CITY OF LOVELAND
DEPARTMENT OF WATER AND POWER
SERVICE CENTER
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TO: Kevin Reidy
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, CO 80203

FROM: Stephen C. Adams
Director, Loveland Water and Power

DATE: July 16, 2013

SUBJECT: City of Loveland, Updated Water Conservation Plan

Dear Mr. Reidy,

The City of Loveland has completed the final draft of its Water Conservation Plan. This letter includes the Cover Letter Submittal Requirements for Colorado Water Conservation Board (CWCB) review and approval of our Water Conservation Plan.

Name and contact information for the City of Loveland:

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Organizations and individuals that assisted in plan development:

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Great Western Institute
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Swarthmore, PA 19081
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The City of Loveland would like to extend our appreciation to the Governors Energy Office (GEO) through Symbiotic Engineering, LLC for providing the generous funds making the partnership with Great Western Institute possible. The City of Loveland would also like to acknowledge the CWCB's for their guidance and input during the Plan development process.

Table 1 - Summary of Billed Water by Customer Category:

	Billed Water (million gallons)						
	Residential		Commercial				Total
Year	Inside City	Outside City	Inside City	Outside City	City Use	Other Uses	
2008	2,968	141	590	18	69	83	3,869
2009	2,516	120	510	15	56	44	3,261
2010	2,816	134	538	16	68	37	3,609
2011	2,875	134	573	17	71	33	3,703
2012	2,723	149	639	17	76	25	3,629

Table 2 - Summary of Population Served:

Year	Approximate Population Served
2008	64,690
2009	66,132
2010	66,572
2011	67,455
2012	68,825

Public review and comment information:

The Updated Water Conservation Plan underwent review by the City staff, City management and the public during the past months. After staff review and editing, staff presented the Final Draft Plan to the Loveland Utilities Commission (LUC) on February 20, 2013. Public review and comment was invited from February 21 to April 21, 2013, during which time staff presented the Final Draft Plan to the City Management Team (on April 4, 2013). Once the public comment period closed, staff presented the Plan to the Loveland Construction Advisory Board (CAB), LUC and City Council. City Council reviewed the Plan at its May 14, 2013 study session meeting and provided a unanimous final approval on June 4, 2013.

Copies of the Final Draft Plan were made available for public review at City Hall, the Loveland Public Library and the Water Utility Offices. Appendix D contains copies of the public notices used by the City to advertise the public comment period. No public comments were received as a result of the notice.

We look forward to the CWCB's review and further implementation of wise use of water as outlined in this Plan.

Sincerely,

Stephen C. Adams
Director, Loveland Water and Power

Attachment: City of Loveland, Updated Water Conservation Plan; dated July, 2013.

City of Loveland

Updated Water Conservation Plan

FINAL PLAN
July 2013

Prepared by: GREAT WESTERN INSTITUTE
Formerly of Littleton, CO
through a generous grant from the Governors Energy Office (GEO) through Symbiotic Engineering, LLC. Boulder, CO

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Foreword

Loveland Water and Power has a long history of promoting the responsible use of water in the community, since water is a precious resource in this semi-arid region of the Western United States. The City has long utilized multiple tools to ensure that its citizens and customers are provided with safe and sufficient water supplies now and for future generations. To this point, the City and its citizens have long shared an enlightened relationship, whereby the City's customers understand and value the importance of a reliable and sustainable water supply, and together the utility and the local citizenry work to manage this precious resource responsibly and with mindfulness.

The City of Loveland's Water Utility has been delivering drinking water to customers in and near Loveland since 1887. Today, the Water Utility is part of the Department of Water and Power and serves water to a population of over 65,000 with a service territory of an estimated 30.8 square miles. Since 1990, the City has seen an increase of nearly 35% in the population served by the utility, which is consistent with the population boom experienced by much of the north Front Range. However, the City and its customers have been able to work together to limit water restriction practices that many other Front Range communities needed to implement during the 2002 and 2003 drought when water supplies became short. Since the drought, the City has been able to limit water demand increases through messaging with its engaged citizenry.

As with other Colorado Front Range communities, the City expects to realize growth and increased water demands over the coming decade. Although the City maintains a diversified water rights portfolio that will meet the needs of the growing community, the current infrastructure has limits that will require expansion and improvement to meet the predicted increases in peak day demands and average annual water delivery and wastewater treatment. In addition, the City is responsible to its customers to provide water supplies, both treated water and raw water, reliably and cost effectively. Therefore, the City has a number of reasons to guide and support customer water use efficiency during the coming years.

The City's water conservation planning effort, which is documented in this report, focuses on assisting future water use efficiency within the utility's service area by:

- Managing City water use both indoor and outdoor;
- Identifying and implementing measures and programs that are expected to reduce summertime peak day water demand; and
- Assisting customers that wish to improve their water use efficiency.

Overall, the City recognizes that it is a combination of its actions and the actions and behaviors of its customers that will determine whether or not the water conservation measures and programs presented in this Plan are successful. Therefore, the City is committed to implementing those efforts that will support the long-term sustainability and efficacy of the utility to provide affordable, reliable water to its customers in a manner that the City's citizenry justifiably depends upon. The City has prepared this Water Conservation Plan in adherence to the prevailing state statutory requirements according to Colorado's Water Conservation Act of 2004 (HB 1365).

Section 1
Overview of the City's Water System

The City of Loveland was incorporated in the 1880s, and has been acquiring and administering water rights ever since. The City began acquiring water rights to use water in the Big Thompson River. Some water rights were purchased outright or filed on the river by the City, while others were dedicated to the City. Early transfers of the No. 1 priority on the Big Thompson River and domestic rights diverted at the Loveland pipeline form the base of the City's water rights. Early plats of the City's annexation show dedication of water rights which were appurtenant to the land becoming part of the City. In 1960, the City began formally requiring dedication of water rights prior to development. The City has historically accepted native ditch shares/inches, Colorado-Big Thompson Project water and cash-in-lieu of water rights to satisfy raw water requirements for development. The city owns about 12,000 units of the CBT Project. The City was also one of the original "Six Cities" to invest in the Windy Gap Project. None of Loveland's water supply comes from groundwater. Its sources are renewed each year with snow melt and rain.

