LITTLE THOMPSON WATER DISTRICT

Water Rate Study

December 13, 2012

Water CONSULTING GROUP

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Little Thompson Water District
Water Rate Study

Executive Summary

Background

In May, 2012, the Water Consulting Group was retained by Little Thompson Water District to conduct a comprehensive water rate study. The rate study was authorized to determine the suitability of the District's water rates to stabilize revenue, build and maintain reserve funds, promote water conservation and insure equity between customer categories.

The need to review water rates was identified in the District's Water Efficiency Management Plan prepared by District staff. One of the water conservation goals established in that plan was reduction of residential customer demand by 5% over a seven year planning period, from 2012 to 2018. Implementation of residential water rates that encourage conservation will help meet this objective.

Approval of the District's Water Efficiency Management Plan by the Colorado Water Conservation Board (CWCB) made the District eligible for financial assistance from CWCB to implement water conservation programs identified in the Plan. District staff applied for and received a Water Conservation Implementation Grant from CWCB to fund 75% of the cost of the rate study.

Key Results of Water Rate Study

Based on the cost-of-service analysis and other technical investigations performed during this water rate study, it was determined that:

- No increase in water rates is necessary in 2013 to fund the District's anticipated O&M expenses, capital improvements, debt service obligations and reserve requirements.
- To more equitably charge non-residential customers for the demands they impose on the water system, a new customer category for irrigation-only customers is recommended.
- Existing non-residential water rates generate revenue that exceeds the cost of providing service to non-residential and irrigation-only customers.
- To allocate costs to the various customer categories in proportion to the demands they place on the water system, it is recommended that the District implement cost-of-service rate adjustments that decrease non-residential water rates by 23.33%, decrease irrigation-only water rates by 1.41% and increase residential rates by 4.98%.

Water Rate Design

The District's existing rate structure for residential and non-residential customers consists of: (1) a monthly base charge that varies with meter size, and (2) a usage charge levied on each 1,000 gallons of water used within a range or tier established by the District. Tiered rates increase the usage charge with each of several preset consumption blocks for each billing period. The amount of water within each consumption block varies by meter size.

The existing residential and non-residential water rate for customers with 5/8 inch meters has four rate tiers: (1) 0 to 6,000 gallons, (2) 6,000 to 30,000 gallons, (3) 30,000 to 60,000 gallons, and (4) 60,000 gallons or more. The base charge for customers with 5/8 inch meters is $26.86 per month. The District's existing water rates for retail customers are summarized in Table ES-1.

Table ES-1

Little Thompson Water District Rates

Tap Size	Monthly Base Charge	Gallons Used	Rate per Thousand Gallons
5/8" Conservation	$26.86	0 - 6,000 6,000 - 12,000 >12,000	$2.24 $2.81 $11.22
5/8" Residential	$26.86	0 - 6,000 6,000 - 30,000 30,000 – 60,000 >60,000	$2.24 $2.81 $3.09 $3.65
5/8" Non Residential	$26.86	0 - 6,000 6,000 - 30,000 30,000 – 60,000 >60,000	$2.24 $2.81 $3.09 $3.37
3/4" Non Residential	$29.10	0 - 9,000 9,000 - 45,000 45,000 – 90,000 >90,000	$2.24 $2.81 $3.09 $3.37
1" Non Residential	$37.15	0 - 15,000 15,000 - 75,000 75,000 - 150,000 >150,000	$2.24 $2.81 $3.09 $3.37
1 1/2" Non Residential	$69.89	0 - 30,000 30,000 - 150,000 150,000-300,000 >300,000	$2.24 $2.81 $3.09 $3.37
2" Non Residential	$84.63	0 - 48,000 48,000 - 240,000 240,000 – 480,000 >480,000	$2.24 $2.81 $3.09 $3.37
3" Non Residential	$157.00	0 - 105,000 105,000 - 525,000 525,000 –1,050,000 >1,050,000	$2.24 $2.81 $3.09 $3.37

Three residential alternative water rate schedules were developed in this study for consideration by the District. The three alternatives were discussed with District staff and analyzed for their respective impact on equity between customers, revenue stability, customer understanding, water conservation, and ease of implementation. Based on this analysis and discussion, residential Alternative #3 is recommended for implementation in 2013.

Recommended Residential Water Rate Alternative #3

Alternative #3 sends the strongest conservation message of all alternatives. It places the greatest share of required cost-of-service rate adjustment on customers that use more water. Customers that use less water are rewarded with a reduction in their annual charges.

Alternative #3 usage charges escalate more from tier to tier than they currently do with the existing residential rate structure. That is accomplished by lowering the Tier 1 usage charge and increasing the Tier 4 usage charge. A greater difference between tiered usage charges delivers the strongest conservation message. As water usage triggers a jump from one tier to the next, customers' water bills noticeably increase. The Tier 4 usage charge in Alternative #3 is $4.00 per 1,000 gallons. That is an amount that should get the attention of most residential customers.

The existing Tier #4 usage charge is $3.65 per 1,000 gallons and does not take effect until usage exceeds 60,000 gallons. In Alternative #3, Tier 4 usage charges take effect once monthly usage exceeds 30,000 gallons. Many more customers will experience Tier 4 rates with Alternatives #3. The financial implications of using more than 30,000 gallons per month will be more evident with Alternative #3.

Tiers established in Alternative #3 are as follows: (1) 0 to 5,000 gallons, (2) 5,000 to 15,000 gallons, (3) 15,000 to 30,000 gallons, and (4) 30,000 gallons or more. No increase in the monthly base charge is anticipated in Alternative #3. Base fees remain the same as shown earlier in Table ES-1.

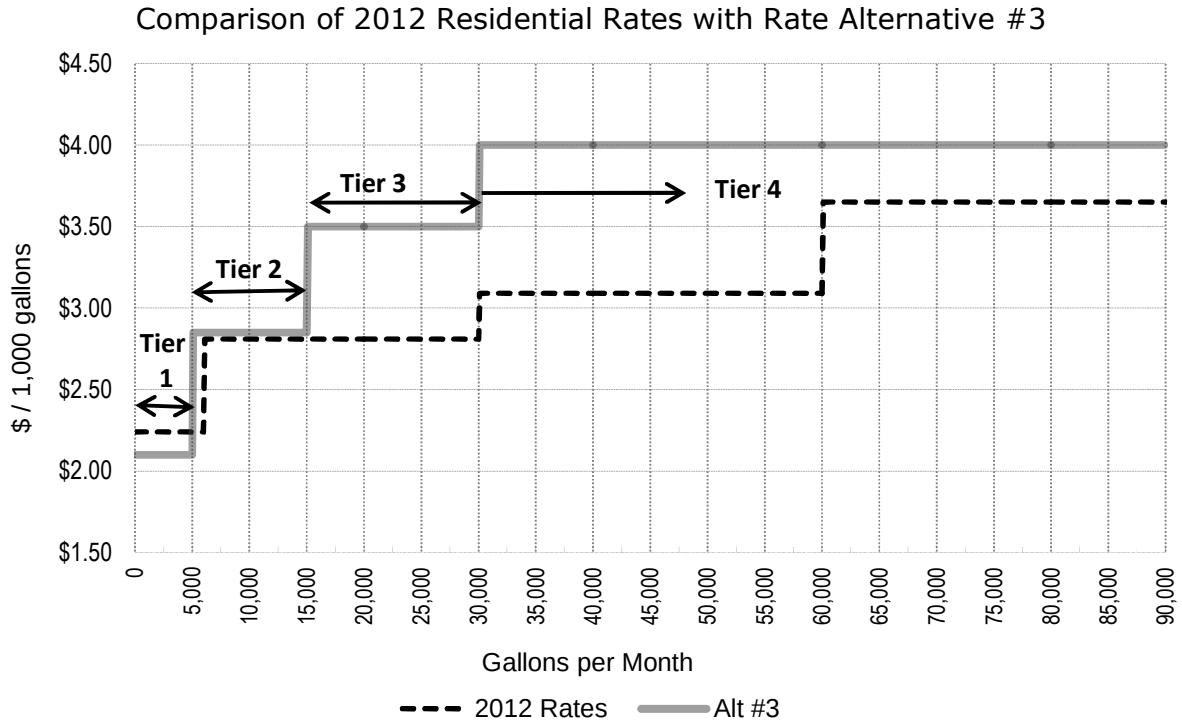
Table ES-2 shows the percentage increase (or decrease) in annual charges for three representative residential customers (10^{th} percentile usage, median usage and 90^{th} percentile usage).

Table ES-2
Annual Charges and % Change in Charges with Rate Alternative #3

Customer Type	Annual Use (gal / year)	Annual Charge for Water		% Change
		2012 Rates	2013 – Alt #3	
10^{th} Percentile	45,069	$ 423.33	$ 418.54	-1.13%
Median	138,304	$ 679.16	$ 703.98	3.65%
90^{th} Percentile	326,887	$1,263.77	$1,424.04	12.68%

Figure ES-1 compares the usage charges and tiers developed for Alternative #3 with the District's current residential rates.

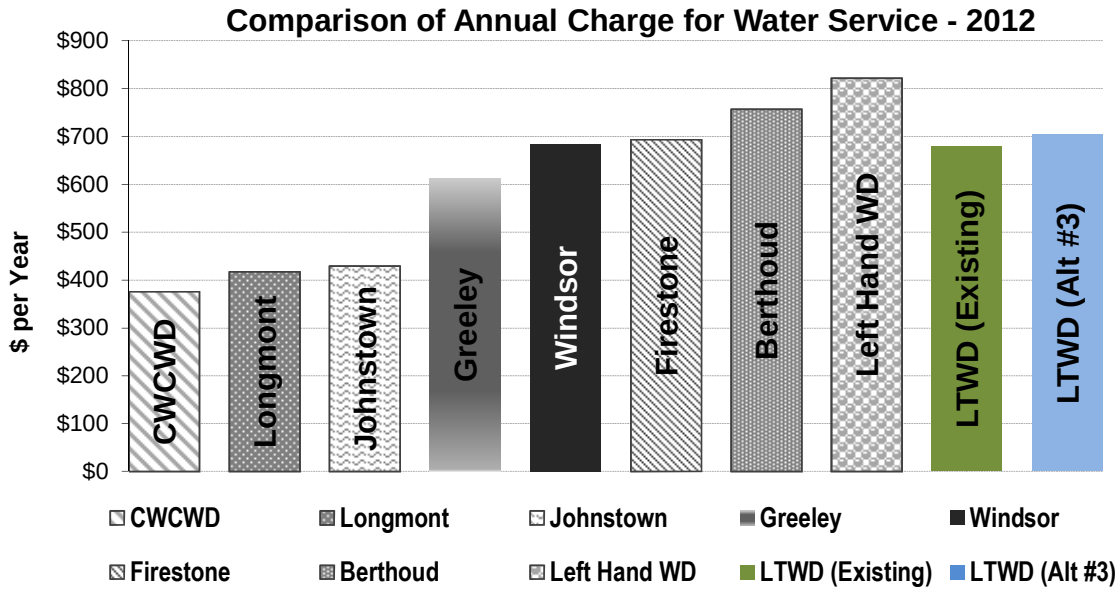
Figure ES-1



Comparison of Residential Water Charges

Figure ES-2 compares the annual cost of water for the median District residential customer using 138,304 gallons per year with the amount that customer would pay for the same amount of water in nearby communities or water districts. The annual amount the median residential customer would pay with existing water rates and rates proposed with Alternative #3 is also shown.

Figure ES-2



Recommended Non-Residential Water Rate Alternative #2

Alternative #2 is one of two alternatives developed in this study for non-residential customers. It is recommended for implementation in 2013.

Alternative #2 establishes uniform rates for non-residential and irrigation-only customers. A uniform rate eliminates all tiers and charges the same dollar amount for every 1,000 gallons of water used within the billing period. No increase in the monthly base charge for different size non-residential meters is anticipated in Alternative #2. Base fees remain the same as shown earlier in Table ES-2.

Because there is so much variability in the monthly water use of the District's non-residential customers, it is difficult to establish tiers that are appropriate for a particular set of customers with a common meter size. Tiers are intended to influence the water use of customers with higher than normal demands. Analysis of the water use of the District's non-residential customers indicates those customers are not influenced by escalating usage charges.

Large customers should not be billed a higher usage charge simply because they are large water users. These customers may be very efficient water users. If that is the case, uniform rates proposed with Alternative #2 are more appropriate for the type of non-residential customers currently served by the District.

In Table ES-3, non-residential and irrigation-only usage charges developed in Alternatives #2 are compared to usage charges in the four rate tiers that currently apply to non-residential customers.

Table ES-3

Alternative #2
Usage Charges for Non-Residential and Irrigation-Only Customers

Non-Residential Tiers (2012)	Non-Residential 2012 Rates	Alternative #2 (Uniform Rate)	
		Non-Residential	Irrigation-Only
Tier 1	$ 2.24	$ 2.33	$ 2.95
Tier 2	$ 2.81	$ 2.33	$ 2.95
Tier 3	$ 3.09	$ 2.33	$ 2.95
Tier 4	$ 3.37	$ 2.33	$ 2.95

Summary

The previous discussion provides an overview of results from the rate study undertaken on behalf of Little Thompson Water District. A more detailed description of the analyses and data utilized during the rate study is included within the remainder of this report.

Chapter 1 • Introduction

Introduction

In May, 2012, the Water Consulting Group was retained by Little Thompson Water District to conduct a comprehensive water rate study. The rate study was authorized to determine the suitability of the District's water rates to stabilize revenue, build and maintain reserve funds, promote water conservation and insure equity between customer categories.

The need to review water rates was identified in the District's Water Efficiency Management Plan prepared by District staff earlier in 2012. One of the water conservation goals established in that plan was reduction of residential customer demand by 5% over a seven year planning period, from 2012 to 2018. Implementation of residential water rates that encourage conservation will help meet this objective.

Approval of the District's Water Efficiency Management Plan by the Colorado Water Conservation Board (CWCB) made the District eligible for financial assistance from CWCB to implement water conservation programs identified in the Plan. District staff applied for and received a Water Conservation Implementation Grant from CWCB to fund 75% of the cost of the rate study.

Objectives

The rate study performed on behalf of the District addresses a number of objectives. Most of these objectives are common to all rate studies but some are unique to Little Thompson Water District. Objectives of this study are as follows:

- Insure rates are adequate to fund the District's anticipated O&M expenses, capital improvements, debt service obligations and maintain legally required and Board Designated Reserves.

- Establish rates that prevent any category of customer from subsidizing another customer category.

- Encourage water conservation through rates that provide financial incentives for customers to reduce their water use.

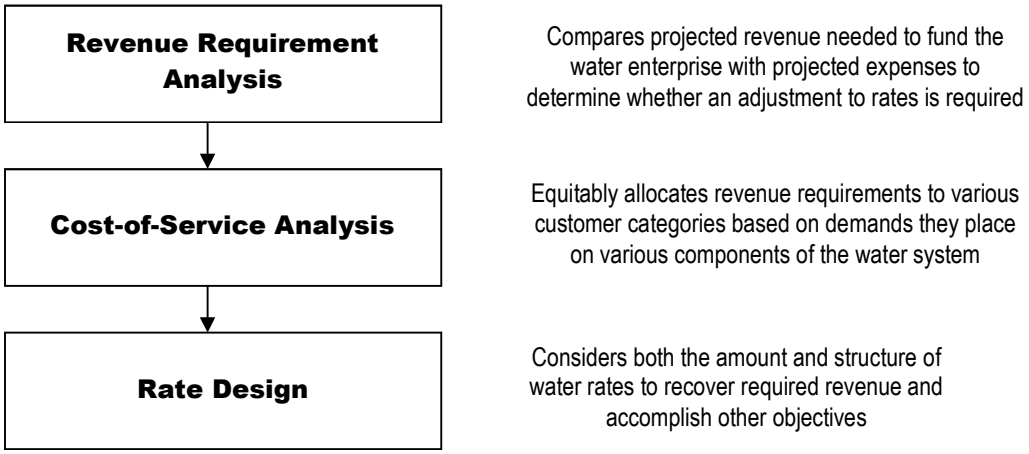
- Develop rates that are relatively easy to administer, can be understood by customers and insure revenue stability.

Overview

This study develops cost based water rates through a comprehensive analysis of:
(1) revenue requirements, (2) cost-of-service, and (3) rate design. Figure 1.1 provides a representation and description of the three steps required to complete a rate study.

Figure 1.1

Analyses Performed in a Comprehensive Water Rate Study



The analyses performed in this rate study follow steps summarized above. In this study, the Water Consulting Group followed generally accepted rate making methodology established in American Water Works Association (AWWA) Manuals of Practice M1, "Principles of Water Rates, Fees, and Charges," and M54, "Developing Rates for Small Systems."

