

Draft Final Report
July 2009

City of Reedley Comprehensive Water Rate Study



Prepared by:
HDR Engineering, Inc.



July 22, 2009

Mr. Russ Robertson
Public Works Manager
City of Reedley - Public Works Department
1733 Ninth Street
Reedley, California 93654

Subject: City of Reedley Comprehensive Water Rate Study

Dear Mr. Robertson:

HDR Engineering, Inc. (HDR) was retained by Johnson Controls, Inc. (JCI) to develop a comprehensive water rate study for the City of Reedley's Water Division (City). In 2007, HDR provided a financial/rate review of the City's water utility and provided assistance in developing rates sufficient to support the installation of residential meters and other infrastructure needs. Since that study, the City has installed residential meters and is legally required to implement metered rates for all metered customers by January 1, 2010. A key objective in developing this study is to move the City towards volume based water rates for all customers. At the same time the study is intended to develop a financial plan and rates that generate sufficient revenue to fund the operating and capital needs of the water utility. This report outlines the approach, methodology, findings, and conclusions of the comprehensive rate study process.

This report was developed utilizing the City's accounting, operating, and management records. HDR relied upon this information to develop our analyses that form our findings, conclusions, and recommendations. At the same time, this study was developed utilizing "generally accepted" water rate setting principles. This report provides the basis for developing and implementing rates that are cost-based, defensible, and equitable to the City's customers.

We appreciate the assistance provided by the City of Reedley staff in the development of this study. More importantly, we appreciate the opportunity to provide these technical services to the City of Reedley.

Sincerely yours,
HDR Engineering, Inc.

Tom Gould
Vice President
National Technical Director
of Finance and Rates

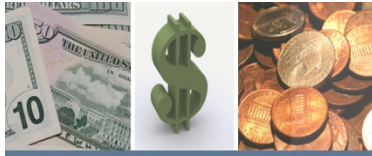
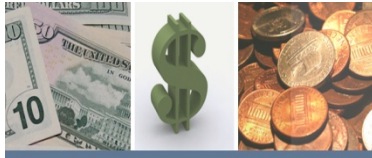


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Executive Summary

Introduction

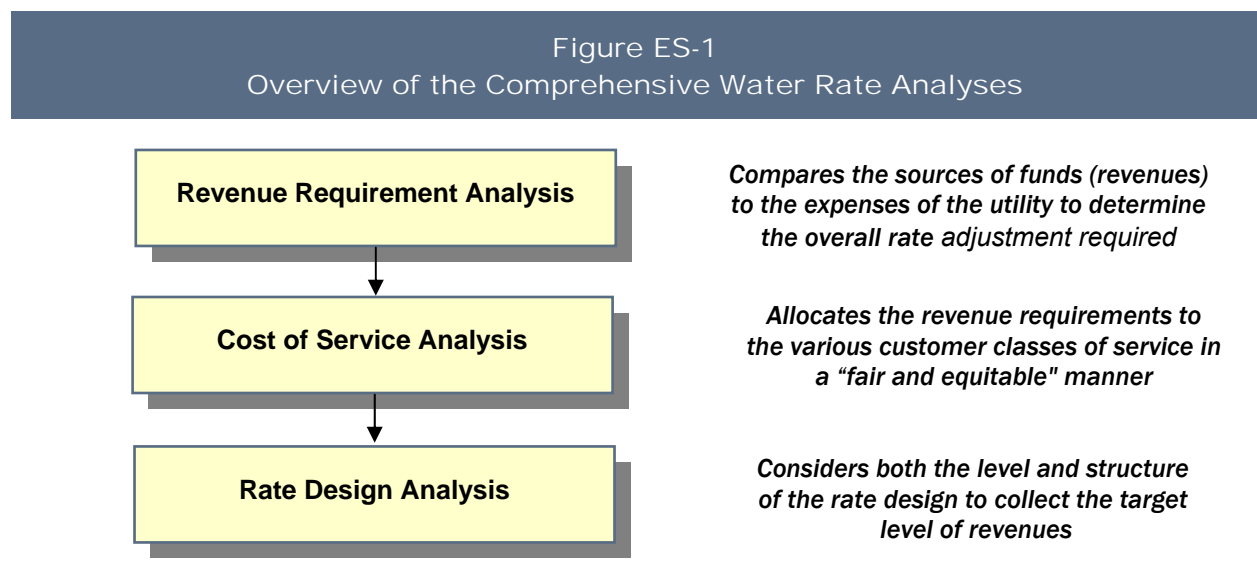
The City of Reedley (City) retained HDR Engineering, Inc. (HDR) to perform a comprehensive rate study for its water utility. A comprehensive rate study will determine the adequacy of the existing water rates and provide the basis for adjustments to move to cost-based rates.

This effort is an integral part of the City's overall residential water meter implementation project. Existing California law states all residences built after 1992 must have a water meter installed on all new connections after that date within systems owned or operated by a water purveyor. At the same time, by January 1, 2010, the City is legally required to bill all metered on a volumetric basis (i.e. metered rates). A major objective of this study is to meet these legal requirements.

Finally, this study determined whether existing rates are adequate to meet the utility's operating and capital expenses with revenues received from customers. Rates set too low may result in insufficient funds to maintain system integrity and lead to higher costs over the long-term. This study provides a basis for making overall rate adjustments; as well as, establishing metered rates for all customers. This report describes the methodology, findings, and conclusions of the water rate study process.

Overview of the Rate Study Process

A comprehensive rate study typically utilizes three interrelated analyses to address the adequacy and equity of a utility's rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis.



Key Water Rate Study Results

A comprehensive review of the City's water rates was undertaken. The utility was financially evaluated on a stand alone basis. That is, no subsidies between other enterprise funds or the City's general fund should occur. By viewing the water utility on a stand along basis, the need to adequately fund both O&M and capital infrastructure must be balanced against the rate impacts to customers.

Based on the technical analysis undertaken as part of this study, the following findings, conclusions, and recommendations were noted.

Revenue Requirement Analysis - A revenue requirement analysis was developed for the City for fiscal years (FY) 2009/10 through 2013/14. The objective of the revenue requirement analysis is to determine the prudent levels of O&M and capital infrastructure funding and compare that amount to the present revenue levels of the utility. Presented in Table ES-1 is a summary of the water revenue requirement.

Table ES-1 Summary of Water Utility Revenue Requirements (\$000s)						
	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14
Sources of Funds –						
Water Rate Revenue	\$2,626	\$2,653	\$2,679	\$2,706	\$2,733	\$2,760
Miscellaneous Revenue	80	29	30	31	31	32
Total Source of Funds	\$2,706	\$2,682	\$2,709	\$2,737	\$2,764	\$2,792
Applications of Funds –						
Total O&M Expenses	\$1,741	\$1,810	\$1,881	\$1,956	\$2,033	\$2,114
CIP from Rates	400	450	500	550	600	650
Debt Service	916	921	919	918	916	918
Total Application of Funds	\$3,058	\$3,180	\$3,301	\$3,424	\$3,549	\$3,683
Deficiency of Funds	(\$351)	(\$499)	(\$592)	(\$687)	(\$785)	(\$890)
Deficiency as % of Rev from Rates	-13.4%	-18.8%	-22.1%	-25.4%	-28.7%	-32.2%
Debt Service Coverage Ratios -						
Before Rate Adjustment	0.97	0.92	0.87	0.82	0.76	0.70
After Rate Adjustment	0.97	1.23	1.54	1.59	1.64	1.69

The revenue requirement indicated a deficiency of funds in each of the fiscal years. The deficiency is such a magnitude that the City is not funding any renewal and replacement capital infrastructure via the water rates. As an example, the deficiency in FY 2009/10 is approximately \$499,000, which is a little more than the \$450,000 of capital improvements funded from rates. Viewed from that perspective, it indicates that the City's water rates are covering the O&M expenses and debt service, but it is not contributing any funds towards capital improvement project funding. Failure to adjust the City's water rates will either lead to deferred capital infrastructure projects (which has been an issue in the past) or further decline in utility reserves to pay for capital projects. Either of these scenarios is not a positive result for the City or the utility.

Based upon the revenue requirement analysis developed, HDR recommends the City adjust the overall rate revenue levels to be sufficient to meet the funding levels through FY 2010/11 (i.e. \$3.3 million in revenue requirements). At that point, the City could consider inflationary level adjustments. By making this adjustment to rates now, the City would immediately move to fully supporting the current level of operating and capital needs for the water utility and avoid the need for a second rate adjustment in FY 2010/11.

The City does not have adequate reserves to mitigate the need for these adjustments and must also meet the debt service coverage (DSC) requirements associated with the outstanding debt of this utility. The potential impacts to residential customers from these proposed overall rate adjustments are illustrated in Table ES-2.

Table ES-2 Overview of the Residential Customer Impacts and Rate Transition Plan					
	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 12/14
Present Monthly Flat Rate Residential Bill	\$29.99				
Projected Average Monthly Residential Bill	\$36.59	\$36.59	\$37.50	\$38.44	\$39.40
\$ Change Per Month	\$6.60	\$6.60	\$0.91	\$0.94	\$0.96
Cumulative \$ Change Per Month	\$6.60	\$6.60	\$7.51	\$8.45	\$9.41

It should be understood that the impacts to individual residential customers may vary, depending upon the final rate structure selected for the residential customers.

Cost of Service - The cost of service study conducted for the City indicated some cost differences between the various customer classes of service. However, in developing the cost of service analysis, the City did not have an extensive or reliable metered consumption data for the residential customers. Given that situation, the results of the cost of service may or may not fairly reflect the current costs associated with serving the various customers groups (e.g. residential, non-residential, etc.). For that reason, it was recommended that customer groups be adjusted equally until such time that metered residential consumption data can be collected and the results of this study updated and verified.

Rate Design - Proposed rates were developed to be financially sufficient to carry the City through the FY 2010/11 time period. A major part of this study was designing proposed metered rates for all customers. The City is now fully metered and the City will need to transition all customers to metered volumetric rates. In addition, rate designs were developed for three classes of service; residential, non-residential and irrigation customers. A more detailed discussion of the proposed rate designs are provided below.

Development of the Proposed Water Rates

The final step of the comprehensive water rate study process is the design of water rates to collect the desired levels of revenue, based on the results of the revenue requirement analysis. At the same time, the City should incorporate other rate design goals and objectives into the final proposed rate designs.

The City's present water rates are a combination of flat rates and metered rates. Provided below in Table ES-3 is an overview of the City's present water rates.

Table ES-3	
Overview of the City's Present Flat Rates and Metered Rates [1]	
	Present Rates
Residential Flat Rate–	
Single-Family Residential	\$29.99/month
Duplex and Triplex	25.68/month/unit
Multi-Units (four or more)	21.47/month/unit
Commercial and Business Flat Rate –	
Up to 3,750 square feet	\$29.99/month
Each added 3,750 square feet	21.47/month/3,750 sq. ft.
Laundromats	29.99/month + 3.74/washer
Packing Houses with Mechanical Cold Storage	128.39/month
Packing Houses without Mechanical Cold Storage	86.25/month
Car Wash	34.19/Usable Bay
Steam Laundries	213.01/month
Cement Pipe Yards	340.11/month
Hospitals, Nursing Homes	127.69/month + \$1.99/bed over 40
Hotels and Motels	19.60/month/room
Reedley College	1,899.96/month
Reedley College Dorms	1,399.20/month
Reedley High School	1,252.95/month
Lincoln, Jefferson, Grant	339.83/month
Washington	255.28/month
St. LaSalle, Immanuel High School	339.83/month
Metered Water Rates–	
Volume Charge - \$/1,000 gallons	\$0.53/1,000 gallons
Minimum Charge (bill)	\$71.96/month

[1] – Effective October 2007

As noted above, the City is in the process of transitioning to metered rates for all customers. At the present time a number of customers, particularly the residential customers are flat rate customers. That is, their monthly bill is the same regardless of the amount of water consumed during the billing period. The City does have a metered rate for some commercial customers. The present metered rate is composed of a minimum bill and a volumetric rate.

Conservation or efficient use of water was another consideration in the development of the City's rates. The California Urban Water Conservation Council (CUWCC) has established best management practices (BMP) as they relate to water conservation. BMP No. 11 specifically addresses conservation-oriented water rate structures and notes that the following rate structures may be considered conservation oriented:

1. *Uniform rate in which the volumetric rate is constant regardless of the quantity consumed.*

2. **Seasonal rates** in which the volumetric rate reflects seasonal variation in water delivery costs.
3. **Tiered rates** in which the volumetric rate increases as the quantity used increases.
4. **Allocation-based [water budget] rates** in which consumption tiers and respective volumetric rates are based on water use norms and water delivery costs established by the utility.”

To be considered conservation-oriented, the rate structure must also collect at least 70% of its total revenue from the volumetric portion of the rate design. This study has attempted to move the City in the direction of meeting BMP No. 11 by proposing only conservation-oriented rate structures that meet the CUWCC BMP No. 11. However, the City will still need to transition the rate to collect a greater share of the total revenue from the volumetric portion of the rate.

In designing the City’s final proposed rates, a structure was developed which included a monthly fixed service charge based upon the size of the customer’s meter. In addition, the rate includes a volumetric or commodity charge based upon the total volume of water consumed by the customer during the month (billing period).

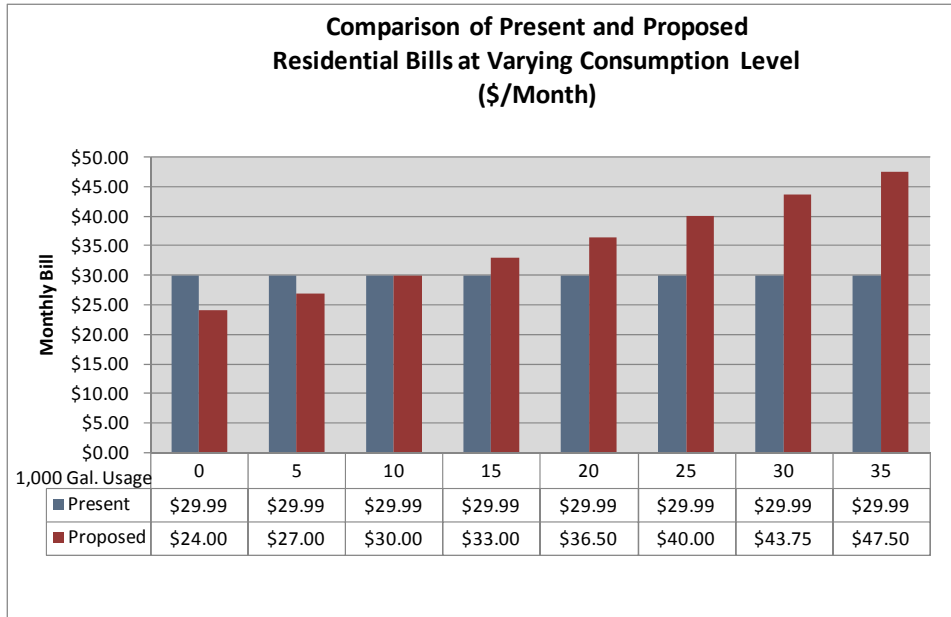
Proposed Residential Water Rate Designs

One option was developed for the residential customers for volumetric or metered water rates. The option is designed to collect the same level of revenue as the current residential rate structure. Residential is defined as including single-family residential, duplex and triplex customers.

Residential Tiered (Inverted) Rate Structure – The proposed residential rate design is a tiered rate structure. This residential rate is shown below in Table ES-4.

Table ES-4 Proposed Residential Water Rates^[1] Tiered Rate Structure	
	Proposed Rate
<u>Service (Meter) Charge - \$/Month</u>	
3/4" and 1"	\$24.00/month
1- 1/2"	79.90
2"	127.90
<u>Commodity Charge - \$/1,000 gallons</u>	
0 – 15,000 gallons	\$0.60/1,000 gallons
15,000- 25,000 gallons	\$0.70
Over 25,000 gallons	\$0.75

[1] – Residential includes single-family, duplex and triplex customers



The proposed rate for the residential class of service is a “tiered” water rate structure. A tiered rate structure has increasing prices for increased use. In this case, the break-point for the third tier has been set at 25,000 gallons. This break point is typically well above average indoor door use and would provide for some summer outdoor use. This rate structure is

Bill comparison assumes a 3/4” meter

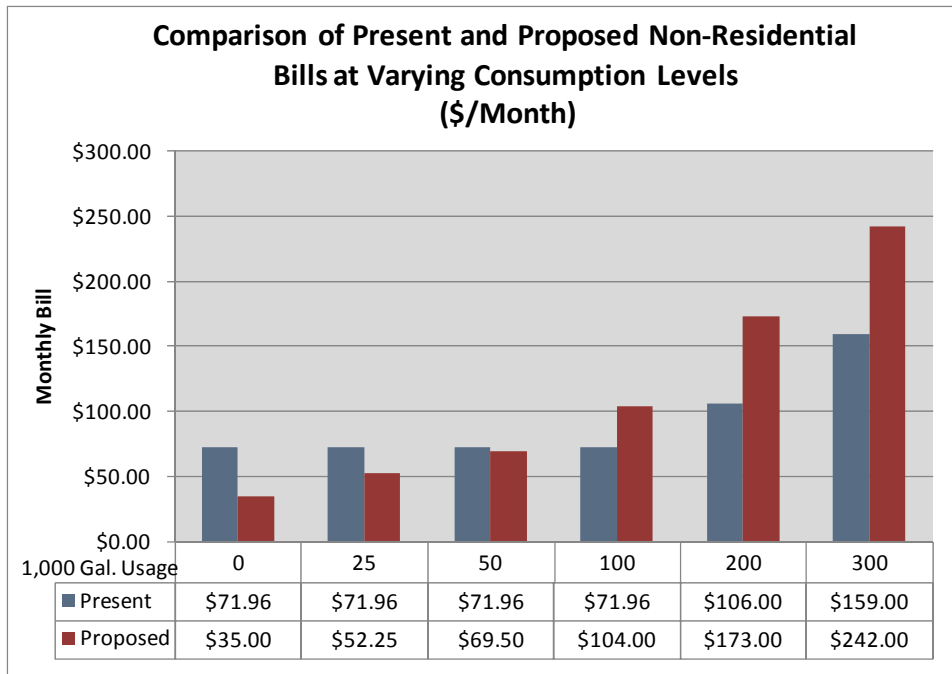
viewed as a “conservation-based” rate and has been designed to meet the CUWCC BMP No. 11 as it relates to conservation-based rates.