Currently, the City has a firm yield[1] of approximately 24,590 acre feet (AF) per year, with another 2,800 AF expected as part of the Windy Gap Firming project. In current years, the greatest annual demand for a combination of potable and non-potable[2] water by the community served by the City's water utility was about 14,300 AF in 2006. Table 1 summarizes the water demand and approximate population served in recent years within the City's service area (which is shown in Figure 1).

Table 1 – Summary of Population Served and Treated Water Demand - 2005 to 2011

Year	Approximate Population Served[3]	Treated Water Demand (AF)
2005	60,157	12,040
2006	61,098	14,309
2007	63,025	13,636
2008	64,690	13,652
2009	66,132	11,773
2010	66,572	12,752
2011	67,455	13,284

Note that the City's population has increased each year since 2005; however water demand peaked in 2006, and has maintained a slight downward trend since. Figure 2 further illustrates this observation.

[1] Firm yield is based on the yield of the City's water rights portfolio in conditions equivalent to a 100-year drought.
[2] Currently, the City only has water demand that is for treated water. In the future, raw water use may be used to irrigate municipal facilities and other large areas of turf, as deemed appropriate.
[3] From the "Annual Data and Assumptions Report – January 1, 2011 by City of Loveland Community and Strategic Planning.

Figure 1 - City of Loveland Water Service Area

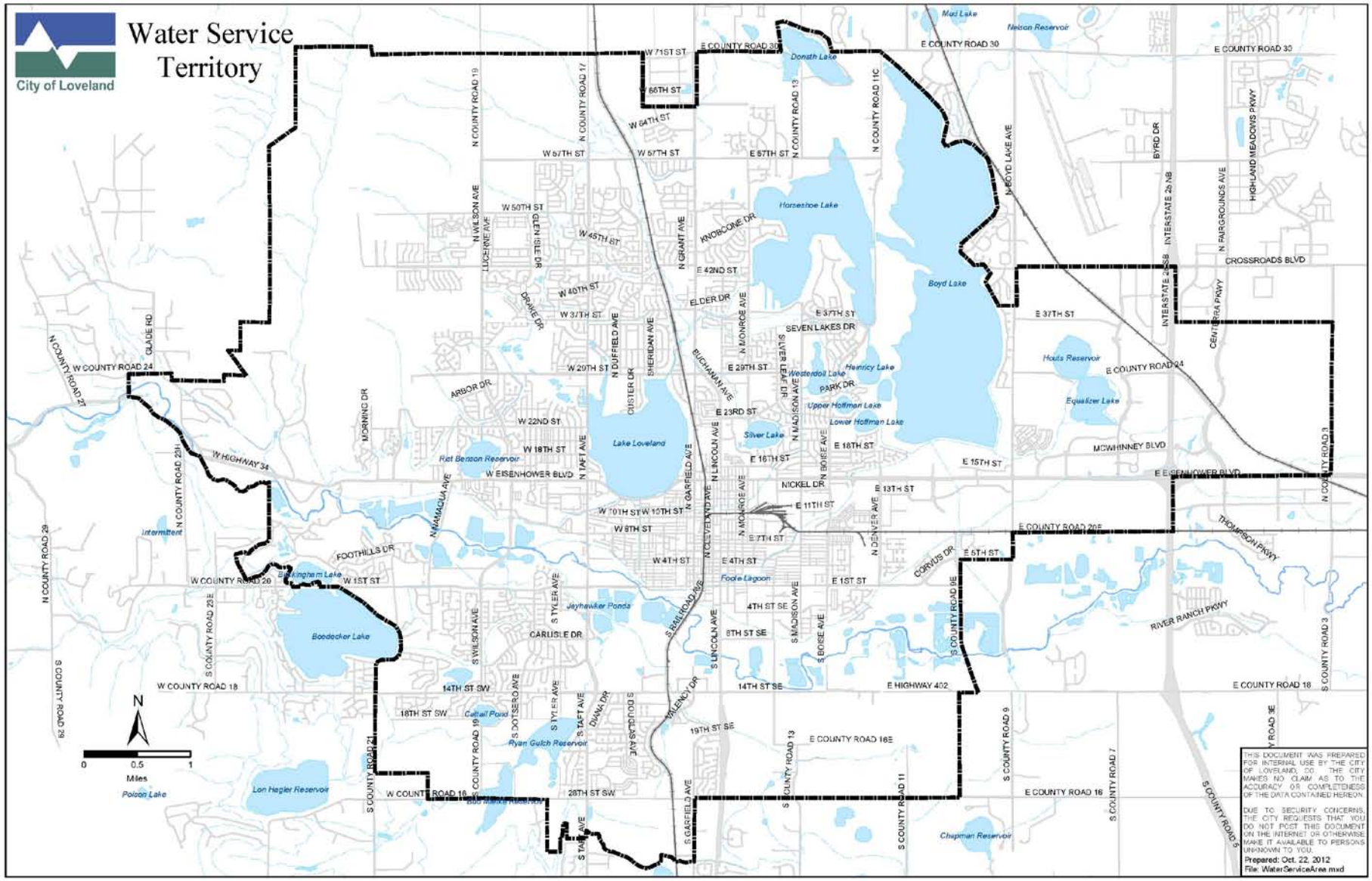
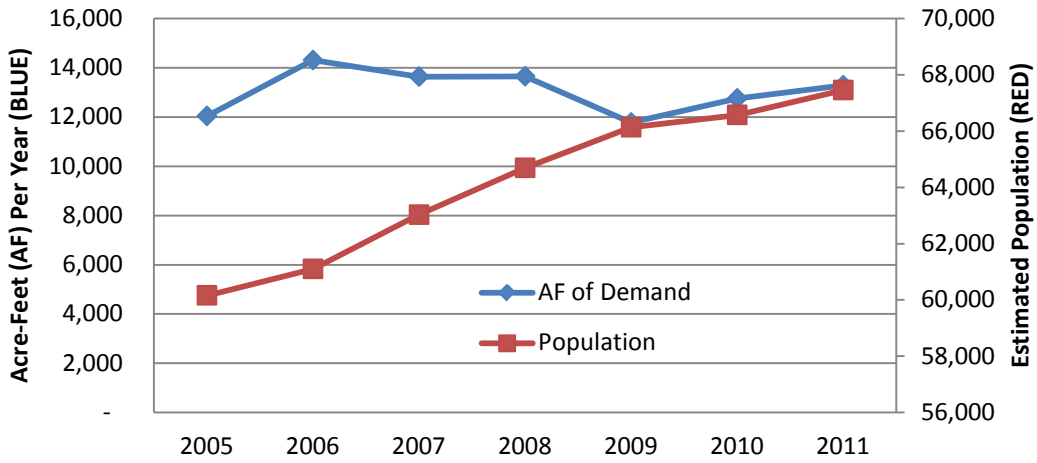


Figure 2 - Population Served and Total Treated Water Demand 2005 to 2011



The City currently provides water to approximately 24,650 connections or accounts for commercial and residential customers, including connections for customers both inside and outside of the City limits. Table 2 presents a summary of the type and number of water customers currently in water service.