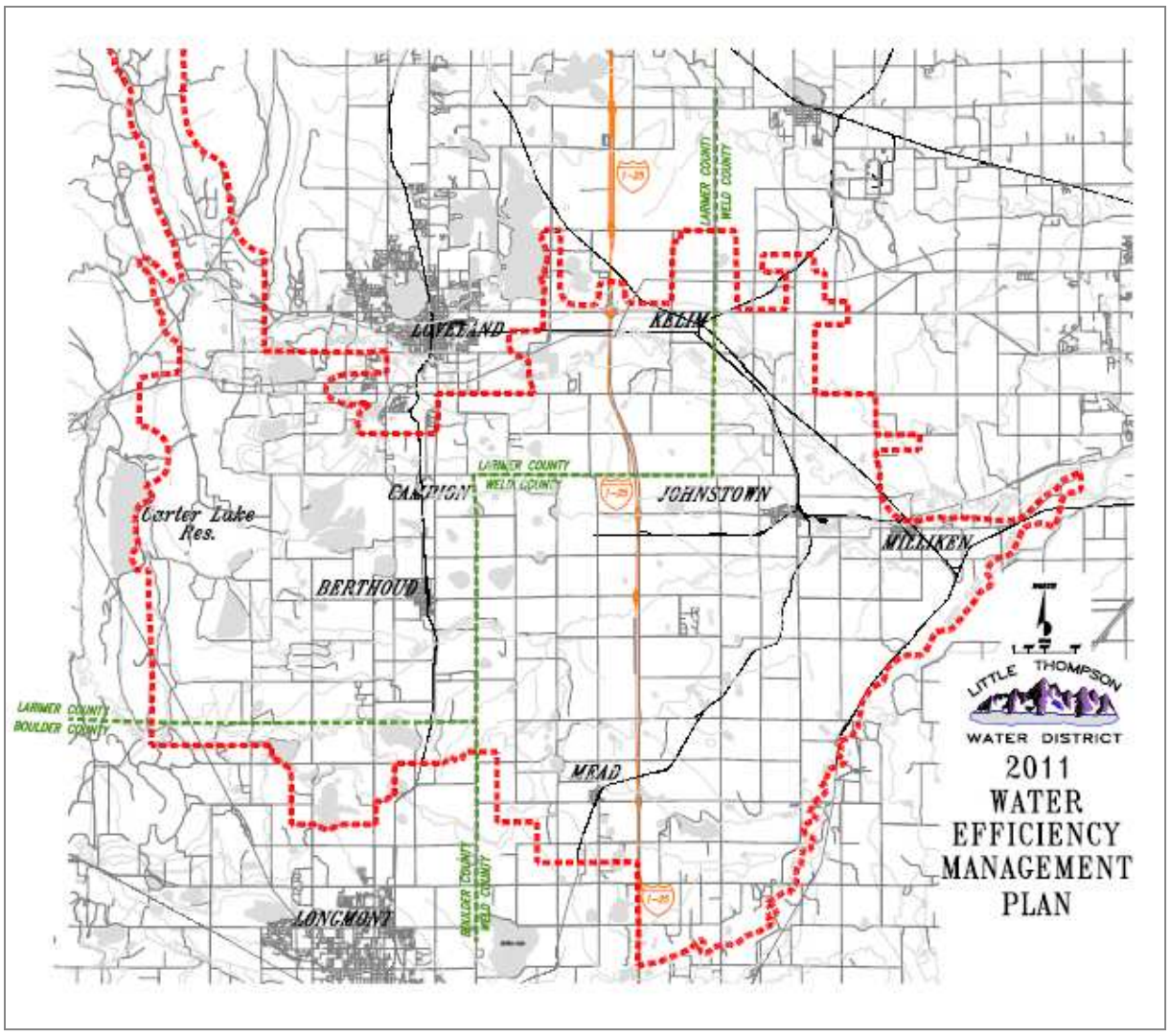
Chapter 2 • Water System

Service Area

Little Thompson Water District was formed as a Colorado Special District in 1960 to provide domestic water to a 250 square-mile area in Larimer, Weld and Boulder counties. The District now provides non-potable, potable and fire protection water to a service area that encompasses nearly 300 square miles. Figure 2.1 shows District boundaries and surrounding entities.

Figure 2.1

Little Thompson Water District Service Area



In the past, the District served rural acreages, low-density county subdivisions, dairies, feedlots, farmsteads, mobile home parks and a few small industrial parks. Demand for services provided by the District have increased in recent years due to its proximity to growth areas for ten municipalities including Berthoud, Evans, Firestone, Greeley, Johnstown, Longmont, Loveland, Mead, Milliken and Windsor as well as the Interstate 25 corridor. To adequately serve its customers, the District has evolved into an urban water provider to low, medium and high-density subdivisions as well as more retail and service oriented commercial customers.

Source of Water Supply

To provide potable water service and raw water storage, the District owns and operates Carter Lake Filter Plant (CLFP) and Dry Creek Reservoir. Those facilities are jointly owned and operated with Central Weld County Water District (CWCWD). The District also owns and maintains multiple treated water storage tanks and pumping stations, as well as over 536 miles of transmission and distribution pipelines.

Little Thompson Water District currently relies on the Colorado-Big Thompson (C-BT) project for its potable water supply. C-BT facilities divert water from the western slope of Colorado to the Front Range to supplement the region's native water supply. It is the largest transmountain water diversion project in Colorado and was constructed by the Bureau of Reclamation between 1938 and 1957. It imports an average of 213,000 acre feet of water each year to northeastern Colorado for agricultural, municipal and industrial uses.

C-BT Project facilities that serve multiple beneficiaries are still owned by the Bureau of Reclamation. Operation and management is performed under contract by the Northern Colorado Water Conservancy District.

C-BT water originates in the Colorado River Basin and is pumped from Lake Granby into Grand Lake. Water flows from Grand Lake through the Adam's Tunnel to one of several Front Range reservoirs including Carter Lake; that is the source of supply for Carter Lake Filter Plant, the facility that treats water for use in Little Thompson Water District.

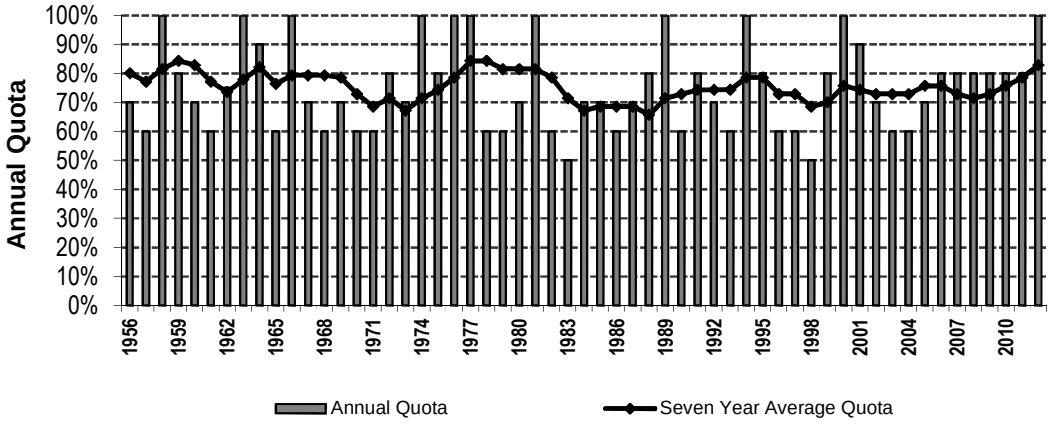
The recently completed Dry Creek Reservoir provides the District with additional emergency and operational raw water storage. The District owns shares in several mutual ditch companies but currently has no means of treating and delivering water represented by those shares to its customers. Ditch water is either rented to irrigators or traded for C-BT water. The District is also in the process of acquiring water in the Windy Gap Project along with storage in the Windy Gap Firming Project (WGFP).

The yield of C-BT units is established each year by the Board of the Northern Colorado Water Conservancy District through what is known as the quota-setting process. The basis for setting the quota is to attempt to make every year look like an average year. The Board examines the region's native supplies and local storage before declaring a quota that meets the supplemental need of the region as a whole. As a result, the quota is typically lower in wet years because native supplies are plentiful and local reservoirs are full, so less C-BT water is required to satisfy water demands.

In fifty-six years of operation, the average C-BT yield has been 0.75 AF per unit. The commonly used average quota is 70 percent. The yield has never been less than 0.50 AF per unit (50 percent quota) or more than 1.0 AF per unit (100 percent quota). The annual quota established by the Northern Colorado Water Conservancy District Board since 1956 is shown in Figure 2.2.

Figure 2.2

C-BT Quota (1956-2012)



Customer Categories

For billing and accounting purposes, Little Thompson Water District maintains three customer categories: Residential, Non-Residential and Wholesale. This analysis does not examine rates charged to wholesale customers. Wholesale water rates were recently established in a separate analysis performed for the District. That analysis developed cost-of-service based water rates that considered the unique service requirements of each wholesale customer and contractual obligations assumed by the District.

A breakdown of the number of customers in each customer category as of August 31, 2012 is shown in Table 2.1.

Table 2.1

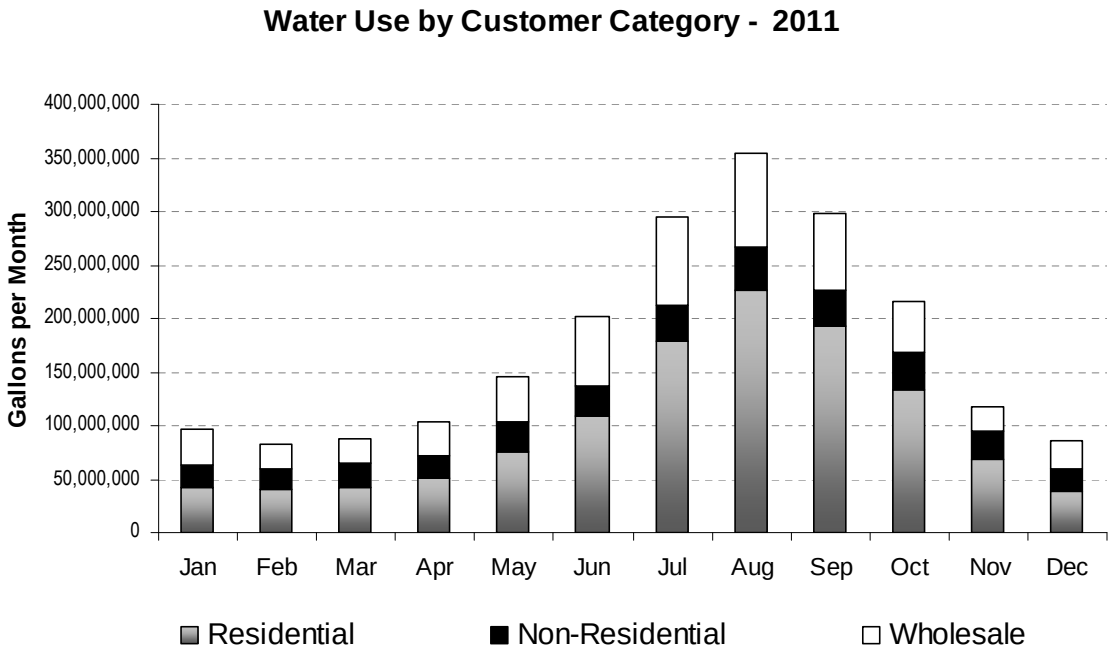
Summary of Customers by Category (August, 2012)

Customer Category	Number of Accounts
Residential	7,157
Non-Residential	284
Wholesale	13
Total	7,454

Water Use

Water use data for 2011 was used to estimate future water demands, calculate water rate revenue and develop water rate alternatives. Data from 2011 was compiled by District staff and proved especially useful and extremely accurate. Figure 2.3 shows the amount of monthly water used in each customer category during 2011.

Figure 2.3



Data from 2011 was selected for this analysis because that year had a fairly typical pattern of summer weather. Unlike the summer of 2012, last summer was not unusually hot and there were measurable rains scattered at regular intervals throughout the summer months.

Temperature and rainfall during summer weather months has the greatest influence on District water use since the majority of residential customers use potable water to irrigate their lawns and landscaping. Figure 2.3 illustrates how residential water use increases during summer months due to irrigation demands.

The District supplies a much greater variety of customers than most Front Range water utilities. The water use of those customers is spread over a much broader range than what is typical in the region.

The District serves a number of large residential customers that, on an annual basis, use 10 to 12 times more water than the District's median residential customer. The relative difference between the annual use of large and median non-residential customers is just as great.

Figure 2.4 illustrates the wide range of water use by residential customers during 2011. Figure 2.5 shows the 2011 water use of District non-residential customers served by 1½ inch meters. The water use of 1½ inch non-residential customers is representative of the water use of other non-residential customers with different size water meters.

Figure 2.4

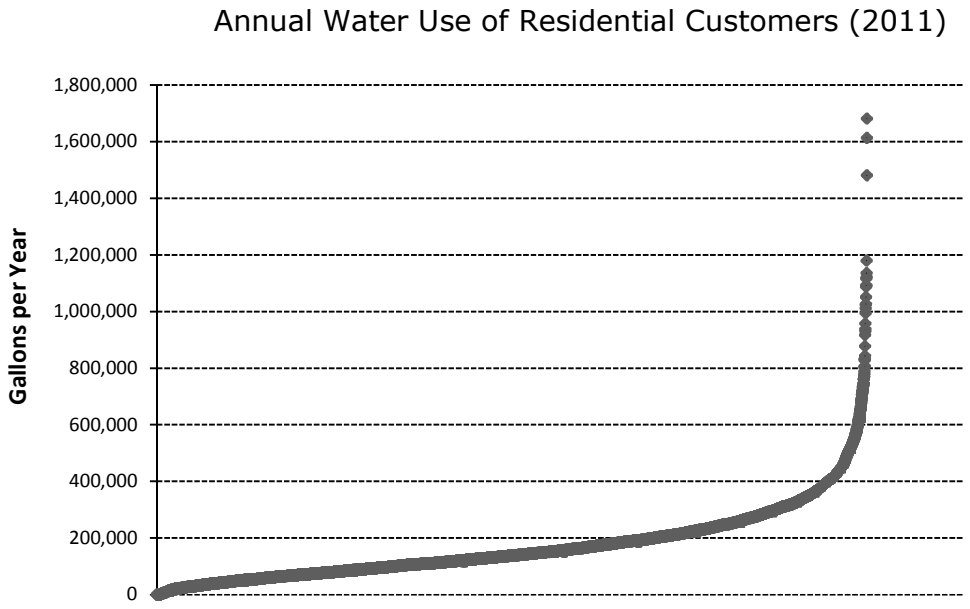
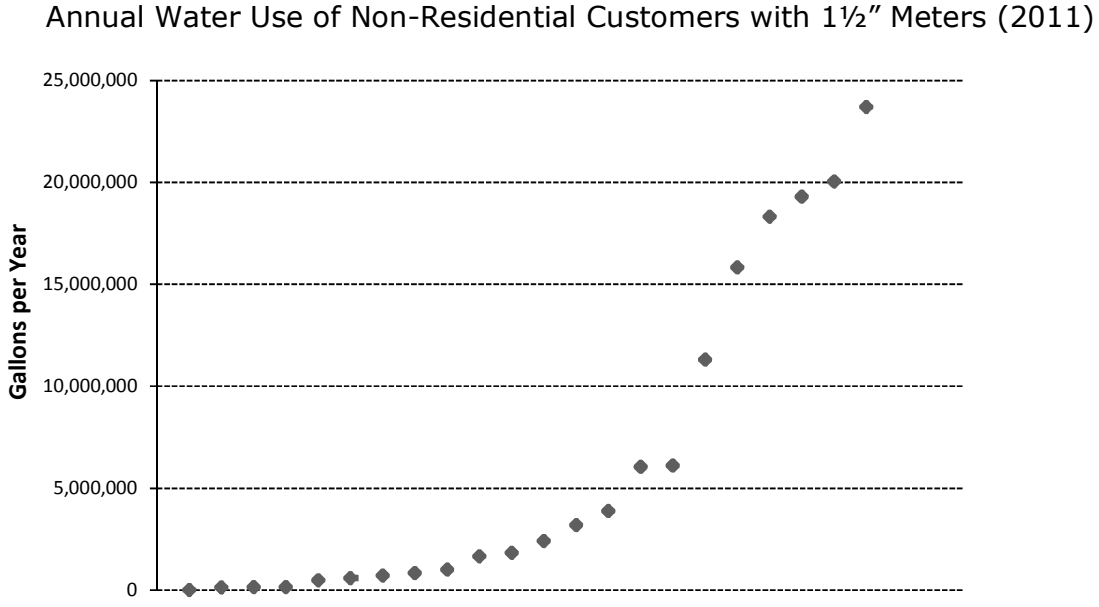


Figure 2.5

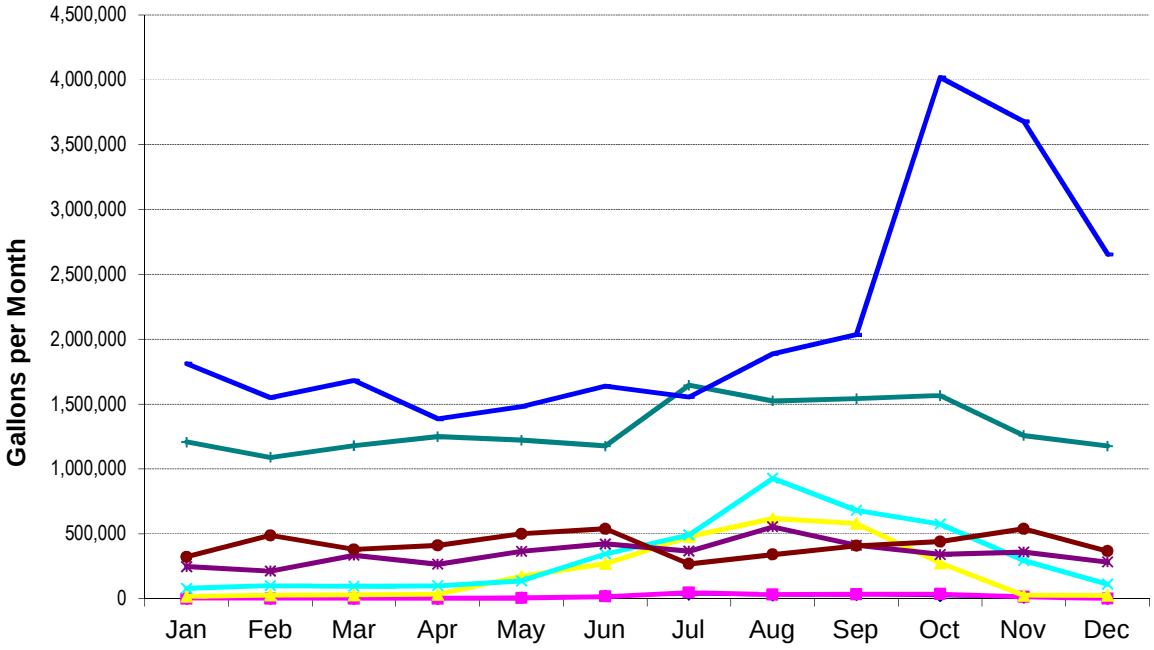


The water use of individual non-residential customers is relatively consistent, particularly in those categories where there is limited water used for irrigation. If there is a noticeable change in monthly water use, it likely indicates a modification in operations rather than the activation of an irrigation system.