Proposed Non-Residential Water Rate Designs

Non-Residential customers include multi-family (four-plex and above), commercial, industrial, and other/schools. The proposed rate design developed for the non-residential customers was a “uniform” rate structure. The non-residential rate design is presented below.

Non-Residential Uniform Rate Structure – The non-residential rate design is a uniform rate structure. Provided below in Table ES-5 is the proposed non-residential rate.

Table ES-5 Proposed Non-Residential Water Rates Uniform Rate	
	Proposed Rate
Service (Meter) Charge - \$/Month	
3/4”	\$35.00/month
1”	58.40
1- 1/2”	116.60
2”	186.60
3”	350.00
4”	583.50
6”	1,166.50
Commodity Charge - \$/1,000 gallons	
All Consumption	\$0.69/1,000 gallons



Bill comparison assumes a ¾" meter

As can be seen, this rate structure and the proposed rates are very similar to the residential rate structure. In this case, the service (meter) charge is set at a higher level than the residential rate, but the commodity or volumetric charge is set at a level which is slightly less than the second block for the residential customers. The bill comparison shows

that small users (less than 50,000 gallons/month) should see a reduction in their average bills, while larger users may see an increase depending upon the current rate they are served under (the various flat rates or the metered rate).

This rate structure may be considered a conservation-oriented rate structure under the CUWCC BMP No. 11, if at least 70% of the revenues derived from this rate structure are from the volumetric portion of the rate structure. If this rate structure is adopted, the City will need to transition the volumetric rate to meet this objective.

Proposed Irrigation Water Rate Design

The irrigation class of service currently has the same metered rate schedule as non-residential customers. Under this proposal, metered irrigation customers will have their own separate rate schedule to provide the City with the opportunity to have cost-based rates for these customers to reflect their unique consumption characteristics (low or no winter use and very high peak summer demands). Irrigation customers will be charged a monthly rate depending on meter size and a "uniform" consumption rate. Presented below in Table ES-6 is a summary of the proposed irrigation rate.

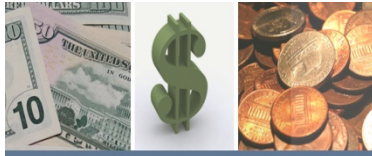
Table ES-6
Proposed Irrigation Water Rates

	Proposed Rate
<u>Service (Meter) Charge - \$/Month</u>	
3/4"	\$35.00/month
1"	58.40
1- 1/2"	116.60
2"	186.60
3"	350.00
4"	583.50
6"	1,166.50
<u>Commodity Charge - \$/1,000 gallons</u>	
All Consumption	\$0.80/1,000 gallons

This rate is structured in a manner that is very similar to the non-residential rate previously reviewed. The commodity charge has been set at a level slightly higher than the third block tier for residential.

Summary of the Water Rate Study

This completes the executive summary for the City's water utility. A full and complete discussion of the development of the comprehensive rate study and the proposed rate adjustments can be found in following sections of this report.



Section 1

Introduction

1.1 Introduction

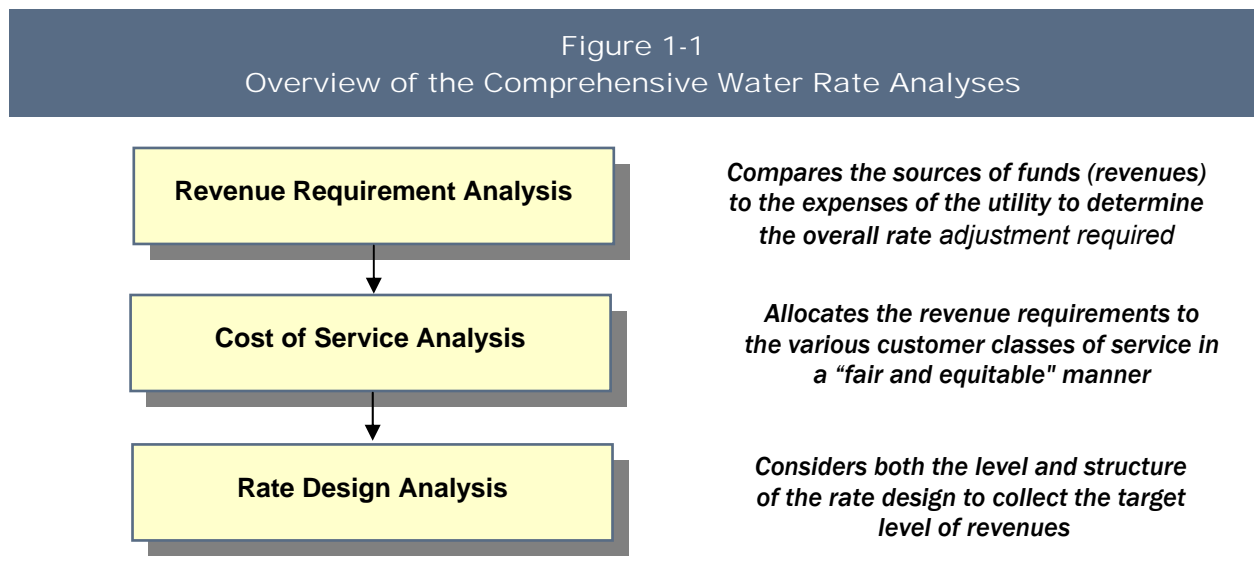
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This effort is an integral part of the City’s overall residential water meter implementation project. Existing California law states all residences built after 1992 must have a water meter installed on all new connections after that date within systems owned or operated by a water purveyor. At the same time, by January 1, 2010, the City is legally required to bill all metered on a volumetric basis (i.e. metered rates). A major objective of this study is to meet these legal requirements.

Finally, this study determined whether existing rates are adequate to meet the utility’s operating and capital expenses with revenues received from customers. Rates set too low may result in insufficient funds to maintain system integrity and lead to higher costs over the long-term. This study provides a basis for making overall rate adjustments; as well as, establishing metered rates for all customers.

1.2 Overview of the Rate Study Process

This comprehensive study consists of three interrelated analyses performed for the water utility. Figure 1-1 provides an overview of these analyses.



A revenue requirement analysis is concerned with the overall funding sources and expenses of the utility. From this analysis, a determination can be made as to the overall level of adjustment to rates. Next, a cost of service analysis is performed to equitably allocate the revenue requirements to the various types of customers served (e.g., residential, non-residential, etc.). Finally, once an overall level of rate adjustment is determined and an equitable allocation of those costs, the last step of the rate study process in the design of rates to collect the appropriate level of revenues while considering the other rate design goals and objectives of the utility (e.g., revenue stability, conservation, etc.). As a part of this study, HDR developed each of these analyses to analyze the City's current water rates. At the same time HDR utilized "generally accepted" cost of service and rate setting techniques and industry best practices in the development of the City's water rate study.

1.3 Report Organization

This report is organized as follows:

- Section 2 provides background information about the utility rate setting process, including descriptions of generally accepted principles, types of utilities, methods of determining revenue requirement, cost of service, and rate design.
- Section 3 reviews the revenue requirement analysis developed for the City of Reedley.
- Section 4 reviews the cost of service analysis.
- Section 5 reviews the rate designs developed for each customer class of service.

A technical appendix is attached at the end of the report which provides the analyses used in the preparation of this report.

1.4 Summary

This report will review the comprehensive water rate analysis prepared for the City of Reedley. The report was developed to meet the overall objectives of the City.



Section 2

Overview of the Rate Setting Process

2.1 Introduction

This section provides background information about the rate setting process, including descriptions of generally accepted principles, types of utilities, methods of determining revenue requirement, cost of service approach, and rate design. This information is useful for gaining a better understanding of the details presented in Sections 3 through 5.

2.2 Generally Accepted Rate Setting Principles

As a practical matter, utilities should consider setting their rates around some “generally accepted” or global principles and guidelines. Utility rates should be:

- Cost-based, equitable, and set at a level that meets the utility’s full revenue requirement
- Easy to understand and administer
- Designed to conform with generally accepted rate setting techniques
- Stable in their ability to provide adequate revenues for meeting the utility’s financial, operating, and regulatory requirements
- Established at a level that is stable from year-to-year from a customer’s perspective

2.3 Types of Utilities

Utilities are generally divided into two types:

- **Public utilities** are usually owned by a city, county, or special district, and are theoretically operated at zero profit. A public utility is locally owned since its customers are also its owners. As a point of reference, the City of Reedley’s water utility is a public utility.

Public utilities are capitalized or financed by issuing debt and soliciting funds from customers through direct capital contributions or user rates. Public or municipal utilities are typically exempt from state and federal income taxes. A publicly elected city council or board of trustees usually regulates public utilities.

“Public utilities are . . . theoretically operated at zero profit. As a point of reference, the City of Reedley’s water utility is a public utility.”

- **Private utilities** are “for profit” enterprises and are owned by a private company and/or stockholders. The shareholders are, in essence, the owners of the private utility. Therefore, the owners of a private utility may not be customers or local citizens, but rather numerous individuals or shareholders spread across the United States.

A private utility is capitalized by issuing stock to the general public. Private utilities are taxable entities. Given their for profit status, their rates and operations are generally regulated by a state public utility commission or other regulatory body.

As a point of reference, the City of Reedley’s water utility is a public utility and the analysis has been based on the methodology generally utilized by a public utility.

2.4 Determining the Revenue Requirement

Because public and private utilities have very different administrative and financial characteristics, their methods differ for determining revenue requirements and setting rates.

2.4.1 Public Utilities

Most public utilities use the “cash basis” approach for establishing their revenue requirement and setting rates. This approach conforms to most public utility budgetary requirements and the calculation is easy to understand. A public utility:

- Totals its cash expenditures for a period of time to determine required revenues.
- Adds operation and maintenance (O&M) expenses to any applicable taxes or transfer payments to determine total operating expenses. Operation and maintenance expenses include the materials, electricity, labor, supplies, etc. needed to keep the utility functioning.
- Calculates capital costs by adding debt service payments (principal and interest) to capital improvements financed with rate revenues. In lieu of including capital improvements financed with rate revenues, a utility sometimes includes depreciation expense to stabilize annual revenue requirement.

Under the cash basis approach to accounting, the sum of the capital and operating expenses equals the utility’s revenue requirement during any period of time (see Table 2-1).

Note that the two portions of the capital expense component (debt service and capital improvements financed from rates) are necessary under the cash basis approach because utilities generally cannot finance all their capital facilities with long-term debt. An exception occurs if a public utility provides service to a wholesale or contract customer. In this situation, a public utility could use the “utility basis” approach (see below) to earn a fair return on its investment.

Table 2-1 Cash versus Utility Basis Comparison	
Cash Basis	Utility Basis (Accrual)
+ O&M Expense	+ O&M Expense
+ Taxes or Transfer Payments	+ Taxes or Transfer Payments
+ Capital Improvements Financed with Rate Revenues (≥ Depreciation Expense)	+ Depreciation Expense
+ Debt service (Principal + Interest)	+ Return on Investment
= Total Revenue Requirement	= Total Revenue Requirement

2.4.2 Private Utilities

Most private utilities use a “utility basis” or accrual approach for establishing revenue requirement and setting rates (see Table 2-1). A private utility typically:

- Totals its O&M expenses, taxes, and depreciation expense for a period of time. Depreciation of expenses is a means of recouping the cost of capital facilities over their useful lives and generating internal cash.

- Adds a fair return on investment.

Private utilities must pay state and federal income taxes along with any applicable property, franchise, sales, or other form of revenue taxes. The return portion of this type of revenue requirement pays for the private utility's interest expense on indebtedness, provides funds for a return to the utility's shareholders in the form of dividends, and leaves a balance for retained earnings and cash flow purposes.

2.5 Analyzing Cost of Service

After the total revenue requirement is determined, it is allocated to the users of the service. The allocation, usually analyzed through a cost of service study, reflects the cost relationships for producing and delivering services. The objective of a cost of service study is to equitably allocate the total revenue requirements between the various types of customers served (e.g. residential, non-residential, etc.)

A cost of service study requires three analytical steps:

1. Costs are **functionalized** or grouped into the various cost categories related to providing service (source, pumping, transmission, distribution, etc.). This step is largely accomplished by the utility's accounting system.
2. The functionalized then costs are **classified** to specific cost components. Classification refers to the arrangement of the functionalized data into cost components. For example, a water utility's costs are typically classified as commodity, capacity, fire protection, and/or customer-related.
3. Once the costs are classified into components, they are **allocated** to the customer classes of service (residential, commercial, etc.). The allocation is based on each customer class' relative contribution to the cost component. For example, customer-related costs are allocated to each class of service based on the total number of customers in that class of service. Once costs are allocated, the required revenues for achieving cost-based rates can be determined.

2.6 Designing Rates

Rates that meet the utility's objectives are designed based on both the revenue requirement and the cost of service analysis. This results in rates that are cost-based; however, rate design may also consider factors such as ability to pay, continuity of past rate philosophy, economic development, ease of administration, and customer understanding.

2.7 Economic Theory and Rate Setting

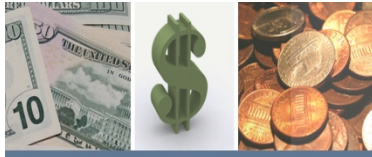
One of the major justifications for a comprehensive rate study is founded in economic theory. Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained. This statement's implications on utility rate designs are significant. For example, a water utility usually incurs capacity-related costs in meeting its peak day requirements. It follows that the customers who cause maximum peak day demands should pay for those demand-related facilities in proportion to their contribution to maximum demands. Emphasis on seasonal and marginal cost-based utility rates embraces this economic concept. When costing and pricing techniques are refined, consumers have a more accurate picture of what the

Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained.

commodity costs to produce and deliver. This price-equals-cost concept provides the basis for the subsequent analysis and comments.

2.8 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set water rates. These principles and techniques will become the basis for the City's analysis. The next section will review the development of the City's water revenue requirement.



Section 3

Development of the Revenue Requirements

3.1 Introduction

This section describes the development of the revenue requirement analysis for the City. The revenue requirement analysis is the first analytical step in the comprehensive rate study process. This analysis determines the adequacy of the City's overall water rates. From this analysis, a determination was made as to the overall level of water rate adjustment needed to provide adequate and prudent funding for both operating and capital needs. Typically, one of the main objectives of a water rate study is to develop fair and equitable rates while attempting to minimize the impacts to the utility's customers.

3.2 Determining the Water Utility Revenue Requirements

In developing the water revenue requirement, it was assumed the utility must financially "stand on its own" and be properly funded. As a result, the revenue requirement developed herein assumes the full and proper funding needed to operate and maintain the water system on a financially sound and prudent basis.

Provided below is a detailed discussion of the development of the revenue requirement analysis for the City's water utility.

3.2.1 Establishing a Time Frame and Approach

The first step in calculating the revenue requirement for the water utility was to establish a time frame for the revenue requirement analysis. For this study, the revenue requirement was developed for a six-year projected time period (FY 2009/10 – FY 2013/14). This time period tied to the City's capital requirement plan over the next few years. Reviewing a multi-year time period is generally recommended in an attempt to identify any major expenses that may be on the horizon. By anticipating future financial requirements, the City can begin planning for these changes sooner, thereby minimizing short-term rate impacts and overall long-term rates.

"... the revenue requirement as developed herein assume the full and proper funding needed to operate and maintain the system on a financially sound and prudent basis."

The second step in determining the revenue requirement for the City was to decide on the basis of accumulating costs. For the City of Reedley's revenue requirement, a cash basis approach was utilized. The cash basis approach is the most commonly used methodology by municipal utilities to set their revenue requirement. This methodology was also previously used by the City to establish their current water rates. Section 2 of this report provided a simple overview of the cash basis methodology. The actual revenue requirement developed

for the City was customized to follow the City's system of accounts (budget documents). However, in general, even with these modifications, the City's revenue requirement still contains the four basic cost components of a cash basis methodology. Table 3-1 provides a summary of the cash basis approach used to develop the City's water revenue requirement.