Table 2 – Summary of City Water Customers[4] – August 2011

Customer Type	Number of Connections	% of Total Connections
Residential		
Inside City Limits		***89.9%***
Single Family	20,911	
Multi-Family	1,245	
Outside City Limits		***3.7%***
Single Family	866	
Multi-Family	40	
Special Base	14	
Irrigation Only		***1.4%***
Inside City Limits	346	
Outside City Limits	5	
Commercial		***4.7%***
Inside City Limits	1,069	
Outside City Limits	86	
City Uses (Inside City Limits)	71	***0.3%***
Total	24,653	***100%***

[4] The City also has water use tracked related to hydrant use (for construction), construction water use, and through an interconnect with the Little Thompson Water District. These customers are tracked separately from those summarized in Table 2.

Table 3 provides a summary of billed water demand for each of the City's customer categories for the period from 2005 to 2011. An explanation of the customer categories used in this table is provided below.

Residential – These two categories (Inside and Outside City Limits) include combined single family and multifamily uses, as well as irrigation only demand, since the City did not differentiate these uses until 2008. After 2008, the City maintained different customer categories for single family and multifamily uses, as well as irrigation only taps for residential customers.

Commercial – These two categories (Inside and Outside City Limits) include all commercial uses, including special base customers.

City Uses – This category include all City facilities that are currently metered – both for indoor and outdoor use. Note that a small number of City facilities are currently unmetered, and that this water use is currently tracked as non-revenue water.

Other Uses – This customer category tracks the water use related to industrial water use and water transferred to (and from) the Little Thompson Water District as wholesale water. Note that the City has not had customers tracked within the industrial customer category since 2007 when the water rate structure provided incentives for these customers to change to the commercial customer category. Therefore, post-2007 "Other Water Use" only includes wholesale transfers to (and from) Little Thompson Water District[5].

Ranch – The City maintains a stand pipe at its Utility Maintenance Facility that can be used by any customer via pre-paid credit cards at a rate of $1.00 per 300 gallons. Water obtained from the stand-pipe has been used for watering livestock, dust suppression, and other local uses. All water delivered through the stand pipe is metered and billed.

Hydrant – The City also maintains a hydrant water use system, which is also a "pay as you go" program typically used to support construction contractors. The permit to use hydrants for construction water includes meter rental and a security deposit on the meter, as well as billed water use at the rate of $1.00 per 300 gallons. Most water delivered through this program is metered and billed[6].

Non-Revenue Water – This category of water use tracks the difference between treated water produced by the City and total water sold. The difference between these two

[5] This is the net amount of water purchased wholesale from Little Thompson Water District. Whichever entity received a net of positive water into their service area has to transfer Colorado Big Thompson shares to these uses, as well as pay the treated water charge.

[6] The actual amount of hydrant water being delivered by the City could be characterized by a system wide water audit.

Table 3 – Summary of Billed Water By Customer Category

	Billed Water (1000s Gallons)								Total Billed	Total Non-Revenue	Total Demand	
	Residential		Commercial									
Year	Inside City	Outside City	Inside City	Outside City	City Use	Other Uses	Hydrant	Ranch			(1000 gallons)	Acre-Feet
2005	2,623,544	133,597	466,292	21,020	53,628	93,248	4,610	97,001	3,492,940	430,360	3,923,300	12,040
2006	3,186,549	150,123	517,424	22,288	68,868	101,227	5,102	123,473	4,175,054	487,646	4,662,700	14,309
2007	2,989,778	139,242	515,274	20,981	68,262	54,810	3,683	53,921	3,845,950	597,250	4,443,200	13,636
2008	2,967,702	140,831	590,295	18,266	69,194	5	4,033	78,957	3,869,283	579,317	4,448,600	13,652
2009	2,516,008	120,300	510,429	14,786	56,127	0	3,166	41,004	3,261,820	574,580	3,836,400	11,773
2010	2,816,305	133,651	538,454	16,429	68,156	1,295	3,707	32,669	3,610,666	544,734	4,155,400	12,752
2011	2,875,155	134,224	572,683	16,680	71,316	1,221	3,584	27,905	3,702,767	625,956	4,328,723	13,284

accountings of water is considered as non-revenue water based on standards set forth by the American Water Works Association[7]. Non-revenue water includes real and apparent losses. Real losses are water that is lost due to leaks; whereas apparent losses are due to unauthorized uses, metering inaccuracies, and unmetered uses and/or metered and unbilled uses. Non-revenue water is further described below.

Water Supply Limitations

As previously indicated, the City has a robust water rights portfolio that has been developed over the past 130 plus years. The firm yield that exists as a result of the City's diligence is adequate to provide for current demands even within the 100 year drought.

Between 1986 and 1988 the City initiated work on a two-phase drought study using the services of the engineering firm of Camp, Dresser & McKee, Inc. Phase I of the study contained a recommendation that the City prepare to meet its full demands during a drought event with an average recurrence of 1-in-100 years, which translates into a 1% chance that in any year the City could not meet demands without curtailment. Council accepted Phase I the report, including the recommendation, on October 7, 1986, and the 1-in-100 year level of drought protection remains the goal for the City's raw water supply planning.

This planning policy requires developing sufficient supplies to meet the City's full water demand during the 1-in-100 year drought without water use restrictions. The LUC and City Council reaffirmed this policy as part of the approval process for the original Raw Water Master Plan in 2005 and the update in 2012.

However, the City's infrastructure currently limits the amount of treated water that can be delivered for potable use to the City's customers at 30 million gallons a day (mgd). Although the treatment capacity is adequate to meet average daily demands, summer peak day demands have exceeded 27 mgd in the past three years[8], and are expected to increase as population grows and summertime demands increase.