Figure 2.6 shows the monthly water use in 2011 of non-residential customers with 2 inch meters. It illustrates how little the water use of individual customers in that category varies from month to month. The noticeable increase in water use of the largest 2 inch customer occurred in the fall, well after irrigation season. The monthly water use of 2 inch non-residential customers is representative of the monthly water use of other non-residential customers with different size water meters.

Figure 2.6

Monthly Water Use of Non-Residential Customers with 2" Meters (2011)



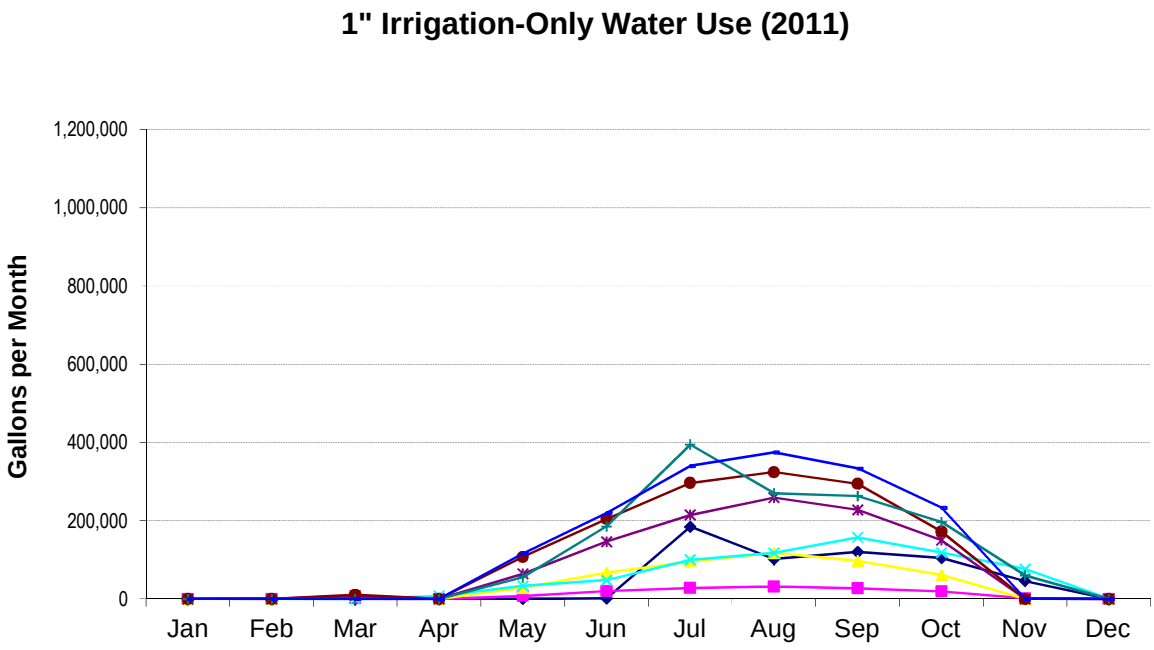
Categorization of Non-Residential Customers

The District currently utilizes meter size to categorize non-residential customers. That system of classification means all non-residential customers with the same size meter pay the same monthly base fee and usage charges.

To equitably allocate costs to customer categories, it is necessary to identify customers with similar water use characteristics. Ideally, customers with similar water use during peak demand periods are in the same customer category.

During this analysis, the water use of all non-residential customers was examined to determine if some method of categorization besides meter size could be identified. Non-residential accounts identified by District staff as irrigation-only were determined to use water much differently than other non-residential accounts with the same size meter. Figure 2.7 shows the 2011 monthly water use of irrigation-only customers served with a 1 inch meter.

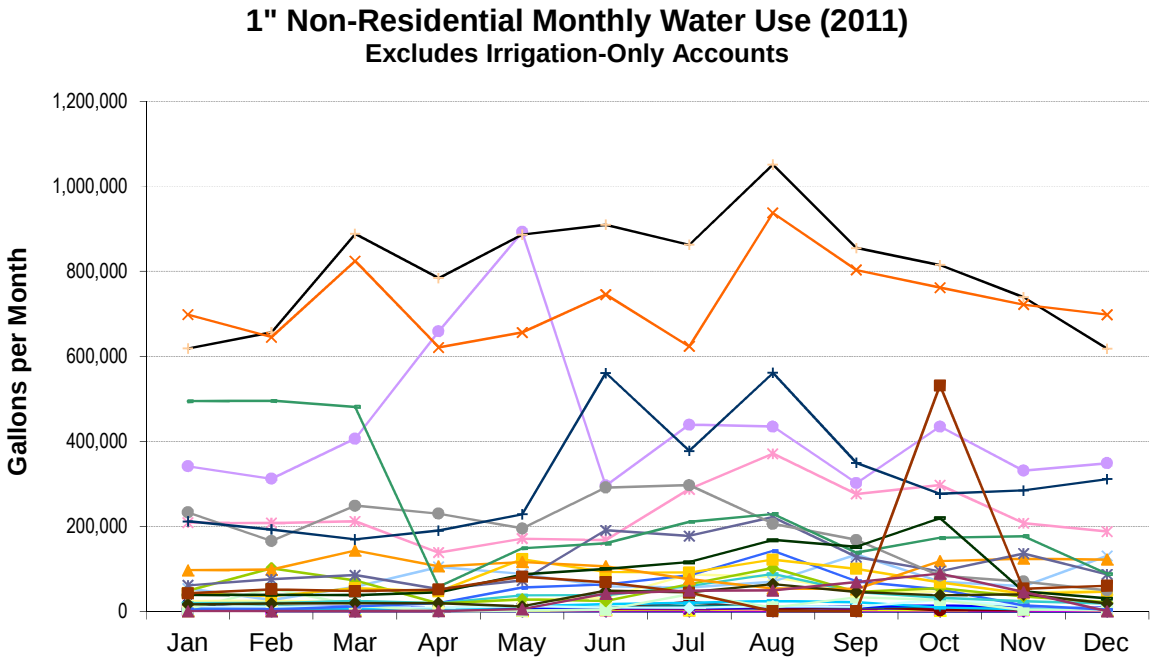
Figure 2.7



As expected, irrigation-only accounts have virtually no demand during non-irrigation months. Since their water use peaks during summer months, irrigation-only accounts place a disproportionate demand on District facilities that supply water during peak demand periods (treatment plants, transmission lines, pump stations, etc.). For that reason, customer categories for irrigation-only customers were created in this analysis to determine if their demands warranted a new irrigation-only water rate.

Figure 2.8 shows the 2011 monthly water use of 1 inch non-residential customers without irrigation-only accounts. The amount of water used monthly by individual customers covers a wide range but the water use of each customer is fairly consistent from month to month. That indicates they are categorized appropriately for purposes of calculating cost-of-service rates.

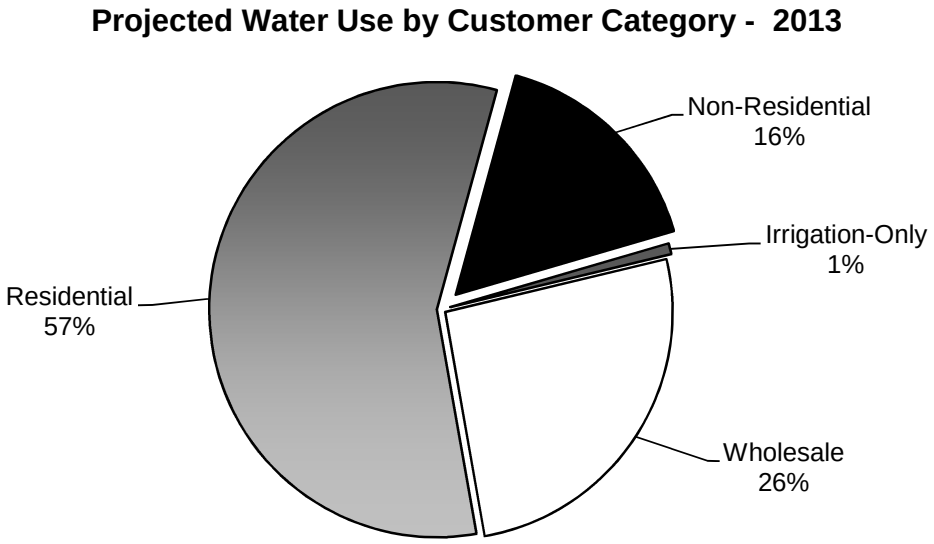
Figure 2.8



Test Year

Projected 2013 water demands used in this analysis were calculated by determining the median water use per account by meter size based on 2011 usage records, then multiplying by the projected number of accounts with that size meter expected in 2013. The percentage of projected 2013 water use in each customer category is shown in Figure 2.9.

Figure 2.9



For purposes of this rate study, 2013 is known as the “test year.” In rate-making, the test year is typically the first calendar year in which new rates are expected to take effect.

Preliminary estimates of expenditures developed by staff during preparation of the 2013 Budget were used to estimate revenue requirements for the test year. Revenue requirements for the District are described in greater detail in Chapter 3.

Customer demands derived from projected 2013 water use were utilized to calculate the cost-of-service for each customer category. Cost-of-service calculations are explained in Chapter 4.

Water rate alternatives designed to generate the amount of revenue required in 2013 from each customer category are developed in Chapter 5 of this report.

Chapter 3 • Revenue Requirements

Study Period

The initial step in calculating revenue requirement for Little Thompson Water District was establishing a study period or time frame in which to perform the analysis. A five-year study period (2013 – 2017) was selected as the time frame for this rate study.

A multi-year study period is generally recommended to identify any major expenses that may be on the horizon. Anticipating major financial commitments in the near future allows the District to begin planning for necessary rate adjustment sooner rather than later. Proactively planning for and phasing in future rate adjustments decreases the burden to existing customers that may result from significant rate increases in any one year.

Methodology

A review of the District's water revenue requirements is the first step in the rate study process. Analysis of revenue requirements determines the overall funding needs of the District. From this analysis, a determination can be made as to whether water rate adjustments are needed to adequately fund capital improvements, reserves, O&M and debt service obligations.

Each year during preparation of the annual budget , District staff develops a Five Year Financial Forecast. Data from the Financial Forecast prepared during the 2012 Budget was the basis for estimating revenue requirements in this analysis. The 2012 Financial Forecast was updated to reflect projected revisions to expenditures identified during preparation of the 2013 Preliminary Budget.

Projected water sales revenue during the study period is based on the water use of District customers in 2011. As discussed earlier, 2011 water use is representative of demands expected during a typical year which is most appropriate for rate-making.

Typical water demands are not necessarily best for budgeting and financial planning purposes. Projected water use in a year with slightly lower water demands is more prudent for budgeting. Revenues based on such a year are more conservative and guard against water sales revenue falling short of projections in a year with an unusually cool, wet summer.

In the most simplified explanation of rate-making, customer water use multiplied by rates generates water sales revenue. If water use data from a wet year were used in rate-making, new rates would be too high since irrigation demands decline in summer months with higher than average rainfall. If water use data from a dry year were used to develop rates, rates would be too low since demands are greater than average due to hot, dry weather and associated increases in irrigation. Weather experienced during 2012 is an example of such an atypical year. The District's actual water sales for 2012 will likely be much higher than budget amounts.

Table 3.1 shows the amount of water sales revenue from retail customers projected over the next five years and percentage increases in water sales due to both rate increases and growth in the number and type of customers served by the District. The Five Year Financial Forecast includes an overall increase in water sales of 2% per year from a combination of growth and rate increases.

Table 3.1

Projected Retail Water Sales Revenue

	Estimated 2012	Projected 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017
Water Sales	$6,649,686	$6,850,745	$6,987,760	$7,127,515	$7,270,065	$7,415,467
% Increase in Sales from Growth	0%	3.0%	1.4%	1.4%	1.4%	1.4%
% Increase in Sales from Rate Increase	0%	0%	0.6%	0.6%	0.6%	0.6%

Approximately $100,000 of new revenue is projected in 2013 from two large taps planned to serve a new dairy. Revenue from thirty new residential customers anticipated in 2013 is also reflected in Table 3.1. The percentage increase in water sales attributable to growth from 2014 to 2017 reflects the annual addition of thirty new residential accounts.

Water sales revenue shown in Table 3.1 represents total annual revenue generated from monthly base fees and usage charges paid by residential and non-residential customers. Those are the two retail customer categories that are the subject of this analysis.

Various miscellaneous charges and revenue generated from rates paid by wholesale customers, owners of vacant lots and customers with conservation taps are not included in Table 3.1. Rates paid by non-retail customers have been established by contract or through separate studies so their charges are not reviewed in this analysis.

Water Revenue

The revenue requirement calculation is based on projections of water sales revenue derived from residential and non-residential customer categories. This calculation requires developing projected monthly bills for each customer category based on historical water use and an estimate of growth in the number and type of customers served. This method of independently calculating water rate revenue insures consistency in data used throughout the rate study.

The amount of revenue requirements recovered through rates is reduced by the availability of funds generated from other sources. A portion of revenue recovered from wholesale customers exceeds the District's actual cost of providing service to those customers and reflects the return-on-investment (ROI) on that portion of facilities dedicated to serving wholesale customers. The amount of revenue generated from the ROI charged to wholesale customers is credited to the District's retail customers.

Revenue is also generated from renting surplus raw water and District-owned property. Additional operating revenue is produced from fees assessed for final reads, customer transfers, turn-on and turn-off of water service, returned checks, sprinkler systems, construction water and fire hydrants. All revenue generated from these sources reduces the amount of water sales revenue that needs to be collected from retail customers. All sources of operating revenue projected during the study period are summarized in Table 3.2.

Table 3.2

Summary of Water Operating Revenue

	Estimated 2012	Projected 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017
Water Sales	$6,157,336	$6,850,745	$6,987,760	$7,127,515	$7,270,065	$7,415,467
Base Fee - Vacant Lots	$17,535	$17,535	$17,535	$17,535	$17,535	$17,535
Wholesale Water Revenue	$380,287	$380,287	$380,287	$380,287	$380,287	$380,287
Wholesale ROI	$78,166	$78,166	$78,166	$78,166	$78,166	$78,166
Water Rental Revenue	$22,400	$22,400	$22,400	$22,400	$22,400	$22,400
Final Reads	$5,700	$5,700	$5,700	$5,700	$5,700	$5,700
Customer Late Charges	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000
Customer Transfer Fees	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Customer Turn-On Fees	$4,200	$4,200	$4,200	$4,200	$4,200	$4,200
Customer Returned Check Fees	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200
Dormant Tap Annual Fee	$400	$400	$400	$400	$400	$400
Water Violation-Theft	$0	$0	$0	$0	$0	$0
Sprinkler Systems Fees	$3,100	$3,100	$3,100	$3,100	$3,100	$3,100
Miscellaneous Income	$5,400	$5,400	$5,400	$5,400	$5,400	$5,400
Construction Water Income	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000
Accessory Dwelling	$100	$100	$100	$100	$100	$100
Fire Hydrant Fees	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Sprinkler Tap Fees	$0	$0	$0	$0	$0	$0
Joint Operations Income	$0	$0	$0	$0	$0	$0
Farm Income	$8,500	$8,500	$8,500	$8,500	$8,500	$8,500
Commitment Letter Fees	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Inspection Fees	$0	$0	$0	$0	$0	$0
Plan Review Fees	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Miscellaneous	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500
Total	$6,762,324	$7,478,233	$7,615,248	$7,755,003	$7,897,553	$8,042,955

Operation and Maintenance Expenses

Operation and maintenance (O&M) expenditures include all costs associated with administration, engineering, Carter Lake Filter Plant, Dry Creek Reservoir and the District's storage tanks, pump stations, transmission and distribution lines, meters and service lines. Also included are costs for performing water quality tests, C-BT and ditch company assessments, meter reading and customer billing. These and other related costs are necessary to support the water enterprise and are met with operating revenues as costs are incurred.