Table 3-1
Overview of the Water Utility Cash Basis Revenue Requirements

<ul style="list-style-type: none"> + Water operation and maintenance exp. <ul style="list-style-type: none"> ✓ Public Works Department ✓ Finance Department + Taxes/Transfer payments + Net capital improve. funded from rates^(a) + Debt service (P + I) existing and future ± Change in working capital <hr style="width: 100%;"/> = Total Water Revenue Requirement 	<ul style="list-style-type: none"> (a) Net capital improve. funded from rates <ul style="list-style-type: none"> + Total water capital improvement projects - Funding sources other than rates <ul style="list-style-type: none"> ✓ Impact Fees ✓ Loans ✓ Grants ✓ Low-interest state loans ✓ Long term debt issues <hr style="width: 100%;"/> = Net Capital Improve. Funded From Rates
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Given a time period around which to develop the revenue requirement and a method to accumulate the appropriate costs, the focus then shifts to the development and projection of the revenues and expenses of the water utility.

The primary financial inputs in this process were the City’s 2008 consumption and revenues, operating budget, and current capital improvement plan. Presented below is a detailed discussion of the steps and key assumptions contained in the development of the projections of the water utility’s revenues and expenses.

3.2.2 Projecting Water Rate and Other Miscellaneous Revenues

The first step in developing the revenue requirement was to develop a projection of rate revenues, at present rate levels. In general, this process involved developing projected consumption/billing units for each customer group. The billing units for each customer group were then multiplied by the applicable current rates. This method of independently calculating revenues assures the projected revenues used within the analysis tie to the projected consumption. The projected consumption by class of service was based on historical consumption records and when consumption was not available HDR estimated the consumption for the customer class.

The vast majority of the City’s rate revenues are derived from residential customers. Currently, the City has seven major classes of service: single-family, duplex and triplex, multi-family, commercial, industrial, other/schools, and irrigation. The City has recently installed meters on all customers and is in the process of transitioning to fully metered rates. Given that, there are a significant number of customers that are currently flat rate customers (i.e. bill is a fixed amount regardless of volume of water consumed). At the present time, the City’s single family and duplex and triplex customers are billed on a flat monthly rate. In contrast to this, a portion of the remaining non-residential customers are metered and billed on a volumetric basis while the remainder of non-residential customers are flat rate customers.

“The City has recently installed meters on all customers and is in the process of transitioning to fully metered rates. Given that, there are a significant number of customers that are currently flat rate customers (i.e. bill is a fixed amount regardless of volume of water consumed).”

In total, at present rates, the City is projected to receive approximately \$2.6 million in rate revenue in FY 2009/10. The vast majority of this revenue (64%) is derived from single-family residential customers. In FY 2009/10, the residential customers are projected to provide \$1.7 million of the projected \$2.6 million. Over the five-year planning horizon of this study, customer growth is expected to be 1% per year resulting in total rate revenues of approximately \$2.7 in FY 2013/14.

In addition to rate revenues, the City also receives a variety of miscellaneous revenues which include interest earnings, meters and water boxes, inspection fees, application service fees, sale of equipment, litigation fees, and miscellaneous revenue. The utility is projected to receive approximately \$80,000 in miscellaneous revenues in FY 2009/10. Miscellaneous revenues are expected to increase slightly over time.

On a combined basis, taking into account the rate revenues along with miscellaneous revenues, the City's total projected revenues are expected to be approximately \$2.68 million in FY 2009/10, increasing slightly to \$2.79 in 2013/14.

3.2.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by City to operate and maintain the existing plant in service. The costs incurred in this area are expensed during the current year and are not capitalized or depreciated.

In general, operation and maintenance expenses are grouped into a number of different functional categories (see Table 3-1). To begin the process of projecting O&M expenses over the planning horizon, escalation factors were developed. Escalation factors were developed for the basic types of expenses the City incurs: labor, benefits, materials and supplies, utilities, equipment, and miscellaneous expenses. The escalation factors used ranged from 3% to 5% per year, depending on the type of cost and recent inflationary trends.

To project future O&M expenses, the first step was to determine the functional categories for purposes of projecting costs. HDR reviewed the utility's FY 2008/09 budget and determined it contained sufficient detail to develop the revenue requirement analysis. Therefore, in developing this analysis, HDR maintained the overall functional nature of the City's system of accounts (i.e., personnel costs, maintenance and operation, etc.).

Given the functionalized FY 2008/09 O&M expenses, HDR then escalated the O&M expenses based on the previously mentioned escalation factors. Total operation and maintenance expenses for the City are projected to be approximately \$1.8 million in FY 2009/10. O&M expenses are projected to increase to approximately \$2.1 million by FY 2013/4 primarily as a result of assumed inflation over the time period. No extraordinary O&M expenses were assumed during the planning period.

3.2.4 Projecting Taxes/Transfer Payments

At the present time, the water utility does not pay any State or Federal income taxes. Within California, transfer payments to the City's general fund must have a cost basis and not simply be an in-lieu-of tax payment (i.e. a hidden tax). Past legal challenges to these in-lieu-of transfers at other California municipal utilities have clarified this issue.

3.2.5 Projecting Capital Improvement Projects Funded From Rate Revenues

In total, there is approximately \$8.8 million in projects planned over the six-year project time period. The vast majority of this expenditure is related to the water metering project and the addition of a 3.0 million gallon distribution reservoir. A detailed summary of the capital projects is shown in the Technical Appendix, Exhibit 3. Provided below in Table 3-2 is a summary of the City's Water Utility Capital Improvement Plan.

Table 3-2 Summary of the Water Utility Capital Improvement Plan (000's)						
Project Description	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14
Total Capital Improvements	\$6,077	\$450	\$500	\$550	\$600	\$650
Less: Outside Funding						
Grants	\$0	\$0	\$0	\$0	\$0	\$0
Water Holding DIF Reserves	0	0	0	0	0	0
Water Distribution DIF Reserves	0	0	0	0	0	0
Direct Capital Contributions	0	0	0	0	0	0
Operating Reserve	0	0	0	0	0	0
Construction Fund Reserves	0	0	0	0	0	0
From Water Bond 2007	5,677	0	0	0	0	0
New Revenue Bond Issue	0	0	0	0	0	0
Total Outside Funding	\$5,677	\$0	\$0	\$0	\$0	\$0
CIP From Rates	\$400	\$450	\$500	\$550	\$600	\$650

The City's current capital plan is not detailed for future years. The City is in the process of developing a water master plan which will provide the City with a detailed capital plan. Given that situation, HDR assumed that the City would need to begin increasing their funding of capital projects from rates. While there are a number of different methods that may be used to fund capital projects (e.g. long-term debt, distribution impact fees (DIF), grants, capital reserves) an important source of consistent funding is rates.

A general financial guideline states that, at a minimum, a utility should fund an amount equal to or greater than its annual depreciation through rates. Annual depreciation expense reflects the current investment in plant being depreciated or “losing” its useful life. Therefore, this portion of plant investment needs to be replaced to maintain the existing level of infrastructure. It must be kept in mind that, in theory, annual depreciation expense reflects an investment in infrastructure an average of 15 years ago, assuming a 30-year useful, depreciable, life. Simply funding an amount equal to annual depreciation expense will not be sufficient to replace the existing or depreciated facility. Therefore, consideration should be given to funding within rates some amount greater than annual depreciation expense for renewals and replacements. Whenever possible, the City should be funding capital projects from rates in an amount greater than annual depreciation expense. In the case of the City, the annual depreciation expense is approximately \$2.0 million per year. This would imply that the City should be funding, at a minimum, \$2.0 million per year from their rates for capital projects. At this point in time, that does not seem feasible, but the City should attempt to move in that direction over time. As a part of this study, HDR has begun to slowly increase this important funding source over the five year projected time period.

The City’s water capital improvement plan totals approximately \$8.8 million over the FY 2008/9 through FY 2013/14 time horizon. As can be seen, the vast majority of this amount is funded in FY 2008/09 and the remaining years have minimal overall funding.

3.2.6 Projecting Debt Service

The final component of the City’s revenue requirement is debt service. At the present time, the City has one outstanding debt obligations, the 2007 Water Bond. The debt obligation averaged approximately \$918,000 annually. At this time no other debt obligations were assumed for funding future capital improvements projects.

Generally, revenue bonds contain rate covenants requiring rates to be set at an adequate level to assure meeting a specified minimum debt service coverage ratio (DSC). This is a financial measure of the utility’s ability to repay the debt. In general the DSC is set at a level such that revenues less operating expenses will be 1.30 times greater than the maximum annual debt service on the outstanding debt. Given a minimum DSC, it is often prudent to plan or set rates at a level which exceeds this minimum. This

Understanding the Relationship Between Depreciation and Rates

ACCOUNTING TERMINOLOGY OF DEPRECIATION

Example: A utility purchases a piece of equipment (e.g. a service truck) for \$10,000 and assumes a 10 year life for accounting purposes

Annual Depreciation Expense–

The annual depreciation expense for income statement purposes would be \$1,000 (\$10,000 ÷ 10 years = \$1,000/year of depreciation expense)

Accumulated Depreciation –

The sum of the annual depreciation expenses since the equipment item was placed in service. Using the above example, after four (4) years, the accumulated depreciation would be \$4,000 (\$1,000 x 4 years). Accumulated depreciation is a balance sheet item and not a rate item.

DEPRECIATION, CAPITAL IMPROVEMENT FUNDING AND RATES

As a general financial guideline, a utility should fund, at a minimum, an amount within their rates an amount equal to or greater than annual depreciation expense for renewal and replacement capital projects (capital improvements funded from rates). In the above example, this would imply funding within rates, \$1,000 per year, for the eventual replacement of the truck.

guarantees meeting the minimum DSC, and at the same time, provides a slight cushion for unexpected changes. This should also strengthen the City's ability to issue revenue bonds in the future, if necessary, since bond rating agencies would review the City's past financial strength and ability to repay the bonds.

3.2.7 Summary of the Revenue Requirements

Given the above projections of revenues and expenses, a summary of the revenue requirement for the City's water utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the City. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational activities and capital projects throughout the projected time period. Presented in Table 3-3 is a summary of the water revenue requirement. Detailed analysis can be found in the Technical Appendices.

Table 3 - 3 Summary of Water Utility Revenue Requirements (\$000s)						
	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14
Sources of Funds -						
Water Rate Revenue	\$2,626	\$2,653	\$2,679	\$2,706	\$2,733	\$2,760
Miscellaneous Revenue	80	29	30	31	31	32
Total Source of Funds	\$2,706	\$2,682	\$2,709	\$2,737	\$2,764	\$2,792
Applications of Funds -						
Total O&M Expenses	\$1,741	\$1,810	\$1,881	\$1,956	\$2,033	\$2,114
CIP from Rates	400	450	500	550	600	650
Debt Service	916	921	919	918	916	918
Total Application of Funds	\$3,058	\$3,180	\$3,301	\$3,424	\$3,549	\$3,683
Deficiency of Funds	(\$351)	(\$499)	(\$592)	(\$687)	(\$785)	(\$890)
Deficiency as % of Rev from Rates	-13.4%	-18.8%	-22.1%	-25.4%	-28.7%	-32.2%
Debt Service Coverage Ratios -						
Before Rate Adjustment	0.97	0.92	0.87	0.82	0.76	0.70
After Rate Adjustment	0.97	1.23	1.54	1.59	1.64	1.69

It is important to note the annual deficiencies in Table 3-3 are cumulative. That is, any adjustment in the initial years will reduce the needed deficiency in the following years. The results of the revenue requirement analysis indicate a deficiency of funds over the planning period (FY 200-FY 2014). The deficiency ranges from approximately \$351,000 in FY 2008/09 to \$890,000 in FY 2013/14. This analysis indicates that the City should adjust their water rates by 18.8% in FY 2009/10 to meet the full revenue requirements of the water utility. The deficiency of approximately \$499,000 in FY 2009/10 is slightly more than the \$450,000 of capital improvements funded from rates. Viewed from that perspective, it indicates that the City's water rates are covering the O&M expenses and debt service, but it is not contributing any funds towards capital project funding. Failure to adjust the City's water rates will either lead to deferred capital infrastructure projects (which has been an issue in the past) or a decline in utility reserves to pay for capital projects. Either of these results is not a positive result for the City or the utility.

This study has demonstrated the need for a rate adjustment to meet the funding requirements shown in FY 2009/10 and FY 2010/11 (i.e. a revenue requirement of \$3.3 million). This adjustment is needed to meet the City's overall operating and capital costs. It is also important to note that excess reserves are not available to off-set or largely mitigate the City's needed rate adjustment. As a result, the City will need to adjust their water rates to more closely reflect cost-based levels.

Another indication of the City's weak financial status is the debt service coverage ratios (DSC). DSCs are the measurement of a utility's ability to repay outstanding debt. DSCs are stated in the bond covenants and are generally in the range of 1.25 to 1.40 times the debt service payment. This implies that the utility should have a DSC greater than the stated minimum level. As can be seen from Table 3-3, the water system is below the minimum of 1.30 and is actually below 1.00. A DSC below 1.00 indicates that rates are not sufficient to meet the full debt service payment. Even after the proposed rate adjustment in FY 2009/10 is still below the targeted minimum level. Only after needed rate adjustments does the City's DSC meet the minimum requirements and comfortably exceed them.

3.2.8 Review of the Reserve Levels

Reserves are an important part of a utility's financial picture. There can be many different purposes for reserves. The City currently has four reserve funds: operating reserve, water holding development impact fee reserve, distribution development impact fee reserve and a bond reserve. The bond reserve is legally required and funded in accordance with the bond covenants. The impact fee reserves are also restricted and may only be used for growth (capacity) related capital projects or growth-related debt service. In establishing the impact fee reserves, no specific minimum reserve level is required. These reserves are simply holding reserves to segregate and account for these specific revenues.

The operating reserve is essentially the City's checkbook to handle the cash flow requirements of the utility. A minimum reserve level should be established for this particular reserve fund. A simple financial measure of this is 45 - 90 days of O&M expenses. This would imply a minimum reserve of \$215,000 to \$430,000. At the present time, the operating reserve is approximately \$300,000. This balance for the operating reserve appears to be within the suggested minimum range. When the balance of a reserve reaches the minimum level, it should be a signal for management to review this reserve and determine what action should be taken.

3.3 Consultant's Recommendations

Based upon the revenue requirement analysis developed, HDR recommends the City adjust the overall rate revenue levels to be sufficient to meet the funding levels through FY 2010/11 (i.e. \$3.3 million in revenue requirements). At that point, the City could consider inflationary level adjustments. By making this adjustment to rates now, the City would immediately move to fully supporting the current level of operating and capital needs for the water utility and avoid the need for a second rate adjustment in FY 2010/11.

To better understand the impacts of this proposal, HDR has developed a simple customer impact table which shows the proposed rate adjustments and potential adjustments to residential bills. This is shown on Table 3-4 below.

Table 3-4
Overview of the Residential Customer Impacts and Rate Transition Plan

	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 12/14
Present Monthly Flat Rate Residential Bill	\$29.99				
Projected Average Monthly Residential Bill	\$36.59	\$36.59	\$37.50	\$38.44	\$39.40
\$ Change Per Month	\$6.60	\$6.60	\$0.91	\$0.94	\$0.96
Cumulative \$ Change Per Month	\$6.60	\$6.60	\$7.51	\$8.45	\$9.41

As can be seen in Table 3-4, the impact of the proposed adjustments are reasonable given the overall cost of water. With the movement to metered rates for residential customers, the impacts will actually vary by customer. The City's movement towards volumetric rates will provide customers with a greater opportunity to manage and control the size of their bill.

3.4 Summary

This section of the report has provided a discussion of the City's revenue requirement analysis. The revenue requirement developed a financial plan to support the City's operating and capital infrastructure requirements. The next section will discuss the cost of service analysis developed for the City.



Section 4

Development of the Cost of Service

4.1 Introduction

In the previous section, the revenue requirement analysis focused on the total sources and application of funds required to adequately fund the City's water utility. This section will discuss the development of the cost of service analysis. A cost of service analysis is concerned with the equitable allocation of the total revenue requirement between the various customer classes of service (e.g., residential, commercial, etc.). The previously developed revenue requirement was utilized in the development of the cost of service analysis.

“Following the generally-accepted guidelines and principles of a cost of service analysis will inherently lead to rates which are equitable, cost-based, and not viewed as arbitrary or capricious in nature.”

In recent years, increasing emphasis has been placed on cost of service studies by government agencies, customers, utility regulatory commissions, and other parties. This interest has been generated in part by continued inflationary trends, increased operating and capital expenditures, and concerns of equity in rates among customers. Following the generally-accepted guidelines and principles of a cost of service analysis will inherently lead to rates which are equitable, cost-based, and not viewed as arbitrary or capricious in nature.

