812,200
Maintenance and Operations	5.0%	\$289,261	\$296,500	\$311,300	\$326,900	\$343,200	\$360,400	\$378,400	\$397,300	\$417,200	\$438,100	\$460,000	\$483,000
Billing Software Charges	actual	\$16,100	\$11,100	\$12,000	\$12,500	\$12,500	\$12,500	\$12,600	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500
Meter Replacement Program	3.2%	\$0	\$0	\$46,390	\$48,500	\$50,610	\$52,720	\$54,830	\$56,930	\$59,040	\$61,150	\$63,260	\$65,370
Fleet	5.0%	\$16,522	\$16,900	\$17,700	\$18,600	\$19,500	\$20,500	\$21,500	\$22,600	\$23,700	\$24,900	\$26,100	\$27,400
Utilities	5.0%	\$143,807	\$147,400	\$154,800	\$162,500	\$170,600	\$179,100	\$188,100	\$197,500	\$207,400	\$217,800	\$228,700	\$240,100
Additional O&M Costs for New Well		\$0	\$0	\$0	\$0	\$0	\$53,100	\$55,800	\$58,600	\$61,500	\$64,600	\$67,800	\$71,200
Total Operating Expenses		\$875,748	\$892,200	\$983,490	\$1,032,400	\$1,083,010	\$1,189,220	\$1,347,630	\$1,406,630	\$1,475,940	\$1,548,750	\$1,624,860	\$1,704,770
Debt Service													
Existing USDA Water Revenue Bonds Debt Service		\$59,900	\$60,250	\$60,500	\$60,650	\$59,725	\$59,725	\$59,625	\$60,400	\$60,050	\$59,600	\$60,025	\$59,325
Future CDPH Debt Service for Well		\$0	\$0	\$0	\$0	\$0	\$187,715	\$375,430	\$375,430	\$375,430	\$375,430	\$375,430	\$375,430
Future CDPH Debt Service for Surface Water Planning Loan		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$106,900	\$106,900	\$106,900
Interest Payment on CDPH Loan for Well		\$0	\$0	\$1,300	\$21,497	\$102,381	\$137,046	\$0	\$0	\$0	\$0	\$0	\$0
Interest Payment on CDPH Planning Loan - Surface Project		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,338	\$12,876	\$0	\$0	\$0
Interest Payment on CDPH Loan for Surface Water Plant		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,696	\$20,148	\$26,174	\$31,166
Total Debt Service		\$59,900	\$60,250	\$61,800	\$82,147	\$162,106	\$384,486	\$435,055	\$440,168	\$451,052	\$562,078	\$568,529	\$572,821
CIP Projects Cash Funded with Rates	n.a.	\$0	\$0	\$40,200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Rehabilitation		\$80,848	\$80,800	\$80,800	\$80,800	\$94,000	\$116,000	\$151,100	\$203,800	\$212,600	\$230,200	\$247,800	\$256,500
Operating Reserves (draw)		\$0	\$0	\$0	\$120,000	\$150,000	\$75,000	\$75,000	\$75,000	\$75,000	\$20,000	\$20,000	\$20,000
SUBTOTAL Annual Cost		\$1,016,496	\$1,033,250	\$1,166,290	\$1,315,347	\$1,489,116	\$1,764,706	\$2,008,785	\$2,125,598	\$2,214,592	\$2,361,028	\$2,461,189	\$2,554,091
Other Impacts (Credits)													
Meter Replacement Fee [4]	3.2%	(\$42,750)	(\$45,000)	(\$47,400)	(\$49,900)	(\$52,500)	(\$55,300)	(\$58,200)	(\$61,300)	(\$64,500)	(\$67,900)	(\$71,500)	(\$75,300)
Other Charges for Service [2]	constant	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)	(\$15,448)
Water Charges Collected at Building Permit [3]	see footnote	\$0	\$0	\$0	\$0	\$0	(\$108,405)	(\$216,811)	(\$216,811)	(\$216,811)	(\$216,811)	(\$216,811)	(\$216,811)
Late Charges / Penalties	2.5% of sales	(\$30,348)	(\$24,800)	(\$27,900)	(\$31,300)	(\$35,200)	(\$43,900)	(\$51,900)	(\$54,600)	(\$56,700)	(\$60,100)	(\$62,400)	(\$64,600)
Miscellaneous	constant	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)	(\$467)
Interest Income	constant	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)	(\$10,908)
Total Other Impacts		(\$99,921)	(\$96,623)	(\$102,123)	(\$108,023)	(\$114,523)	(\$234,428)	(\$353,734)	(\$359,534)	(\$364,834)	(\$371,634)	(\$377,534)	(\$383,534)
REVENUE REQUIREMENT	Current	\$824,634	\$916,575	\$936,627	\$1,064,167	\$1,207,324	\$1,374,593	\$1,530,278	\$1,766,065	\$1,849,758	\$1,989,395	\$2,083,655	\$2,170,558
Increase (Decrease) from Prior Year				\$239,533	\$143,157	\$167,269	\$155,685	\$124,774	\$111,013	\$83,694	\$139,636	\$94,260	\$86,902
<i>Annual Percentage Change</i>				25.6%	13.5%	13.9%	11.3%	8.2%	6.7%	4.7%	7.5%	4.7%	4.2%

Source: HEC.

"rev_req"

[1] One additional FTE included from Year 5 on.

[2] Includes water reconnection fee and refunds / reimbursements.

[3] Connection fee and development impact fee revenue applied toward future customers' share of debt service.

[4] The meter replacement fee schedule increases by 3.2%; the total number of meters paying the fee is estimated to increase by 2.0% per year.

4.3 COST OF SERVICE

Total revenue requirement was allocated between customer and capacity costs (collected through the monthly service charge) and consumption costs (collected through the use charges).

Table A-13 in the appendix shows this allocation of costs for all customer types. Total base charges should collect at least 48 percent of the revenue requirement, reflecting the fixed cost share of operating the water system. The remaining revenue requirement is for variable costs and should be collected through use charges. Historically a 55 percent base and 45 percent use cost share has been used to collect revenues.

Types of Costs

- **Customer Costs.** These costs generally include meter reading, billing, and customer service and are considered fixed costs although they vary with number of customers served.
- **Capacity Costs.** Capacity costs are also considered fixed costs, but rather than vary based on the number of customers, tend to vary based on the capacity of the water system. Customers that place greater demand on the water system should pay a proportionally higher cost of service for capacity. In general, the demand that each customer could potentially place on the water system is reflected by the size and hydraulic capacity of the water meter.

Included in this category are costs associated with the water system's capacity including some fixed water system O&M and repair and replacement costs. A portion of the costs associated with providing capacity is allocated to consumption costs based on the peak to average month water delivery ratio, as calculated in **Table 3-2**. Debt service is also allocated based on this ratio.

Customer and Capacity costs are allocated to customers based on the number of equivalent meters, determined by the relative hydraulic capacity of the meter size relative to a 1-inch meter. **Table A-14** shows the calculation of equivalent meters.

- **Consumption Costs.** Consumption costs are costs that vary with the amount of actual water consumption. Operations and maintenance consumption costs include well pumping and chemical costs, and capital outlay costs related to peak month deliveries. Consumption-related costs are variable and are recovered through use charges.

The customer and capacity costs combined comprise the calculated service charge per month. The consumption costs provide the basis for calculation of the use charges per hundred cubic feet.

Table 4-3 provides the projection of revenue requirement by cost component. The cost classification exercise shown in Appendix **Table A-13** was conducted using the fiscal year 2010-11 financials operating an entirely groundwater system. If the City incorporates surface water the cost classification will shift with a greater portion of costs fluctuating with water demand. The percentage of costs collected through the monthly service charge decreases through the projection. By placing greater emphasis on water usage charges, relative to fixed service charges, the water rate structure will not only provide customers with increased financial incentives for conserving water, but this change in the water rate structure will also help maintain the affordability of basic water usage. Customers using less water will have smaller monthly bill increases relative to customers that use large amounts of water.

Table 4-3
Revenue Requirement by Year by Cost Classification

Cost Classification	Collected Through	Base Year	Estimated FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Total Revenue Requirement		\$916,575	\$936,627	\$1,064,167	\$1,207,324	\$1,374,593	\$1,530,278	\$1,655,051	\$1,766,065	\$1,849,758	\$1,989,395	\$2,083,655	\$2,170,558
Customer & Capacity	Fixed Monthly Charge [1]	\$504,116	\$515,145	\$553,367	\$591,589	\$632,313	\$703,928	\$753,048	\$794,729	\$823,142	\$875,334	\$916,808	\$955,045
	<i>Percent Share</i>	55.0%	55.0%	52.0%	49.0%	46.0%	46.0%	45.5%	45.0%	44.5%	44.0%	44.0%	44.0%
Consumption	Flow Charges	\$412,459	\$421,482	\$510,800	\$615,735	\$742,280	\$826,350	\$902,003	\$971,336	\$1,026,616	\$1,114,061	\$1,166,847	\$1,215,512
	<i>Percent Share</i>	45.0%	45.0%	48.0%	51.0%	54.0%	54.0%	54.5%	55.0%	55.5%	56.0%	56.0%	56.0%

Source: HEC.

"classif_proj"

[1] Charge varies by meter size.