All projected O&M expenses over the study period are summarized in Table 3.3.

Table 3.3

Summary of Expenditures for O&M

Expenditure Category	Estimated 2012	Projected 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017
OPERATION & MAINTENANCE						
Assessments	$260,337	$260,337	$265,544	$270,855	$276,272	$281,797
Carter Lake Treatment Plant	$669,554	$669,554	$682,945	$696,604	$710,536	$724,747
Dry Creek	$45,600	$45,600	$46,512	$47,442	$48,391	$49,359
Pumping & Telemetry	$63,000	$63,000	$64,260	$65,545	$66,856	$68,193
Treated Water Storage	$23,700	$23,700	$24,174	$24,657	$25,151	$25,654
Water Quality Testing	$9,800	$9,800	$9,996	$10,196	$10,400	$10,608
Distribution	$1,252,117	$1,282,865	$1,308,522	$1,334,692	$1,361,386	$1,388,614
Meter Maintenance	$48,000	$148,000	$150,960	$153,979	$157,059	$160,200
Meter Reading	$85,000	$86,700	$88,434	$90,203	$92,007	$93,847
Customer Accounts	$56,450	$56,450	$57,579	$58,731	$59,905	$61,103
Engineering	$592,766	$634,498	$647,188	$660,132	$673,334	$686,801
Administration	$774,602	$790,421	$806,230	$822,355	$838,802	$855,578
Total O & M	$3,880,925	$4,070,925	$4,152,344	$4,235,390	$4,320,098	$4,406,500

Water Capital Improvements

Little Thompson Water District has developed a comprehensive water Capital Improvement Plan (CIP) to address current and future water system capital needs. Capital improvements planning is the multiyear scheduling of improvements accompanied by the intended funding sources and strategies for completing those improvements.

Capital improvements planned for the future include system improvements, enhancements, replacements, restorations and expansions. These projects will be funded by a combination of water sales revenue, plant investment fees and other sources of non-operating revenue. Capital projects planned over the study period are shown in Table 3.4.

Table 3.4

Summary of the Water Capital Improvement Plan

CAPITAL	Estimated 2012	Projected 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017
New Service Connection Expense	$25,000	$25,500	$34,000	$38,250	$42,500	$46,750
County Road Improvements	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Office Phone System	$75,000	$15,000	$0	$0	$0	$0
Campion Water Line Replacement	$400,000	$0	$0	$0	$0	$0
Maintenance Management Software	$0	$67,000	$0	$0	$0	$0
Vehicles & Equipment	$90,000	$114,000	$35,700	$37,000	$38,300	$83,300
Billing & Financial Software	$90,000	$0	$0	$0	$0	$0
Trace Meter Change Out	$48,000	$0	$0	$0	$0	$0
Panoramic Pump Station	$0	$45,000	$0	$54,000	$293,000	$25,000
Telemetry Improvements	$0	$55,000	$0	$0	$0	$0
Mead Tank	$0	$0	$30,500	$0	$0	$0
Twin Mounds Tanks	$0	$60,000	$15,500	$0	$0	$0
PRV at CR 7 and 38	$0	$35,000	$52,000	$0	$0	$0
CR 7 and Lebsack Lane	$0	$0	$52,000	$0	$0	$0
LCR 4 & LCR 23	$0	$0	$0	$190,000	$0	$0
WCR 13 & WCR 32	$0	$0	$0	$0	$0	$190,000
Water Rights Purchase	$0	$189,000	$0	$0	$0	$0
Miscellaneous Equipment	$12,000	$0	$0	$0	$0	$0
Total Capital Expenses - District	$815,000	$680,500	$294,700	$394,250	$448,800	$420,050
South Plant Filter 17 & 18 Media	$73,500	$0	$0	$0	$0	$0
North Plant Sludge Decant Pond	$100,000	$0	$0	$0	$0	$0
North Plant Sludge Drying Bed	$60,000	$200,000	$0	$0	$0	$0
South Plant Chlorine Scrubber	$0	$0	$0	$0	$0	$0
North Plant Clearlogx System	$0	$125,000	$0	$0	$0	$0
North Plant Effluent Line	$0	$0	$191,000	$0	$0	$0
South Plant Control System	$0	$0	$0	$106,000	$0	$0
South Plant Filters 19 - 23	$0	$0	$0	$34,000	$34,000	$34,000
North Plant Membrane Replacement	$0	$0	$0	$179,000	$179,000	$179,000
Total Capital Expenses - Shared	$233,500	$325,000	$191,000	$319,000	$213,000	$213,000
Total Capital Expenses	$1,048,500	$1,005,500	$485,700	$713,250	$661,800	$633,050

Revenue Requirements

Having determined the amount of revenue required to fund O&M and capital improvements, total system revenue requirements can be calculated. This amount is shown in Table 3.5 and becomes the basis for allocating costs to customer categories and designing water rates.

Table 3.5

Revenue Requirements

Expenditure Category	Estimated 2012	Projected 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017
OPERATION & MAINTENANCE						
Assessments	$260,337	$260,337	$265,544	$270,855	$276,272	$281,797
Carter Lake Treatment Plant	$669,554	$669,554	$682,945	$696,604	$710,536	$724,747
Dry Creek	$45,600	$45,600	$46,512	$47,442	$48,391	$49,359
Pumping & Telemetry	$63,000	$63,000	$64,260	$65,545	$66,856	$68,193
Treated Water Storage	$23,700	$23,700	$24,174	$24,657	$25,151	$25,654
Water Quality Testing	$9,800	$9,800	$9,996	$10,196	$10,400	$10,608
Distribution	$1,252,117	$1,282,865	$1,308,522	$1,334,692	$1,361,386	$1,388,614
Meter Maintenance	$48,000	$148,000	$150,960	$153,979	$157,059	$160,200
Meter Reading	$85,000	$86,700	$88,434	$90,203	$92,007	$93,847
Customer Accounts	$56,450	$56,450	$57,579	$58,731	$59,905	$61,103
Engineering	$592,766	$634,498	$647,188	$660,132	$673,334	$686,801
Administration	$774,602	$790,421	$806,230	$822,355	$838,802	$855,578
Total O & M Expenses	$3,880,925	$4,070,925	$4,152,344	$4,235,390	$4,320,098	$4,406,500
NON-OPERATING EXPENSES						
Debt Service Requirements	$2,658,036	$2,669,102	$2,722,484	$2,776,934	$2,832,472	$2,889,122
Capital Improvements	$1,048,500	$1,005,500	$485,700	$713,250	$661,800	$633,050
Total Non-Operating Expenses	$3,706,536	$3,674,602	$3,208,184	$3,490,184	$3,494,272	$3,522,172
NON-OPERATING REVENUE						
Tap Fees (Current Year)	$462,000	$330,000	$440,000	$495,000	$550,000	$605,000
Cash in Lieu of Water Rights	$73,500	$189,000	$52,500	$52,500	$52,500	$52,500
Tap Installation Revenue	$35,760	$25,500	$34,000	$38,250	$42,500	$46,750
Interest Income – Investments	$49,500	$37,500	$38,250	$39,015	$39,795	$40,591
Total Non-Operating Revenue	$620,760	$582,000	$564,750	$624,765	$684,795	$744,841
Total Cash Required	$6,966,701	$7,163,527	$6,795,778	$7,100,809	$7,129,575	$7,183,831
ADEQUACY OF EXISTING RATES						
Total Cash Requirement	$6,966,701	$7,163,527	$6,795,778	$7,100,809	$7,129,575	$7,183,831
Revenue With Existing Rates and Fees	$6,762,324	$7,478,233	$7,615,248	$7,755,003	$7,897,553	$8,042,955
(Shortfall) or Surplus	($204,377)	$314,706	$819,470	$654,194	$767,978	$859,124
% Shortage(-) or Surplus	-2.93%	4.39%	12.06%	9.21%	10.77%	11.96%

Table 3.5 shows the District is expected to contribute $314,706 to reserves in 2013. That amount exceeds projected total cash requirement by 4.39%. Contributions to reserves are projected in each year of the study period.

Chapter 4 • Cost-of-Service

The total cash requirement shown in Table 3.5 represents the projected cost of providing water service to District customers during the study period. These figures are used to allocate costs to the various customer categories in proportion to the demands they place on the water system. The concept of proportionate allocation to customer categories implies that the allocation process consider not only the quantity of water used but also the rate of use. In this study, rates that customers use water are labeled "peak demands."

There are measurable costs associated with facilities required to meet peak demands. These costs need to be allocated appropriately so that customers with higher rates of water use pay proportionately more in recognition of the peak demands they place on the water system.

Functional Cost Components

The water system consists of various facilities designed and operated to fulfill one or more specific functions. To provide adequate service to customers at all times, the water system must be capable of providing the total amount of water used in any given year as well as the amount of water required on any given day or time of day to supply peak rates of use.

Identification of costs by functional components provides a means for distributing such costs to customer categories on the basis of their respective responsibilities for each particular type of service. In this rate study, costs are assigned to three functional cost components:
(1) base costs, (2) extra capacity costs, and (3) customer costs.

Base costs are those O&M and capital costs associated with providing water at a constant rate of use or average day use. C-BT assessments are an example of an O&M expenditure assigned totally to base costs. Assessments paid to the Northern Colorado Water Conservancy District do not vary with the rate of water use by District customers.

Extra capacity costs represent those O&M and capital costs incurred to meet customer peak demands in excess of average day use. The cost of operating Carter Lake Filter Plant and O&M costs associated with the water transmission and distribution system are examples of costs that vary with the rate of water use. Extra capacity costs are further segregated into costs associated with supplying peak day and peak hour demands.

Customer costs include expenditures independent of water use. The cost of administration, engineering, meter reading, billing, collections, accounting, software maintenance and IT support are included in customer costs and are the same for each customer regardless of water use. Customer costs also include expenditures for maintaining, testing, repairing and replacing meters and services. Those costs are allocated based on meter size or meter capacity and are proportionally greater for customers with larger water meters. Customer costs are recovered through monthly base fees and vary with meter size.

Determination of Allocation Percentages

Allocation percentages used to assign costs to the applicable function are determined by utilizing projected water demands in the test year. Based on analysis of historical water use and projected growth in the number of customers served, the following measures of water demand were determined for the test year:

Average Day (gallons)	4,332,811
Peak Day (gallons)	9,026,735
Peak Hour (gallons)	11,693,479

Based on projected water demands in 2013, allocation percentages shown in Table 4.1 were calculated. These percentages are used to allocate O&M, capital costs and debt service payments to base and extra capacity functions. Assigning functional costs to different customer categories is necessary to develop unit costs of capacity and perform the cost-of-service calculations.

Table 4.1

Calculation of Allocation Percentages

		Extra Capacity	
Functional Cost Component	Base	Peak Day	Peak Hour
Base	100.00% (1)		
Peak Day	52.00% (2)	48.00% (3)	
Peak Hour	37.05% (4)	40.14% (5)	22.81% (6)

(1) 4,332,811 / 4,332,811
(2) (9,026,735 - 4,332,811) / 9,026,735
(3) 4,332,811 / 9,026,735
(4) 4,332,811 / 11,693,479
(5) (9,026,735 - 4,332,811) / 11,693,479
(6) (11,693,479 – 9,026,735) / 11,693,479

Allocation of Capital Costs and Plant Investment

Capital costs include expenditures for capital improvements funded from water rates, bond issues and other sources of long-term financing. Capital improvements that serve multiple functions (vehicles, equipment leases, buildings, etc.) are generally allocated to functional costs on the basis of net plant investment. In this rate study, net plant investment is measured by assigning annual depreciation on all fixed assets to specific cost functions, accumulating annual depreciation for each cost function and then dividing the functional total by total annual depreciation. Data for this calculation was obtained from the fixed asset inventory and annual depreciation schedule maintained by the District. Table 4.2 shows percentages developed for allocation to general plant based upon the District's data.

Table 4.2

Percentage Allocation of General Plant Based on Depreciation of Fixed Assets

	Extra Capacity		
Base	Peak Day	Peak Hour	Customer
40.23%	38.06%	17.42%	4.29%

Various capital improvements planned for 2013 and non-operating revenue available to partially fund those improvements are consolidated and allocated to functional cost components in Table 4.3.

Table 4.3

Allocation of Capital Improvements, Debt Service and Non-Operating Revenue

		Base	Extra Capacity		Customer
Function	**Total**	**Cost**	**Peak Day**	**Peak Hour**	**Costs**
Water Resources	$189,000	$189,000			
Pumping and Storage	$140,000	$51,875	$56,198	$31,928	
Treatment	$325,000	$169,001	$155,999		
Distribution	$197,000	$72,995	$79,079	$44,927	
Meters & Services	$25,500				$25,500
General Plant	$129,000	$51,902	$49,100	$22,470	$5,528
Debt Service (Customer Accounts)	$666,389				$666,389
Debt Service (General Plant)	$1,359,108	$546,822	$517,301	$236,739	$58,246
Debt Service (Dry Creek)	$369,064	$369,064			
Debt Service (CLFP)	$274,541	$142,762	$131,779		
Subtotal	$3,674,602	$1,593,420	$989,456	$336,063	$755,663
Non-Operating Revenue					
Tap Fees	$330,000	$132,772	$125,604	$57,482	$14,143
Cash in Lieu of Water Rights	$189,000	$189,000			
Water Right Revenue	$0				
Tap Installation Revenue	$25,500				$25,500
Interest Income - Investments	$37,500	$15,088	$14,273	$6,532	$1,607
Total Non-Operating Revenue Available to Fund Capital	$582,000	$336,860	$139,877	$64,014	$41,250
Total Capital Costs & Debt Service Recovered from Rates	$3,092,602	$1,256,561	$849,578	$272,049	$714,414

Allocation of O&M Expenses

O&M expense for the test year are allocated to functional cost components in the same manner as capital improvements and debt service. That is, O&M expenses support specific, identifiable services provided by the District. Once classified by the type of service provided, O&M expenses are allocated to functional cost components as shown in Table 4.4.

Table 4.4

Allocation of O&M Expenses and Non-Operating Income

Facility	Total	Base Cost	Extra Capacity		Customer Costs
			Max Day	Peak Hour	
O & M Expense					
Assessments	$260,337	$260,337			
Carter Lake Treatment Plant	$669,554	$348,170	$321,384		
Dry Creek	$45,600	$45,600			
Pumping & Telemetry	$63,000	$23,344	$25,289	$14,367	
Treated Water Storage	$23,700	$8,782	$9,514	$5,405	
Water Quality Testing	$9,800				$9,800
Distribution	$1,282,865	$475,343	$514,959	$292,562	
Meter Maintenance	$148,000				$148,000
Meter Reading	$86,700				$86,700
Customer Accounts	$56,450				$56,450
Engineering	$634,498	$0	$0	$0	$634,498
Administration	$790,421	$0	$0	$0	$790,421
Subtotal	$4,070,925	$1,161,574	$871,146	$312,335	$1,725,870
Non-Operating Income Available to Offset O&M					
Wholesale Water Sales	$458,453	$184,453	$174,495	$79,856	$19,648
Base Fee - Vacant Lots	$17,535				$17,535
Water Rental Revenue	$22,400	$9,012	$8,526	$3,902	$960
Final Reads	$5,700	$2,293	$2,170	$993	$244
Customer Late Charges	$18,000	$7,242	$6,851	$3,135	$771
Customer Transfer Fees	$6,000	$2,414	$2,284	$1,045	$257
Customer Turn-On Fees	$4,200	$1,690	$1,599	$732	$180
Customer Returned Check Fees	$1,200	$483	$457	$209	$51
Dormant Tap Annual Fee	$400	$161	$152	$70	$17
Water Violation-Theft	$0	$0	$0	$0	$0
Sprinkler Systems Fees	$3,100	$1,247	$1,180	$540	$133
Miscellaneous Income	$5,400	$2,173	$2,055	$941	$231
Construction Water Income	$45,000	$18,105	$17,128	$7,838	$1,929
Accessory Dwelling	$100	$40	$38	$17	$4
Fire Hydrant Fees	$6,000	$2,414	$2,284	$1,045	$257
Sprinkler Tap Fees	$0	$0	$0	$0	$0
Joint Operations Income	$0	$0	$0	$0	$0
Farm Income	$8,500	$3,420	$3,235	$1,481	$364
Commitment Letter Fees	$1,500	$604	$571	$261	$64
Inspection Fees	$0	$0	$0	$0	$0
Plan Review Fees	$1,500	$604	$571	$261	$64
Miscellaneous	$22,500	$9,053	$8,564	$3,919	$964
Revenue Available to Offset O&M	$627,488	$245,408	$232,159	$106,246	$43,675
Total O&M Costs Recovered from Rates	$3,443,437	$916,167	$638,987	$206,089	$1,682,194
Total Capital Costs Recovered from Rates	$3,092,602	$1,256,561	$849,578	$272,049	$714,414
REQUIRED REVENUE FROM RATES	$6,536,039	$2,172,727	$1,488,566	$478,138	$2,396,608
PROJECTED WATER SALES	$6,850,745				
TRANSFER TO (FROM) RESERVES	$314,706	$126,618	$119,783	$54,818	$13,487

Table 4.4 shows that annual water sales for 2013 are projected to be $6,850,745. That is the amount of revenue to be recovered from residential and non-residential customers based upon their respective costs-of-service.