4.2 Objectives of a Cost of Service Study

There are two primary objectives in conducting a cost of service study:

- Allocate the revenue requirement among the customer classes of service
- Derive average unit costs for subsequent rate designs

The objectives of the water cost of service analysis are different from determining revenue requirements. As noted in the previous section, a revenue requirement analysis determines the utility's overall financial needs, while the cost of service study determines the fair and equitable manner to collect the revenue requirement.

The second rationale for conducting a cost of service analysis is to ensure a rate is designed such that it properly reflects the costs incurred by the City. For example, a water utility incurs costs related to meeting average day and peak day demands, fire protection, and customer-related cost components. As an example, a water utility must build sufficient capacity to meet summer peak capacity needs. Therefore, those customers creating this summer peak requirement should pay their fair share of the cost to meet this peak demand. Each of these types of costs may be collected in a slightly different manner as to allow for the development of rates that collect costs in the same manner as they are incurred.

4.3 Determining the Customer Classes of Service

The first step in a cost of service study is to determine the customer classes of service. Currently, the City has a number of different rates, primarily as a function of the flat rate customers. However, the City does maintain customer data and information in a variety of categories. For purposes of this study the following classes of service were used within the water cost of service study:

- Single Family
- Duplex and Triplex
- Multi-Family
- Commercial
- Industrial
- Other/Schools
- Irrigation

In determining classes of service for cost of service purposes, the objective is to group customers together into similar or homogeneous groups based upon facility requirement and/or flow characteristics. Given the City's limited information on consumption characteristics, these categories of customers seemed most appropriate at this time. As the City begins to collect more consumption data, these categories or classes of service should be refined.

4.4 General Cost of Service Procedures

In order to determine the cost to serve each customer class of service on the City's system, a cost of service analysis is conducted. A cost of service study utilizes a three-step approach to review costs. In Section 2 of this report, these steps were briefly discussed; functionalization, classification, and allocation. Provided below is a detailed discussion of the water cost of service study conducted for the City of Reedley, and the specific steps taken within the analysis.

4.4.1 Functionalization of Costs

The first analytical step in the cost of service process is called functionalization. Functionalization is the arrangement of expenses and asset (plant) data by major operating functions within each utility. For example, treatment, pumping, distribution, etc are major functional categories. Within this study, the functionalization of the cost data was largely accomplished through the City's system of accounts.

"A cost of service study utilizes a three-step approach to review costs. These take the form of functionalization, classification, and allocation."

4.4.2 Classification of Costs

The second analytical task performed in a water cost of service study is the classification of the costs. Classification determines why the expenses were incurred or what type of need is being met. The City's revenue requirements were reviewed and classified using the following cost classifiers:

- **Commodity Related Costs:** Commodity costs are those costs which tend to vary with the total quantity of water consumed by a customer. Commodity costs are those incurred under average load (demand) conditions and are generally specified for a period of time such as a month or year. Chemicals or electricity used in the treatment of water is an

example of a commodity-related cost, since these costs tend to vary based upon the total flow of water.

- **Capacity Related Costs:** Capacity costs are those which vary with peak demand, or the maximum rates of flow to customers. System capacity is required when there are large demands for water placed upon the system (e.g., summer lawn watering). For water utilities, capacity related costs are generally related to the sizing of facilities needed to meet a customer's maximum water demand at any point in time. For example, portions of distribution storage reservoirs and mains (pipes) must be adequately sized for this particular type of requirement.
- **Customer Related Costs:** Customer costs are those cost which vary with the number of customers on the water system. They do not vary with system output or consumption levels. These costs are also sometimes referred to as readiness to serve or availability costs. Customer costs may also sometimes be further classified as either actual or weighted. Actual customer costs vary proportionally, from customer to customer, with the addition or deletion of a customer regardless of the size of the customer. In contrast, a weighted customer cost reflects a disproportionate cost, from customer to customer, with the addition or deletion of a customer. An example of an actual customer cost is postage for mailing bills. This cost does not vary from customer to customer, regardless of the size or consumption characteristics of the customer. Examples of weighted customer costs are items such as meter maintenance expenses, where a large industrial customer requires a significantly more expensive meter than a residential customer.
- **Public Fire Protection Related Costs:** Public fire protection costs are those costs related to the public fire protection functions. Usually, such costs are those related to public fire hydrants and the over-sizing of mains and distribution storage reservoirs for fire protection purposes.
- **Revenue Related Costs:** Certain costs associated with the utility may vary with the amount of revenue received. An example is a utility tax based upon the amount of rate revenues received by the water utility.
- **Direct Assignments:** Certain costs associated with operating the system may be directly traced to a specific customer or class of service (e.g., bad debt expenses).

Terminology of a Water Cost of Service Analysis

Functionalization – The arrangement of the cost data by functional category (e.g., source of supply, treatment, etc.).

Classification – The assignment of functionalized costs to cost components (e.g., commodity, capacity, customer and fire protection related).

Allocation – Allocating the classified costs to each class of service based upon each class's proportional contribution to that specific cost component.

Commodity Costs – Costs that are classified as commodity related vary with the total flow of water (e.g., chemical use at a treatment plant).

Capacity Costs – Costs classified as capacity related vary with peak day or peak hour usage. Facilities are often designed and sized around meeting peak demands.

Fire Protection Costs – Costs that are related to fire protection services (e.g., hydrants).

Customer Costs – Costs classified as customer related vary with the number of customers on the system, e.g., metering costs.

Direct Assignment – Costs that can be clearly identified as belonging to a specific customer group or group of customers.

In this case, these costs are then directly assigned to that specific class of service. This assures that other classes of service will not be allocated any costs for those significant facilities or costs from which they do not benefit.

4.4.3 Development of Allocation Factors

Once the classification process is complete, and the customer groups have been defined, the various classified costs were allocated to each customer group. The City's classified costs (revenue requirements) were allocated to the various customer groups using the following allocation factors.

- **Commodity Allocation Factor:** As noted earlier, commodity related costs vary with the total flow of water. Therefore, the commodity allocation factors were based upon the projected total consumption (retail sales volumes) plus unaccounted for water (losses) for each class of service. The challenging part of this study is the fact that little or no metered consumption data was available for the residential customers. HDR has estimated the residential class usage based upon the total water produced, less metered consumption and the estimated unaccounted for water. Using this approach, the average monthly single-family residential usage was estimated at 15,500 gallons per month. This estimated usage is not unreasonable based upon our experience with other utilities with metered residential customers. However, this estimate could certainly vary since not all of the City's commercial customers are metered and unaccounted for water¹ was conservatively estimated at 13%.
- **Capacity Allocation Factor:** The capacity allocation factor was developed based upon the assumed contribution to peak day use of each class. Peak day use by customer group was estimated using assumed peaking factors for each customer group. In this particular case, the peaking factor was defined as the relationship between peak day contribution and average day use and determined for each customer group based upon a review of the average month to peak month usage. Given a peaking factor, the peak day contribution for each class of service was developed.
- **Customer Allocation Factor:** Customer costs vary with the number of customers on the system. Two basic types of customer allocation factors were identified – actual and weighted. The allocation factors for actual customers were based upon the projection of the number of customers developed within the revenue requirement. The weighted customer allocation factors is also broken down further into two factors which attempt to reflect the disproportionate costs associated with serving different types of customers. The first weighted customer factor is for customer service and accounting. This weighted customer allocation factor takes into account the fact that it may take more time to read a meter and process a bill for larger customers. The second weighted customer allocation factor is for meters and services. This factor attempts to reflect the different costs associated with providing larger sized meters. For example, there is a significant cost difference associated with replacing a 5/8" meter compared to a six-inch meter. This cost difference is reflected within the allocation factor.
- **Public Fire Protection Allocation Factor:** The development of the allocation factor for public fire protection expenses involved a review of each class of service and their fire flow

¹ Unaccounted for water is the difference between the total water produced and the total water sold. It is not simply comprised of "leaks" within the system. Unaccounted for water may include water used fire-fighting, flushing of mains, billing errors, construction use, leaks in mains, etc.

requirements. The review took into account the gallon per minute fire flow requirements in the event of a fire, along with the duration of the required flow. The fire flow rates used within the allocation factor were based upon industry standards and similar experiences with other water cost of service studies. For this study, it has been assumed that minimum fire flow requirements for single family and duplex and triplex customers is 1,000 gallons per minute (gpm), 1,500 gpm for multi-family, and 2,000 gpm for commercial, other/schools, and industrial users. The minimum fire flow requirements are then multiplied by the number of customers in each class of service, and the assumed duration of the fire, to determine the class' prorated fire flow requirements.

- **Revenue Related Allocation Factor:** The revenue related allocation factor was developed from the projected rate revenues for FY 2009 for each customer group. These same revenues were used within the revenue requirement analysis previously discussed in Section 3.

Given the development of the allocation factors, the final step in the cost of service study is to allocate the classified costs to the various customer classes of service.

4.5 Functionalization and Classification of Operating Expenses

The functionalization and classification of the operating expenses was developed based upon HDR's understanding of the operating characteristics of the City's system. For the City's study, the revenue requirement for FY 2009/10 were functionalized, classified, and allocated. As noted earlier, the City utilized a cash basis revenue requirement, which was comprised of operation and maintenance expenses, net debt service, and capital additions funded from rates. A more detailed review of the classification of revenue requirement can be found in the Technical Appendix, Exhibit 10.

4.6 Major Assumptions of the Cost of Service Study

A number of key assumptions were used within the City's cost of service study. Below is a brief discussion of the major assumptions used.

- The test period used for the cost of service analysis was FY 2009/10. The revenue and expense data was previously developed within the revenue requirement study.
- A cash basis approach was utilized which conforms to generally accepted water cost of service approaches and methodologies.
- HDR estimated the classification based upon its experience with previous water cost of service studies of a similar nature.
- Customer usage figures used within this study were provided for each class of service from historical usage information provided by the City. When historical usage was not available HDR estimated the consumption based on the number of customers and the available usage provided. The entire residential consumption was estimated by HDR based upon a review of the total production of the City, less metered non-residential consumption, non-metered non-residential consumption and unaccounted for water.
- Capacity allocation factors were based upon each customer group's average to peak month relationship, along with certain estimates of the relationship by class of service.

4.7 Summary of the Cost of Service Results

In summary form, this cost of service analysis began by functionalizing the City’s operating expenses. The individual classification totals were then allocated into two customer classes of service: residential and commercial. Residential consisted of single family, duplex and triplex, and multi-family customers. Non-residential included commercial, industrial, other/schools, and irrigation. The allocated expenses for each customer group were then aggregated to determine each customer group’s overall revenue responsibility. A summary of the detailed cost responsibility developed for each class of service is shown in Table 4-1.

Class of Service	Present Rate Revenues	Allocated Costs	\$ Difference	% Difference
Residential	\$2,111	\$2,325	(\$214)	10.2%
Commercial	<u>516</u>	<u>652</u>	<u>(136)</u>	<u>26.5%</u>
Total	\$2,627	\$2,977	(\$350)	13.4%

The allocation of costs attempted to assure the facilities and costs allocated to each customer class reflected their respective benefit. The cost of service results indicated that cost differences may exist between the customer classes of service. A general “rule of thumb” that can be used as a guide when reviewing a cost of service analysis is if a class is within +/- 5% of the overall required adjustment the class is paying its “fair share”. However, in this case, the consumption data used within this study was estimated for the residential customer class of service. For that reason, the findings of this study and any conclusions should be tempered.

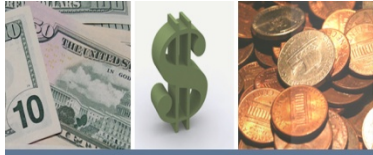
4.8 Consultant’s Conclusions and Recommendations

A cost of service utilizes a specific point in time to allocate costs. In performing this allocation, it is based upon a specific year of data, customer information and consumption patterns. As would be imagined, these parameters can change over time, and the results may also change. It is recommended that the above results be confirmed over time and after the City collects more definitive consumption data (i.e. metered data) for the residential class of service.

While the results shown Table 4-1 appear to indicate cost differences between the various customer classes of service, the quality of the consumption data used within the study would suggest that no major changes to the rate or customer class relationships be considered or implemented at this time. Given the overall objective of the water utility financially standing on its own, it is recommended the overall level of rates for each class of service be equally (proportionally) adjusted.

4.9 Summary

This section of the report has provided an analysis of the cost of service developed for the City of Reedley. This analysis was prepared using generally accepted cost of service techniques.



Section 5

Development of the Water Rate Designs

5.1 Introduction

The final step of the comprehensive water rate study process is the design of water rates to collect the desired levels of revenues, based upon the results of the revenue requirement and cost of service analysis. In reviewing water rate designs, consideration is given to the level of the rates and the structure of the rates.

For this particular study, an important component was the need to establish volumetric or metered water rate designs. The City recently installed residential meters and is legally required to implement metered rates for all metered customers by January 1, 2010. A key objective in developing this study is to move the City towards volume based (metered) water rates for all customers.

5.2 Rate Design Criteria and Considerations

Prudent rate administration dictates that several criteria must be considered when setting utility rates. Some of these rate design criteria are listed below:

- Rates which are easy to understand from the customer's perspective
- Rates which are easy for the utility to administer
- Consideration of the customer's ability to pay
- Continuity, over time, of the rate making philosophy
- Policy considerations (encourage conservation, economic development, etc.)
- Provide revenue stability from month to month and year to year
- Promote efficient allocation of the resource
- Equitable and non-discriminatory (cost-based)

Many contemporary rate economists and regulatory agencies feel the last consideration, cost-based rates, should be of paramount importance and provide the primary guidance to utilities on rate structure and policy.

It is important that the City provide its customers with a proper price signal as to what their consumption or usage is costing. This goal may be approached through rate level and structure. When developing the proposed rate designs, all the above listed criteria were taken into consideration. However, it should be noted that it is difficult, if not impossible, to design a rate that meets all the goals and objectives listed above. For example, it may be difficult to design a rate that takes into consideration the customer's ability to pay, and one which is cost-based. In designing rates, there are always trade-offs between the goals and objectives.

5.3 Review of the Overall Rate Adjustments

As indicated in the revenue requirement and the cost of service analyses, the priority for the water utility was to adjust and transition the overall level of the water rates to meet the City's financial needs. Therefore, the results of the revenue requirement analysis were the primary

basis for establishing the proposed rate adjustments for the water utility. In addition, since no cost of service adjustments were recommended at this time, the proposed rate adjustments will be applied equally among each of the customer classes of service (i.e. across-the-board).

5.4 Overview of the City's Present Water Rates

The City's present water rates are a combination of flat rates and metered rates. Provided below in Table 5-1 is an overview of the City's present water rates.

Table 5-1	
Overview of the City's Present Flat Rates and Metered Rates [1]	
	Present Rates
Residential Flat Rate–	
Single-Family Residential	\$29.99/month
Duplex and Triplex	25.68/month/unit
Multi-Units (four or more)	21.47/month/unit
Commercial and Business Flat Rate –	
Up to 3,750 square feet	\$29.99/month
Each added 3,750 square feet	21.47/month/3,750 sq. ft.
Laundromats	29.99/month + 3.74/washer
Packing Houses with Mechanical Cold Storage	128.39/month
Packing Houses without Mechanical Cold Storage	86.25/month
Car Wash	34.19/Usable Bay
Steam Laundries	213.01/month
Cement Pipe Yards	340.11/month
Hospitals, Nursing Homes	127.69/month + \$1.99/bed over 40
Hotels and Motels	19.60/month/room
Reedley College	1,899.96/month
Reedley College Dorms	1,399.20/month
Reedley High School	1,252.95/month
Lincoln, Jefferson, Grant	339.83/month
Washington	255.28/month
St. LaSalle, Immanuel High School	339.83/month
Metered Water Rates–	
Volume Charge - \$/1,000 gallons	\$0.53/1,000 gallons
Minimum Charge (bill)	\$71.96/month

[1] – Effective October 2007

As can be seen, the current metered water rate is composed of a uniform (flat) rate per 1,000 gallons. There is also a minimum charge or bill associated with the rate.

5.5 Rate Structure Terminology

A review of the rate structures from other water utilities across the U.S. reveals a wide variety of structures and approaches in use today. While it may seem that there are an endless number of different rate structures to be found, the reality is that they are all based upon a few basic rate design concepts. It is how these basic concepts are applied, modified and combined that creates what appear to be endless possibilities. Provided below is a brief discussion of these basic rate design concepts.

The initial starting point in considering a rate structure is the relationship between fixed costs and variable costs. Fixed costs do not vary with the production or flow of water. Debt service is an example of a fixed cost. In contrast, variable costs tend to change with the quantity of water produced. Examples of variable costs are the cost of chemicals and electricity. Most rate structures contain a fixed or minimum charge, and a volumetric consumption (commodity) charge.

Fixed costs are generally collected as a fixed charge on a monthly basis (e.g. \$5.00 per month/meter). This charge may be called by various names (e.g. customer charge, meter charge, readiness to serve charge, etc.), but in all cases, it is intended to collect the fixed costs that the utility incurs, regardless of the customer’s level of consumption. The most basic form of a fixed customer charge is a meter charge. While the charge is a fixed amount, regardless of consumption, it typically varies (increases) by meter size.