4.4 CALCULATED RATES

Customer and capacity costs were allocated by meter size resulting in a monthly service charge per equivalent meter (one equivalent meter is equal to a 1-inch meter). Each customer would be billed the monthly service charge per meter. The calculation of monthly service charges is shown in **Table 4-4**. Note that these charges exclude the meter replacement program monthly charges.

Consumption costs are included in the use charges as shown in **Table 4-5**. The use charge for industrial customers does not vary with total month usage; rather, these customers have one rate per hundred cubic feet. All other customers are charged for use under an increasing charge tiered rate schedule.

Although the price per hundred cubic feet is the same across customer types for each tier, the total water use or block limit for each tier is different for each customer type. Setting different block limits increases the number of customers facing incentive to use water efficiently and is considered to be fairer as it reflects local customer use patterns. Under a three-tier inclining block structure the first block is intended to capture indoor water usage or a base level of usage for commerce and irrigation, the second block what the average customer is expected to use during the peak months, and the third block outdoor usage that is fifty percent more than the average customer is expected to use during the peak irrigation months.

4.4.1 ALTERNATIVE RATE STRUCTURES

In developing the Study different rate structure alternatives were presented and water rates were developed for the Base Year. **Table 4-6** summarizes the rate structures that were modeled. Appendix **Tables A-15** and **A-16** show the results for these rate structure alternatives.

Rate structure (e), which includes a minimum charge with no base allowance and tiered consumption rates with the first tier intended to capture indoor water use, was selected for this Study based on reaching a balance with respect to the following five goals:

1. **Simplicity** for both customers' understanding and for the water utility to administer,
2. **Revenue Stability** to provide sufficient revenues during times of lower than anticipated water usage,
3. **Equity**, such that each customer of the water system pays for their proportional use of the system,
4. **Revenue Predictability** so that the City can make reasonable financial projections and position itself well in the capital markets,
5. **Efficiency** to encourage wise use of water and protect the community's water supply into the future.

Table 4-4
Calculated Service Monthly Charges

	Base Year FY 10-11	Estimated FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Estimated Meter Equivalents [1]	3,399	3,399	3,467	3,537	3,608	3,680	3,753	3,828	3,905	3,983	4,063	4,144
Meter Equivalents Billed [2]	3,338	3,338	3,405	3,473	3,542	3,613	3,685	3,759	3,834	3,911	3,989	4,069
Allocated Costs	\$504,116	\$515,145	\$553,367	\$591,589	\$632,313	\$703,928	\$753,048	\$794,729	\$823,142	\$875,334	\$916,808	\$955,045
Monthly Service Charge per Meter												
5/8"	\$12.59	\$12.86	\$13.54	\$14.20	\$14.88	\$16.24	\$17.03	\$17.62	\$17.89	\$18.65	\$19.15	\$19.56
3/4"	\$12.59	\$12.86	\$13.54	\$14.20	\$14.88	\$16.24	\$17.03	\$17.62	\$17.89	\$18.65	\$19.15	\$19.56
1"	\$12.59	\$12.86	\$13.54	\$14.20	\$14.88	\$16.24	\$17.03	\$17.62	\$17.89	\$18.65	\$19.15	\$19.56
1-1/2"	\$25.17	\$25.72	\$27.09	\$28.39	\$29.75	\$32.47	\$34.06	\$35.24	\$35.78	\$37.30	\$38.30	\$39.12
2"	\$40.27	\$41.15	\$43.34	\$45.43	\$47.60	\$51.95	\$54.49	\$56.38	\$57.25	\$59.68	\$61.29	\$62.59
3"	\$88.10	\$90.03	\$94.81	\$99.37	\$104.13	\$113.65	\$119.20	\$123.33	\$125.23	\$130.56	\$134.06	\$136.92
4"	\$151.03	\$154.33	\$162.53	\$170.35	\$178.51	\$194.83	\$204.33	\$211.42	\$214.68	\$223.82	\$229.82	\$234.72
6"	\$314.64	\$321.52	\$338.60	\$354.89	\$371.89	\$405.89	\$425.70	\$440.45	\$447.25	\$466.28	\$478.80	\$488.99
8"	\$453.08	\$462.99	\$487.59	\$511.05	\$535.52	\$584.48	\$613.00	\$634.25	\$644.04	\$671.45	\$689.47	\$704.15
10"	\$729.96	\$745.93	\$785.56	\$823.35	\$862.78	\$941.66	\$987.62	\$1,021.85	\$1,037.63	\$1,081.78	\$1,110.82	\$1,134.46

Source: HEC.

"Proj fixed"

[1] See Table A-14 for calculation of number of meter equivalents. Projected meter equivalents based on historical meter growth of 2.0%.

[2] Accounts for 2% vacancy of residential and small commercial customer accounts.

Table 4-5
Calculated Use Charges

	Base Year FY 10-11	Estimated FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Allocated Cost / Target	\$412,459	\$421,482	\$510,800	\$615,735	\$742,280	\$826,350	\$902,003	\$971,336	\$1,026,616	\$1,114,061	\$1,166,847	\$1,215,512
Estimated Usage by Customer Group by Tier												
Residential												
Single Family	58,281,551	58,281,551	57,610,309	59,301,319	61,029,626	62,888,165	64,906,542	67,038,271	69,308,307	71,554,426	73,977,419	76,504,183
Multi-family	2,470,656	2,470,656	2,451,686	2,528,264	2,606,884	2,690,223	2,779,170	2,872,445	2,970,801	3,069,644	3,174,754	3,284,083
Subtotal Residential	60,752,207	60,752,207	60,061,995	61,829,583	63,636,510	65,578,388	67,685,712	69,910,716	72,279,107	74,624,071	77,152,172	79,788,266
Commercial												
< 4" Meter	3,084,471	3,084,471	3,037,105	3,120,534	3,205,390	3,298,146	3,400,804	3,510,052	3,627,577	3,742,004	3,867,297	3,998,300
4" + Meter	2,309,151	2,309,151	2,273,691	2,336,150	2,399,676	2,469,116	2,545,971	2,627,758	2,715,741	2,801,405	2,895,205	2,993,278
Subtotal Commercial	5,393,622	5,393,622	5,310,796	5,456,684	5,605,066	5,767,262	5,946,775	6,137,810	6,343,318	6,543,409	6,762,502	6,991,578
Landscape	3,527,610	3,527,610	3,405,725	3,467,224	3,527,670	3,603,018	3,697,720	3,803,213	3,923,339	4,030,144	4,157,443	4,292,425
Industrial	13,227,608	13,227,608	12,770,572	13,001,179	13,227,834	13,510,370	13,865,478	14,261,049	14,711,489	15,111,979	15,589,317	16,095,465
Total Cubic Feet	82,901,047	82,901,047	81,549,087	83,754,670	85,997,080	88,459,038	91,195,686	94,112,787	97,257,254	100,309,603	103,661,433	107,167,735
All Non-Industrial Customer Use												
Tier 1 Use --- in hundreds of cubic feet	292,553	292,553	288,905	297,253	305,777	314,978	325,015	335,635	346,970	358,145	370,241	382,863
Tier 2 Use --- in hundreds of cubic feet	329,202	329,202	325,098	334,492	344,085	354,440	365,735	377,686	390,441	403,016	416,628	430,832
Tier 3 Use --- in hundreds of cubic feet	74,979	74,979	73,782	75,789	77,831	80,069	82,552	85,197	88,046	90,815	93,852	97,029
TOTAL USE	696,734	696,734	687,785	707,535	727,692	749,487	773,302	798,517	825,458	851,976	880,721	910,723
Use Charges per 100 Cubic Feet												
Industrial	\$0.50	\$0.51	\$0.63	\$0.74	\$0.86	\$0.93	\$0.99	\$1.03	\$1.06	\$1.11	\$1.13	\$1.13
All Other Customers [1]												
Tier 1	\$0.44	\$0.45	\$0.55	\$0.65	\$0.76	\$0.82	\$0.87	\$0.91	\$0.93	\$0.98	\$0.99	\$1.00
Tier 2	\$0.52	\$0.54	\$0.66	\$0.78	\$0.91	\$0.99	\$1.04	\$1.09	\$1.11	\$1.17	\$1.19	\$1.20
Tier 3	\$0.61	\$0.63	\$0.77	\$0.90	\$1.06	\$1.15	\$1.22	\$1.27	\$1.30	\$1.37	\$1.39	\$1.40

Source: HEC.

"proj flow"

[1] Per Table 3-5, block limits for other customers are:

	Tier 1	Tier 2	Tier 3	
Single Family per Unit	0 to 10	10.1 - 44	> 44	hundred cubic feet per month
Multi-family per Unit	0 to 5	5.1 - 17	> 17	hundred cubic feet per month
Commercial < 4"	0 to 26	26.1 - 49	> 49	hundred cubic feet per month
Commercial 4"+	0 to 257	257.1 - 1,303	> 1,303	hundred cubic feet per month
Landscape	0 to 173	173.1 - 822	> 822	hundred cubic feet per month

Table 4-6
Alternative Rate Structures Considered

Current	
a	Minimum charge with base allowance, uniform consumption rate
Potential	
b	Minimum charge with base allowance to reflect indoor water use [1], uniform consumption rate
c	Minimum charge with base allowance to reflect indoor water use [1], tiered consumption rates
d	Minimum charge with no base allowance, uniform consumption rate
e	Minimum charge with no base allowance, tiered consumption rates, first tier for indoor water use [2,3]

Source: HEC.