Unit Costs of Capacity

To equitably allocate cost-of-service to the District's residential and non-residential customers, unit costs of capacity need to be developed for each functional cost component. Unit costs are calculated by dividing the total annual cost allocated to each component by units of service associated with that particular cost component.

Different units are used for different cost components. O&M and capital expenditures allocated to base costs are divided by total annual water use to determine the base unit cost of capacity. Peak day and peak hour capacity costs are divided by the maximum daily use and maximum hourly use to determine those unit costs. Customer costs are based on the total number of retail accounts served by the District and are calculated for a customer with a 5/8 inch meter. Table 4.5 shows unit costs of capacity for each functional cost component.

Table 4.5

Calculation of Unit Costs of Capacity

Expenditure	Total	Base Cost	Extra Capacity		Customer Costs Billing
			Peak Day	Peak Hour	
O & M Expenses	$3,443,437	$0.58	$70.79	$17.62	$224.98
Transfer to (from) Reserves	$314,706	$0.08	$13.27	$4.69	$1.80
Capital	$3,092,602	$0.79	$94.12	$23.27	$95.55
Totals	$6,850,745	$1.45	$178.18	$45.58	$322.33

Customer Category Costs

The unit cost for each of the functional cost components shown in Table 4.5 is multiplied by the projected water use (base, peak day and peak hour) and number of accounts in each customer category shown in Table 4.6. The result of that calculation determines cost responsibility for each customer category. Table 4.7 shows the amount each customer category needs to pay toward their respective cost-of-service.

Table 4.6

Summary of Usage and Meter Size by Customer Category

Meter Size	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	
AWWA Capacity Ratio to 5/8"	1.00	1.50	2.50	5.00	8.00	15.00	25.00	Totals
Residential								
Total Usage (1,000 gal)	1,218,213							1,218,213
Peak Monthly Usage (1,000 gal)	229,079							229,079
Number Of Meters	7,191							7,191
AWWA Equiv. 5/8" Meters	7,191							7,191
Average Use/Meter (1,000gal)	169							169
Usage Ratio	1.00							1.00
AWWA Equivalent. 5/8" Meters	7191							7,191
% of Total	77.07%							77.07%
Non-Residential								
Total Usage (1,000 gal)	69,956	5,902	45,543	135,839	88,501	809	0	346,550
Peak Monthly Usage (1,000 gal)	10,480	838	5,053	14,815	10,505	117	0	41,808
Number Of Meters	181	14	30	19	8	2	1	255
AWWA Equiv. 5/8" Meters	181	21	75	95	64	30	25	491
Average Use/Meter (1,000gal)	386	422	1,518	7,149	11,063	405	0	1,359
Usage Ratio (relative to 5/8" Residential)	2.28	2.49	8.96	42.20	65.30	2.39	0.00	8.02
Equivalent. 5/8" Meters based on Average Use	413	35	269	802	522	5	0	2,046
% of Total	4.43%	0.37%	2.88%	8.59%	5.60%	0.05%	0.00%	21.92%
Irrigation-Only								
Total Usage (1,000 gal)	6,638	420	7,360	1,977	318			16,714
Peak Monthly Usage (1,000 gal)	1,368	104	1,655	469	80			3,676
Number Of Meters	17	1	8	3	2			31
AWWA Equiv. 5/8" Meters	17	2	20	15	16			70
Average Use/Meter (1,000gal)	390	420	920	659	159			539
Usage Ratio(relative to 5/8" Residential)	2.31	2.48	5.43	3.89	0.94			3.18
Equivalent 5/8" Meters based on Average Use	39	2	43	12	2			99
% of Total	0.42%	0.03%	0.47%	0.13%	0.02%			1.06%
Total All Customers	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	Total
Total Usage (1,000 gal)	1,294,807	6,322	52,903	137,816	88,819	809	0	1,581,476
July Usage (1,000 gal)	240,927	942	6,709	15,285	10,584	117	0	274,563
Number Of Meters	7,389	15	38	22	10	2	1	7,477
AWWA Equiv. 5/8" Meters	7,389	23	95	110	80	30	25	7,752
Average Use/Meter (1,000gal)	175	421	1,392	6,264	8,882	405	0	212
Usage Ratio (relative to 5/8" Residential)	1.03	2.49	8.22	36.98	52.43	2.39	0.00	1.25
Equivalent 5/8" Meters based on Average Use	7,643	37	312	814	524	5	0	9,331
% of Total	81.92%	0.40%	3.35%	8.72%	5.62%	0.05%	0.00%	100.00%

Table 4.7

Cost-of-Service by Customer Category

Customer Categories	Meter Size	Base Cost	Extra Capacity		Customer Costs	Totals
			Peak Day	Peak Hour		
Residential	5/8"	$1,771,189	$1,341,909	$444,666	$2,317,907	$5,875,672
Subtotal		$1,771,189	$1,341,909	$444,666	$2,317,907	$5,875,672
Non-Residential	5/8"	$101,711	$61,390	$20,343	$58,343	$241,785
	3/4"	$8,581	$4,909	$1,627	$4,513	$19,629
	1"	$66,215	$29,602	$9,809	$9,670	$115,297
	1 1/2"	$197,499	$86,785	$28,758	$6,124	$319,166
	2"	$128,674	$61,536	$20,391	$2,579	$213,179
	3"	$1,176	$685	$227	$645	$2,733
	4"	$0	$0	$0	$322	$322
Subtotal		$503,857	$244,907	$81,154	$82,195	$912,113
Irrigation Only	5/8"					
	3/4"	$9,652	$8,012	$2,655	$5,480	$25,798
	1"	$611	$609	$202	$322	$1,744
	1 1/2"	$10,701	$9,696	$3,213	$2,579	$26,189
	2"	$2,874	$2,750	$911	$967	$7,502
		$463	$466	$154	$645	$1,728
Subtotals		$24,300	$21,533	$7,135	$9,992	$62,961
Total		$2,299,346	$1,608,349	$532,956	$2,410,095	$6,850,745

Table 4.8 expands upon data shown in Table 4.7 and incorporates monthly base fees established by the District for different size meters. Table 4.8 identifies the amount of revenue collected through assessment of base fees and usage charges from the average residential and non-residential customer in each category and from the entire customer category. These revenue amounts become the basis for designing rates in Chapter 5.

Table 4.8

Average Annual Cost-of-Service per Account and Total Annual Cost-of-Service for Customer Categories

		Annual Cost-of-Service per Account					Total Annual Cost-of-Service per Customer Category			
Meter Size	Number of Accounts	Average Annual Charge/Account	Customer Costs	Charge for Water Use	$ per 1,000 gal	Base Fee $/Account	$ per Customer Category (Base Fees)	% Base Fees to Total	$ per Customer Category for Water Use	Total $ per Customer Category
Residential										
5/8"	7,191	$817	$322	$495	$2.92	$26.86	$2,317,907	39%	$3,557,764	$5,875,672
Subtotal	7,191						$2,317,907	39%	$3,557,764	$5,875,672
Non-Residential										
5/8"	181	$1,336	$322	$1,013	$2.62	$26.86	$58,343	24%	$183,443	$241,785
3/4"	14	$1,402	$349	$1,053	$2.50	$29.10	$4,889	25%	$14,740	$19,629
1"	30	$3,843	$446	$3,397	$2.24	$37.15	$13,375	12%	$101,922	$115,297
1 1/2"	19	$16,798	$839	$15,960	$2.23	$69.89	$15,936	5%	$303,231	$319,166
2"	8	$26,647	$1,016	$25,632	$2.32	$84.63	$8,125	4%	$205,054	$213,179
3"	2	$1,367	$1,884	$0		$157.01	$2,733		$0	$2,733
4"	1	$322	$2,753	$0		$229.45	$322		$0	$322
Subtotal	255			$47,055	$2.33		$103,722	11%	$808,391	$912,113
Irrigation-Only										
5/8"	17	$1,518	$322	$1,195	$3.06	$26.86	$5,480	21%	$20,319	$25,798
3/4"	1	$1,744	$349	$1,395	$3.32	$29.10	$349	20%	$1,395	$1,744
1"	8	$3,274	$446	$2,828	$3.07	$37.15	$3,567	14%	$22,622	$26,189
1 1/2"	3	$2,501	$839	$1,662	$2.52	$69.89	$2,516	34%	$4,986	$7,502
2"	2	$864	$1,016	$0	$0.00	$84.63	$1,728		$0	$1,728
Subtotal	31				$2.95		$13,639	22%	$49,321	$62,961
Total	7,477						$2,435,269	36%	$4,415,476	$6,850,745

Table 5.1 compares cost-of-service revenue requirements for each customer category shown in Table 4.8 with water sales revenue projected in 2013 with current rates. That comparison indicates the amount of revenue collected from non-residential customers needs to decrease by 23.33% to accurately reflect their cost-of-service. Revenue from irrigation-only customers needs to decrease by 1.41%. To recover the decrease in revenue resulting from cost-of-service adjustments for non-residential and irrigation-only customers, residential revenue needs to increase by 4.98%.

Table 5.1

Comparison of Projected 2013 Revenue with Cost-of-Service

Customer Categories	2013 Projected Cost-of-Service Revenue	2013 Projected Revenue with Current Rates	$ Increase (Decrease)	% Adjustment Required to Equal Cost-of-Service
Residential	$5,875,672	$5,597,162	$278,510	4.98%
Non-Residential	$912,113	$1,189,723	($277,610)	-23.33%
Irrigation-Only	$62,961	$63,860	($900)	-1.41%
Total	$6,850,745	$6,850,745	0	0%

Water rate alternatives developed for consideration by the District and shown later in this chapter were designed to recover the 2013 Projected Cost-of-Service Revenue for each customer category shown in Table 5.1.

Considerations in Water Rate Design

Water rates can be designed to address a number of issues but the most critical considerations in development of rates proposed in this study are:

- Rates must derive revenue requirements which include O&M expenses, reserves, debt service obligations and all capital costs.
- Revenue requirements derived from water rates must be equitably allocated to residential and non-residential customer categories commensurate with their cost-of-service.
- Rates should be designed to discourage the wasteful use of water.
- Rates must be relatively easy to administer, understood by customers, non-punitive and insure revenue stability.

Existing Water Rates

The District's existing rate structure for residential and non-residential customers consists of: (1) a monthly base charge that varies with meter size, and (2) a usage charge levied on each 1,000 gallons of water used within a range or tier established by the District. Tiered rates increase the usage charge with each of several preset consumption blocks for each billing period. The amount of water within each consumption block varies by meter size.

The existing residential and non-residential water rate for customers with 5/8 inch meters has four rate tiers: (1) 0 to 6,000 gallons, (2) 6,000 to 30,000 gallons, (3) 30,000 to 60,000 gallons, and (4) 60,000 gallons or more. The base charge for customers with 5/8 inch meters is $26.86 per month. The District's existing water rates for retail customers are summarized in Table 5.2.

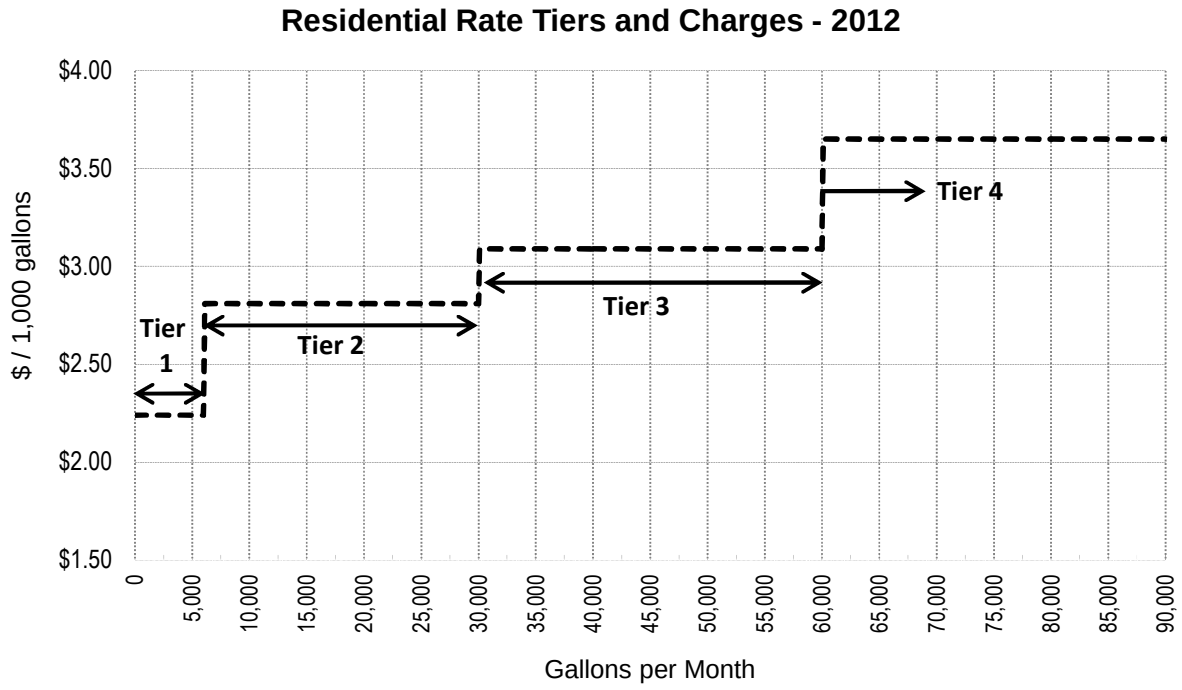
Table 5.2

Little Thompson Water District Rates

Tap Size	Monthly Base Charge	Gallons Used	Rate per Thousand Gallons
5/8" Conservation	$26.86	0 - 6,000 6,000 - 12,000 >12,000	$2.24 $2.81 $11.22
5/8" Residential	$26.86	0 - 6,000 6,000 - 30,000 30,000 – 60,000 >60,000	$2.24 $2.81 $3.09 $3.65
5/8" Non Residential	$26.86	0 - 6,000 6,000 - 30,000 30,000 – 60,000 >60,000	$2.24 $2.81 $3.09 $3.37
3/4" Non Residential	$29.10	0 - 9,000 9,000 - 45,000 45,000 – 90,000 >90,000	$2.24 $2.81 $3.09 $3.37
1" Non Residential	$37.15	0 - 15,000 15,000 - 75,000 75,000 - 150,000 >150,000	$2.24 $2.81 $3.09 $3.37
1 1/2" Non Residential	$69.89	0 - 30,000 30,000 - 150,000 150,000-300,000 >300,000	$2.24 $2.81 $3.09 $3.37
2" Non Residential	$84.63	0 - 48,000 48,000 - 240,000 240,000 – 480,000 >480,000	$2.24 $2.81 $3.09 $3.37
3" Non Residential	$157.00	0 - 105,000 105,000 - 525,000 525,000 –1,050,000 >1,050,000	$2.24 $2.81 $3.09 $3.37

Usage charges that increase with each successive tier are intended to send a strong conservation message to customers. The greater the increase in usage charges between tiers, the stronger the conservation message. The District's existing residential rate structure sends a fairly strong conservation message with the increase in usage charges between Tiers 1 and 2, and Tiers 3 and 4. The increase between usage charges in Tier 2 and Tier 3 is only $0.28. That amount may not be enough to make residential customers deliberately avoid Tier 3.