The rate at which the meter charge increases is typically a function of either meter investment (cost) or meter capacity. Provided below in Table 5-2 is the “generally accepted” approach used to establish fixed meter charges based upon the safe operating capacity of the meter for a 3/4” meter through a 6” meter. In this example, it assumes a \$10.00/month charge for a 3/4” meter.

Meter Size	Safe Maximum Oper. Capacity GPM [1]	Equivalent Meter Ratio	Meter Charges at Equivalent Ratios
3/4”	30	1.00	\$10.00
1”	50	1.67	16.70
1-1/2”	100	3.33	33.33
2”	160	5.33	53.33
3”	300	10.00	100.00
4”	500	16.67	166.70
6”	1,000	33.33	333.33

[1] AWWA C-700-77 Cold Water Meters - Displacement Type

As Table 5-2 indicates, the fixed meter charge increases in relationship to the safe operating capacity of the various meter sizes. Meter capacity is an important concept in that a customer that has a 2” meter is regarded, from a capacity perspective, as the rough equivalent of five and one-third 3/4” customers. Another way of saying this is the customer with a 2” meter is, from a capacity perspective, the equivalent of approximately five and one-third customers with a 3/4” meter. Knowing that a large portion of a utility’s costs are typically related to meeting capacity requirements, one can see the importance of taking into account capacity in establishing rates for customers.

While it was noted that there are different approaches that can be used to collect fixed charges, the same can be said for variable or volumetric charges. Volumetric consumption charges are generally based upon metered consumption and charged on a \$/unit cost. Although the unit of measurement may vary, (e.g. gallons, thousands of gallons, cubic feet, hundreds of cubic feet, acre feet, etc.) this is not a critical element in the development of the rates. This is because the charge per unit is simply adjusted to reflect the units of measurement being used. In other words, if you are charging \$2.00 per 1,000 gallons, and

wanted to charge on a per gallon basis, the rate would be \$0.002/gallon. It is the structure of the variable charges where numerous options exist.

There are four basic rate structures for variable charges; a uniform charge, a declining block charge, inverted (increasing) block charge and seasonal. Figure 5-1 provides an overview of each of these variable charge rate structures.

Figure 5-1
Overview of the Various Variable Charge Rate Structures

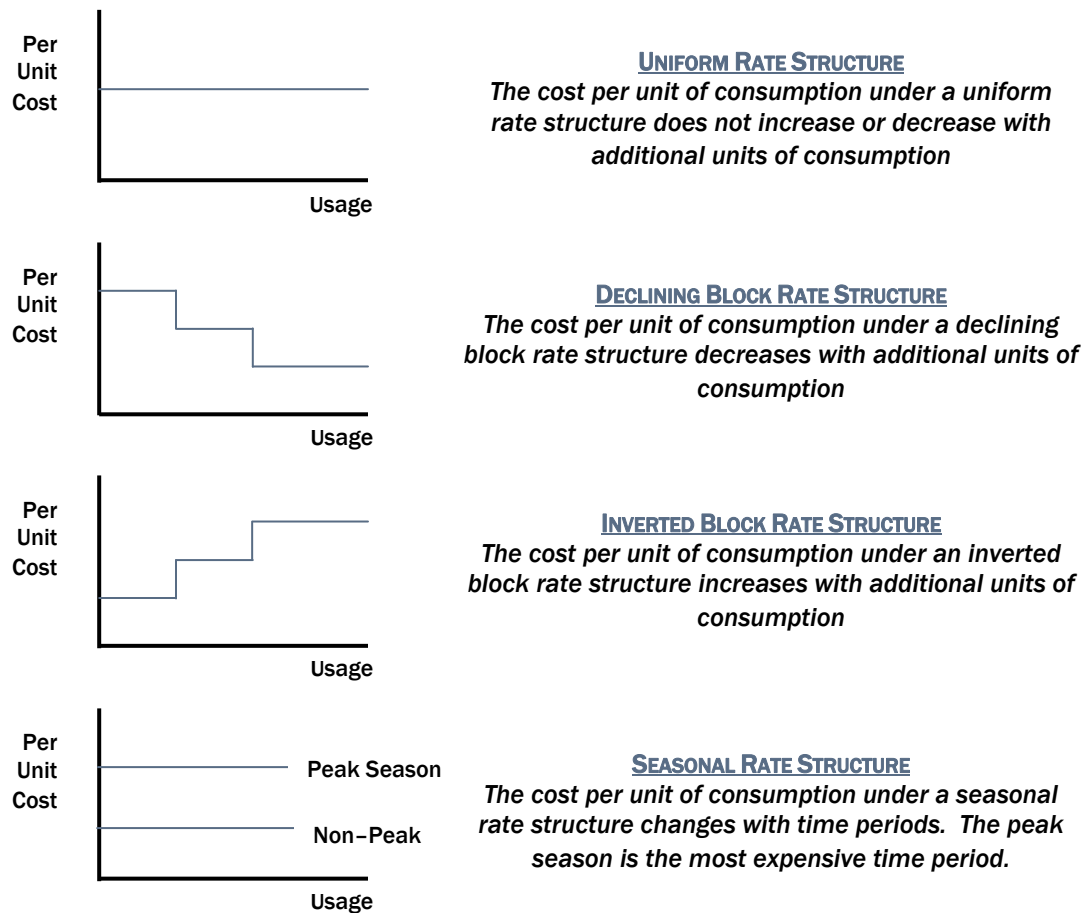


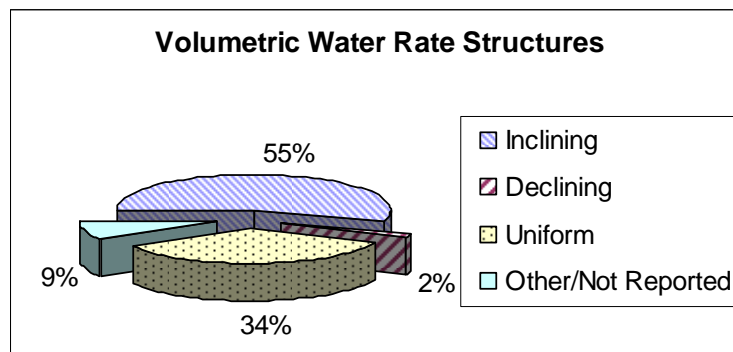
Figure 5-3 illustrates that the basic philosophy of each of these variable charge rate structures varies significantly. Under a uniform rate structure, the cost per unit does not change with consumption. The uniform structure is a simple and straightforward approach from the perspective of customer understanding and rate administration/billing. In contrast, the declining block rate structure is a bit more complex. The number of blocks (e.g. 3 stepped blocks) and size of the blocks (e.g., 0 – 10,000 gallons) may vary. However, the number of blocks² should be reasonable (i.e., 2 – 5 blocks) for reasons of simplicity and administration.

² “Blocks” or “Consumption Blocks” is used in a declining block or inverted block rate structure and refers to the amount of consumption allowed before the price changes to a succeeding price block. The initial block refers to the first price block (e.g. 0 to 5,000 gallons). The tail block refers to the last price block (e.g. all usage over 5,000 gallons).

Declining block rates may imply that there are certain economies of scale with additional consumption, or improved capacity use, and not necessarily a “volume discount.” Depending upon the utility, this may or may not be a true statement. An inverted (increasing or tiered) block rate structure attempts to send a price signal to consumers that their consumption costs more, as more water is consumed. Again, this may or may not be the proper price signal regarding the utility’s water resource costs. As with the declining block rate structure, the number and size of each block may vary, but should be reasonable for purposes of customer understanding and rate administration. Finally, a seasonal rate structure is a form of a time-differentiated rate structure. That is, the price varies based upon the time of use. Under a seasonal rate structure, water consumed in the summer is priced at a higher level than winter water consumption. This rate structure attempts to reflect the difference in costs associated with consumption during a peak period when water supply resources may be constrained.

Given an understanding of these basic rate structure concepts, the obvious question is which rate structure is most commonly used by water utilities. Provided below in Figure 5-2 is a comparison of the volumetric rate structures, as surveyed by the California-Nevada AWWA 2007 Water Rate Survey.

Figure 5-2
Summary of the 2007 California-Nevada AWWA Rate Survey of
Volumetric Water Rate Structures



Interestingly, the California-Nevada survey indicates that the inclining (inverted/tiered) rate structure is the most predominate, followed by the uniform rate structure. Across the U.S., this pattern does not necessarily hold true. Nationally, the volumetric rate structures are roughly split equally between inclining, declining and uniform rate structures. The selection of the inclining block rate structure as the predominate structure in California reflects the constrained water resources of this region and the focus on conservation and efficient use. In reviewing the survey results above, it should be noted that the survey did not identify or break out seasonal water rate structures as a specific category.

The rate structure concepts noted above may be combined and used to form various different rate structures. As an example, a seasonal inverted block rate structure is developed by combining the seasonal rate structure with the concept of an inverted block rate structure.

Given this brief overview of rate design terminology, the focus shifts to current industry trends as it relates to rate design.

5.6 Current Industry Thinking and Trends

As with any industry, the thinking and practices have changed over time. This is particularly true with water utility rate structures. As total costs (and customer bills) have increased and resources/capacities have become more constrained, the industry philosophy and thinking concerning rate structures has changed and evolved.

It was not that long ago that declining block rates were used to encourage sales of water. In some areas of the U.S., that philosophy still carries on. However, it is more common today to see utilities emphasizing water conservation and efficient use due to limited or constrained water resources, particularly in the western U.S. As these changes in utility costs have occurred, the water utility industry's rate structure philosophy and thinking has kept pace. Provided below is a summary of the current California water utility thinking as it relates to water rate structures.

“ . . . it is more common today to see utilities emphasizing water conservation and efficient use due to limited or constrained water resources, particularly in the western U.S. As these changes in utility costs have occurred, the water utility industry's rate structure philosophy and thinking has kept pace.”

CALIFORNIA URBAN WATER CONSERVATION COUNCIL'S BEST MANAGEMENT PRACTICES ON PRICING AND WATER RATE STRUCTURES - The California Urban Water Conservation Council (CUWCC) was created to increase efficient water use across California. CUWCC's goal is to integrate urban water conservation Best Management Practices (BMP's) into the planning and management of California's water agencies/utilities. The pricing of water to achieve conservation and efficient use have been at the forefront of CUWCC's thinking for many years. Since the early 1990's, there has been a fairly significant amount of research on the response to water demands, as a result of price. CUWCC noted the following “lessons learned” concerning prices and demand in their recently developed policy statements concerning water rate structures:

- Lesson 1:** Rates influence demand
- Lesson 2:** “Price elasticity” is the percentage change in demand induced by a one percent change in price, all other factors being constant
- Lesson 3:** Demand can be thought of as the sum of demand for different end-uses of water
- Lesson 4:** Demand for outdoor use is more price elastic than demand for indoor uses
- Lesson 5:** Demand for water during peak (summer) periods is greater than demand during off-peak (winter) periods
- Lesson 6:** Residential water demand is relatively inelastic. The response of residential demand to rate changes, though not zero, is relatively small
- Lesson 7:** Demand is more elastic in the long-run than in the short-run
- Lesson 8:** Demand is influenced by forces other than price – including population growth, the economic cycle, weather fluctuations, and income growth
- Lesson 9:** The response of demand is more difficult to predict for large changes in price

While many of the “lessons learned” are common knowledge, the CUWCC believes these lessons provide the basis or foundation for establishing policies related to conservation pricing. CUWCC has recently established policy statements concerning water rate structures. Their observations concerning conservation pricing are as follows:

- Water pricing in California does not generally reflect the true cost of water, nor the next increment of water supply.
- Consumers generally pay relatively low rates for water, especially when compared to other resources such as electricity and gas.
- If an individual user or business does not feel a personal responsibility for the amount of water used monthly or annually, there is very little motivation to conserve.
- New landscape water conservation technologies, design and plant alternatives, and metering options will not achieve their potential water savings unless the water customer is motivated personally or economically to reduce water use.
- Utilities should consider establishing a monthly billing system that clearly communicates the Utility's rate structure and the customer's current and historical consumption of water, if it is cost-effective for the utility to do so.
- Currently, there is no benchmark to determine whether or not a water utility's existing or proposed rate structure is conservation-oriented.

CUWCC's best management practices on pricing (BMP 11) provides a definition of a conservation-based rate structure. It is as follows:

"Conservation pricing provides economic incentives (a price signal) to customers to use water efficiently. Because conservation pricing requires a volumetric rate, metered water service is necessary condition of conservation pricing. Unmetered water service is inconsistent with the definition of conservation pricing.

Conservation pricing requires volumetric rate(s). While this BMP defines a minimum percentage of water sales revenue from volumetric rates, the goal of this BMP is to recover the maximum amount of water sales revenue from volumetric rates that is consistent with utility costs (which may include utility long-run marginal costs), financial stability, revenue sufficiency, and customer equity.

In addition to volumetric rate(s), conservation pricing may also include one or more of the following other charges:

1. *Service connection charges designed to recover separable costs of adding new customers to the water distribution system.*
2. *Monthly or bi-monthly meter/service charges to recover costs unrelated to the volume of water delivered or new service connections and to ensure system revenue sufficiency.*
3. *Special rates and charges for temporary services, fire protection service, and other irregular services provided by the utility."*

CUWCC's BMP 11 does provide a more specific definition of the rate structures that may be considered conservation-based. Specifically, BMP 11 states the following:

"The following volumetric rate designs are potentially consistent with the above definition:

1. **Uniform rate** in which the volumetric rate is constant regardless of the quantity consumed.
2. **Seasonal rates** in which the volumetric rate reflects seasonal variation in water delivery costs.
3. **Tiered rates** in which the volumetric rate increases as the quantity used increases.

4. Allocation-based [water budget] rates in which consumption tiers and respective volumetric rates are based on water use norms and water delivery costs established by the utility.”

In viewing the above rate structures, it is important to note that BMP 11 states that the above volumetric structures may be consistent with CUWCC’s definition of a conservation-based rate. In other words, for example, a uniform rate may or may not be considered conservation-based. To help resolve whether a rate design is conservation-based, CUWCC provides the following guidance.

“Adequacy of Volumetric Rate(s): A retail agency’s volumetric rate(s) shall be deemed sufficiently consistent with the definition of conservation pricing when it satisfies at least one of the following two options:

Option 1: Let *V* stand for the total annual revenue from the volumetric rate(s) and *M* stand for the total annual revenue from customer meter/service (fixed) charges, then:

$$\frac{V}{V + M} \geq 70\%$$

Option 2: Use the rate design model included in the *Municipal Water and Wastewater Rate Manual* published by the Canadian Water and Wastewater Association with the signatory’s water system and cost information to calculate *V'*, the uniform volume rate based on the signatory’s long-run incremental cost of service, and *M'*, the associated meter charge. [Let *HCF* be annual water delivery (in hundred cubic feet).] A signatory’s volumetric rate(s) shall be deemed sufficiently consistent with the definition of conservation pricing if:

$$\frac{V}{V + M} \geq \frac{V'}{V' + M'}$$

. . . [The above] calculation(s) shall only include utility revenues from volumetric rates and monthly or bimonthly meter/service charges. It shall not include utility revenues from new service connection charges, revenue from special rates and charges for temporary service, fire protection, or other irregular services; revenue from grants or contributions from external sources in aid of construction or program implementation; or revenue from property or other utility taxes.”

Most utilities have not determined their long-run incremental cost by conducting a marginal cost study and would be unable to use the Option 2 test. Therefore, most utilities will need to rely upon the Option 1 test of 70% or more of the revenues collected from a rate design is attributable to the volumetric charge (rate).

CUWCC BMP 11 applies to signatory agencies, of which the City of Reedley is a signatory. For signatories, BMP 11 contains an implementation schedule. For fully metered agencies which signed the memorandum of understanding (MOU) prior to June 13, 2007, the implementation shall commence no later than July 1, 2007. For agencies signing after June 13, 2007, implementation shall commence no later than July 1 of the year following the year the Agency signed the MOU.

“CUWCC BMP 11 applies to signatory agencies, of which the City of Reedley is a signatory. For signatories BMP 11 contains an implementation schedule.”

The above discussion reflects commencing implementation, and CUWCC recognizes that agencies can not instantly change

their philosophy and rates. Given that CUWCC has established a timetable or schedule for transition to conservation-based rates. The implementation schedule is as follows:

Year After Start Year	For Option 1	Notes to the Formula
1	$V \geq 70\% \times 0.70$	[i.e. 49% of revenues derived from consumption charges]
2	$V \geq 70\% \times 0.80$	[i.e. 56% of revenues derived from consumption charges]
3	$V \geq 70\% \times 0.90$	[i.e. 63% of revenues derived from consumption charges]
4	$V \geq 70\% \times 1.00$	[i.e. 70% of revenues derived from consumption charges]

CUWCC recognized in establishing this schedule that an agency shall not be required to increase the volumetric component of the rate structure by more than 10% in any single year until the full implementation is achieved.

In reviewing the District’s current rate structure the vast majority of revenues are received via fixed charges (i.e. flat rates). As the City moves towards metered rates, the City will be moving towards compliance with CUWCC BMP No. 11.