"options"

[1] Base allowance is for approximate indoor water use for residential and base monthly use for non-residential.

[2] As footnote [1] except the approximate indoor water use is charged the tier 1 rate.

[3] Not applicable for Industrial which would be charged a uniform rate.

4.5 PROJECTED CASH FLOW

Table 4-7 shows the projected cash flow through Fiscal Year 2021-22 with water sales revenues matching total revenue requirement. With adoption of the calculated rates it is anticipated that the City will continue to meet all water enterprise fund obligations, including existing and potential debt service coverage requirements, and maintain a prudent level of operating reserves.

**Table 4-7
Projected Water Enterprise Fund Cash Flow**

Revenues and Expenses	Cost Escalation Assumptions	Estimate Fiscal Year FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Operating Revenues	<i>Estimated New EDUs</i>		172	176	184	188	196	204	210	216	226	232
Water Sales		\$907,100	\$1,064,167	\$1,207,324	\$1,374,593	\$1,530,278	\$1,655,051	\$1,766,065	\$1,849,758	\$1,989,395	\$2,083,655	\$2,170,558
Use of Reserves												
Meter Replacement Fee [4]	3.2%	\$0	\$47,400	\$49,900	\$52,500	\$55,300	\$58,200	\$61,300	\$64,500	\$67,900	\$71,500	\$75,300
Other Charges for Service [1]	constant	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448	\$15,448
Water Charges Collected at Building Permit [2]	see footnote	\$179	\$0	\$0	\$0	\$108,405	\$216,811	\$216,811	\$216,811	\$216,811	\$216,811	\$216,811
Late Charges / Penalties	2.5% of sales	\$24,800	\$27,900	\$31,300	\$35,200	\$43,900	\$51,900	\$54,600	\$56,700	\$60,100	\$62,400	\$64,600
Miscellaneous	constant	\$467	\$467	\$467	\$467	\$467	\$467	\$467	\$467	\$467	\$467	\$467
Interest Income	constant	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908	\$10,908
Total Operating Revenues		\$958,902	\$1,166,290	\$1,315,347	\$1,489,116	\$1,764,706	\$2,008,785	\$2,125,598	\$2,214,592	\$2,361,028	\$2,461,189	\$2,554,091
Operating Expenses												
Salaries and Benefits	5.0%	\$420,300	\$441,300	\$463,400	\$486,600	\$510,900	\$636,400	\$668,200	\$701,600	\$736,700	\$773,500	\$812,200
Maintenance and Operations	5.0%	\$296,500	\$311,300	\$326,900	\$343,200	\$360,400	\$378,400	\$397,300	\$417,200	\$438,100	\$460,000	\$483,000
Billing Software Charges	actual	\$11,100	\$12,000	\$12,500	\$12,500	\$12,500	\$12,600	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500
Meter Replacement Program	3.2%	\$0	\$46,390	\$48,500	\$50,610	\$52,720	\$54,830	\$56,930	\$59,040	\$61,150	\$63,260	\$65,370
Fleet	5.0%	\$16,900	\$17,700	\$18,600	\$19,500	\$20,500	\$21,500	\$22,600	\$23,700	\$24,900	\$26,100	\$27,400
Utilities	5.0%	\$147,400	\$154,800	\$162,500	\$170,600	\$179,100	\$188,100	\$197,500	\$207,400	\$217,800	\$228,700	\$240,100
Additional O&M Costs for new well		\$0	\$0	\$0	\$0	\$53,100	\$55,800	\$58,600	\$61,500	\$64,600	\$67,800	\$71,200
Total Operating Expenses		\$892,200	\$983,490	\$1,032,400	\$1,083,010	\$1,189,220	\$1,347,630	\$1,406,630	\$1,475,940	\$1,548,750	\$1,624,860	\$1,704,770
Operating Revenue before Capital Improvements and Debt Service		\$66,702	\$182,800	\$282,947	\$406,106	\$575,486	\$661,155	\$718,968	\$738,652	\$812,278	\$836,329	\$849,321
Debt Service												
Existing USDA Water Revenue Bonds Debt Service	n.a.	\$60,250	\$60,500	\$60,650	\$59,725	\$59,725	\$59,625	\$60,400	\$60,050	\$59,600	\$60,025	\$59,325
Future CDPH Debt Service for Well	n.a.	\$0	\$0	\$0	\$0	\$187,715	\$375,430	\$375,430	\$375,430	\$375,430	\$375,430	\$375,430
Future CDPH Debt Service for Surface Water Planning Lc	n.a.	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$106,900	\$106,900	\$106,900	\$106,900
Interest Payment on CDPH Loan for Well	n.a.	\$0	\$1,300	\$21,497	\$102,381	\$137,046	\$0	\$0	\$0	\$0	\$0	\$0
Interest Payment on CDPH Planning Loan - Surface Proj	n.a.	\$0	\$0	\$0	\$0	\$0	\$0	\$4,338	\$12,876	\$0	\$0	\$0
Interest Payment on CDPH Loan for Surface Water Plant		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,696	\$20,148	\$26,174	\$31,166
Total Projected Debt Service		\$60,250	\$61,800	\$82,147	\$162,106	\$384,486	\$435,055	\$440,168	\$451,052	\$562,078	\$568,529	\$572,821
<i>Debt Service Coverage [3]</i>		1.11	2.96	3.44	2.51	1.50	1.52	1.63	1.64	1.45	1.47	1.48
New CIP Projects Cash Funded (from rates)	n.a.	\$25,000	\$40,200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Rehabilitation		\$0	\$80,800	\$80,800	\$94,000	\$116,000	\$151,100	\$203,800	\$212,600	\$230,200	\$247,800	\$256,500
Net Revenues (Deficit)		(\$18,548)	\$0	\$120,000	\$150,000	\$75,000	\$75,000	\$75,000	\$75,000	\$20,000	\$20,000	\$20,000
Beginning Fund Balance		\$1,497,440	\$1,240,151	\$945,651	\$807,934	\$654,159	\$576,331	\$455,831	\$530,831	\$605,831	\$625,831	\$645,831
Use of Reserves for CIP Projects		(\$238,741)	(\$294,500)	(\$257,718)	(\$303,775)	(\$152,827)	(\$195,500)	\$0	\$0	\$0	\$0	\$0
Net Revenues (Deficit) after Debt Service and Capital Improvements		(\$18,548)	\$0	\$120,000	\$150,000	\$75,000	\$75,000	\$75,000	\$75,000	\$20,000	\$20,000	\$20,000
End Fund Balance		\$1,240,151	\$945,651	\$807,934	\$654,159	\$576,331	\$455,831	\$530,831	\$605,831	\$625,831	\$645,831	\$665,831
<i>Target Operating Reserves [5]</i>		\$669,150	\$737,618	\$774,300	\$812,258	\$891,915	\$1,010,723	\$1,054,973	\$1,106,955	\$1,161,563	\$1,218,645	\$1,278,578

Source: HEC.

"cash_flow"

[1] Includes water reconnection fee and refunds / reimbursements.

[2] Connection fee and development impact fee revenue applied toward future customers' share of debt service.

[3] The existing USDA bond requires that the enterprise fund maintain rates and charges to provide net revenues equal to not less than 1.10 times the aggregate amount of principal and interest due. The debt service coverage ratio should be at least 1.20 for future bond sales or loans.

[4] The meter replacement fee schedule increases by 3.2%; the total number of meters paying the fee is estimated to increase by 2.0% per year.

[5] Target is 9 months of expenditures.

Water Rate Affordability and Comparison

5.1 AFFORDABILITY TEST

The California Department of Public Health bases its evaluation of affordability of water rates on two criteria:

1. The median household income of the community compared to the State median household income, and
2. The percentage of median household income spent on water bills.

Generally water rates are considered to be burdensome if they are greater than 2.0 percent of median household income. If a community's median household income is less than 80 percent of the State median household income, the community is considered "disadvantaged", in which case a rate greater than 1.5 percent of median household income is considered burdensome.

Newman does not meet the definition of disadvantaged since median household income is greater than 80 percent of the State median household income. Under the calculated water rates for Fiscal Year 2012-13, a typical household using 19.32 hundred cubic feet in a month would pay \$26.27, which is 0.61 percent of the estimated median household income for Newman. The proposed water rates are, per the California Department of Public Health, affordable. These calculations are shown in **Table 5-1**.

5.2 COMPARISON OF WATER RATES

5.2.1 RESIDENTIAL WATER BILLS

Table 5-2 presents a water rate and water bill comparison with other regional water providers. The bottom portion of the table demonstrates what a typical Newman residential customer with a 5/8-inch meter consuming 19.32 hundred cubic feet would pay in a month in each jurisdiction. For the City of Newman, the bill under both current rates and July 2012 rates are shown.

Figure 5-1 illustrates the portion of the bill that is service charge versus use charges and shows that although residential bills will increase, they will remain in the low to mid-range of comparison bills.

Table 5-1
Affordability

Median Household Income (MHI)	
Statewide California Median Household Income [1]	\$62,403
Estimated Newman Median Household Income [2]	\$51,298
Newman MHI as a percentage of the State MHI	82%
Monthly Water Bill	
Monthly Median Household Income	\$4,275
Average Monthly Water Bill (Single Family Customer) in 2012	\$26.27
Current Average Monthly Water Bill as Percentage of Household Income [3]	0.61%

Source: HEC.

"aff"

[1] Per the California Department of Public Health.