The City has plans to expand the treatment plant capacity by 8 mgd over the current planning horizon. The timing and cost of the water treatment plant expansion will be discussed in later sections of this Plan.

Noteworthy is that the City maintains an interconnect with the Little Thompson Water District, which allows treated water to pass between the service area of the two entities on an as-needed basis. This interconnect may support peak daily water demands in excess of the City's current treatment capacity, if needed, until the treatment plant expansion can be constructed.

[7] AWWA Manual M-36 defines standard practices for water loss control and management for water utilities.
[8] Water use data for this report covers monthly and daily use from 2005 to 2011.

The City's wastewater treatment plant capacity may also limit current treated water deliveries, since indoor water use requires wastewater treatment to capture grey and black water for cleansing before it is returned to local receiving waters.

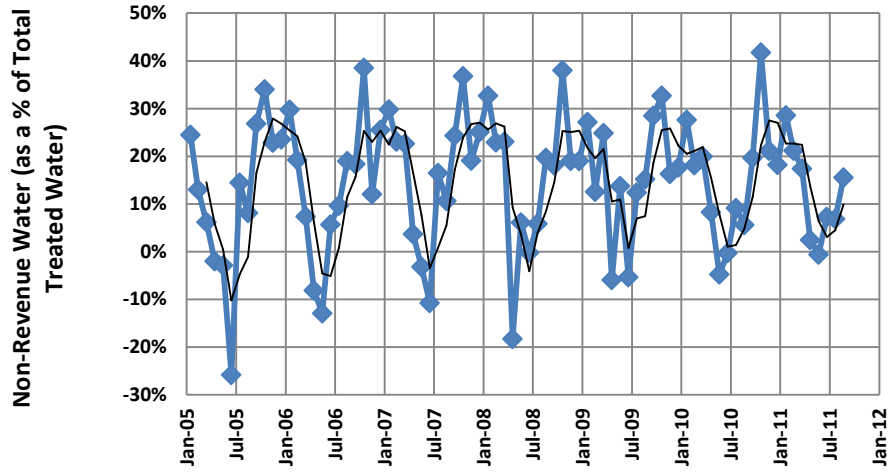
Water Reuse in the City

The City has limited opportunities for reusing treated wastewater since a substantial portion of the City's water portfolio is direct diversions from east slope supplies or Colorado Big Thompson water, which cannot be reused. A portion of the City's water portfolio does include some reusable supply from its reservoirs and some Windy Gap allocations. However, reusing these water sources reduces overall firm yield, so the City does not practice reuse in its normal operations.

Non-Revenue Water

Based on those data presented in Table 3, the City has an average non-revenue water of about 14%[9], dating back to 2008 when it recategorized its customers into those categories that it currently uses. Non-revenue water changes monthly and appears to vary seasonally, as depicted in Figure 3. The reason for this seasonality is unclear; however, it appears that in late-spring/early-summer each year non-revenue water is calculated to be negative. This trend has been reduced each year since 2005, as evidenced by the 3-month rolling average which is positive in 2009, 2010 and 2011. Given that the City has 23 different billing cycles, it is recommended that the City perform a system wide audit of its water accounting practices to identify the potential sources of the non-revenue water seasonality.

Figure 3 - Monthly Non-Revenue Water (January 2005 to December 2011) with Three Monthly Rolling Average



Note: The definition of non-revenue water is as defined by the American Water Works Association Water Audits and Loss Control Programs (M-36)

[9] Non-revenue water has ranged from 13 to 14.9% annually since 2008.

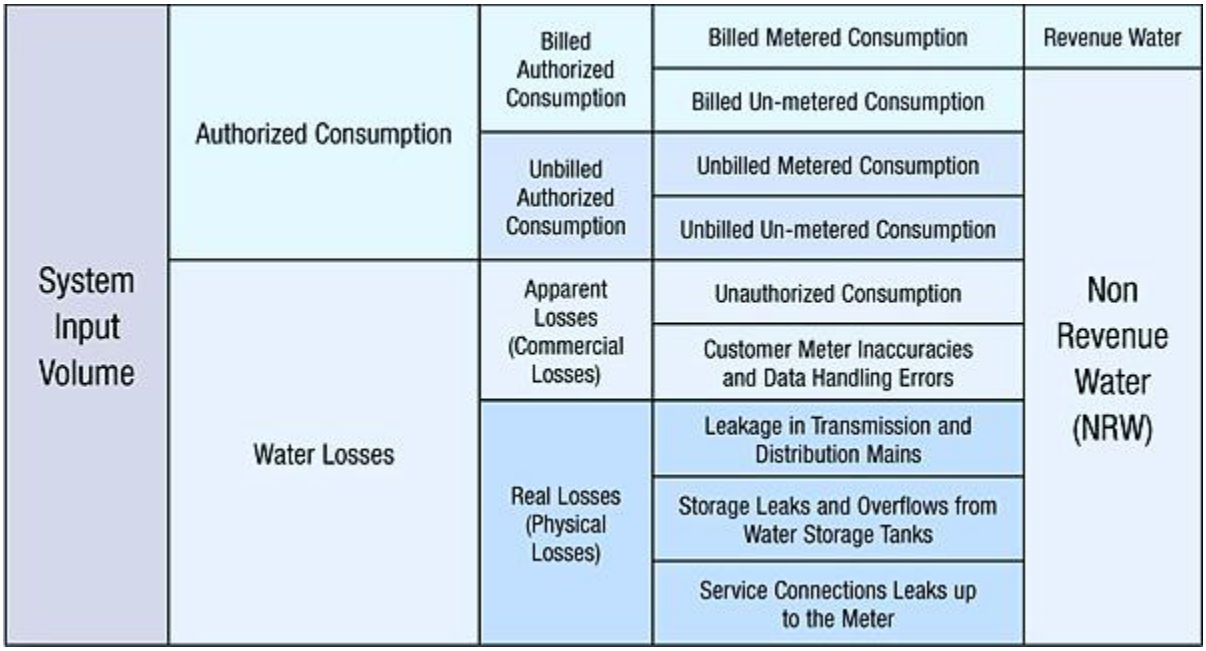
Non-revenue water, which can be segregated into several different "accounts" as depicted in Figure 4, is expected to consist of the following components for the City.