In summary, the CUWCC’s conservation rate policies are generally consistent with, and reflect the current water utility industry thinking and philosophy, particularly in the western U.S.

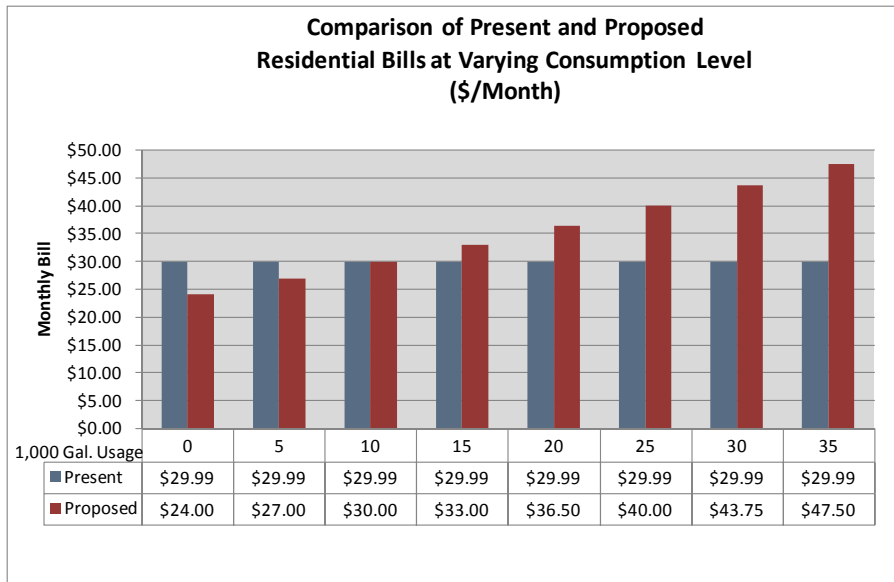
5.7 Proposed Residential Water Rate Designs

As noted previously, the City currently has a flat rate for single family residential, duplex and triplex customers. HDR and the City reviewed various volumetric or metered water rate structures. The proposed residential rate is a tiered rate structure.

Residential; Tiered (Inverted) Rate Structure – The proposed residential rate design is a tiered rate structure and is shown below in Table 5-3.

Table 5-3 Proposed Residential Water Rates^[1] Tiered Rate Structure	
	Proposed Rate
<u>Service (Meter) Charge - \$/Month</u>	
3/4" and 1"	\$24.00/month
1- 1/2"	79.90
2"	127.900
<u>Commodity Charge - \$/1,000 gallons</u>	
0 – 15,000 gallons	\$0.60/1,000 gallons
15,000- 25,000 gallons	\$0.70
Over 25,000 gallons	\$0.75

[1] – Residential includes single-family, duplex and triplex customers



The proposed rate design for the residential class of service is a tiered rate structure. A tiered rate structure has increasing prices for increased use. In this case, the break-point for the third tier has been set at 25,000 gallons. This break point is typically well above average indoor door use and would provide for some summer outdoor use. In some water systems with residential customers that are

Bill comparison assumes a 3/4" meter

metered, 15,000 gallons may be the annual average use for this type of customer.

This rate structure is viewed as being “conservation-based” and has been designed to meet the CUWCC BMP No. 11 as it relates to conservation-based rates.

Under this option, the low use customers will see a reduction in their bill. Customers that use about 10,000 gallons per month will pay an amount roughly equal to existing flat rate structure. If a residential customer uses less than 10,000 gallons in a month, their bill should be less than the existing flat rate amount. A customer using approximately 20,000 gallons per month will pay an amount roughly equal to the average overall rate adjustment.

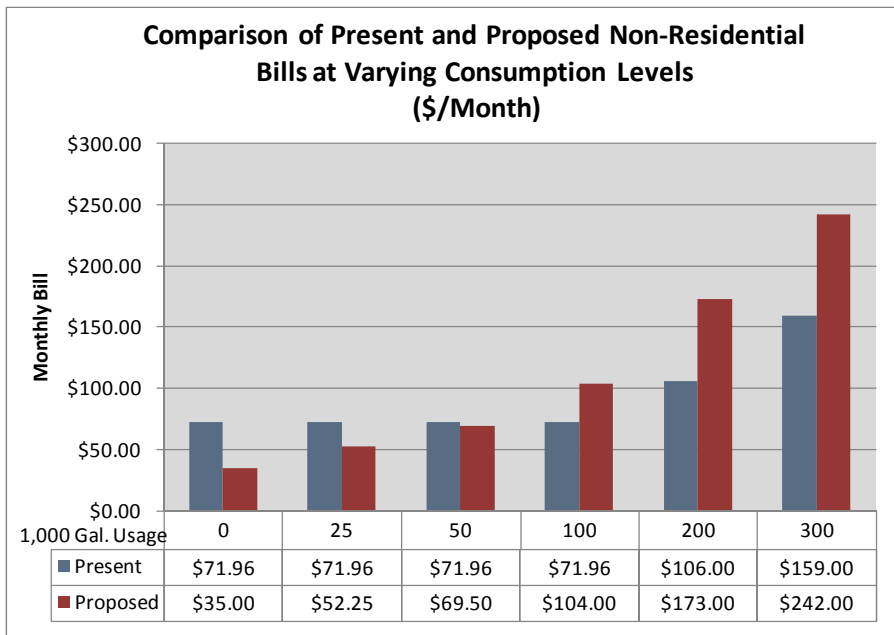
5.8 Proposed Non-Residential Water Rate Designs

Non-Residential customers include multi-family (four-plex and above), commercial, industrial, and other/schools. The current rate structure for non-residential customers is either a flat rate or a metered uniform rate structure. As will be recalled, the uniform rate does not have a fixed meter charge but does have a minimum bill. The proposed non-residential option is presented below.

Non-Residential Option; Uniform Rate Structure – The proposed non-residential rate is a uniform rate structure. The rate has a fixed service (meter) charge and a uniform commodity charge. Provided below in Table 5-4 is the proposed non-residential rate.

Table 5-4
Proposed Non-Residential Water Rates
Uniform Rate

Proposed Rate	
<u>Service (Meter) Charge - \$/Month</u>	
3/4"	\$35.00/month
1"	58.40
1- 1/2"	116.60
2"	186.60
3"	350.00
4"	583.50
6"	1,166.50
<u>Commodity Charge - \$/1,000 gallons</u>	
All Consumption	\$0.69/1,000 gallons



As can be seen, this rate structure is somewhat similar, but different from the proposed residential rate structure. In this case, the service (meter) charge is similar in structure to the residential rate design, but it has been set at a higher level than the residential rate. The commodity or volumetric charge different from the residential rate design in that this structure is a uniform structure. It is difficult to establish

Bill comparison assumes a 3/4" meter

block sizes for non-residential customers given the wide variety of types of customers and usage levels and patterns of use. The bill comparison shows that small users (less than 50,000 gallons/month) should see a reduction in their average bills, while large users may see increase depending upon their current rate (various flat rates or metered rate).

This uniform rate structure may be considered a conservation-oriented rate structure under the CUWCC BMP No. 11, if at least 70% of the revenues derived from this rate structure are from the volumetric portion of the rate structure. If this rate structure is adopted, the City will need to transition the volumetric rate to meet this objective.

A tiered rate structure is not typically recommended for non-residential customers. This is due to the fact that non-residential customers, unlike the residential class of service, is widely

diverse in their consumption and demand patterns. It is this diversity in patterns of use that makes it difficult to establish a tier or break point that is fair and equitable for these customers.

5.9 Proposed Irrigation Water Rate Design

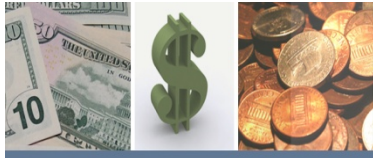
The irrigation class of service currently has the same metered rate schedule as non-residential customers. Under this proposal, metered irrigation customers will have their own separate rate schedule to provide the City with the opportunity to have cost-based rates for these customers to reflect their unique consumption characteristics (low or no winter use and very high peak summer demands). Irrigation customers will be charged a monthly rate depending on meter size and a uniform consumption rate. Presented below in Table 5-5 is a summary of the proposed irrigation rate.

Table 5-5 Proposed Irrigation Water Rates	
	Proposed Rate
<u>Service (Meter) Charge - \$/Month</u>	
3/4"	\$35.00/month
1"	58.40
1- 1/2"	116.60
2"	186.60
3"	350.00
4"	583.50
6"	1,166.50
<u>Commodity Charge - \$/1,000 gallons</u>	
All Consumption	\$0.80/1,000 gallons

This rate is structured in a manner that is very similar to the non-residential rate structure. This class of service has a fixed service (meter) charge and a uniform commodity charge. The commodity charge for this class of service is higher than the rate charged to the residential and non-residential customers. In part, this is a function of the current revenue derived from these customers in that the rate is designed to collect the same level of revenue as the current irrigation customers provide (plus the assumed rate adjustment in FY 2009/10). At the same time, on a per unit cost basis, irrigation customers are the highest cost customers on the City's system and should reflect this fact.

5.10 Summary of the Water Rate Study

This completes the analysis for the City's water utility. The proposed rate designs are intended to provide cost-based water rates for the City and move the City's rates to a meter-based or volumetric billing method. On January 1, 2010, the City is legally mandated (required) to bill all customers with a meter on a volumetric basis (i.e. no flat rates). A full and complete development of the comprehensive rate study and the proposed rate adjustments can be found in Technical Appendices of this report.



Technical Appendices

**City of Reedley
Water Exhibit - 1
Summary of the Water Revenue Requirements**

	Budget		Projected			
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
SOURCES OF FUNDS						
Water Rate Revenues	\$2,626,283	\$2,652,546	\$2,679,072	\$2,705,862	\$2,732,921	\$2,760,250
Other Misc. Revenues	80,000	29,213	29,943	30,691	31,459	32,245
Total Sources of Funds	\$2,706,283	\$2,681,759	\$2,709,015	\$2,736,554	\$2,764,380	\$2,792,495
Applications of Funds						
Operations & Maintenance						
Public Works Department	\$1,190,737	\$1,236,089	\$1,283,284	\$1,332,400	\$1,383,520	\$1,436,731
Finance Department	550,501	573,721	597,973	623,304	649,765	677,407
Total Operating & Maintenance Expense	\$1,741,238	\$1,809,810	\$1,881,256	\$1,955,703	\$2,033,284	\$2,114,138
Sources of Funds Over/(Under) O&M	\$965,045	\$871,949	\$827,758	\$780,850	\$731,095	\$678,357
Taxes/Transfer Payments	\$0	\$0	\$0	\$0	\$0	\$0
Capital Improvements from Rates [1]	400,000	450,000	500,000	550,000	600,000	650,000
Net Debt Service	916,363	920,663	919,463	917,863	915,863	918,363
Increases (Decreases) to Reserves	0	0	0	0	0	0
Total Revenue Requirements	\$3,057,601	\$3,180,473	\$3,300,719	\$3,423,566	\$3,549,147	\$3,682,501
Total Balance/(Deficiency) of Funds	(\$351,317)	(\$498,714)	(\$591,704)	(\$687,012)	(\$784,767)	(\$890,005)
Balance as a % of Rate Revenues	-13.4%	-18.8%	-22.1%	-25.4%	-28.7%	-32.2%
Proposed Rate Adjustment	0.0%	22.0%	0.0%	2.5%	2.5%	2.5%
Additional Revenue from All Rate Adjustments	\$0	\$583,560	\$589,396	\$677,819	\$770,035	\$866,185
Total Balance/(Deficiency) of Funds	(\$351,317)	\$84,846	(\$2,308)	(\$9,193)	(\$14,732)	(\$23,821)
Additional Rate Adjustment Required	13.4%	-3.2%	0.1%	0.3%	0.5%	0.9%

[1] Capital Improvement Projects Funded From Rates						
Total Capital Projects	\$6,076,826	\$450,000	\$500,000	\$550,000	\$600,000	\$650,000
Less: Funding Sources Other Than Rates						
Grants	\$0	\$0	\$0	\$0	\$0	\$0
Water Holding DIF Reserves	0	0	0	0	0	0
Water Distribution DIF Reserves	0	0	0	0	0	0
Direct Capital Contributions	0	0	0	0	0	0
Operating Reserve	0	0	0	0	0	0
Construction Fund Reserves	0	0	0	0	0	0
From Water Bond 2007	5,676,826	0	0	0	0	0
New Revenue Bond Issue	0	0	0	0	0	0
Total Funding Sources Other Than Rates	\$5,676,826	\$0	\$0	\$0	\$0	\$0
Total CIP from Rates	\$400,000	\$450,000	\$500,000	\$550,000	\$600,000	\$650,000

City of Reedley
 Water Exhibit-3
 Revenue Requirement Assumptions

		Budget		Projected				
		2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	Notes:
SOURCES OF FUNDS								
Water Rate Revenues								
050-3650	Water Sales - Rate Revenues	\$2,626,283	\$2,652,546	\$2,679,072	\$2,705,862	\$2,732,921	\$2,760,250	Rate Revenues
Total Water Rate Revenues		\$2,626,283	\$2,652,546	\$2,679,072	\$2,705,862	\$2,732,921	\$2,760,250	
Other Misc. Revenues								
050-3401	Interest Earnings	\$0	\$0	\$0	\$0	\$0	\$0	Other Revenues
050-3653	Water Meters & Water Boxes	25,000	12,813	13,133	13,461	13,798	14,143	Other Revenues
050-3654	Water Meter Inspection Fees	0	0	0	0	0	0	Other Revenues
050-3699	Water Application Service Fee	1,000	1,025	1,051	1,077	1,104	1,131	Other Revenues
050-3701	Water Sale of Surplus Equipment	0	0	0	0	0	0	Other Revenues
050-3750	Water DBCP Litigation Fees	39,000	0	0	0	0	0	Other Revenues
050-3707	Other Miscellaneous Revenues	15,000	15,375	15,759	16,153	16,557	16,971	Other Revenues
Total Misc. Revenues		\$80,000	\$29,213	\$29,943	\$30,691	\$31,459	\$32,245	
Total Sources of Funds		\$2,706,283	\$2,681,759	\$2,709,015	\$2,736,554	\$2,764,380	\$2,792,495	

APPLICATION OF FUNDS
Operations & Maintenance
Public Works Department

<i>Personnel Costs-</i>								
050-4500.1010	F/T Salaries	\$284,700	\$298,935	\$313,882	\$329,576	\$346,055	\$363,357	Labor
050-4500.1020	P/T Salaries	18,000	18,900	19,845	20,837	21,879	22,973	Labor
050-4500.1030	O/T Salaries	10,000	10,500	11,025	11,576	12,155	12,763	Labor
050-4500.1040	Social Security	23,938	25,135	26,392	27,711	29,097	30,552	Benefits
050-4500.1050	PERS	46,335	48,652	51,084	53,639	56,320	59,137	Benefits
050-4500.1060	Health Insurance	76,434	80,256	84,268	88,482	92,906	97,551	Benefits
050-4500.1070	Workers Comp	16,399	17,219	18,080	18,984	19,933	20,930	Benefits
050-4500.1080	LTD Insurance	1,994	2,094	2,198	2,308	2,424	2,545	Benefits
050-4500.1090	Uniform Allowance	3,500	3,675	3,859	4,052	4,254	4,467	Benefits
050-4500.1095	Special Compensation	210	221	232	243	255	268	Benefits
Total Personnel Costs		\$481,510	\$505,586	\$530,865	\$557,408	\$585,278	\$614,542	
<i>Maintenance and Operation-</i>								
050-4500.2010	Office Supplies	\$4,000	\$4,120	\$4,244	\$4,371	\$4,502	\$4,637	Materials and Supplies
050-4500.2020	Special Supplies	40,000	41,200	42,436	43,709	45,020	46,371	Materials and Supplies
050-4500.2025	Lab Supplies	4,000	4,120	4,244	4,371	4,502	4,637	Materials and Supplies
050-4500.2040	Small Tools	6,000	6,180	6,365	6,556	6,753	6,956	Equipment
050-4500.2150	Publications	200	206	212	219	225	232	Miscellaneous Expense
050-4500.2240	Meters and Boxes	10,000	10,300	10,609	10,927	11,255	11,593	Equipment
050-4500.2265	Chlorine	45,000	46,350	47,741	49,173	50,648	52,167	Materials and Supplies
050-4500.2275	Carbon Media	55,000	56,650	58,350	60,100	61,903	63,760	Materials and Supplies
050-4500.2550	Telephone	6,000	6,180	6,365	6,556	6,753	6,956	Utilities
050-4500.2560	Natural Gas	2,500	2,575	2,652	2,732	2,814	2,898	Utilities
050-4500.2570	Electrical	350,000	360,500	371,315	382,454	393,928	405,746	Utilities
050-4500.2680	Taxes	20	21	21	22	23	23	Miscellaneous Expense
050-4500.3000	Professional	40,000	41,200	42,436	43,709	45,020	46,371	Miscellaneous Expense
050-4500.3007	Professional Development	5,000	5,150	5,305	5,464	5,628	5,796	Miscellaneous Expense
050-4500.3035	Lab Testing	12,000	12,360	12,731	13,113	13,506	13,911	Miscellaneous Expense
050-4500.3045	Certifications	1,500	1,545	1,591	1,639	1,688	1,739	Miscellaneous Expense
050-4500.4010	Mice Contracts	600	618	637	656	675	696	Miscellaneous Expense
050-4500.4015	Computer Support	10,000	10,300	10,609	10,927	11,255	11,593	Miscellaneous Expense
050-4500.4020	Equipment Repairs	70,000	72,100	74,263	76,491	78,786	81,149	Equipment
050-4500.4023	Well Repairs	10,000	10,300	10,609	10,927	11,255	11,593	Miscellaneous Expense
050-4500.4030	Building Repairs	500	515	530	546	563	580	Miscellaneous Expense
050-4500.7010	Equipment Shop	36,907	38,014	39,155	40,329	41,539	42,785	Miscellaneous Expense
Total Maintenance and Operations		\$709,227	\$730,504	\$752,419	\$774,991	\$798,241	\$822,188	