[2] Estimated by multiplying the 2000 Census MHI for Newman by 1.3. This factor was derived using 2009 American Community Survey data for Turlock and Stanislaus County.

Per the California Department of Public Health, a community with an MHI <80% of the Statewide MHI is disadvantaged.

[3] Water bills that are <1.5% of MHI are considered affordable, between 1.5% and 2.0% a concern, particularly if the community is disadvantaged, and not affordable if greater than 2.0%.

Table 5-2
Residential Water Bills Comparison

Charge	Calculated Jul-12	Rates as of July 2012											
		Newman	ows Landii	Turlock	Merced	Manteca	Hughson	Oakdale	Modesto	Ceres	Los Banos	Gustine	Patterson
<i>Base Allowance in HCF</i>	0	4	all	28	30	0	0	12	0	0	15	5	0
Service Charge													
Base/ Minimum Monthly Charge	\$13.54	\$10.90	\$50.00	\$22.05	\$35.14	\$18.00	\$23.75	\$12.10	\$14.25	\$20.42	\$16.47	\$18.00	\$9.82
Meter Replacement Fee	\$1.07			\$2.00									
Service Charge Subtotal	\$14.61	\$10.90	\$50.00	\$24.05	\$35.14	\$18.00	\$23.75	\$12.10	\$14.25	\$20.42	\$16.47	\$18.00	\$9.82
Use Charge													
		<i>Consumption Charge per 100 cubic feet (hcf)</i>											
Uniform Charge		\$0.55			\$0.91		\$1.02		\$1.33	\$0.54	\$1.32		
Newman - Tier 1: 0 - 10 hcf	\$0.55												
Newman - Tier 2: 10.1 - 44 hcf	\$0.66												
Newman - Tier 3: Over 44 hcf	\$0.77												
Turlock - Tier 1: 0 - 66.85 hcf				\$0.80									
Turlock - Tier 2: 66.85 - 200.53 hcf				\$0.68									
Turlock - Tier 3: Over 200.53 hcf				\$0.29									
Oakdale - Tier 1: 12.1 - 34 hcf								\$0.67					
Oakdale - Tier 2: 34.1 - 54 hcf								\$1.00					
Oakdale - Tier 3: Over 54.1								\$1.33					
Patterson - Tier 1: 0-3 hcf													\$1.10
Patterson - Tier 2: 3.1-20 hcf													\$1.42
Patterson - Tier 3: 20.1-50 hcf													\$1.74
Patterson - Tier 4: Over 50 hcf													\$2.45
Gustine - Tier 1: 5.01 - 10 hcf												\$0.83	
Gustine - Tier 2: 10.01 - 20 hcf												\$1.02	
Gustine - Tier 3: 20.01 to 30 hcf												\$1.22	
Gustine - Tier 4: 30.01 to 40 hcf												\$1.52	
Gustine - Tier 5: Over 40 hcf												\$1.87	
Manteca - Tier 1: 0- 20 hcf						\$1.36							
Manteca - Tier 2: 20.1 - 300 hcf						\$1.78							
Manteca - Tier 2: Over 300 hcf						\$3.58							
Average Monthly Use (5/8" Meter)													
		<i>Monthly Bill for 1,932 cubic feet (19.32 units)</i>											
Service Charge	\$14.61	\$10.90	\$50.00	\$24.05	\$35.14	\$18.00	\$23.75	\$12.10	\$14.25	\$20.42	\$16.47	\$18.00	\$9.82
Consumption Charge	\$11.67	\$8.43	\$0.00	\$0.00	\$0.00	\$26.28	\$19.80	\$17.06	\$25.70	\$10.40	\$5.70	\$13.66	\$26.47
Total Monthly Charge	\$26.27	\$19.33	\$50.00	\$24.05	\$35.14	\$44.28	\$43.55	\$29.16	\$39.95	\$30.82	\$22.17	\$31.66	\$36.29

Res Cons Charge

**Comparison Water Charges
5/8" Meter Residential Service
Using 1,932 cubic feet per Month**

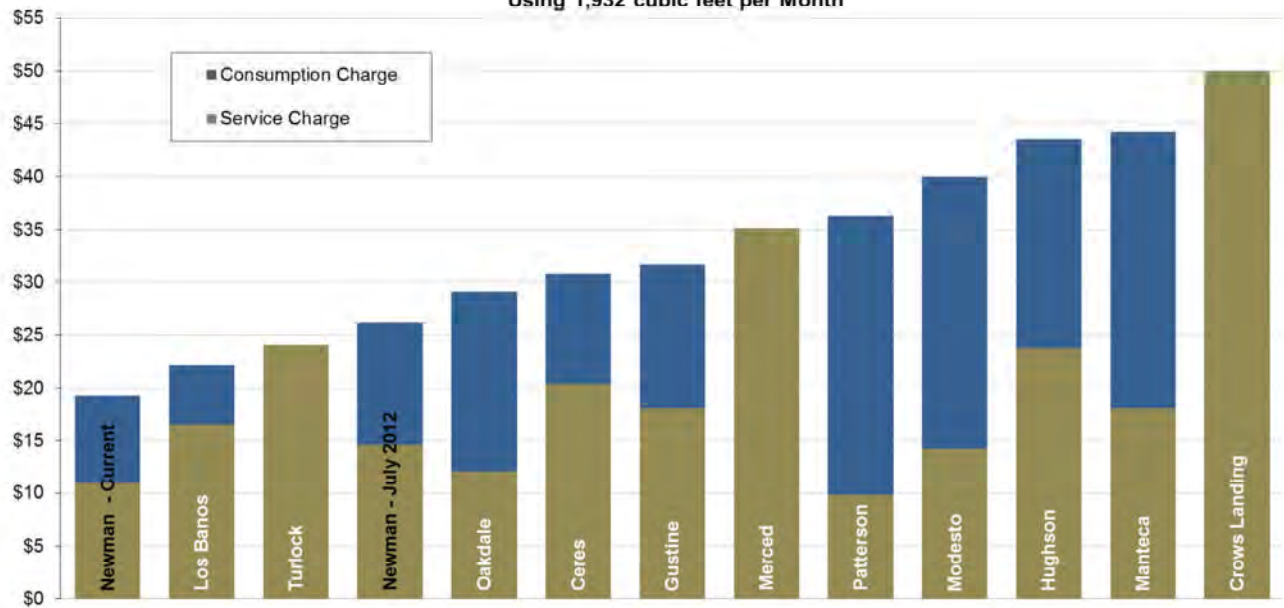


Figure 5-1
Residential Water Bill Comparison

5.2.2 COMMERCIAL WATER SERVICE CHARGES

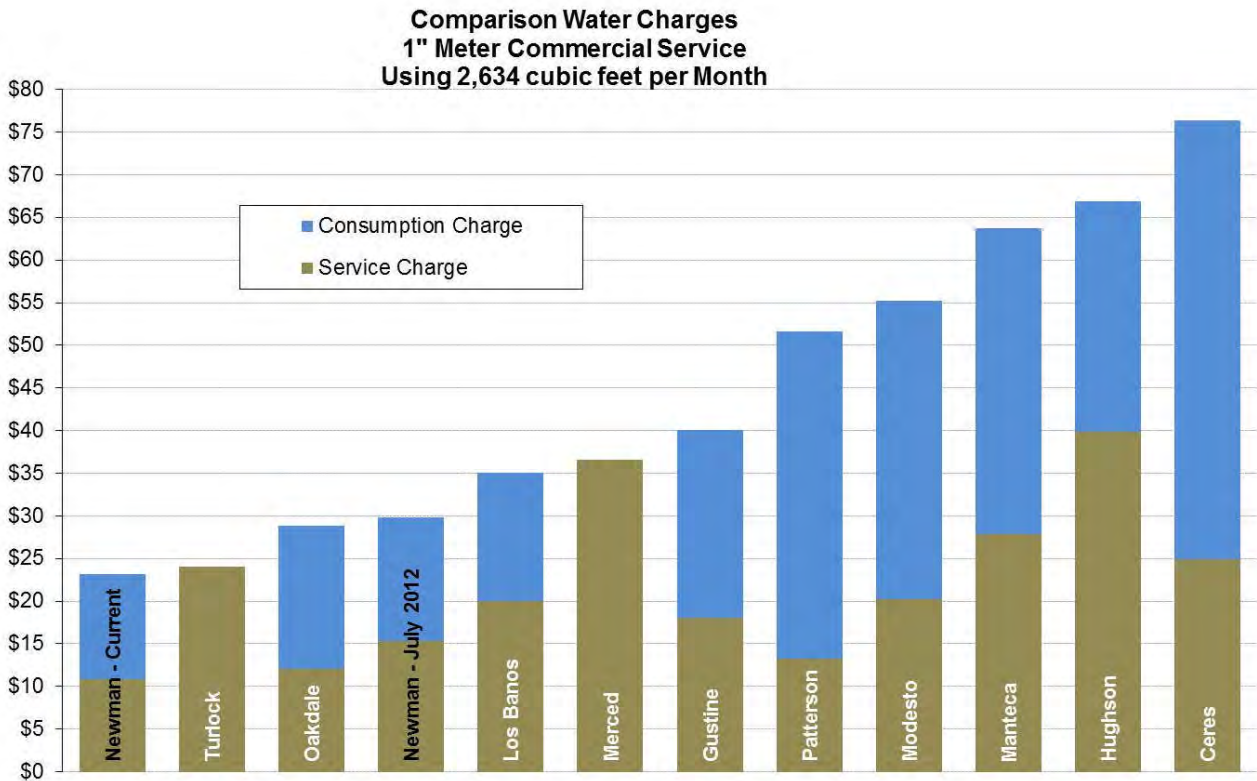
Table 5-3 displays the commercial water rate structure in each comparison city. The bottom portion of the table demonstrates what a typical Newman commercial customer with a 1-inch meter consuming 26.64 hundred cubic feet would pay in a month under both the existing water rates and proposed new rate structure in July 2012. Commercial customer bills will increase from an average of \$23.19 per month to \$29.83 per month; however, they will remain within the competitive range.