Unbilled Authorized Consumption – associated with unmetered, authorized water uses such as may be occurring in a small number of City parks; and metered, but unbilled water uses such as may be occurring at the water and/or wastewater treatment plants, or with some unactive water accounts that may be using water (not as water theft but through billing program and/or accounting glitches, for example).

Apparent water loss – associated with inaccurate and malfunctioning meters and with unauthorized water uses (i.e., water theft).

Real water loss – associated with detected and repaired and undetected transmission line, distribution system, and service line leaks on the supply side of customer meters. Leaks on the demand side of customer meters are not included in the accounting of non-revenue water.

Figure 4 – Overview of Treated Water Accounts As Defined by AWWA M-36



It is likely that a portion of the City's current 14% non-revenue water includes untracked authorized uses within City facilities and at City parks - albeit a small amount, this may be a significant (i.e., measurable) use. The City may also have a small number of inaccurate water meters installed on customer taps, or minor billing and/or accounting glitches that are included in the 14% of non-revenue water. Future water conservation programs that the City will be considering will include a formal audit of the City's meter testing, and accounting systems, and a review of all water use at City facilities.

Meter Testing and Replacement Policies and Procedures

In July 1979, the Loveland City Council approved an ordinance requiring water meters for all new construction and for existing homes when ownership changed hands. Before that time, the City only required meters for commercial accounts within the City and for all accounts served outside the City limits. Less than a year later, June 1980, the council passed another ordinance requiring meters for all water customers.

By 1981, the City was the first municipality in the state to be completely metered, at a cost of over $3 million. The average annual water usage declined by 20 percent. Before metering, the water treatment plant's maximum day demand was 22 million gallons per day. After metering, the maximum day demand was 16.7 million gallons per day (City of Loveland, 1989). On a per capita basis, these reductions remain reflective in today's uses.

Since being fully metered in 1981, the City has maintained an aggressive meter testing and replacement program. This program involves annual testing of most meters that are 1 ½ inch or greater in service in the City (see Table 4 for an inventory of meter types and sizes currently maintained by the City). The City tested 420 meters last year, 400 meters in 2011 and 516 in 2010. Meters that are subjected to testing are evaluated for accuracy and either replaced or repaired to restore meter accuracy and maintain the accuracy of City water billings.

Table 4 – Current Inventory of Meters Maintained by the City (February 2013)

Meter Size (inches)	Count
0.75	23,616
1	729
1.25	1
1.5	375
2	274
3	56
4	27
6	7
8	1

Meters that are less than 1 ½ inch are tested and/or replaced on an as needed basis based on bringing into service new customers, observed meter damage, or observed losses in meter accuracy detected by meter readers and/or utility billing services.

A limited number of new meters installed for large water use customers have included automated meter reading (AMR) technology to allow for remote data collection (e.g., drive by) of water use. Expansion of the AMR program may be considered by the City as part of the Water Conservation Plan implementation. All of the meters in the City are currently read manually by meter readers on a monthly basis. Expansion

of the AMR program may help reduce the City's lost time injuries incurred by its meter reading work force, due to slips, trips, falls and dog and insect bites (for example).

Water Rates and Billings

The City maintains a comprehensive water use billing program that provides for different rates for each of its different customer categories. The rates include a base fee and a water use fee. Overall, the City maintains a water rate structure that is designed to create revenue to cover both its fixed and variable expenses – with the base fee covering the fixed expenses and the use fee covering the variable expenses. In this way, the City has more predicable revenue generation based on actual operating costs (see Appendix A for details).

In 1887, the Water Utility established a flat annual billing rate, based on the type of dwelling and the number of fixtures. Customers paid the yearly fee in advance. Until 1968, water rates were based on a flat fee determined by fixture counts. Keeping track of the number of bathrooms and toilet fixtures in homes as the City grew became increasingly difficult, and in July 1968, the City developed a flat rate charge per family based upon average water usage. Since the installation of meters in 1981, the monthly billing has reflected actual water use, and uses a uniform rate for residential customers.

In 1989 City Council approved a series of rate increases that specified water rates from 1990 to 1997. A portion of the revenues from these rate increases allowed Loveland to purchase additional CBT units, cash fund the Green Ridge Glade Reservoir expansion, and set aside money to pay off the City's obligation in the original Windy Gap Project. In 2001, once the specific needs for the rate increases were met, the City lowered rates by 33 percent. Rates are set periodically using a cost of service methodology, meaning that the rates are designed to reflect as closely as possible the real cost of providing water service to customers.

The City bills its customers for water monthly, except for those water users that utilize "ranch" and "hydrant" water sources. These two water services are provided on an as-needed "pay as you go" basis using pre-paid credit cards and use fees.

The City maintains a couple of noteworthy incentive programs within its rate structure to support water use efficiency. The first is the City's excess water use surcharge that it accesses to commercial accounts that exceed a specific individual base amount of annual water use. This fee is accessed to aid in recovering the cost of replacement water for those large water users.

The second is the City's impact fee credit for irrigation only taps that take advantage of native plantings and other outdoor water use efficiency practices to reduce the tap size required to serve the property, as well as the water right dedication or raw water requirement. The City has been piloting the efficacy of

native plantings to reduce expected irrigation water requirements in various settings such as at the Medical Center of the Rockies[10].

The City conducts water rate studies to correctly and fairly price its water and services, on a three to five year cycle. A water rate study was just finished in 2012, with another planned for 2015. Additional water rates evaluations including a conservation oriented rate structure, post-2015, will be considered for inclusion in the implementation of this Plan.

Leak Detection and Repair

The City has maintained a proactive leak detection program for many years. Currently, the City has implemented an acoustic emissions program that detects distribution system leaks between adjacent valves. In 2011, the City had a goal of testing 50 miles of pipe; however, the number of leaks that surfaced during this time diverted staff from finding leaks to fixing leaks. Nonetheless, the technology detected 6 leaks in 2011 that had not surfaced, saving an estimated 310,000 gallons per day (gpd) in water losses (and another 2 leaks in 2012 saving an additional 130,000 gpd).

Despite the City efforts, the number of leaks being detected and fixed by the City in recent years (and the related water loss) has been increasing, as illustrated in Table 5. Based on these data, the repairs conducted by the City have reduced water loss by approximately 42 million gallons in the past 4 years. This represents about 1% of the City's total treated water demand or about 7% of the City's non-revenue water in 2011 (not including the found leaks listed above).