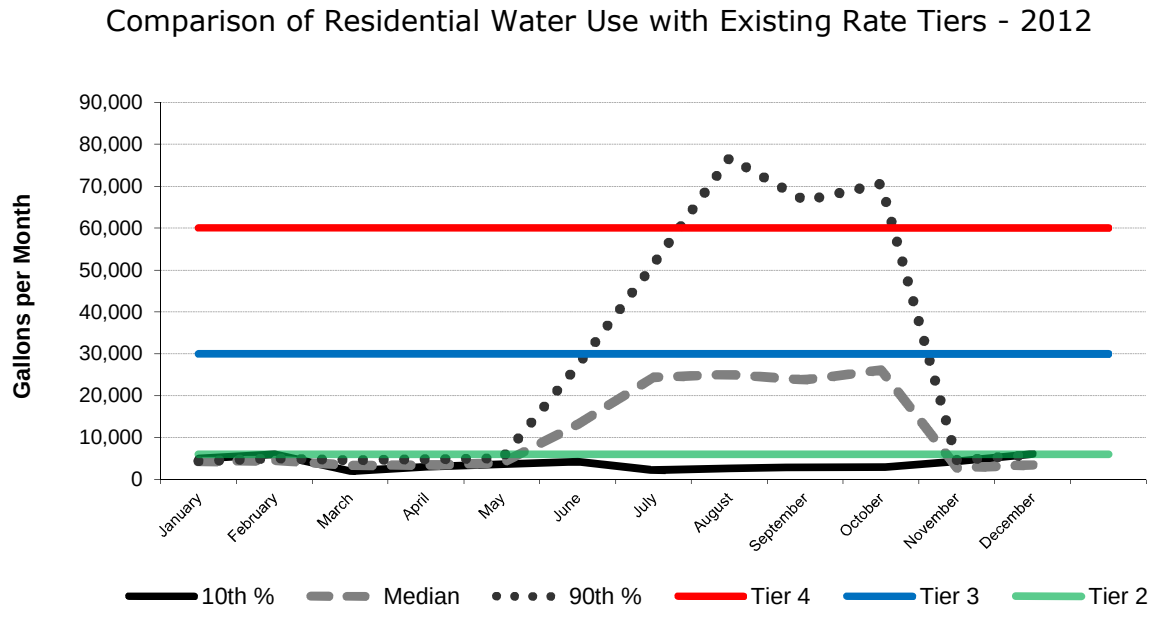
Figure 5.1



Water rate tiers are most effective when they increase awareness in customers regarding the consequences of their water use decisions. A noticeable increase in monthly bills as usage increases is especially useful in educating customers.

Figure 5.2 shows the water usage of three representative residential customers (10^{th} percentile usage, median usage and 90^{th} percentile usage) compared with existing residential rate tiers. It indicates representative residential customers rarely if ever exceed the Tier 1 threshold of 6,000 gallons during non-irrigation months. It also shows that most customers never exceed the Tier 3 threshold. Only customers with much higher water use during irrigation months are subject to the Tier 4 usage charge.

Figure 5.2



Non-residential customers use water much differently than residential customers. Unlike residential water use, non-residential water use is often dictated by operations rather than irrigation. Non-residential rate tiers are generally not as effective at delivering the desired water conservation message. Figure 5.3 shows the percentage of water use during 2011 in the four existing tiers applicable to non-residential customers.

Figure 5.3

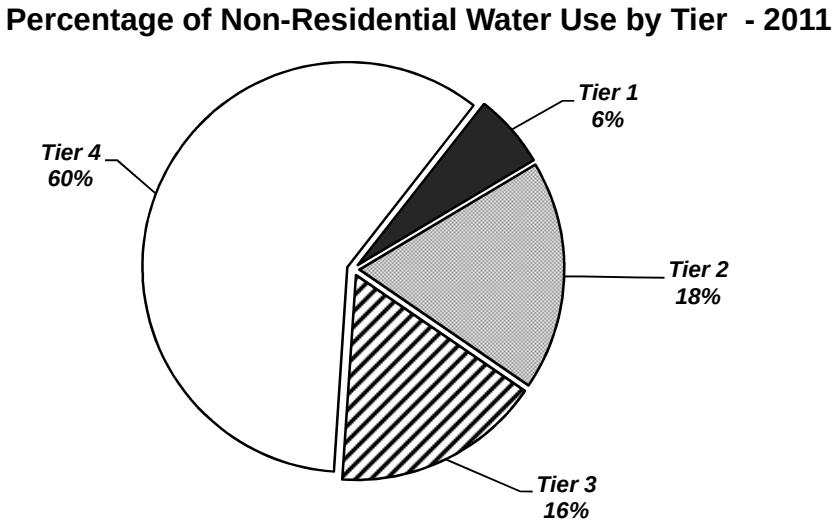


Figure 5.3 shows that 60% of non-residential water use in 2011 occurred in Tier 4. That suggests the water usage of non-residential customers is not especially sensitive to tiers currently in use.

Furthermore, the tiered rate structure for non-residential customers may be "punitive" to large customers, charging them a higher usage charge simply because they are large water users. These customers may, in fact, be very efficient water users, and thus not "deserving" of a higher usage charge. In that regard, it is important to set the tier, or usage block ranges for non-residential customer categories relative to their discretionary usage profile. The objective is to establish tiers that induce reduced water usage at levels where the customer has discretion over usage, not to punish customers that have limited discretion in usage

Alternative residential water rate structures developed in this analysis attempt to improve the conservation message associated with tiered rates while recovering the required residential cost-of-service revenue.

Alternative non-residential water rate structures developed in this analysis eliminate the punitive nature of existing non-residential rate tiers while recovering the required non-residential cost-of-service revenue.

Cost-of-Service Residential Rate Alternatives

The cost-of-service analysis presented earlier indicates water rates for residential customers need to increase by 4.98%. Rate alternatives presented in this section of the report are based on the need to increase residential rates by that percentage. Doing so eliminates the subsidy that residential customers currently receive from non-residential customers.

Three residential rate alternatives are presented for consideration. Each alternative generates revenue in 2013 approximately equal to required cost-of-service residential revenue. In anticipation of some measure of conservation and associated reductions in residential water sales, alternatives that create an especially strong incentive for residential customers to reduce water use are designed to generate slightly higher amounts of revenue than calculated cost-of-service.

No increase in the monthly base charge is included in any of the residential rate alternatives. In each alternative, the base charge remains at $26.86 per month for customers with a 5/8 inch meter.

Rate Alternative #1

Alternative #1 reduces the upper range in Tier 1 from 6,000 gallons to 5,000 gallons. Most residential customers use 3,000 to 5,000 gallons during non-irrigation months. Setting the top of Tier 1 at 5,000 gallons offers customers an incentive to keep their water use below that amount during non-irrigation months. Except for that modification to Tier 1, existing tiers are maintained in Alternative #1 and are as follows: (1) 0 to 5,000 gallons, (2) 5,000 to 30,000 gallons, (3) 30,000 to 60,000 gallons, and (4) 60,000 gallons or more.

Alternative #1 generates cost-of service revenue primarily through an increase in the usage charge in Tier 1. As shown in Table 5.3, that results in a relatively uniform percentage increase in the annual charge for representative customers. Since the dollar amount between the usage charges of each tier is relatively small, Alternative #1 does not provide a particularly strong conservation message.

Table 5.3

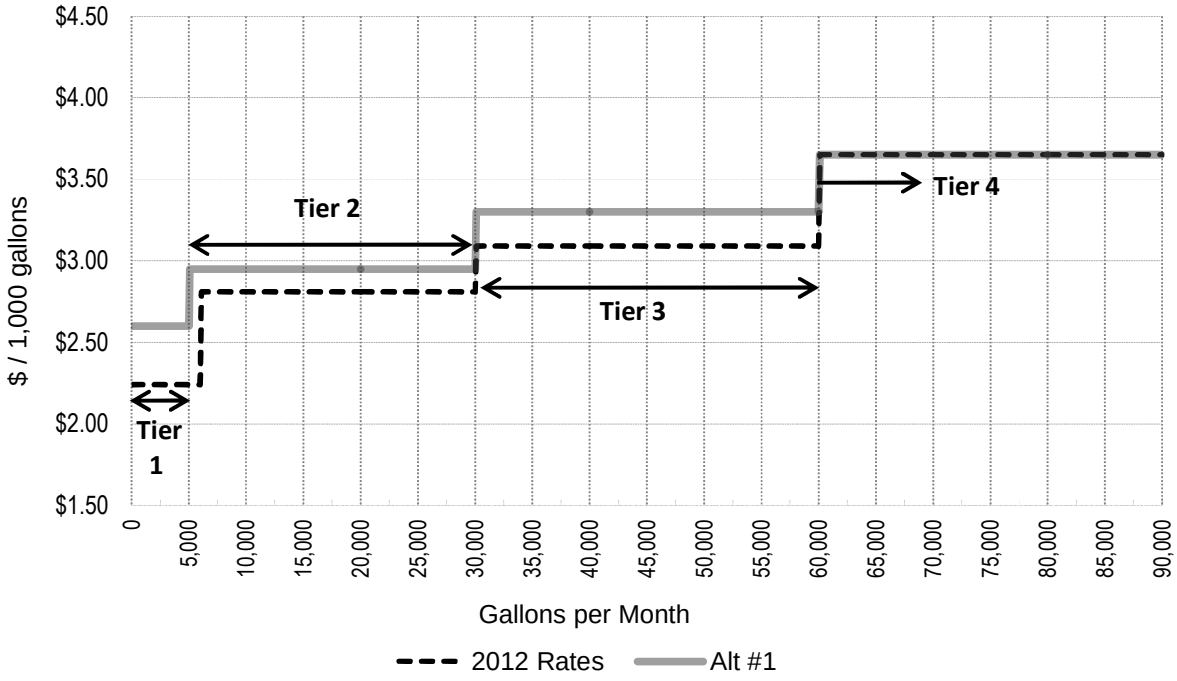
Annual Charges and % Change in Charges with Rate Alternative #1

Customer Type	Annual Use (gal / year)	Annual Charge for Water		% Change
		2012 Rates	2013 – Alt #1	
10th Percentile	45,069	$ 423.33	$ 440.23	3.99%
Median	138,304	$ 679.16	$ 712.54	4.92%
90th Percentile	326,887	$1,263.77	$1,328.86	5.15%

Figure 5.4 compares usage charges and tiers developed for Alternative #1 with the District's current residential rates.

Figure 5.4

Comparison of 2012 Residential Rates with Rate Alternative #1



Rate Alternative #2

Alternative #2 sends a stronger conservation message than Alternative #1 and places more of the required cost-of-service rate adjustment on customers that use more water. Alternative #2 also reduces the block in Tier 1 from 6,000 gallons to 5,000 gallons. Reducing the Tier 1 block should increase the number of customers that experience the change in usage charges between Tiers 1 and 2. That will increase awareness about the financial implications of tiered rates and should encourage customers to avoid allowing their water use to exceed the Tier 1 block.

The upper range for Tier 4 is decreased from 60,000 gallons to 30,000 gallons in Alternative #2. Since the summer water use of the majority of residential customers never exceeds 30,000 gallons, the conservation message associated with Tier 4 does not currently reach most customers.

The tiers developed for Alternative #2 are as follows: (1) 0 to 5,000 gallons, (2) 5,000 to 15,000 gallons, (3) 15,000 to 30,000 gallons, and (4) 30,000 gallons or more. Table 5.4 shows the percentage increase in annual charges for representative customers.

Table 5.4

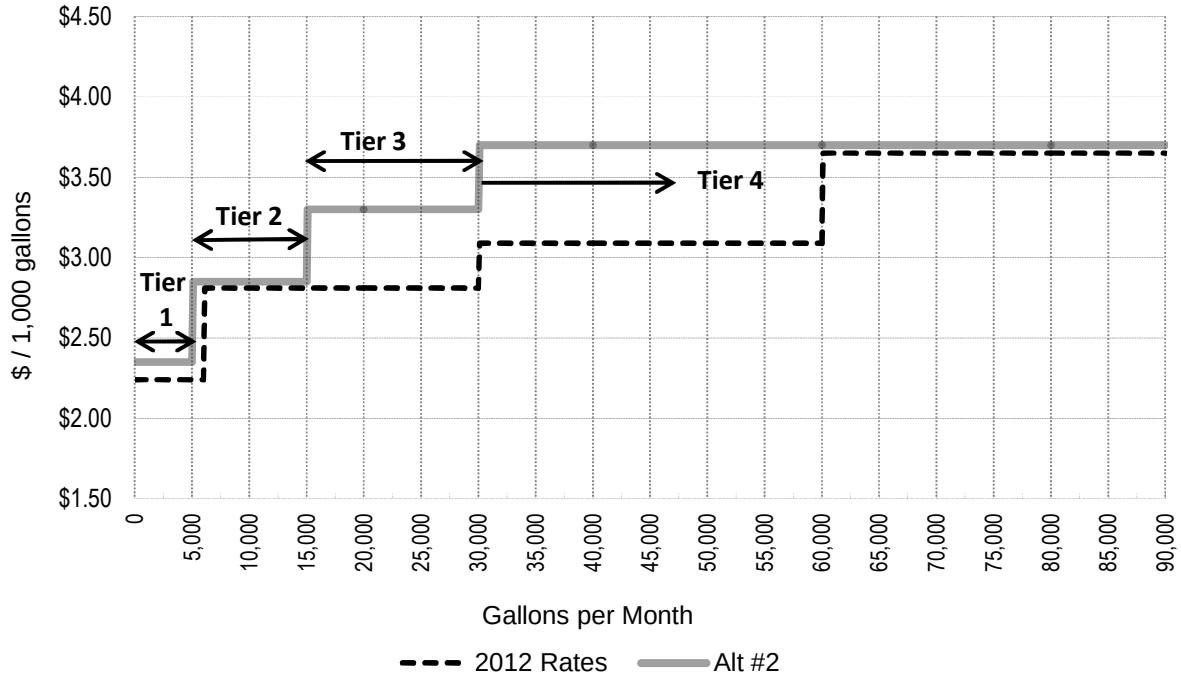
Annual Charges and % Change in Charges with Rate Alternative #2

Customer Type	Annual Use (gal / year)	Annual Charge for Water		% Change
		2012 Rates	2013 – Alt #2	
10th Percentile	45,069	$ 423.33	$ 429.28	1.41%
Median	138,304	$ 679.16	$ 708.81	4.37%
90th Percentile	326,887	$1,263.77	$1,380.65	9.25%

Figure 5.5 compares usage charges and tiers developed for Alternative #2 with the District's current residential rates.

Figure 5.5

Comparison of 2012 Residential Rates with Rate Alternative #2



Rate Alternative #3

Alternative #3 sends the strongest stronger conservation message of all alternatives. It places the greatest share of required cost-of-service rate adjustment on customers that use more water. Customers that use less water are rewarded with a reduction in their annual charges.

Alternative #3 usage charges escalate more from tier to tier than in either Alternatives #1 or #2. That is accomplished by lowering the Tier 1 usage charge and increasing the Tier 4 usage charge. A greater difference between tiered usage charges delivers the strongest conservation message. As water usage jumps from one tier to the next, customers' water bills noticeably increase. The Tier 4 usage charge in Alternative #3 is $4.00 per 1,000 gallons. That is an amount that will likely get the attention of most residential customers.

The existing Tier #4 usage charge is $3.65 per 1,000 gallons and does not take effect until usage exceeds 60,000 gallons. In Alternative #3 (and Alternative #2), Tier 4 usage charges take effect once monthly usage exceeds 30,000 gallons. Many more customers will experience Tier 4 rates with both Alternatives #2 and #3. The financial implications of using more than 30,000 gallons per month will be most evident with Alternative #3.

Tiers utilized in Alternative #3 are the same as Alternative #2: (1) 0 to 5,000 gallons, (2) 5,000 to 15,000 gallons, (3) 15,000 to 30,000 gallons, and (4) 30,000 gallons or more.

Table 5.5 shows the percentage increase (or decrease) in annual charges for representative customers.

Table 5.5

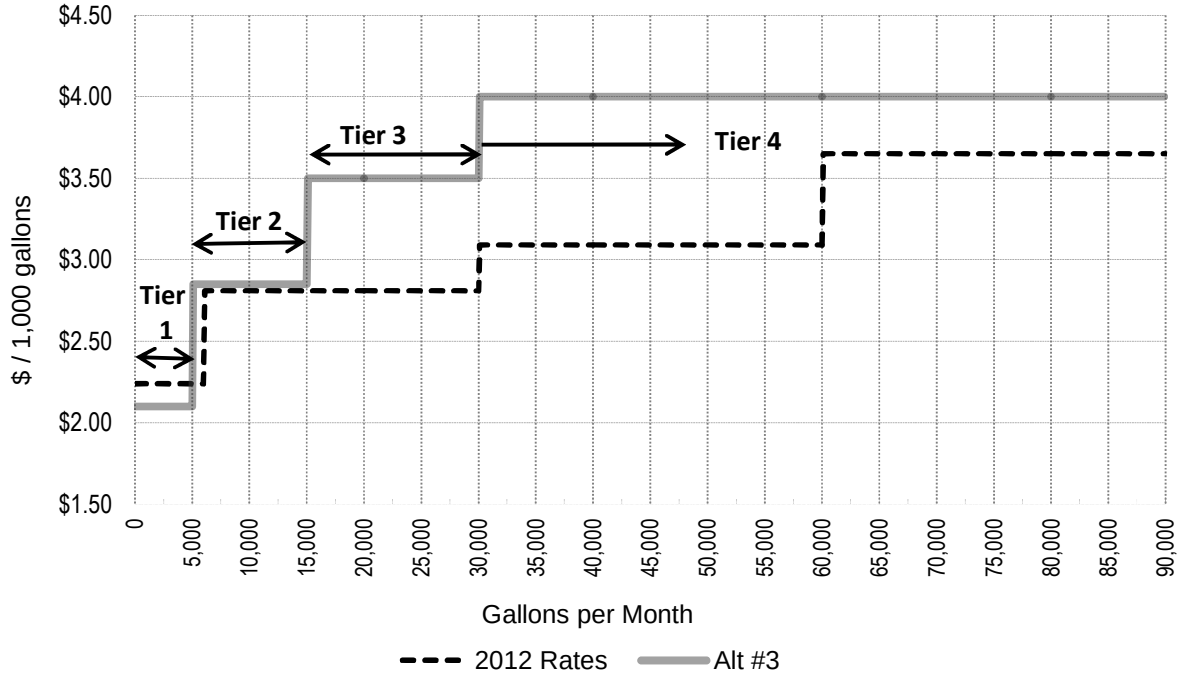
Annual Charges and % Change in Charges with Rate Alternative #3

Customer Type	Annual Use (gal / year)	Annual Charge for Water		% Change
		2012 Rates	2013 – Alt #3	
10th Percentile	45,069	$ 423.33	$ 418.54	-1.13%
Median	138,304	$ 679.16	$ 703.98	3.65%
90th Percentile	326,887	$1,263.77	$1,424.04	12.68%

Figure 5.6 compares the usage charges and tiers developed for Alternative #3 with the District's current residential rates.