**Table 5-3
Commercial Water Bills Comparison**

Charge	Calculated Jul-12	Rates as of July 2012										
		Newman	Turlock	Merced	Manteca	Hughson	Oakdale	Modesto	Ceres	Los Banos	Gustine	Patterson
<i>Base Allowance in HCF</i>	0	4	28	30	0	0	12	0	0	15	5	0
Service Charge												
Base/ Minimum Monthly Charge	\$13.54	\$10.90	\$22.05	\$36.54	\$27.85	\$39.85	\$12.10	\$20.22	\$24.92	\$20.04	\$18.00	\$13.20
Meter Replacement Fee	\$1.75		\$2.00									
Service Charge Subtotal	\$15.29	\$10.90	\$24.05	\$36.54	\$27.85	\$39.85	\$12.10	\$20.22	\$24.92	\$20.04	\$18.00	\$13.20
Use Charges		<i>Consumption Charge per Hundred Cubic Feet (hcf)</i>										
Uniform Charge		\$0.55		\$0.91		\$1.02		\$1.33	\$1.95	\$1.32		
Newman - Tier 1: 0 - 26 hcf	\$0.55											
Newman - Tier 2: 26.1 - 49 hcf	\$0.66											
Newman - Tier 3: Over 49 hcf	\$0.77											
Turlock - Tier 1: 0 - 66.85 hcf			\$0.80									
Turlock - Tier 2: 66.85 - 200.53 hcf			\$0.68									
Turlock - Tier 3: Over 200.53 hcf			\$0.29									
Oakdale - Tier 1: 12.1 - 34 hcf							\$0.67					
Oakdale - Tier 2: 34.1 - 54 hcf							\$1.00					
Oakdale - Tier 3: Over 54.1							\$1.33					
Manteca - Tier 1: 0- 30 hcf					\$1.36							
Manteca - Tier 2: 30.1 - 300 hcf					\$1.78							
Manteca - Tier 2: Over 300 hcf					\$3.58							
Gustine - Tier 1: 5.01 - 10 hcf										\$0.83		
Gustine - Tier 2: 10.01 - 20 hcf										\$1.02		
Gustine - Tier 3: 20.01 to 30 hcf										\$1.22		
Gustine - Tier 4: 30.01 to 40 hcf										\$1.52		
Gustine - Tier 5: Over 40 hcf										\$1.87		
Patterson - Tier 1: 0-3 hcf												\$1.10
Patterson - Tier 2: 3.1-20 hcf												\$1.42
Patterson - Tier 3: 20.1-50 hcf												\$1.74
Patterson - Tier 4: Over 50 hcf												\$2.45
Average Monthly Use (1" Meter)		<i>Monthly Bill for 2,634 cubic feet (26.34 units)</i>										
Service Charge	\$15.29	\$10.90	\$24.05	\$36.54	\$27.85	\$39.85	\$12.10	\$20.22	\$24.92	\$20.04	\$18.00	\$13.20
Consumption Charge	\$14.54	\$12.29	\$0.00	\$0.00	\$35.82	\$26.99	\$16.71	\$35.03	\$51.41	\$14.97	\$22.08	\$38.47
Total Monthly Charge	\$29.83	\$23.19	\$24.05	\$36.54	\$63.67	\$66.84	\$28.81	\$55.25	\$76.33	\$35.01	\$40.08	\$51.67

"Comm"

Figure 5-2 illustrates the portion of the bill that is service charge versus use charges and shows that Newman will remain in the competitive range for commercial services.



**Figure 5-2
Commercial Water Service Charges Comparison**

Appendix A

Support Tables

Support Tables

Table A-1
1982 Water Revenue Bond Payment Schedule

Fiscal Year	Principal	Interest	Total
FY 09-10	\$31,000	\$29,475	\$60,475
FY 10-11	\$32,000	\$27,900	\$59,900
FY 11-12	\$34,000	\$26,250	\$60,250
FY 12-13	\$36,000	\$24,500	\$60,500
FY 13-14	\$38,000	\$22,650	\$60,650
FY 14-15	\$39,000	\$20,725	\$59,725
FY 15-16	\$41,000	\$18,725	\$59,725
FY 16-17	\$43,000	\$16,625	\$59,625
FY 17-18	\$46,000	\$14,400	\$60,400
FY 18-19	\$48,000	\$12,050	\$60,050
FY 19-20	\$50,000	\$9,600	\$59,600
FY 20-21	\$53,000	\$7,025	\$60,025
FY 21-22	\$55,000	\$4,325	\$59,325
FY 22-23	\$59,000	\$1,475	\$60,475

Source: City of Newman.

"bonds"

Table A-2
Share of City Hall Costs

City Hall Assumptions	Total	Year 1 FY 11-12	Year 2 FY 12-13	Year 3 FY 13-14	Year 4 FY 14-15	Year 5 FY 15-16	Year 5 FY 16-17
Purchase Cost	\$985,063						
Cash	\$299,063						
Financed	\$686,000						
Financing Charge	\$191,294						
Total Purchase Cost with financing	\$1,367,652						
Total Debt Service	\$877,294	\$49,147	\$58,977	\$58,977	\$58,977	\$58,977	\$592,241
Water Fund @ One-Third of Cost							
Water Fund share of cash portion	\$98,691	\$98,691	\$0	\$0	\$0	\$0	\$0
Share of Debt Service	\$289,600	\$16,300	\$19,500	\$19,500	\$19,500	\$19,500	\$195,500
Total Water Fund Share of Purchase Cost	\$388,291	\$114,991	\$19,500	\$19,500	\$19,500	\$19,500	\$195,500
Improvements							
General	\$250,000						
Council Chambers	\$125,000						
Total Improvements	\$375,000						
Water Fund Share of Improvements	\$123,750	\$123,750					

Source: City of Newman and HEC.

"city_hall"

Table A-3
Customer Water Use Profiles

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total	
Total Water Use	<i>Monthly Water Use July 2003 through March 2010 (in hundreds of cubic feet)</i>													
Single Family	547,900	579,564	519,989	436,468	278,621	231,833	192,242	202,404	188,705	258,690	341,233	446,338	4,223,987	70%
Multi-Family	21,509	22,275	20,747	19,785	13,522	12,109	12,241	12,241	10,394	10,654	13,027	17,032	185,536	3%
Commercial	51,314	52,065	55,171	45,878	27,106	21,218	19,006	20,369	18,120	23,669	31,050	38,620	403,586	7%
Industrial	99,598	100,983	95,586	94,761	92,522	77,070	75,469	72,100	63,007	87,748	70,595	76,417	1,005,856	17%
Landscape	48,077	47,339	34,391	24,213	12,392	5,437	1,895	1,326	1,442	15,600	21,235	38,933	252,280	4%
Total Water Use	768,398	802,226	725,884	621,105	424,163	347,667	300,853	308,440	281,668	396,361	477,140	617,340	6,071,245	100%
Seasonal Profiling	<i>Percentage of Maximum Month</i>													
Single Family	95%	100%	90%	75%	48%	40%	33%	35%	33%	45%	59%	77%		
Multi-Family	97%	100%	93%	89%	61%	54%	55%	55%	47%	48%	58%	76%		
Commercial	93%	94%	100%	83%	49%	38%	34%	37%	33%	43%	56%	70%		
Industrial	99%	100%	95%	94%	92%	76%	75%	71%	62%	87%	70%	76%		
Landscape	102%	100%	73%	51%	26%	11%	4%	3%	3%	33%	45%	82%		
Commercial Use per Account (excludes Landscape Accounts)	<i>Figures in hundreds of cubic feet</i>													
5/8" Meter	91	100	106	98	73	68	71	70	57	65	66	77	943	
5/8" Meter x 2 connections	123	158	162	140	138	115	96	82	71	69	77	128	1,358	
5/8" Meter x 3 connections	156	163	181	168	123	126	113	113	123	128	125	143	1,661	
3/4" Meter	79	68	64	58	48	60	48	65	60	55	43	50	698	
1" Meter	296	306	339	357	265	226	252	247	213	219	233	262	3,215	
1" Meter x 2 conn.	576	641	608	534	404	341	411	353	288	367	452	501	5,474	
1" Meter x 4 conn.	157	168	171	126	105	98	81	95	78	112	106	129	1,426	
1 1/2" Meter	355	379	351	408	269	209	196	199	164	250	230	262	3,271	
2" Meter	535	572	572	755	451	378	369	372	359	364	432	465	5,624	
3/4" Meter with 4" Meter [1]	6,540	3,578	8,369	4,300	1,510	578	766	868	834	786	941	889	29,959	
4" Meter	5,483	5,988	5,396	3,327	1,635	1,022	378	729	581	1,732	3,130	4,499	33,900	

Source: City of Newman and HEC.