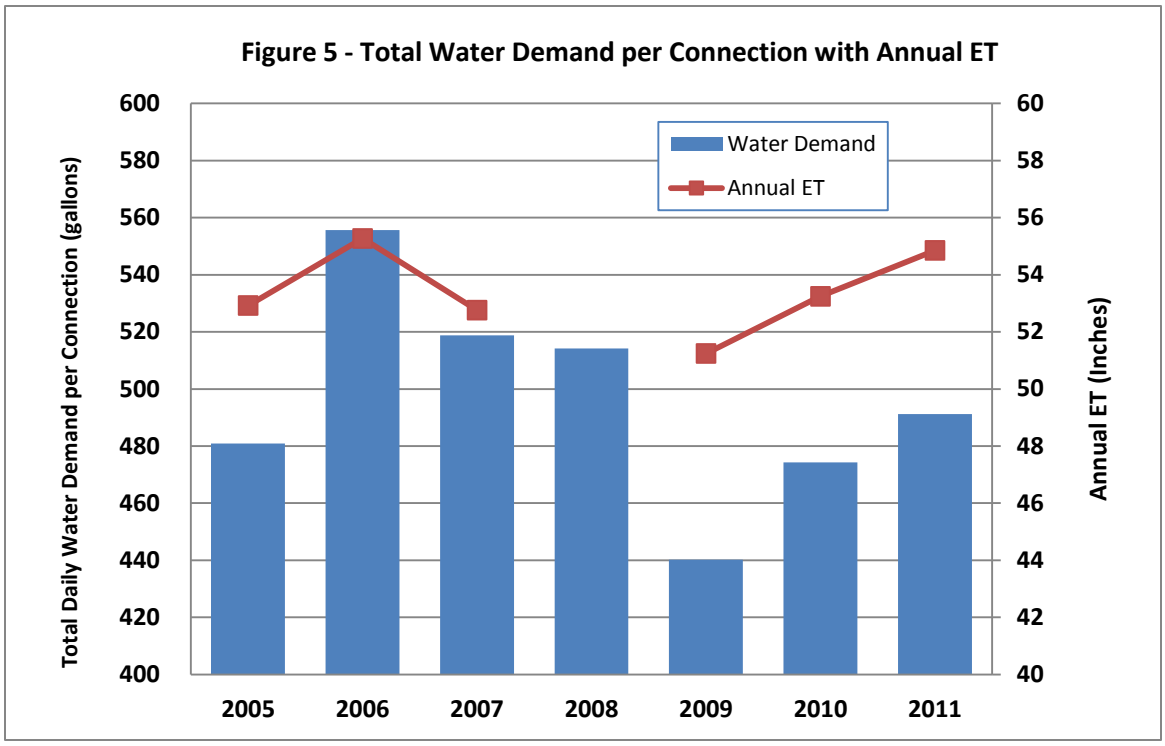
Table 5- Summary of Leaks Detected and Repaired by the City

	2007	2008	2009	2010	2011	2012
Number of Leaks	**73**	**62**	**61**	**62**	**100**	**76**
Estimated Losses (millions of gallons)	**n/a**	**6.2**	**3.1**	**8.9**	**23.9**	

[10] The pilot program has involved the installation of multiple hydrozones to evaluate Xeric landscape in various settings including boundary landscapes, parking lot islands, heliport landing area, etc.

Section 2
Past Water Use Trends and Ongoing Conservation Programs

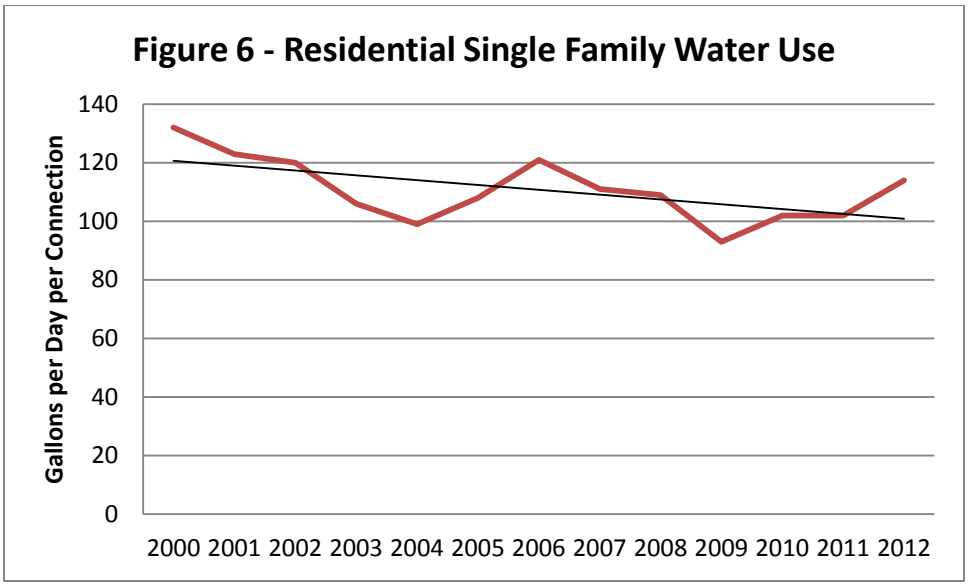
As previously indicated, the City's total water demand has not increased in relation to the City's population, as illustrated in Figure 2. Figure 5 presents the change in per connection water use observed over the past 7 years. Figure 5 also presents the observed evapotranspiration for the years 2008 through 2011[11]. As can be seen in Figure 5, total water demand per connection correlates well to annual ET – meaning that total demand is substantially influenced by outdoor irrigation needs of the community based on prevailing weather conditions (i.e., precipitation, wind and temperature).