Figure 5.6

Comparison of 2012 Residential Rates with Rate Alternative #3



Summary of Residential Rate Alternatives

Residential rate alternatives presented in this chapter represent a range of alternatives to make the necessary cost-of-service adjustments and deliver different degrees of conservation messages to customers. Each alternative generates the required amount of water sales revenue from the residential customer category. The more aggressive residential rate alternatives anticipate some measure of conservation by customers with higher than average water use so revenue generated with those alternatives is slightly higher than cost-of-service.

Table 5.6 compares annual charges with all alternatives to annual amounts currently paid by representative customers.

Table 5.6

Comparison of Annual Charges with Residential Rate Alternatives

Customer Type	Annual Use	Annual Charges and % Change from 2012 Residential Rates								
		2012 Rates	Alt #1	%	Alt #2	%	Alt #3	%
10th Percentile	45,069	$ 423	$ 440	4.0%	$ 429	1.4%	$ 419	-1.1%
Median	138,304	$ 679	$ 713	4.9%	$ 709	4.4%	$ 704	3.7%
90th Percentile	326,887	$ 1,264	$ 1,329	5.2%	$ 1,381	9.2%	$ 1,424	12.7%

Table 5.7 shows usage charges developed for all residential rate alternatives and compares them to existing usage charges. For comparative purposes, all existing and proposed usage blocks are shown in Table 5.7. When one charge applies in two consecutive blocks, the usage charge is highlighted.

Table 5.7

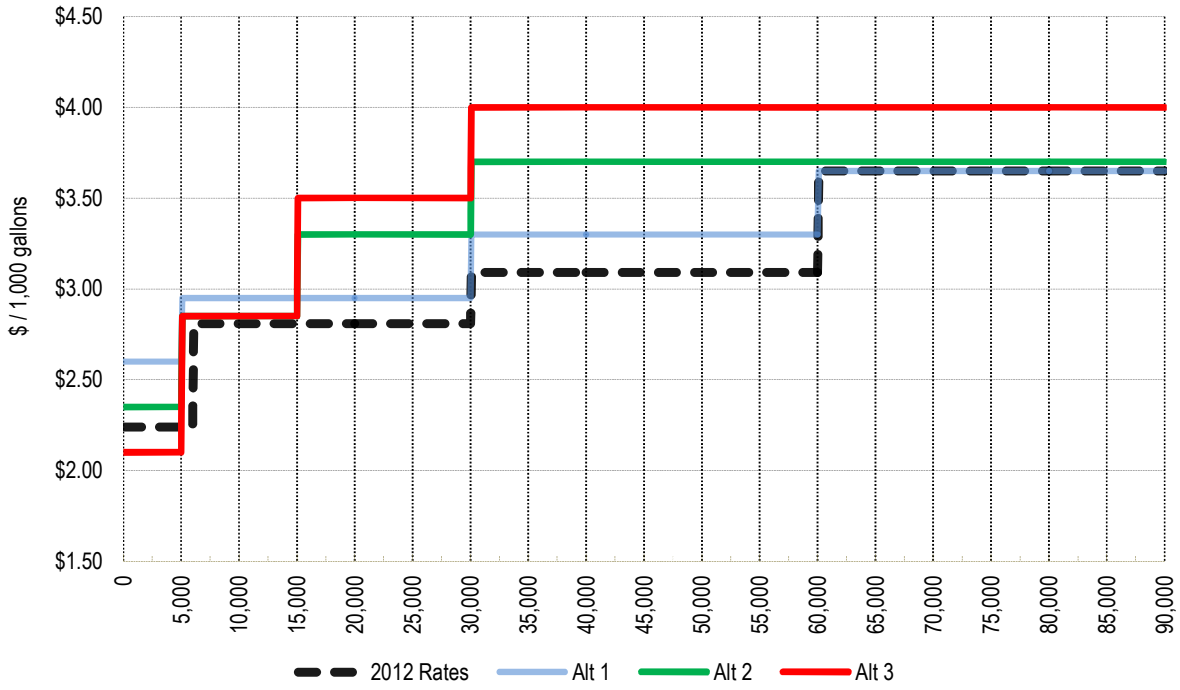
Usage Charges for Residential Alternatives

Usage Blocks (gallons)	2012 Rates	Alternative #1	Alternative #2	Alternative #3
0 – 5,000		$ 2.60	$ 2.35	$ 2.10
5,000 – 15,000		$ 2.95	$ 2.85	$ 2.85
15,000 – 30,000		$ 2.95	$ 3.30	$ 3.50
30,000 – 60,000		$ 3.30	$ 3.70	$ 4.00
Greater than 60,000		$ 3.65	$ 3.70	$ 4.00
0 – 6,000	$ 2.24			
6,000 – 15,000	$ 2.81			
15,000 – 30,000	$ 2.81			
30,000 – 60,000	$ 3.09			
Greater than 60,000	$ 3.65			

Figure 5.7 shows residential usage charges and tiers developed for each alternative along with tiers and usage charges currently assessed by the District.

Figure 5.7

Comparison of Residential Rate Tiers and Usage Charges



Cost-of-Service Non-Residential Rate Alternatives

Non-residential customers currently pay rates that generate revenue that exceeds their cost-of-service. The cost-of-service analysis discussed earlier indicates water rates for non-residential customers need to decrease by 23.33%. Existing water rates for irrigation-only customers need to decrease by only 1.41%.

The difference in the cost-of-service rate adjustments required for non-residential and irrigation-only customers supports the creation of a new customer category for irrigation-only customers. The water use of irrigation-only customers during summer months is quite different from other non-residential customers. As more irrigation-only customers are added, it becomes more important from a cost-of-service perspective to bill them differently. Creation of a new irrigation-only customer category will also permit the District to target those customers for a stronger conservation message delivered through a unique rate structure that is higher than the non-residential rate.

Two rate alternatives are presented for consideration. Each alternative generates revenue in 2013 from non-residential and irrigation-only customers that reflects their respective cost-of-service. No increase in the monthly base charge for different size meters is built in to either alternative. Base fees remain the same as shown earlier in Table 5.2.

Non-Residential Alternative #1

Non-residential Alternative #1 continues the current practice of establishing four exclusive usage charges within existing tiers applicable to each meter size. As shown earlier in Table 5.2, the block within each non-residential tier varies by meter size but the usage charge in each tier remains the same.

In Alternative #1, usage charges for non-residential customers are reduced uniformly to generate the appropriate amount of revenue based on cost-of-service. The dollar difference between Tier 1 and Tier 4 usage charges is a rather modest $1.00 (from $1.50 to $2.50 per 1,000 gallons).

Irrigation-only usage charges are adjusted in Alternative #1 to create a greater differential between usage charges from tier to tier. The dollar difference between Tier 1 and Tier 4 usage charges for irrigation-only customers is a more noticeable $1.65 (from $2.00 to $3.65 per 1,000 gallons). The greatest potential for water savings has been found in improving the efficiency of turf irrigation systems. Rates proposed for irrigation-only customers specifically target those customers and should encourage them to carefully monitor water use and irrigation system performance.

Non-Residential Alternative #2

Alternative #2 establishes uniform rates for non-residential and irrigation-only customers. A uniform rate eliminates all tiers and charges the same dollar amount for every 1,000 gallons of water used within the billing period.

There is a great deal of variability in the monthly water use of the District's non-residential customers. That makes is especially difficult to establish tiers that are appropriate for a particular set of customers with a common meter size.

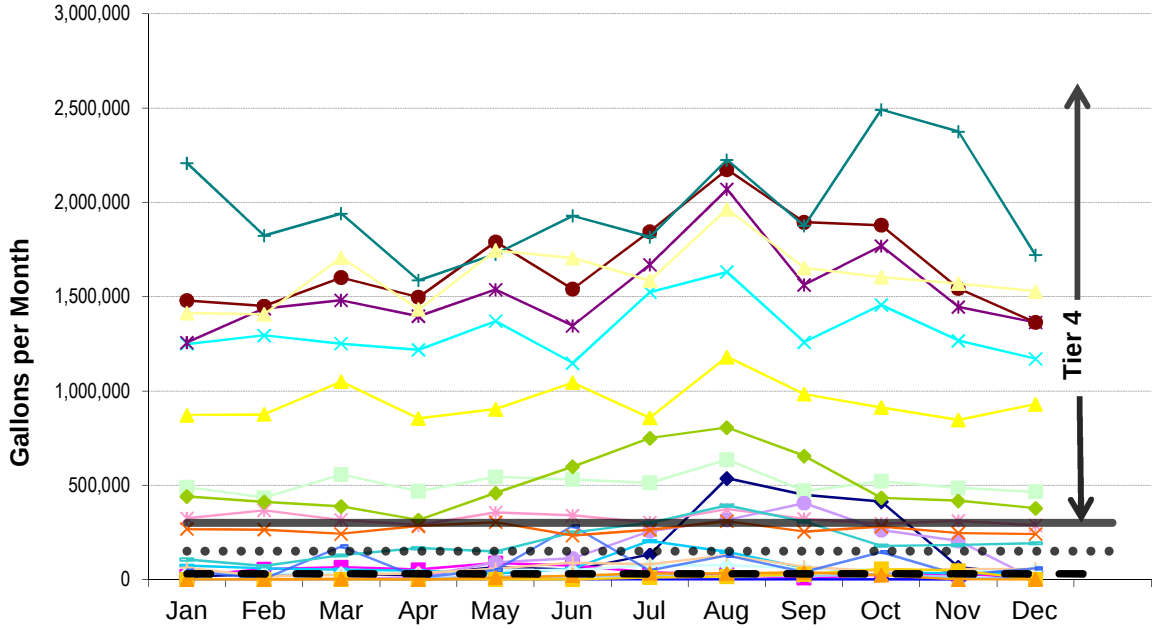
Figure 5.8 demonstrates the challenge of establishing fair and equitable tiers for non-residential customers served by 1½ inch meters. In 2011, that group of customers used 43% of all water delivered to non-residential customers. Tier 4 for 1½ inch customers begins at 300,000 gallons. In 2011, 68% of water used by 1½ inch customers was billed in Tier 4.

Tiers are intended to influence the water use of customers with higher than normal demands. Customers with 1½ inch meters do not appear to be responsive to the conservation message delivered by a higher usage charge in Tier 4. That is likely due to the fact they do not have the ability to modify their water use.

Large customers should not be charged a higher usage charge simply because they are large water users. These customers may be very efficient water users. If that is the case, it is important to set rates that recognize their discretionary usage profile.

Figure 5.8

Monthly Water Use and Tiers Applicable to Customers with 1½ inch Meters - 2011



Summary of Non-Residential Rate Alternatives

Non-residential and irrigation-only usage charges developed for Alternatives #1 and #2 are summarized in Table 5.8. Projected water sales in 2013 with each alternative will recover required amounts and achieve the necessary cost-of-service adjustments.

Table 5.8

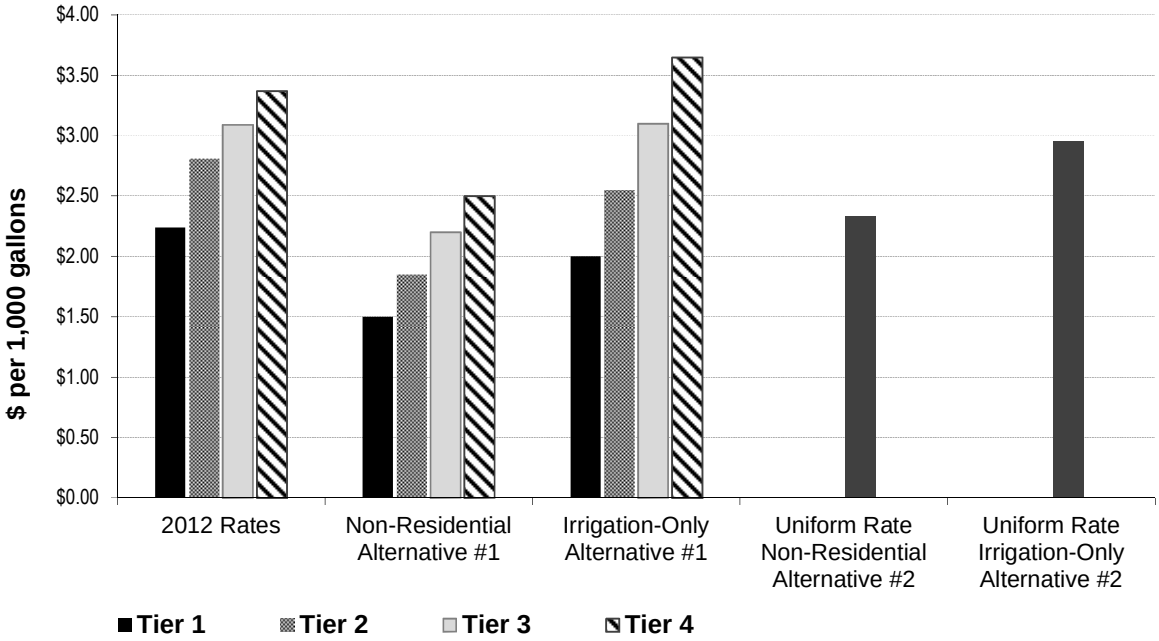
Alternative Usage Charges for Non-Residential and Irrigation-Only Customers

		Alternative #1 (Tiered Rate)		Alternative #2 (Uniform Rate)	
	2012 Rates	Non-Residential	Irrigation-Only	Non-Residential	Irrigation-Only
Tier 1	$ 2.24	$ 1.50	$ 2.00	$ 2.33	$ 2.95
Tier 2	$ 2.81	$ 1.85	$ 2.55	$ 2.33	$ 2.95
Tier 3	$ 3.09	$ 2.20	$ 3.10	$ 2.33	$ 2.95
Tier 4	$ 3.37	$ 2.50	$ 3.65	$ 2.33	$ 2.95

Figure 5.9 graphically illustrates Alternative #1 usage charges in each existing tier and uniform charges developed in Alternative #2.

Figure 5.9

Non-Residential Alternative Usage Charges



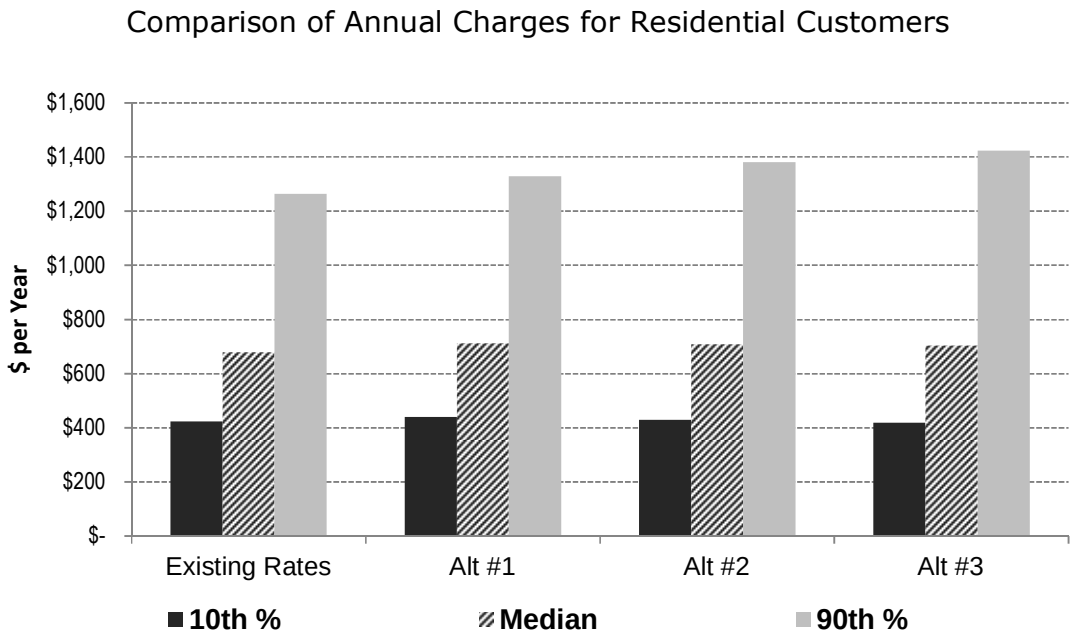
Chapter 6 • Comparison and Impact Analysis

Residential customers represent 96% of all accounts in Little Thompson Water District and use approximately 77% of total retail water deliveries. Because residential customers are responsible for such a significant portion of water use and revenue, the impact of proposed rate alternatives adjustments on individual residential customers warrants additional examination.