City of Reedley
Water Exhibit-3
Revenue Requirement Assumptions

	Budget		Projected				Notes:
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	
Finance Department							
<i>Personnel Costs-</i>							
050-4150.1010	F/T Salaries	\$78,801	\$82,741	\$86,878	\$91,222	\$95,783	\$100,572 Labor
050-4150.1020	P/T Salaries	6,000	6,300	6,615	6,946	7,293	7,658 Labor
050-4150.1030	O/T Salaries	4,000	4,200	4,410	4,631	4,862	5,105 Labor
050-4150.1040	Social Security	6,833	7,175	7,533	7,910	8,306	8,721 Benefits
050-4150.1050	PERS	12,905	13,550	14,228	14,939	15,686	16,470 Benefits
050-4150.1060	Health Insurance	19,863	20,856	21,899	22,994	24,144	25,351 Benefits
050-4150.1065	Annuitants Medical	34,567	36,295	38,110	40,016	42,016	44,117 Benefits
050-4150.1070	Workers Comp	531	558	585	615	645	678 Benefits
050-4150.1080	LTD Insurance	555	583	612	642	675	708 Benefits
050-4150.1095	Special Compensation	521	547	574	603	633	665 Benefits
	Total Personnel Costs	\$164,576	\$172,805	\$181,445	\$190,517	\$200,043	\$210,045
<i>Maintenance and Operation-</i>							
050-4150.2010	Office Supplies	\$12,000	\$12,360	\$12,731	\$13,113	\$13,506	\$13,911 Materials and Supplies
050-4150.2020	Special Supplies	18,000	18,540	19,096	19,669	20,259	20,867 Materials and Supplies
050-4150.2150	Publications	350	361	371	382	394	406 Miscellaneous Expense
050-4150.2530	Memberships	125	129	133	137	141	145 Miscellaneous Expense
050-4150.2540	Meetings & Conferences	500	515	530	546	563	580 Miscellaneous Expense
050-4150.2550	Telephone	1,800	1,854	1,910	1,967	2,026	2,087 Utilities
050-4150.2560	Natural Gas	150	155	159	164	169	174 Utilities
050-4150.2570	Electrical	1,200	1,236	1,273	1,311	1,351	1,391 Utilities
050-4150.2590	RMA Insurance	150,000	157,500	165,375	173,644	182,326	191,442 Benefits
050-4150.2600	Unemployment Insurance	10,000	10,500	11,025	11,576	12,155	12,763 Benefits
050-4150.2610	City Dinner	300	309	318	328	338	348 Miscellaneous Expense
050-4150.2850	Employee Awards	500	515	530	546	563	580 Miscellaneous Expense
050-4150.3000	Professional	11,500	11,845	12,200	12,566	12,943	13,332 Miscellaneous Expense
050-4150.3002	Online Web Payment Services	4,000	4,120	4,244	4,371	4,502	4,637 Miscellaneous Expense
050-4150.3120	Management Services	155,333	159,993	164,793	169,737	174,829	180,074 Miscellaneous Expense
050-4150.3125	Police Services - Calls for Service	10,667	11,200	11,760	12,348	12,966	13,614 Labor
050-4150.4010	Mice Contracts	8,000	8,240	8,487	8,742	9,004	9,274 Miscellaneous Expense
050-4150.4012	Credit Card Machine Fees	1,000	1,030	1,061	1,093	1,126	1,159 Miscellaneous Expense
050-4150.4015	Computer Support	0	0	0	0	0	0 Miscellaneous Expense
050-4150.4017	Internet Support	0	0	0	0	0	0 Miscellaneous Expense
050-4150.4020	Equipment Repairs	500	515	530	546	563	580 Equipment
050-4150.8020	Prior Year Purchase Orders	0	0	0	0	0	0 Miscellaneous Expense
	Total Maintenance and Operations	\$385,925	\$400,916	\$416,528	\$432,787	\$449,722	\$467,362
Total O & M Expenses		\$1,741,238	\$1,809,810	\$1,881,256	\$1,955,703	\$2,033,284	\$2,114,138
Taxes/Transfer Payments							
	Personnel Costs - Finance	\$0	\$0	\$0	\$0	\$0	\$0 Labor
	Maintenance & Operations - Finance	0	0	0	0	0	0 Labor
	Total Taxes/Transfer Payments	\$0	\$0	\$0	\$0	\$0	\$0

City of Reedley
Water Exhibit-3
Revenue Requirement Assumptions

	Budget	Projected					Notes:	
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14		
Capital Outlay Projects								
050-4500.5315	Water Master Plan & Meter Project	\$1,161,728	\$0	\$0	\$0	\$0	\$0	Bonds
050-4500.5318	Water 3.0 Million Gallon Hydro-Tower Project	4,818,598	0	0	0	0	0	Bond Balance
050-4500.5435	Water Permit Tracking Software	37,500	0	0	0	0	0	
050-4500.5437	Water Initial GIS Software	25,000	0	0	0	0	0	
050-4500.6200	KRCD Water Mgmt Plan - Year 3 of 3	10,000	0	0	0	0	0	
050-4500.5705	Water Valve Exerciser	24,000	0	0	0	0	0	
050-4500.6335	Well Design Reedley Estates	0	0	0	0	0	0	Well 13 at Parlier
050-4500.8020	Water Prior Year Purchase Orders	0	0	0	0	0	0	
	Undesignated Capital Projects	0	450,000	500,000	550,000	600,000	650,000	
	Total Capital Outlay Projects	\$6,076,826	\$450,000	\$500,000	\$550,000	\$600,000	\$650,000	
Less: Outside Funding Sources								
	Grants	\$0	\$0	\$0	\$0	\$0	\$0	
	Water Holding DIF Reserves	0	0	0	0	0	0	
	Water Distribution DIF Reserves	0	0	0	0	0	0	
	Direct Capital Contributions	0	0	0	0	0	0	
	Operating Reserve	0	0	0	0	0	0	
	Construction Fund Reserves	0	0	0	0	0	0	
	From Water Bond 2007	5,676,826	0	0	0	0	0	
	New Revenue Bond Issue	0	0	0	0	0	0	
	Total Outside Funding Sources	\$5,676,826	\$0	\$0	\$0	\$0	\$0	
	Net Capital Funded From Rates	\$400,000	\$450,000	\$500,000	\$550,000	\$600,000	\$650,000	Depreciation Expense = \$2 million
Debt Service								
	2007 Water Bond	\$916,363	\$920,663	\$919,463	\$917,863	\$915,863	\$918,363	Debt Schedule
	New Debt Issue	0	0	0	0	0	0	Debt Schedule
	Total Debt Service	\$916,363	\$920,663	\$919,463	\$917,863	\$915,863	\$918,363	Paid from 050, 107and/or 111
Less:								
	Water Holding DIF (107)	0	0	0	0	0	0	
	Water Distribution DIF (111)	0	0	0	0	0	0	
		\$0	\$0	\$0	\$0	\$0	\$0	
	Net Debt Service	\$916,363	\$920,663	\$919,463	\$917,863	\$915,863	\$918,363	
	Change in Working Capital	\$0	\$0	\$0	\$0	\$0	\$0	

City of Reedley
Water Exhibit-3
Revenue Requirement Assumptions

	Budget		Projected				Notes:
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	
TOTAL REVENUE REQUIREMENTS	\$3,057,601	\$3,180,473	\$3,300,719	\$3,423,566	\$3,549,147	\$3,682,501	
Balance/(Deficiency) of Funds	(\$351,317)	(\$498,714)	(\$591,704)	(\$687,012)	(\$784,767)	(\$890,005)	
Balance as a % of Rate Revenues	13.4%	18.8%	22.1%	25.4%	28.7%	32.2%	
Proposed Rate Adjustment	0.0%	22.0%	0.0%	2.5%	2.5%	2.5%	As Input
Addtl Rev from Proposed Adjustments	\$0	\$583,560	\$589,396	\$677,819	\$770,035	\$866,185	09/10 would need to be 15% to reach >1.:
Net Bal/(Def) of Funds After Rate Adj.	(351,317)	84,846	(2,308)	(9,193)	(14,732)	(23,821)	
Additional Rate Increase Needed	13.4%	-3.2%	0.1%	0.3%	0.5%	0.9%	
Debt Service Coverage before Rate Adjustment	0.97	0.92	0.87	0.82	0.76	0.70	
Debt Service Coverage after Rate Adjustment	0.97	1.55	1.51	1.56	1.60	1.65	
Residential Bill Comparison							
Before Rate Adjustment							
After Rate Adjustment	29.99	36.59	36.59	37.50	38.44	39.40	
Cumulative \$ Change	0.00	6.60	6.60	7.51	8.45	9.41	
Annual \$ Change	0.00	6.60	0.00	0.91	0.94	0.96	
Operating Reserve (050)							
Beginning Balance	\$270,535	\$284,062	\$298,265	\$313,178	\$328,837	\$345,279	
Use of Funds	0	0	0	0	0	0	
Addition of Funds	0	0	0	0	0	0	
Interest Income	13,527	14,203	14,913	15,659	16,442	17,264	Make sure formula is correct
Ending Balance	\$284,062	\$298,265	\$313,178	\$328,837	\$345,279	\$362,543	
Water Holding Development Impact Fee (107)							
Beginning Balance	\$1,705,457	\$1,825,418	\$1,825,418	\$1,825,418	\$1,825,418	\$1,825,418	
Use of Funds	0	0	0	0	0	0	
Addition of Funds	119,961	0	0	0	0	0	
Ending Balance	\$1,825,418	\$1,825,418	\$1,825,418	\$1,825,418	\$1,825,418	\$1,825,418	
Water Distribution Development Impact Fee (111)							
Beginning Balance	\$317,715	\$403,067	\$403,067	\$403,067	\$403,067	\$403,067	
Use of Funds	0	0	0	0	0	0	
Addition of Funds	85,352	0	0	0	0	0	
Ending Balance	\$403,067	\$403,067	\$403,067	\$403,067	\$403,067	\$403,067	
Water Bond 2007 (per OS)							
Beginning Balance	\$331,371	\$659,027	\$691,979	\$726,578	\$762,906	\$801,052	
Use of Funds	5,676,826	0	0	0	0	0	
Addition of Funds	5,980,326	0	0	0	0	0	
Interest Income	24,156	32,951	34,599	36,329	38,145	40,053	
Ending Balance	\$659,027	\$691,979	\$726,578	\$762,906	\$801,052	\$841,104	

**City of Reedley
Water Exhibit - 5
Development of Commodity Allocation Factor**

	2007 Consumption in 1,000 Gal	13% Losses	Net Water Delivered (Flow + Losses)	Average Day Use (MGD)	% of Total	
Residential [1]	876,179	113,903	990,082	2.71	50.52%	15.497
Duplex/Triplex [1]	36,000	4,680	40,680	0.11	2.08%	
Multi-Family	357,240	46,441	403,681	1.11	20.60%	
Commercial/Business	305,664	39,736	345,400	0.95	17.63%	
Landscape/Irrigation	492	64	556	0.00	0.03%	
Other/Schools	150,066	19,509	169,575	0.46	8.65%	
Industrial	8,544	1,111	9,655	0.03	0.49%	
Total	1,734,185	225,444	1,959,629	5.37	100%	
Allocation Factor			1,959,531	5.37	(COMM-1)	

NOTES:

[1] Estimated residential use based upon total production less metered commercial use and unaccounted for water.

City of Reedley
Water Exhibit - 6
Development of Capacity Allocation Factor

	Total Consumption in 1,000 Gal	Average Consumption (MGD)	Peaking Factors	Peak Day Use (MGD)	% of Total
Residential	990,082	2.71	2.00	5.43	59.45%
Duplex/Triplex	40,680	0.11	1.75	0.20	2.14%
Multi-Family	403,681	1.11	1.35	1.49	16.36%
Commercial/Business	345,400	0.95	1.50	1.42	15.55%
Landscape/Irrigation	556	0.00	2.50	0.00	0.04%
Other/Schools	169,575	0.46	1.20	0.56	6.11%
Industrial	9,655	0.03	1.20	0.03	0.35%
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Total	1,959,629	5.37		9.1	100.00%
Allocation Factor			Actual Peak Day (MGD)	9.1	(CAP)

NOTES:

City of Reedley
 Water Exhibit - 7
 Development of the Customer Allocation Factor

	Actual Customer		Customer Service & Accounting			Meters & Services		
	Number of Customers	% of Total	Weighting Factor	Weighted Customer	% of Total	Weighting Factor	Weighted Customer	% of Total
Residential	4,712	86.47%	1.0	4,712	83.44%	1.0	4,712	83.44%
Duplex/Triplex	142	2.60%	1.0	142	2.51%	1.0	142	2.51%
Multi-Family	201	3.69%	1.0	201	3.56%	1.0	201	3.56%
Commercial/Business	374	6.86%	1.5	561	9.94%	1.5	561	9.94%
Landscape/Irrigation	1	0.02%	1.5	2	0.03%	1.5	2	0.03%
Other/Schools	13	0.23%	1.5	19	0.34%	1.5	19	0.34%
Industrial	7	0.13%	1.5	11	0.19%	1.5	11	0.19%
Total	5,449	100.00%		5,646	100.00%		5,646	100.00%
Allocation Factor		(AC)			(WCA)			(WCMS)

NOTES:

City of Reedley
Water Exhibit - 8
Development of the Public Fire Protection Allocation Factor

	Number of Meters	Fire Prot. Requirements (gals/min)	Duration (minutes)	Total FP Requirements (1,000 g/min)	% of Total
Residential	4,712	1,000	60	282,690	57.52%
Duplex/Triplex	142	1,000	90	12,735	2.59%
Multi-Family	201	1,500	180	54,338	11.06%
Commercial/Business	374	2,000	180	134,640	27.39%
Landscape/Irrigation	1	0	0	0	0.00%
Other/Schools	13	2,000	180	4,560	0.93%
Industrial	7	2,000	180	2,520	0.51%
	-----			-----	-----
Total	5,449			491,483	100.00%

Allocation Factor

NOTES:

City of Reedley

Water Exhibit - 9

Development of the Revenue Related Allocation Factor

	<u>Projected Revenue</u>	<u>% of Total</u>
Residential	\$1,695,575	64.56%
Duplex/Triplex	76,410	2.91%
Multi-Family	338,577	12.89%
Commercial/Business	399,165	15.20%
Landscape/Irrigation	861	0.03%
Other/Schools	107,388	4.09%
Industrial	8,308	0.32%
	-----	-----
Total	\$2,626,283	100.00%
Allocation Factor		(REV_REQ)

NOTES:

City of Reedley
 Water Exhibit - 10
 Functionalization and Classification of
 Revenue Requirements