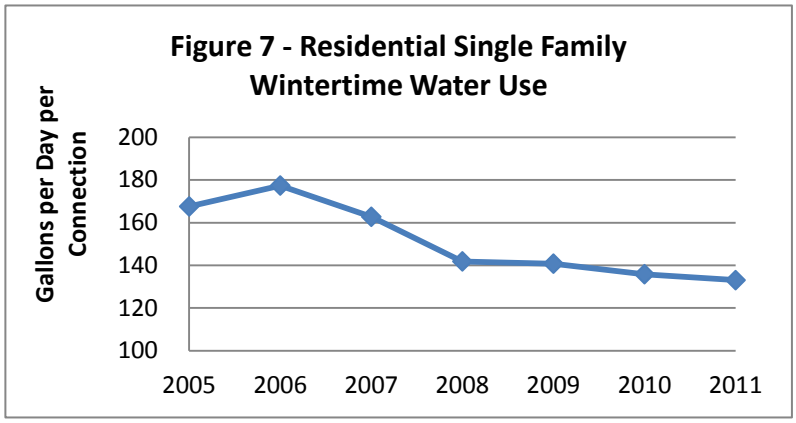
ET- evapotranspiration

Figure 6 demonstrates the observed water use of a residential single family over the last twelve years. While use varies slightly from year to year, overall gallons per capita day demonstrates a downward trend.

[11] ET for Alfalfa is based on weather data maintained by Northern Water for the Loveland station at http://www.northernwater.org/WaterConservation/WeatherandETData.aspx.



This downward trend can further be demonstrated in indoor water use within the City, which is illustrated in Figure 7. Figure 7 presents the daily water use by single family residential connection for the winter months only. This figure indicates that since 2006, average daily water use in the winter has dropped. Noteworthy is that starting in 2008, the residential water use category was revised, segregating single family from multifamily accounts. For this reason, the observed drop from 2007 to 2008 shown in Figure 7 may not be a result of true indoor water savings. However, since 2008, average daily indoor water use for single family residential customers has dropped by 6%.



The 6% drop in residential wintertime per connection use correlates well to expected passive savings that were reported by the CWCB (2010). Specifically, passive savings are those water demand reductions that have occurred, and will continue to occur, as a result of new technology in appliances and fixtures improving customer water use efficiency independent of local water conservation programs conducted by water providers. Residential customer toilets, dishwashers, and clothes washing machines have become substantially more water efficient, and as customers replace aging and broken appliances and fixtures, passive savings have, and will continue to occur organically within the water utility's service area. To this

end, the City has and is expected to continue to see average indoor residential demand decrease into the future as more customers replace and upgrade toilets, dishwashers and clothes washing machines.

Ongoing Water Conservation Programs

In light of this trend in indoor water demand reductions, the City supports and promotes local water conservation using the following programs – which are generally focused on reducing outdoor irrigation requirements for its customers.

- **Educational programs** – the City's educational programs include producing and distributing flyers and informational materials, maintaining an informational website, public events, and maintaining two demonstration Xeriscape gardens: one at the downtown Civic Center and another at the City Service Center.
- **Outdoor residential irrigation audits** (AKA, Slow the Flow) – the City supports the Center for Resource Conservation (CRC) Slow the Flow audits at 70 to 75 individual residents each year.
- **Commercial customer energy audits** (through the Energy-Water Efficiency Express) – the City provides financial support to this program. As a result, Efficiency Express installs low flow faucet aerators and pre-rinse spray nozzles in conjunction with energy audits that it conducts.
- **Garden-in–a-Box** residential Xeriscape program – The City provides between 125 and 150 discounted Garden-in-a-Box kits to local residential customers through this CRC program.
- **Hydrozoning** (and water credits) – As previously indicated, the City supports an impact fee reduction for new customers (and water rights development credits for existing customers) that utilize water efficient landscaping to reduce long-term water demand for a specific tap within the City's service area. The reduction in water demand allows for a discount to be provided with respect to the expected cost of replacement water for new construction, and a credit to be provided to existing construction. This is a new program that is currently being piloted in cooperation with the Medical Center of the Rockies.
- **Larimer County Conservation Corps, Energy and Water Program and the Home Energy Audit Program**– The City supports and offers these energy and water programs, which provides home assessments and audits to residents. These assessments and audits include replacing faucet aerators and showerheads, installing toilet dams and providing dye tablets to test for leaking toilets. These programs reach about 400 homes each year.

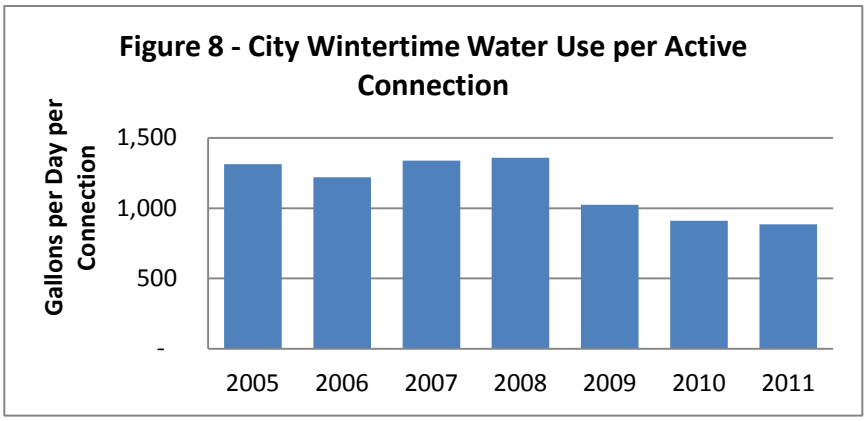
As another example, the City also has water waste ordinance as follows:

> **City of Loveland Municipal Code 13.04.170 Wasting water.**
> Consumers shall prevent unnecessary waste of water and keep all water outlets closed when not in actual use. Hydrants, urinals, water closets, and other fixtures, must be kept in repair so that they will not cause unnecessary waste of water. The supplying of water may be discontinued for any violation of this section. (Ord. 997 § 6, 1968; prior code § 13.13).

In practice, the City utilizes this ordinance to support water waste complaints filed by local customers. The City dispatches staff to investigate the complaint, and most often it is against a home owner who was unaware of their water waste issue. Once the home owner has been made aware, the problem is fixed and no additional complaint is lodged. Typically, about 3 complaints are filed a year with the utility.

City Water Use

The City uses water at about 70 to 80 different parks and facilities during the course of the year; with about 25 of the connections used year round. Indoor water use has been managed effectively by the City. This is evidenced by the consistently lower wintertime water use in City facilities, as illustrated in Figure 8.



Irrigation Plan for the Parks

Irrigation water use in the parks operated by the City includes both raw and treated water applications[12]. The majority of the irrigation water is raw water and is applied through a centralize irrigation controller system that monitors real time ET and rainfall updates, to support human judgment in the management of individual hydrozones which can be remotely operated using SCADA. Only a very small number of park facilities are without centralized irrigation controllers[13].