Comparison of Annual Residential Water Charges

To measure the effect of the three proposed rate alternatives on residential customers, the water use of customers at the 10th percentile of annual use, median and 90th percentile were analyzed. Figure 6.1 shows the amount of annual charges paid by those representative customers with each alternative.

Figure 6.1



Comparison of Monthly Residential Water Charges

Figure 6.2 shows the amount of monthly charges for a customer at the median level of water use with existing rates and with the three residential alternatives presented in this report. Figure 6.3 displays the amount of monthly charges for a customer at the 90th percentile of water use with existing and alternative rates.

Figures 6.2 and 6.3 show that water rates associated with each residential alternative result in higher water bills during summer months, particularly for large water users paying Alternative #3 water rates. All three residential alternatives generate water bills during non-irrigation months that are similar to current amounts. Customers that experience a more significant increase in their summer water bills have much more incentive to conserve water through reductions in their outdoor water use.

Figure 6.2

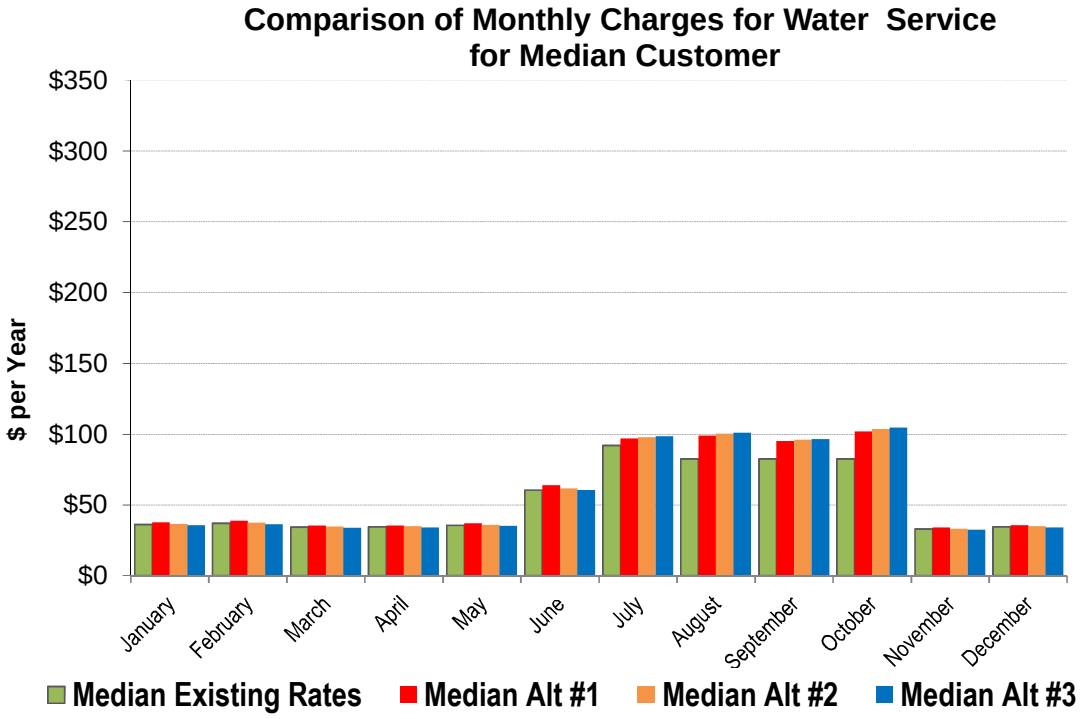
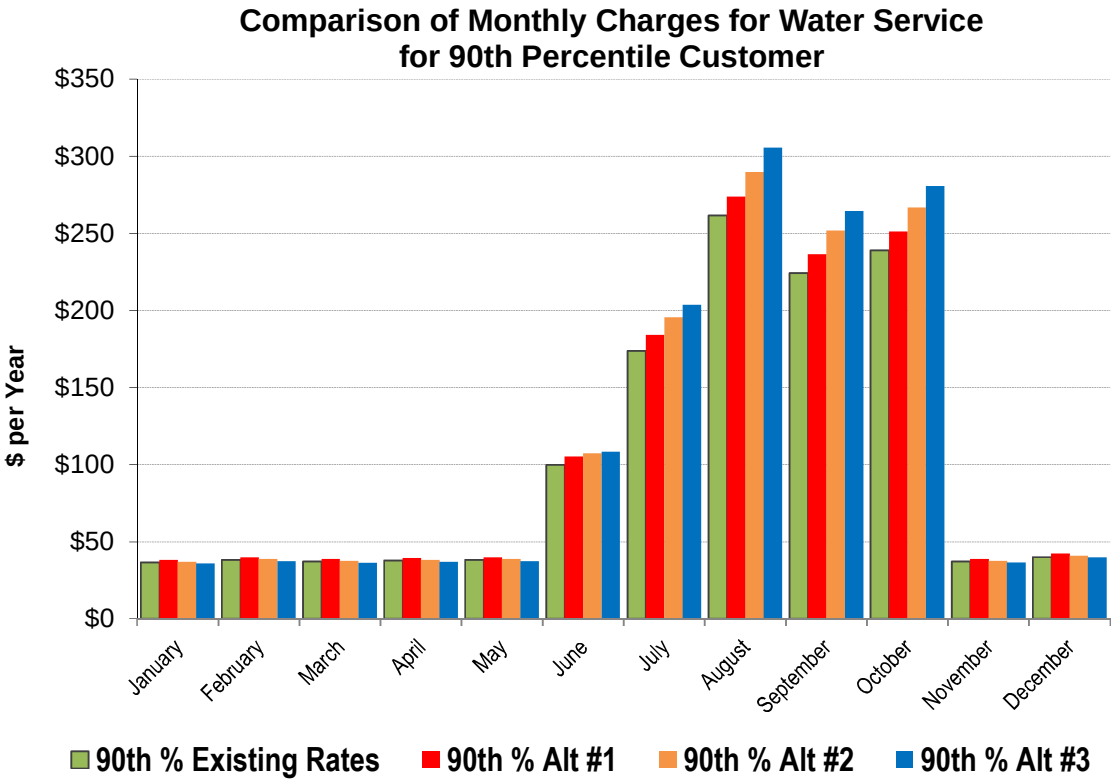


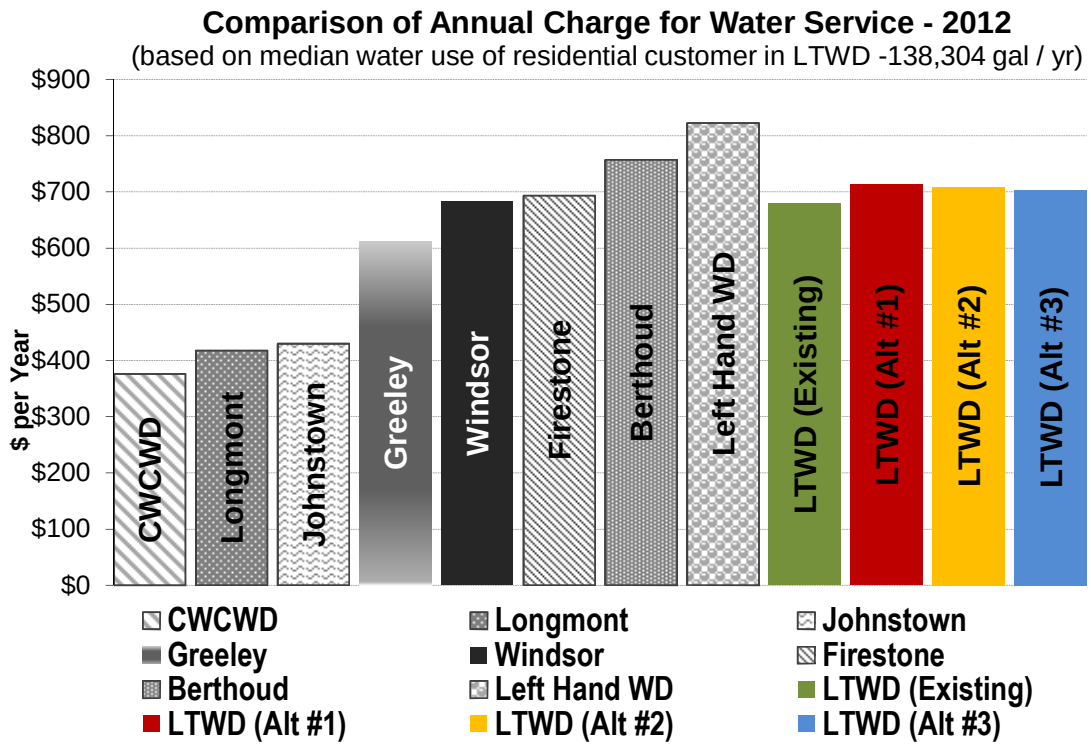
Figure 6.3



Comparison of Residential Water Charges in Nearby Communities

Figure 6.4 compares the annual cost of water for the median District residential customer using 138,304 gallons per year with the amount that customer would pay for the same amount of water in nearby communities or water districts. The annual amount paid by the median residential customer with existing (2012) and proposed (2013) residential water rates is shown.

Figure 6.4



Each water provider has unique challenges and costs that determine their water rates. Revenue requirements are affected by the availability of water, age of system, rate of growth, financial policies, contractual obligations, capital needs, distance to treatment plant, pumping requirements, source water quality and a number of other variables. These variables make it difficult to fully understand differences in the cost of water from one community to another.

Comparing the cost of water in different communities is of interest but should not drive decisions on water rates. Water rates in any community or water district are ultimately determined by the budgets and policies adopted by their governing boards.

Chapter 7 • Water Conservation

Although conservation oriented water rates are an important step in managing water demand, they are most effective when part of a comprehensive conservation plan that addresses a variety of issues. Preparation of this rate study was one of several recommendations contained in the District's Water Efficiency Management Plan. When fully implemented, proposed water rates and other measures contained in the Water Conservation Plan are expected to reduce residential demand by 5%, and non-residential demand by 1% over the next seven years.

Water rate revisions proposed in this rate study create incentives for residential and non-residential customers to use water more efficiently. Proposed changes in rates that encourage water conservation are described below:

- Creation of a new category for irrigation-only customers provides the District an opportunity to focus its non-residential conservation efforts on customers that use potable water for turf irrigation. Studies have determined that most irrigation systems apply more water than is required to maintain an attractive landscape. Research also shows the greatest reductions in water use are achieved by focusing on outdoor water use. Irrigation-only customers that improve the efficiency of their sprinkler systems and landscape with materials that require less water will be rewarded under the proposed irrigation-only water rate.
- Recommended residential alternatives do not include an increase in the monthly base charge. That will result in a greater percentage of each customer's bill being based on their water use. With the proposed residential rates, customers will have more incentive to conserve water.
- Proposed usage charges in Tiers 1 and 2 are similar to amounts currently assessed by the District. The additional revenue required to reflect cost-of-service for the residential customer category is generated through higher usage charges in Tiers 3 and 4. Customers with higher summer water use bear the burden of the recommended cost-of-service adjustment. Those customers will have a greater incentive to conserve water through reductions in their outdoor water use.
- Proposed tiered water rates for residential customers have a larger dollar amount between tiers than the existing residential rate. With proposed residential rate tiers, customers will have a better understanding of the consequences of higher water use.
- Proposed residential rates reduce the lower range of Tier 4 from 60,000 gallons to 30,000 gallons. With that reduction, many more customers will be subject to the higher usage charge associated with Tier 4. That will provide incentive for more customers to reduce their outdoor water use to avoid Tier 4 usage charges.
- Proposed residential rates reduce the lower range of Tier 2 from 6,000 gallons to 5,000 gallons. With that reduction, more customers will have incentive to reduce their indoor water use during winter months to avoid the higher usage charge associated with Tier 2.

Chapter 8 • Conclusions and Recommendations

The discussion presented in this report provides a summary of the rate analyses performed on behalf of Little Thompson Water District. Water rates developed in this rate study eliminate inequities between customer categories, fund ongoing operations and planned capital improvements, promote revenue stability and encourage water conservation.

Recommendations

The following recommendations are offered as a result of the analyses described in this report:

- For billing purposes, create a new customer category for irrigation-only customers that separate them from non-residential customers.

- Implement cost-of-service rate adjustments that decrease revenue collected from non-residential customers by 23.33%. Implement cost-of-service rate adjustments that decrease revenue collected from irrigation-only customers by 1.41%. Recover the decrease in revenue resulting from cost-of-service adjustments for non-residential and irrigation-only customers by increasing residential water rates 4.98%.

- Adopt by resolution the following water rates developed in analysis: Alternative #3 for the residential customer category and Alternative #2 uniform water rates for the non-residential and irrigation-only customer categories.

- Develop a customer information program that alerts residential customers to the financial consequences associated with tiered water rates. A tiered rate structure by itself will not necessarily produce the desired conservation savings, simply because the vast majority of customers do not understand rates and do not have any idea that the more they use, the higher the usage charge.

- Some reduction in the water use of large residential customers is anticipated and built in to tiered usage charges. The District should carefully monitor revenues and water use within tiers to gauge the impact of any new tiered residential water rates. By analyzing customers' response to new tiered rates, the District may determine that it can be more strategic in establishing usage blocks that increase customer awareness and encourage water conservation.

- Independently audit bills after implementation of rate changes to insure the utility billing system generates the correct charges for all customers.

- Update the cost-of-service analysis every three to five years or whenever significant changes to the water enterprise budget occur. Changes in the makeup of customers, revisions in the cost and timing of capital projects, and changes in water use patterns may alter the District's cost-of-service.

Appendix 'A' • Public Notice and Customer Comments

A draft of this report was available for public review and comment between October 11 and December 11, 2012, a period of 60 days. Two customers submitted comments during the public comment period. Those comments are summarized below.

The notification published by the District soliciting customers' comments is shown on the following page.

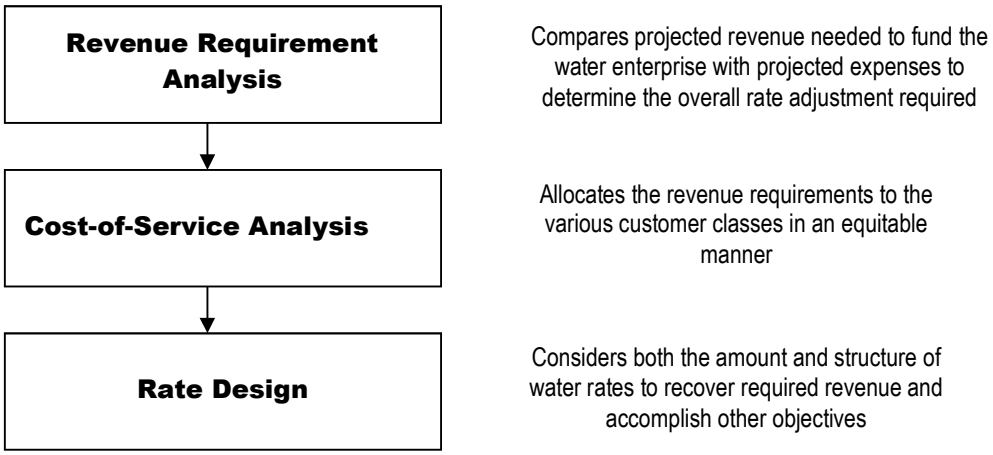
S. Lundt; Loveland, Colorado – Inquired whether the proposed rate alternatives, if implemented, would be retroactive back to 2012 water usage. The customer was informed that any rate adjustment would not be retroactive.

Te Velde Holsteins; Loveland, Colorado – A representative from this agricultural customer said that he would like to see commercial rates adjusted downward as proposed in the draft rate study.

LITTLE THOMPSON WATER DISTRICT
2012 Water Rate Study

This year the Little Thompson Water District was awarded a water rate study grant by the Colorado Water Conservation Board (CWCB). The District has retained Water Consulting Group, Inc. to conduct a comprehensive water rate study. The rate study was authorized to determine the adequacy of existing water rates and provide projections for future rate adjustments. Water rates must be adequate to fund all anticipated costs for operation and maintenance, administration, capital improvements, renewal and replacement of water infrastructure, debt service, engineering design, and encourage water conservation.

Although rates have been adjusted periodically, the last time the District's water rate structure was evaluated was in 2005. The need to review the water rates structure was identified in the District Water Conservation Plan completed in 2012. The following approach was used for the rate study which was based upon industry standards:



Prior to finalization of the water rate study, the District welcomes input from its residents. The District shall have a 60-day public review period beginning the date of this notice through December 11, 2012. A complete copy is on file and available for public review at the District office, 835 East Highway 56, Berthoud, CO 80513, during regular business hours. The District will also post the plan on its website at www.ltwd.org.

All written comments are due to Erik Anglund, Water Resource Engineer, prior to December 11, 2012 and may be mailed to or be dropped off at the District office at 835 East Highway 56, Berthoud, CO 80513.