"profiles"

[1] Compound meters.

Table A-4
Single Family Accounts Bill Tabulation for Rate Design

	Billing Units	Cumulative Bills through Block	Total Use of Bills Stopping in Block	Cumulative Use of Bills Stopping in Block	Total Use to This Block of Bills Passing Through Block	Cumulative Billed Usage	Percent Cumulative Billed Usage
No Base Allowance - Two Tiers							
zero	22,549	229,452	0	0	0	0	0%
10	65,021	206,903	404,011	404,011	1,418,820	1,822,831	43%
greater	141,882	141,882	3,814,660	4,218,671	0	4,218,671	100%
total	229,452		4,218,671				
No Base Allowance - Three Tiers							
zero	22,549	229,452	0	0	0	0	0%
10	65,021	206,903	404,011	404,011	1,418,820	1,822,831	43%
44	126,597	141,882	2,866,559	3,270,570	672,540	3,943,110	93%
greater	15,285	15,285	948,101	4,218,671	0	4,218,671	100%
total	229,452		4,218,671				

Source: HEC.

"sf tab"

Table A-5
Multi Family Accounts Bill Tabulation for Rate Design

Rate Structure	Billing Units	Cumulative Bills through Block	Total Use of Bills Stopping in Block	Cumulative Use of Bills Stopping in Block	Total Use to This Block of Bills Passing Through Block	Cumulative Billed Usage	Percent Cumulative Billed Usage
No Base Allowance - Two Tiers							
zero	533	4,356	0	0	0	0	0%
5	1,595	3,823	3,932	3,932	11,140	15,072	45%
greater	2,228	2,228	29,869	33,801	0	33,801	100%
total	4,356		33,801				
No Base Allowance - Three Tiers							
zero	533	4,356	0	0	0	0	0%
5	1,595	3,823	3,932	3,932	11,140	15,072	45%
17	1,721	2,228	16,642	20,575	8,619	29,194	86%
greater	507	507	13,226	33,801	0	33,801	100%
total	4,356		33,801				

Source: HEC.

"mf tab"

Table A-6
Commercial Accounts Smaller than 4" Meters Bill Tabulation for Rate Design

Rate Structure	Billing Units	Cumulative Bills through Block	Total Use of Bills Stopping in Block	Cumulative Use of Bills Stopping in Block	Total Use to This Block of Bills Passing Through Block	Cumulative Billed Usage	Percent Cumulative Billed Usage
No Base Allowance - Two Tiers							
zero	1,362	9,036	0	0	0	0	0%
26	5,637	7,674	43,158	43,158	52,962	96,120	40%
greater	2,037	2,037	194,869	238,027	0	238,027	100%
total	9,036		238,027				
No Base Allowance - Three Tiers							
zero	1,362	9,036	0	0	0	0	0%
26	5,637	7,674	43,158	43,158	52,962	96,120	40%
49	939	2,037	33,642	76,800	53,802	130,602	55%
greater	1,098	1,098	161,227	238,027	0	238,027	100%
total	9,036		238,027				

Source: HEC.

"com1 tab"

Table A-7
Commercial Accounts Greater than 4" Meters Bill Tabulation for Rate Design

Rate Structure	Billing Units	Cumulative Bills through Block	Total Use of Bills Stopping in Block	Cumulative Use of Bills Stopping in Block	Total Use to This Block of Bills Passing Through Block	Cumulative Billed Usage	Percent Cumulative Billed Usage
No Base Allowance - Two Tiers							
zero	32	396	0	0	0	0	0%
257	249	364	16,756	16,756	29,555	46,311	28%
greater	115	115	148,803	165,559	0	165,559	100%
total	396		165,559				
No Base Allowance - Three Tiers							
zero	32	396	0	0	0	0	0%
257	249	364	16,756	16,756	29,555	46,311	28%
1303	73	115	34,518	51,274	54,726	106,000	64%
greater	42	42	114,285	165,559	0	165,559	100%
total	396		165,559				

Source: HEC.

"com2 tab"

Table A-8
Landscape (Irrigation) Accounts Bill Tabulation for Rate Design

Rate Structure	Billing Units	Cumulative Bills through Block	Total Use of Bills Stopping in Block	Cumulative Use of Bills Stopping in Block	This Block of Bills Passing Through Block	Cumulative Billed Usage	Percent Cumulative Billed Usage
No Base Allowance - Two Tiers							
zero	159	948	0	0	0	0	0%
173	476	789	23,050	23,050	54,149	77,199	31%
greater	313	313	229,230	252,280	0	252,280	100%
total	948		252,280				
No Base Allowance - Three Tiers							
zero	159	948	0	0	0	0	0%
173	476	789	23,050	23,050	54,149	77,199	31%
822	234	313	83,379	106,429	64,938	171,367	68%
greater	79	79	145,851	252,280	0	252,280	100%
total	948		252,280				

Source: HEC.

"irrig tab"

Table A-9
Projected Water Demands by Customer Type

Customer Type	Base Year				FY 12-13		Adjustment for Elasticity	Adjusted Total Estimated Water Use	FY 13-14		Adjustment for Elasticity	Adjusted Total Estimated Water Use	FY 14-15		Adjustment for Elasticity	Adjusted Total Estimated Water Use			
	Number of Customers	Avg. Use per Customer	Total Estimated Water Use		Number of Customers	Avg. Use per Customer			Total Estimated	Number of Customers			Avg. Use per Customer	Total Estimated			Number of Customers	Avg. Use per Customer	Total Estimated
		<i>cubic feet per month</i>	<i>12 months</i>		<i>0%</i>	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>		<i>3.5%</i>	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>		<i>3.5%</i>	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>	
Residential	<i>units</i>		<i>Use In Cubic Feet</i>		<i>units</i>		<i>Use In Cubic Feet</i>		<i>units</i>					<i>units</i>					
Single Family	2,927	1,659	58,281,551	58%	2,927	1,659	58,281,551	-671,242	57,610,309	3,029	1,640	59,626,670	-325,351	59,301,319	3,135	1,631	61,376,865	-347,240	61,029,626
Multi-family	294	700	2,470,656	2%	294	700	2,470,656	-18,970	2,451,686	304	695	2,537,495	-9,230	2,528,264	315	692	2,616,754	-9,870	2,606,884
Subtotal Residential	3,221		60,752,207	61%	3,221		60,752,207	-690,213	60,061,995			62,164,165	-334,581	61,829,583			63,993,619	-357,109	63,636,510
Commercial	<i>meters [2]</i>				<i>meters [2]</i>				<i>meters [2]</i>					<i>meters [2]</i>					
Smaller than 4"	108	2,377	3,084,471	3%	108	2,377	3,084,471	-47,366	3,037,105	112	2,341	3,143,403	-22,869	3,120,534	116	2,324	3,229,753	-24,363	3,205,390
4" and Larger	5	37,731	2,309,151	2%	5	37,731	2,309,151	-35,460	2,273,691	5	37,152	2,353,271	-17,121	2,336,150	5	36,882	2,417,915	-18,239	2,399,676
Subtotal Commercial	113		5,393,622	5%			5,393,622	-82,826	5,310,796			5,496,674	-39,990	5,456,684			5,647,668	-42,602	5,605,066
Industrial	5	216,137	13,227,608	13%	5	216,137	13,227,608	-457,037	12,770,572	5	208,669	13,217,542	-216,363	13,001,179	5	205,254	13,456,220	-228,386	13,227,834
Irrigation	12	24,017	3,527,610	4%	12	24,017	3,527,610	-121,885	3,405,725	13	23,187	3,524,925	-57,701	3,467,224	13	22,808	3,588,577	-60,907	3,527,670
Estimated Total Water Deliveries			82,901,000	83%			82,901,000	-1,352,000	81,549,000			84,403,000	-649,000	83,755,000			86,686,000	-689,000	85,997,000
Estimated Loss /Unaccounted for Water [3]			17,113,942	17%			17,113,942		16,834,837			17,424,012		17,290,240			17,895,311		17,753,075
Total Estimated Water Production			100,014,942	100%			100,014,942		98,383,837			101,827,012		101,045,240			104,581,311		103,750,075

Source: City of Newman and HEC.

- [1] Price response to summer month usage only.
- [2] Compound meters counted once.
- [3] Other uses of water include hydrant flushing, fire suppression, City parks irrigation, and construction water.