Expenses 2008/09	Commodity (COMM)	Capacity (CAP)	Customer Related				Public Fire Protection (FP)	Revenue Related (RR)	Direct Assign. (DA)	Basis of Classification
			Actual Customer (AC)	Weighted for:						
				Cust. Acctg. (WCA)	Meters & Services (WCMS)					
APPLICATION OF FUNDS										
Operations & Maintenance										
Public Works Department										
<i>Personnel Costs-</i>										
050-4500.1010	F/T Salaries	\$284,700	\$142,350	\$99,645	\$42,705	\$0	\$0	\$0	\$0	50% COMM 35% CAP 15% AC
050-4500.1020	P/T Salaries	18,000	9,000	6,300	2,700	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1030	O/T Salaries	10,000	5,000	3,500	1,500	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1040	Social Security	23,938	11,969	8,378	3,591	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1050	PERS	46,335	23,168	16,217	6,950	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1060	Health Insurance	76,434	38,217	26,752	11,465	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1070	Workers Comp	16,399	8,200	5,740	2,460	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1080	LTD Insurance	1,994	997	698	299	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1090	Uniform Allowance	3,500	1,750	1,225	525	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.1095	Special Compensation	210	105	74	32	0	0	0	0	50% COMM 35% CAP 15% AC
	Total Personnel Costs	\$481,510	\$240,755	\$168,529	\$72,227	\$0	\$0	\$0	\$0	
<i>Maintenance and Operation-</i>										
050-4500.2010	Office Supplies	\$4,000	\$2,000	\$1,400	\$600	\$0	\$0	\$0	\$0	50% COMM 35% CAP 15% AC
050-4500.2020	Special Supplies	40,000	20,000	14,000	6,000	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.2025	Lab Supplies	4,000	2,000	1,400	600	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.2040	Small Tools	6,000	3,000	2,100	900	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.2150	Publications	200	100	70	30	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.2240	Meters and Boxes	10,000	0	0	0	0	10,000	0	0	100% WCMS
050-4500.2265	Chlorine	45,000	45,000	0	0	0	0	0	0	100% COMM
050-4500.2275	Carbon Media	55,000	55,000	0	0	0	0	0	0	100% COMM
050-4500.2550	Telephone	6,000	6,000	0	0	0	0	0	0	100% COMM
050-4500.2560	Natural Gas	2,500	2,500	0	0	0	0	0	0	100% COMM
050-4500.2570	Electrical	350,000	350,000	0	0	0	0	0	0	100% COMM
050-4500.2680	Taxes	20	10	7	3	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.3000	Professional	40,000	20,000	14,000	6,000	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.3007	Professional Development	5,000	2,500	1,750	750	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.3035	Lab Testing	12,000	12,000	0	0	0	0	0	0	100% COMM
050-4500.3045	Certifications	1,500	0	0	0	1,500	0	0	0	100% WCA
050-4500.4010	Mice Contracts	600	300	210	90	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.4015	Computer Support	10,000	5,000	3,500	1,500	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.4020	Equipment Repairs	70,000	35,000	24,500	10,500	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.4023	Well Repairs	10,000	5,000	3,500	1,500	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.4030	Building Repairs	500	250	175	75	0	0	0	0	50% COMM 35% CAP 15% AC
050-4500.7010	Equipment Shop	36,907	18,454	12,917	5,536	0	0	0	0	50% COMM 35% CAP 15% AC
	Total Maintenance and Operations	\$709,227	\$584,114	\$79,529	\$34,084	\$1,500	\$10,000	\$0	\$0	

City of Reedley
Water Exhibit - 10
Functionalization and Classification of
Revenue Requirements

	Expenses 2008/09	Commodity (COMM)	Capacity (CAP)	Customer Related			Public Fire Protection (FP)	Revenue Related (RR)	Direct Assign. (DA)	Basis of Classification
				Actual Customer (AC)	Weighted for: Cust. Acctg. (WCA)	Meters & Services (WCMS)				
Finance Department										
<i>Personnel Costs-</i>										
050-4150.1010	F/T Salaries	\$78,801	\$0	\$0	\$0	\$78,801	\$0	\$0	\$0	100% WCA
050-4150.1020	P/T Salaries	6,000	0	0	0	6,000	0	0	0	100% WCA
050-4150.1030	O/T Salaries	4,000	0	0	0	4,000	0	0	0	100% WCA
050-4150.1040	Social Security	6,833	0	0	0	6,833	0	0	0	100% WCA
050-4150.1050	PERS	12,905	0	0	0	12,905	0	0	0	100% WCA
050-4150.1060	Health Insurance	19,863	0	0	0	19,863	0	0	0	100% WCA
050-4150.1065	Annuity Medical	34,567	0	0	0	34,567	0	0	0	100% WCA
050-4150.1070	Workers Comp	531	0	0	0	531	0	0	0	100% WCA
050-4150.1080	LTD Insurance	555	0	0	0	555	0	0	0	100% WCA
050-4150.1095	Special Compensation	521	0	0	0	521	0	0	0	100% WCA
	Total Personnel Costs	\$164,576	\$0	\$0	\$0	\$164,576	\$0	\$0	\$0	
<i>Maintenance and Operation-</i>										
050-4150.2010	Office Supplies	\$12,000	\$0	\$0	\$0	\$12,000	\$0	\$0	\$0	100% WCA
050-4150.2020	Special Supplies	18,000	0	0	0	18,000	0	0	0	100% WCA
050-4150.2150	Publications	350	0	0	0	350	0	0	0	100% WCA
050-4150.2530	Memberships	125	0	0	0	125	0	0	0	100% WCA
050-4150.2540	Meetings & Conferences	500	0	0	0	500	0	0	0	100% WCA
050-4150.2550	Telephone	1,800	0	0	0	1,800	0	0	0	100% WCA
050-4150.2560	Natural Gas	150	0	0	0	150	0	0	0	100% WCA
050-4150.2570	Electrical	1,200	0	0	0	1,200	0	0	0	100% WCA
050-4150.2590	RMA Insurance	150,000	0	0	0	150,000	0	0	0	100% WCA
050-4150.2600	Unemployment Insurance	10,000	0	0	0	10,000	0	0	0	100% WCA
050-4150.2610	City Dinner	300	0	0	0	300	0	0	0	100% WCA
050-4150.2850	Employee Awards	500	0	0	0	500	0	0	0	100% WCA
050-4150.3000	Professional	11,500	0	0	0	11,500	0	0	0	100% WCA
050-4150.3002	Online Web Payment Services	4,000	0	0	0	4,000	0	0	0	100% WCA
050-4150.3120	Management Services	155,333	0	0	0	155,333	0	0	0	100% WCA
050-4150.3125	Police Services - Calls for Service	10,667	0	0	0	10,667	0	0	0	100% WCA
050-4150.4010	Mice Contracts	8,000	0	0	0	8,000	0	0	0	100% WCA
050-4150.4012	Credit Card Machine Fees	1,000	0	0	0	1,000	0	0	0	100% WCA
050-4150.4015	Computer Support	0	0	0	0	0	0	0	0	100% WCA
050-4150.4017	Internet Support	0	0	0	0	0	0	0	0	100% WCA
050-4150.4020	Equipment Repairs	500	0	0	0	500	0	0	0	100% WCA
050-4150.8020	Prior Year Purchase Orders	0	0	0	0	0	0	0	0	100% WCA
	Total Maintenance and Operations	\$385,925	\$0	\$0	\$0	\$385,925	\$0	\$0	\$0	

City of Reedley
Water Exhibit - 10
Functionalization and Classification of
Revenue Requirements

	Expenses 2008/09	Commodity (COMM)	Capacity (CAP)	Customer Related			Public Fire Protection (FP)	Revenue Related (RR)	Direct Assign. (DA)	Basis of Classification
				Actual Customer (AC)	Weighted for: Cust. Acctg. (WCA)	Meters & Services (WCMS)				
Total Operation and Maintenance	\$1,741,238	\$824,869	\$248,058	\$106,311	\$552,001	\$10,000	\$0	\$0	\$0	
Taxes/Transfer Payments										
Personnel Costs - Finance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maintenance & Operations - Finance	0	0	0	0	0	0	0	0	0	
Total Taxes/Transfer Payments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Net Capital Funded From Rates	\$400,000	\$208,000	\$172,000	\$0	\$0	\$0	\$20,000	\$0	\$0	52% COMM 43% CAP 5% FP
Debt Service										
2007 Water Bond	\$916,363	\$476,509	\$394,036	\$0	\$0	\$0	\$45,818	\$0	\$0	52% COMM 43% CAP 5% FP
New Debt Issue	0	0	0	0	0	0	0	0	0	52% COMM 43% CAP 5% FP
Total Debt Service	\$916,363	\$476,509	\$394,036	\$0	\$0	\$0	\$45,818	\$0	\$0	
Less:										
Water Holding DIF (107)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	As Total Debt Service
Water Distribution DIF (111)	0	0	0	0	0	0	0	0	0	As Total Debt Service
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Net Debt Service	\$916,363	\$476,509	\$394,036	\$0	\$0	\$0	\$45,818	\$0	\$0	
Change in Working Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Revenue Requirements	\$3,057,601	\$1,509,377	\$814,094	\$106,311	\$552,001	\$10,000	\$65,818	\$0	\$0	
Less Miscellaneous Revenue										
Interest Earnings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	As Total Rev Req
Water Meters & Water Boxes	25,000	12,341	6,656	869	4,513	82	538	0	0	As Total Rev Req
Water Meter Inspection Fees	0	0	0	0	0	0	0	0	0	As Total Rev Req
Water Application Service Fee	1,000	494	266	35	181	3	22	0	0	As Total Rev Req
Water Sale of Surplus Equipment	0	0	0	0	0	0	0	0	0	As Total Rev Req
Water DBCP Litigation Fees	39,000	19,252	10,384	1,356	7,041	128	840	0	0	As Total Rev Req
Other Miscellaneous Revenues	15,000	7,405	3,994	522	2,708	49	323	0	0	As Total Rev Req
Total Misc. Revenues	\$80,000	\$39,492	\$21,300	\$2,782	\$14,443	\$262	\$1,722	\$0	\$0	
NET REVENUE REQUIREMENTS	\$2,977,601	\$1,469,885	\$792,794	\$103,529	\$537,558	\$9,738	\$64,096	\$0	\$0	

**City of Reedley
Water Exhibit - 12
Allocation of Net Revenue Requirements**

Cost Component	Net Revenue Requirement	Residential	Commercial/Business	Allocation Factor
Commodity Related	\$1,469,885	\$1,075,952	\$393,933	COMM
Capacity Related	\$792,794	\$617,958	\$174,836	CAP
Customer Related				
-Actual Customer	\$103,529	\$96,030	\$7,499	CUST-1
-Weighed For:				
Customer Accounting	\$537,558	\$481,196	\$56,362	CUST-2
Meters&Services	9,738	8,717	1,021	CUST-3
Total Customer Related	\$650,826	\$585,944	\$64,882	
Public Fire Protection Related	\$64,096	\$45,614	\$18,482	FP
Revenue Related	\$0	\$0	\$0	RR
Direct Assignment	\$0	\$0	\$0	DA
NET REVENUE REQUIREMENT	\$2,977,601	\$2,325,468	\$652,133	

City of Reedley
Water Exhibit - 13
Summary of Average Embedded Water Cost of Service Study

Classification Components	Net Revenue Requirement	Residential	Commercial/Business	Allocation Factor
Revenues at Present Rates	\$2,626,283	\$2,110,562	\$515,722	Exhibit 9
Less:				
Allocated Revenue Requirement	\$2,977,601	\$2,325,468	\$652,133	Exhibit 12
Balance/(Deficiency) of Funds	(\$351,317)	(\$214,906)	(\$136,411)	
% Change Over Present Rates	13.4%	10.2%	26.5%	

**City of Reedley
Water Exhibit - 14
Average Unit Costs**

	Total	Residential	Commercial/Business
Commodity Costs - \$/1,000 gal.	\$0.85	\$0.85	\$0.85
Capacity Costs - \$/1,000 gal.	\$0.46	\$0.49	\$0.38
Public Fire Protection - \$/1,000 gal.	\$0.04	\$0.04	\$0.04
Revenue/Direct/Other - \$/1,000 gal.	0.00	0.00	0.00
	-----	-----	-----
Total Cost - \$/1,000 gal.	\$1.34	\$1.37	\$1.26
Allocated Customer Costs -	\$650,826	\$585,944	\$64,882
Customer Costs - \$/Cust./Mth	\$9.95	\$9.66	\$13.70
Current Average Revenue per 1,000 gal.	\$1.51	\$1.66	\$1.11
Current Average Allocated Revenue per 1,000 gal	\$1.72	\$1.83	\$1.40
Basic Data:			
Annual Water Consumption(/1000 Gal)	1,734,185	1,269,419	464,766
Number of Accounts	5,449	5,054	395

**City of Reedley
Residential Monthly Water Bill Comparison
Proposed Option Fixed Charge with 3 Block**

Meter Type	Monthly Use per 1,000 Gal.	Present Rates	Proposed Rates	Difference	
				Amount	Percent
3/4" and 1"	0	\$29.99	\$24.00	(\$5.99)	-20.0%
	1	29.99	24.60	(5.39)	-18.0%
	2	29.99	25.20	(4.79)	-16.0%
	3	29.99	25.80	(4.19)	-14.0%
	4	29.99	26.40	(3.59)	-12.0%
	5	29.99	27.00	(2.99)	-10.0%
	6	29.99	27.60	(2.39)	-8.0%
	7	29.99	28.20	(1.79)	-6.0%
	8	29.99	28.80	(1.19)	-4.0%
	9	29.99	29.40	(0.59)	-2.0%
	10	29.99	30.00	0.01	0.0%
	15	29.99	33.00	3.01	10.0%
	20	29.99	36.50	6.51	21.7%
	25	29.99	40.00	10.01	33.4%
	30	29.99	43.75	13.76	45.9%
	35	29.99	47.50	17.51	58.4%

PRESENT RATES	
<u>Customer Charge</u>	per month
Residential	\$29.99
 <u>Consumption</u>	
Flat Rate	\$0.00

PROPOSED RATES	
<u>Meter Size</u>	per month
3/4" and 1"	\$24.00
1 1/2"	79.90
2"	127.90
3"	240.00
4"	400.10
6"	799.90
8"	1,279.90
10"	1,840.10
 <u>Consumption</u>	 per 1,000 gal.
Block 1: 0 to 15	\$0.60
Block 2: 15-25	0.70
Block 3: Over 25	0.75

City of Reedley
Non-Residential Monthly Water Bill Comparison
Proposed Option - Meter Charge with Uniform Rate Structure

Meter Type	Monthly Use per 1000 Gal.	Water Rates			
		Present Rates	Proposed Rates	Difference	
				Amount	Percent
3/4"	0	\$71.96	\$35.00	(\$36.96)	-51.4%
	5	71.96	38.45	(33.51)	-46.6%
	10	71.96	41.90	(30.06)	-41.8%
	15	71.96	45.35	(26.61)	-37.0%
	20	71.96	48.80	(23.16)	-32.2%
	25	71.96	52.25	(19.71)	-27.4%
	30	71.96	55.70	(16.26)	-22.6%
	35	71.96	59.15	(12.81)	-17.8%
	40	71.96	62.60	(9.36)	-13.0%
	45	71.96	66.05	(5.91)	-8.2%
	50	71.96	69.50	(2.46)	-3.4%
	60	71.96	76.40	4.44	6.2%
	70	71.96	83.30	11.34	15.8%
	80	71.96	90.20	18.24	25.3%
	90	71.96	97.10	25.14	34.9%
	100	71.96	104.00	32.04	44.5%
	110	71.96	110.90	38.94	54.1%
	120	71.96	117.80	45.84	63.7%
	130	71.96	124.70	52.74	73.3%
	140	74.20	131.60	57.40	77.4%
	150	79.50	138.50	59.00	74.2%
	200	106.00	173.00	67.00	63.2%
	250	132.50	207.50	75.00	56.6%
	300	159.00	242.00	83.00	52.2%

PRESENT RATES	
	per month
Minimum Bill	\$68.54
	per 1,000 gal
Metered Consumption	\$0.53

PROPOSED RATES	
Meter Type	per month
3/4"	\$35.00
1"	58.40
1 1/2"	116.60
2"	186.60
3"	350.00
4"	583.50
6"	1,166.50
8"	1,866.60
10"	2,683.50
12"	3,937.50
Consumption	per 1,000 gal
Uniform Rate	\$0.69

City of Reedley
Irrigation Monthly Water Bill Comparison
Proposed Option - Meter Charge with Uniform Rate Structure

Meter Type	Monthly Use per 1000 Gal.	Water Rates			
		Present Rates	Proposed Rates	Difference	
				Amount	Percent
3/4"	0	\$68.54	\$35.00	(\$33.54)	-48.9%
	5	68.54	39.00	(29.54)	-43.1%
	10	68.54	43.00	(25.54)	-37.3%
	15	68.54	47.00	(21.54)	-31.4%
	20	68.54	51.00	(17.54)	-25.6%
	25	68.54	55.00	(13.54)	-19.8%
	30	68.54	59.00	(9.54)	-13.9%
	35	68.54	63.00	(5.54)	-8.1%
	40	68.54	67.00	(1.54)	-2.2%
	45	68.54	71.00	2.46	3.6%
	50	68.54	75.00	6.46	9.4%
	60	68.54	83.00	14.46	21.1%
	70	68.54	91.00	22.46	32.8%
	80	68.54	99.00	30.46	44.4%
	90	68.54	107.00	38.46	56.1%
	100	68.54	115.00	46.46	67.8%
	110	68.54	123.00	54.46	79.5%
	120	68.54	131.00	62.46	91.1%
	130	68.54	139.00	70.46	102.8%
	140	72.80	147.00	74.20	101.9%
150	78.00	155.00	77.00	98.7%	
200	104.00	195.00	91.00	87.5%	
250	130.00	235.00	105.00	80.8%	
300	156.00	275.00	119.00	76.3%	

PRESENT RATES	
	per month
<u>Minimum Bill</u>	\$68.54
<u>Consumption</u>	per 1,000 gal
Metered Consumption	\$0.52

PROPOSED RATES	
Meter Type	per month
3/4"	\$35.00
1"	58.40
1 1/2"	116.60
2"	186.60
3"	350.00
4"	583.50
6"	1,166.50
8"	1,866.60
10"	2,683.50
12"	3,937.50
<u>Consumption</u>	per 1,000 gal
Uniform Rate	\$0.80