Customer Type	FY 19-20					FY 20-21					FY 21-22				
	Number of Customers	Avg. Use per Customer	Total Estimated	Adjustment for Elasticity	Adjusted Total Estimated Water Use	Number of Customers	Avg. Use per Customer	Total Estimated	Adjustment for Elasticity	Adjusted Total Estimated Water Use	Number of Customers	Avg. Use per Customer	Total Estimated	Adjustment for Elasticity	Adjusted Total Estimated Water Use
	3.5%	<i>cubic feet per month</i>	12 months	4 months [1]		3.5%	<i>cubic feet per month</i>	12 months	4 months [1]		3.5%	<i>cubic feet per month</i>	12 months	4 months [1]	
Residential	units					units					units				
Single Family	3,724	1,605	71,734,097	-179,671	71,554,426	3,854	1,601	74,058,831	-81,413	73,977,419	3,989	1,599	76,566,628	-62,445	76,504,183
Multi-family	374	685	3,074,779	-5,134	3,069,644	387	684	3,177,082	-2,328	3,174,754	401	683	3,285,870	-1,787	3,284,083
Subtotal Residential			74,808,876	-184,805	74,624,071			77,235,913	-83,741	77,152,172			79,852,498	-64,232	79,788,266
Commercial	meters [2]					meters [2]					meters [2]				
Smaller than 4"	138	2,275	3,754,542	-12,539	3,742,004	142	2,267	3,872,974	-5,677	3,867,297	147	2,264	4,002,652	-4,353	3,998,300
4" and Larger	6	36,099	2,810,792	-9,387	2,801,405	7	35,978	2,899,455	-4,250	2,895,205	7	35,926	2,996,537	-3,258	2,993,278
Subtotal Commercial			6,565,335	-21,925	6,543,409			6,772,428	-9,927	6,762,502			6,999,189	-7,611	6,991,578
Industrial	6	195,552	15,226,391	-114,412	15,111,979	7	194,083	15,640,899	-51,582	15,589,317	7	193,443	16,134,943	-39,477	16,095,465
Irrigation	16	21,730	4,060,656	-30,512	4,030,144	16	21,566	4,171,199	-13,756	4,157,443	17	21,495	4,302,953	-10,528	4,292,425
Estimated Total Water Deliveries			100,661,000	-352,000	100,310,000			103,820,000	-159,000	103,661,000			107,290,000	-122,000	107,168,000
Estimated Loss /Unaccounted for Water [3]			20,780,286		20,707,826			21,432,424		21,399,601			22,148,765		22,123,580
Total Estimated Water Production			121,441,286		121,017,826			125,252,424		125,060,601			129,438,765		129,291,580

Source: City of Newman and HEC.

"demand"

- [1] Price response to summer month usage only.
- [2] Compound meters counted once.
- [3] Other uses of water include hydrant flushing, fire suppression, City parks irrigation, and construction water.

Customer Type	FY 15-16			Adjustment for Elasticity	Adjusted Total Estimated Water Use	FY 16-17			Adjustment for Elasticity	Adjusted Total Estimated Water Use	FY 17-18			Adjustment for Elasticity	Adjusted Total Estimated Water Use	FY 18-19			Adjustment for Elasticity	Adjusted Total Estimated Water Use
	Number of	Avg. Use per	Total Estimated			Number of Customers	Avg. Use per Customer	Total Estimated			Number of Customers	Avg. Use per Customer	Total Estimated			Number of Customers	Avg. Use per Customer	Total Estimated		
	3.5%	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>		3.5%	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>		3.5%	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>		3.5%	<i>cubic feet per month</i>	<i>12 months</i>	<i>4 months [1]</i>	
Residential	units					units					units					units				
Single Family	3,245	1,622	63,165,663	-277,497	62,888,165	3,359	1,615	65,089,251	-182,709	64,906,542	3,476	1,610	67,178,271	-140,000	67,038,271	3,598	1,607	69,384,611	-76,304	69,308,307
Multi-family	326	690	2,698,125	-7,902	2,690,223	337	688	2,784,381	-5,211	2,779,170	349	686	2,876,441	-3,996	2,872,445	361	686	2,972,980	-2,180	2,970,801
Subtotal Residential			65,863,788	-285,400	65,578,388			67,873,632	-187,920	67,685,712			70,054,712	-143,996	69,910,716			72,357,591	-78,483	72,279,107
Commercial	meters [2]					meters [2]					meters [2]					meters [2]				
Smaller than 4"	120	2,306	3,317,578	-19,433	3,298,146	124	2,293	3,413,581	-12,776	3,400,804	128	2,284	3,519,833	-9,780	3,510,052	133	2,278	3,632,904	-5,327	3,627,577
4" and Larger	6	36,603	2,483,665	-14,548	2,469,116	6	36,389	2,555,535	-9,565	2,545,971	6	36,253	2,635,080	-7,322	2,627,758	6	36,152	2,719,729	-3,988	2,715,741
Subtotal Commercial			5,801,243	-33,981	5,767,262			5,969,116	-22,341	5,946,775			6,154,912	-17,102	6,137,810			6,352,633	-9,315	6,343,318
Industrial	6	201,770	13,690,808	-180,438	13,510,370	6	199,111	13,983,233	-117,755	13,865,478	6	197,434	14,350,770	-89,721	14,261,049	6	196,200	14,760,185	-48,696	14,711,489
Irrigation	14	22,420	3,651,138	-48,120	3,603,018	14	22,125	3,729,124	-31,404	3,697,720	15	21,939	3,827,141	-23,927	3,803,213	15	21,801	3,936,326	-12,987	3,923,339
Estimated Total Water Deliveries			89,007,000	-548,000	88,459,000			91,555,000	-359,000	91,196,000			94,388,000	-275,000	94,113,000			97,407,000	-149,000	97,257,000
Estimated Loss /Unaccounted for Water [3]			18,374,454		18,261,326			18,900,459		18,826,347			19,485,298		19,428,528			20,108,536		20,077,570
Total Estimated Water Production			107,381,454		106,720,326			110,455,459		110,022,347			113,873,298		113,541,528			117,515,536		117,334,570

Source: City of Newman and HEC.

- [1] Price response to summer month usage only.
- [2] Compound meters counted once.
- [3] Other uses of water include hydrant flushing, fire suppression, City parks irrigation, and construction water.

Table A-10
Assumptions for Effect of Increasing Prices (Price Elasticity)

Customer Type	Estimated Elasticity	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
% Change in Price to Meet Revenue Requirement		25.6%	13.5%	13.9%	11.3%	8.2%	6.7%	4.7%	7.5%	4.7%	4.2%
Assumption for Inflation		2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Price Increase Adjusted for Inflation		23.0%	10.9%	11.3%	8.8%	5.6%	4.2%	2.2%	5.0%	2.2%	1.6%
Customer Type		<i>Percent Increase / Decrease in Water Consumption</i>									
Single Family Residential	-0.15	-3.5%	-1.6%	-1.7%	-1.3%	-0.8%	-0.6%	-0.3%	-0.8%	-0.3%	-0.2%
Multi-family Residential	-0.10	-2.3%	-1.1%	-1.1%	-0.9%	-0.6%	-0.4%	-0.2%	-0.5%	-0.2%	-0.2%
Commercial	-0.20	-4.6%	-2.2%	-2.3%	-1.8%	-1.1%	-0.8%	-0.4%	-1.0%	-0.4%	-0.3%
Industrial	-0.15	-3.5%	-1.6%	-1.7%	-1.3%	-0.8%	-0.6%	-0.3%	-0.8%	-0.3%	-0.2%
Landscape	-0.30	-6.9%	-3.3%	-3.4%	-2.6%	-1.7%	-1.3%	-0.7%	-1.5%	-0.7%	-0.5%

Source: HEC.

"elasticity"

Table A-11
Comparison of Historical Operating Expenses to Standard Indices

	Fiscal Year Actuals					Change 2007 - 2011	
	2006-07	2007-08	2008-09	2009-10	2010-11	Total	Avg. Annual
Operating Expenses							
Salaries and Benefits	\$279,991	\$342,237	\$395,213	\$346,446	\$410,058	\$130,067	10.0%
Maintenance and Operations	\$238,401	\$298,920	\$235,133	\$193,621	\$305,404	\$67,003	6.4%
Fleet	\$17,029	\$14,971	\$14,498	\$15,190	\$16,522	(\$507)	-0.8%
Utilities	\$128,480	\$157,750	\$133,251	\$140,472	\$143,807	\$15,327	2.9%
Capital Acquisitions	\$9,182	\$7,165	\$18,132	\$18,337	\$6,390	(\$2,792)	-8.7%
Total Operating Expenses	\$673,083	\$821,043	\$796,227	\$714,066	\$882,180	\$209,097	7.0%
Engineering News Record							
	<i>Dec 06</i>	<i>Dec 07</i>	<i>Dec 08</i>	<i>Dec 09</i>	<i>Dec 10</i>		
ENR Construction Cost Index 20-City	7,888.00	8,089.00	8,551.00	8,641.00	8,952.00	1,064.00	4.3%
ENR Construction Cost Index San Francisco	9,108.66	9,131.81	9,781.67	9,722.17	10,120.29	1,011.63	3.6%
Bureau of Labor Statistics							
Consumer Price Index - California	211.00	219.59	219.78	224.35	227.49	16.49	2.5%
Consumer Price Index - San Francisco	210.40	218.49	218.53	224.24	227.66	17.26	2.7%
Water Rate Study Operating Budget Projection Annual Increase							5.0%

Source: HEC, California Department of Finance, and the Engineering News Record.

"indexes"

**Table A-12
Estimated Depreciation Schedule**

Infrastructure	Base Year FY 11-12	Year 1 FY 12-13	Year 2 FY 13-14	Year 3 FY 14-15	Year 4 FY 15-16	Year 5 FY 16-17	Year 6 FY 17-18	Year 7 FY 18-19	Year 8 FY 19-20	Year 9 FY 20-21	Year 10 FY 21-22
Current Infrastructure and Buildings [1]	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848	\$80,848
New Well and Associated Facilities											
Year 1 improvements	\$0	\$1,670	\$1,670	\$1,670	\$1,670	\$1,670	\$1,670	\$1,670	\$1,670	\$1,670	\$1,670
Year 2 improvements			\$25,890	\$25,890	\$25,890	\$25,890	\$25,890	\$25,890	\$25,890	\$25,890	\$25,890
Year 3 improvements				\$103,700	\$103,700	\$103,700	\$103,700	\$103,700	\$103,700	\$103,700	\$103,700
Year 4 improvements					\$44,440	\$44,440	\$44,440	\$44,440	\$44,440	\$44,440	\$44,440
Subtotal New Well and Associated Facilities	\$0	\$1,670	\$27,560	\$131,260	\$175,700	\$175,700	\$175,700	\$175,700	\$175,700	\$175,700	\$175,700
Phased-in Depreciation of New Facilities			0%	10%	20%	40%	70%	75%	85%	95%	100%
Total System Rehabilitation	\$80,800	\$80,800	\$80,800	\$94,000	\$116,000	\$151,100	\$203,800	\$212,600	\$230,200	\$247,800	\$256,500

Source: City of Newman and HEC.

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[1] Per City audited financials June 2011.

Table A-13
Cost Classification based on Fiscal Year 2009-10 Adopted Budget

	Total	Customer	Capacity	Consumption
Operations and Maintenance				
Equipment Repair and Supplies	\$66,357	\$0	\$47,007	\$19,350
Meter Reading	\$67,300	\$67,300	\$0	\$0
Fleet	\$16,522	\$8,261	\$8,261	\$0
Utilities	\$143,807	\$0	\$0	\$143,807
Capital Outlay				
Vehicles	\$0	\$0	\$0	\$0
Equipment [1]	\$2,861	\$0	\$2,027	\$834
Building Improvements	\$6,390	\$0	\$6,390	\$0
Other Improvements [1]	\$47,176	\$0	\$33,419	\$13,757
Water Project [1]	\$6,268	\$0	\$4,440	\$1,828
Subtotal Capital Outlay	\$62,695	\$0	\$46,276	\$16,419
Subtotal Operations and Maintenance	\$356,681	\$75,561	\$101,544	\$179,576
<i>Percent of Operations and Maintenance</i>	<i>100%</i>	<i>21%</i>	<i>28%</i>	<i>50%</i>
Administrative and General				
Salaries and Benefits	\$349,323	\$74,002	\$99,450	\$175,871
Other Expenses	\$232,481	\$49,250	\$66,186	\$117,046
Subtotal Administrative and General	\$581,804	\$123,252	\$165,635	\$292,917
Debt Service - 1982 Revenue Bonds [1]	\$59,900	\$0	\$42,433	\$17,467
Depreciation				
Land/improvements	\$0	\$0	\$0	\$0
Distribution [1]	\$16,771	\$0	\$11,881	\$4,890
Plant/Machinery/Equip [1]	\$53,237	\$0	\$37,713	\$15,524
Buildings	\$1,884	\$0	\$1,884	\$0
Office Equip/Furniture/computers	\$0	\$0	\$0	\$0
Vehicles	\$1,081	\$0	\$1,081	\$0
Subtotal Depreciation	\$72,973	\$0	\$52,558	\$20,415
Total Annual Cost	\$1,071,359	\$198,814	\$362,171	\$510,375
<i>Percent of Annual Cost</i>	<i>100%</i>	<i>19%</i>	<i>34%</i>	<i>48%</i>

Source: City of Newman and HEC.

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[1] Cost distribution between capacity and consumption based on ratio of base monthly water deliveries to peak month deliveries. Approximately 29% of costs are allocated to consumption.

**Table A-15
Calculated Base Year Rates under Alternative Rate Structures**

BASE YEAR						
Rate Structure						
a	b	c	d	e (2 tiers)	e (3 tiers)	
<i>Existing Rate Structure under Base Year Rev. Req't</i>	<i>Modify block limits of Existing Rate Structure</i>	<i>Modify block limits and Add Tier</i>	<i>No Base Allowance, Uniform Consumption Charge</i>	<i>No Base Allowance, Two Tiers for Consumption</i>	<i>No Base Allowance, Three Tiers for Consumption</i>	
Monthly Service Charges			Meter Replacement			
5/8"	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03
3/4"	\$1.28	\$1.28	\$1.28	\$1.28	\$1.28	\$1.28
1"	\$1.69	\$1.69	\$1.69	\$1.69	\$1.69	\$1.69
1-1/2"	\$3.39	\$3.39	\$3.39	\$3.39	\$3.39	\$3.39
2"	\$4.89	\$4.89	\$4.89	\$4.89	\$4.89	\$4.89
3"	\$8.64	\$8.64	\$8.64	\$8.64	\$8.64	\$8.64
4"	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23
6"	\$31.35	\$31.35	\$31.35	\$31.35	\$31.35	\$31.35
8"	\$34.27	\$34.27	\$34.27	\$34.27	\$34.27	\$34.27
10"	\$46.88	\$46.88	\$46.88	\$46.88	\$46.88	\$46.88
Minimum Charge by Meter Size						
	Base Allowance			No Base Allowance		
5/8"	\$10.90	\$12.60	\$12.60	\$12.60	\$12.60	\$12.60
3/4"	\$10.90	\$12.60	\$12.60	\$12.60	\$12.60	\$12.60
1"	\$10.90	\$12.60	\$12.60	\$12.60	\$12.60	\$12.60
1-1/2"	\$20.41	\$25.21	\$25.21	\$25.21	\$25.21	\$25.21
2"	\$30.62	\$40.34	\$40.34	\$40.34	\$40.34	\$40.34
3"	\$43.72	\$88.23	\$88.23	\$88.23	\$88.23	\$88.23
4"	\$65.65	\$151.26	\$151.26	\$151.26	\$151.26	\$151.26
6"	\$294.27	\$315.12	\$315.12	\$315.12	\$315.12	\$315.12
8"	n.a.	\$453.78	\$453.78	\$453.78	\$453.78	\$453.78
10"	n.a.	\$731.09	\$731.09	\$731.09	\$731.09	\$731.09
Consumption Charges						
Industrial	\$0.55	\$0.82	\$0.72	\$0.50	\$0.50	\$0.50
All Other Customer Categories	\$0.55	\$0.82	n.a.	\$0.50	n.a.	n.a.
Tier 1	n.a.	n.a.	\$0.82	n.a.	\$0.43	\$0.44
Tier 2	n.a.	n.a.	\$1.02	n.a.	\$0.54	\$0.52
Tier 3	n.a.	n.a.	n.a.	n.a.	n.a.	\$0.61
Block 1 Usage Limit In Hundreds of Cubic Feet						
Industrial	varies	< 239.5	< 239.5	n.a.	n.a.	n.a.
Single Family [1]		< 10	< 10	n.a.	< 10	< 10
Multi-family [1]	by	< 5	< 5	n.a.	< 5	< 5
Commercial < 4" [2]		< 26	< 26	n.a.	< 26	< 26
Commercial 4"+ [2]	meter size	< 257	< 257	n.a.	< 257	< 257
Landscape [2]		< 173	< 173	n.a.	< 173	< 173
Block 2 Usage Limit in Hundreds of Cubic Feet						
Industrial	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Single Family [1]	n.a.	n.a.	< 44	n.a.	< 44	< 44
Multi-family [1]	n.a.	n.a.	< 17	n.a.	< 17	< 17
Commercial < 4" [2]	n.a.	n.a.	< 49	n.a.	< 49	< 49
Commercial 4"+ [2]	n.a.	n.a.	< 1,303	n.a.	< 1,303	< 1,303
Landscape [2]	n.a.	n.a.	< 822	n.a.	< 822	< 822

Source: HEC.

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[1] Residential use calculated on a per unit basis.

[2] Non-residential calculated on a per connection basis.

Table A-16
Average Monthly Bill Calculations for Alternative Rate Structures

	Base Year [1]						
	Current [1]	Current	Consumption Rates:		Consumption Rates:		
			Uniform	Two Tiers	Uniform	Two Tiers	Three Tiers
<i>Increase to Base Year Revenue Requirement</i>		0%	<i>block limits below</i>		<i>block limits below</i>		<i>block limits below</i>
Revenue Requirement	\$824,634	\$916,575	\$916,575	\$916,575	\$916,575	\$916,575	\$916,575
Rate Structure		a	b	c	d	e (2 tiers)	e (3 tiers)
Service Charge		Base Allowance			No Base Allowance		
Minimum Charge	\$10.90	\$10.90	\$12.59	\$12.59	\$12.59	\$12.59	\$12.59
Meter Replacement Charge	\$0.00	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03
Subtotal Service Charge	\$10.90	\$11.93	\$13.62	\$13.62	\$13.62	\$13.62	\$13.62
Consumption Charge							
Average Use per Month	19.32	19.32	19.32	19.32	19.32	19.32	19.32
Base Allowance	4.00	4.00	10.00	10.00	0.00	0.00	0.00
Net Consumption Charged	15.32	15.32	9.32	9.32	19.32	19.32	19.32
Rates							
Uniform	\$0.55	\$0.55	\$0.82		\$0.50		
Tier 1				\$0.82		\$0.43	\$0.44
Tier 2				\$1.02		\$0.54	\$0.52
Tier 3							\$0.61
Average Month Consumption Charge	\$8.43	\$8.43	\$7.67	\$7.64	\$9.61	\$9.41	\$9.27
Total Average Monthly Bill	\$19.33	\$20.36	\$21.28	\$21.26	\$23.23	\$23.02	\$22.88

Source: HEC.

"Sf_alts"

[1] Revenue requirement based on adjusted fiscal year 2010-11 financials.