In 2008, the City of Loveland Parks and Recreation Department developed a detailed Irrigation Conservation Plan for most of the properties that the City irrigates. The plan (see Appendix B) provides details on each park and public space, including size, and average annual irrigation volumes. The plan also presents a four tiered irrigation program that may be implemented in case of drought and water shortages.

Integral to the City's Irrigation Plan is the understanding that application of irrigation water to the City's properties is not a one-size-fits-all program. As the Irrigation Plan states:

[12] There are 17 parks and 18 public grounds on treated water. 9 parks, 1 public ground and 3 golf courses on raw water. The large parks (LSP, Fairgrounds/Barnes, North Lake, Centennial, Kroh) are all raw water.

[13] Everything but 2 detention ponds (total of 2.3 acres) and 2 small planter beds in the Old Town are on central irrigation control.

> Several factors need to be applied when calculating actual turf watering requirements: types of grasses being irrigated (Blue Grass, Buffalo Grass, Turf Type Fescue, etc.); site conditions (shady, sunny, hillside, low area, soil type, soil compaction, etc.); site impacts (low use, high use, sports turf, green belts, etc.); safety concerns regarding recreation activities (hard playing surfaces, large cracks in the soil, bare ground, etc.); current weather conditions (evapotransporation rates, temperatures, soil moisture levels, wind, sunshine, weekly rain totals); aesthetics (public buildings, sculpture parks, planned public events, etc.).

Overall, the irrigation water used by the Parks Department is efficiently managed at all times leveraging the benefits of centralized controllers with human judgment, as conditions warrant, since Parks staff can remotely operate the irrigation systems at 98% of the park and public spaces for which the City is responsible. Noteworthy is that based on the four tiered irrigation program, Park irrigation has been used effectively by the City in the past as a drought buffer.

Data Collection and Assessment of Programs

The City does not currently conduct an assessment of the effectiveness of its water conservation programs per se[14]. The City does track total treated water production and water billings on a monthly basis, and uses this information to track non-revenue water. However, no formal data tracking program is in place to support an assessment of individual water conservation programs. The City will identify future data tracking and reporting programs that will be implemented as part of this Plan to support the assessment of individual water conservation programs, as well as maintain compliance with new state regulations (i.e., HB 11-1051).

Given that the City maintains customer categories that differentiate residential single family from multi-family water use, from commercial use, from City use, it will be fairly straightforward for the City to conduct assessments and evaluations of specific water conservation programs – especially those that focus on specific types of customers and water use.

Past Water Savings from Water Conservation

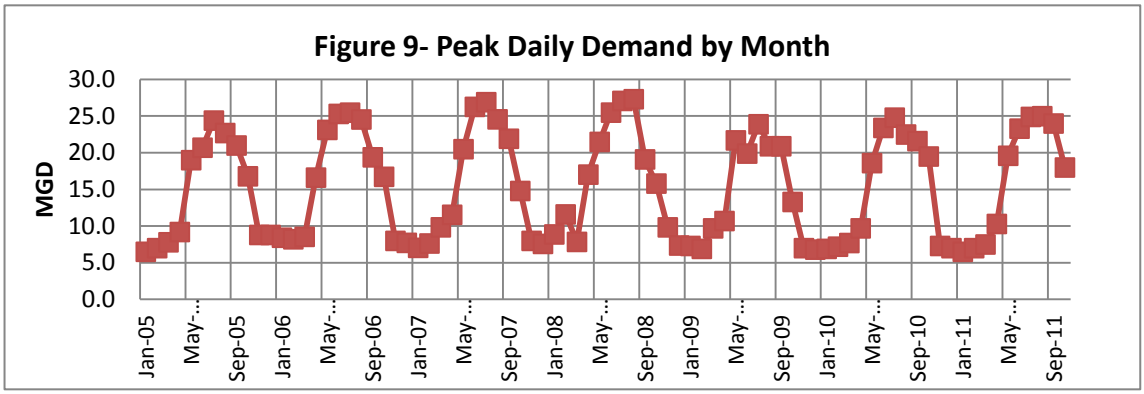
Based on the available data, it is difficult to identify specific water demand reductions that have occurred as a result of the City's programs with the exception of the City's indoor water use reductions observed between 2008 and 2011 (which is an approximate 30% reduction from 2005 and 2006 to 2011, accounting for about 8 AF annually or about 0.06% of total annual treated water demand)[15].

[14] Some tracking of water efficiency improvements is conducted as part of programs that the City supports such as the Efficiency Express, the Home Energy Audit Program and the Larimer County Conservation Corps assessment and audit programs.

[15] Outdoor irrigation conservation efforts conducted by the City were implemented in the early part of the last decade, such that water demand reductions associated with these programs likely occurred prior to the time when data used in this Plan were collected. However, since 2009, the ratio of peak day demand to total demand and to observed ET have both been reduced, perhaps indicating that some improved efficiencies have occurred with regard to summer time peak day usage.

Other City water conservation programs appear to be overshadowed by the effects of "passive savings" that are occurring organically as residential customers repair and upgrade their water using appliances and fixtures.

It does appear, based on current trends in water use, that the City's customers, including residential and commercial customers, are reducing their average water use on an annual basis. However, peak daily demand, which occurs during the heat of the summer, appears to be on the rise since 2009 (see Figure 9). This trend tracks with observed ET during this period of time (see Figure 5). Given that in the future the City will have a larger service population and the potential for variable weather conditions (which influence peak demand), future water conservation programs that the City implements will likely need to address peak daily summertime uses.



Section 3
Forecast of Future Water Demands

Forecasting water use (or water demand) is a critical part of water conservation planning since water conservation may be used to offset increases in future water demand – identified as increasing water use within specific customer categories – and/or postpone infrastructure improvements that are needed to support growing demands.

Forecasts can range from simple projections based on anticipated growth in the population to complex models using several variables to explain variations in water use. Forecasts can be made for a water system as a whole; however, forecasts are considered more accurate and valuable to water conservation planning when they are based on expected trends for each category of customers, since residential growth may not mirror commercial or institutional growth. For this reason, the demand forecasting developed for Loveland evaluated expected growth of peak daily, monthly and annual water demand for each of the City's customer types – single family residential, multi-family and commercial groups for both inside and outside of the City Limits plus City uses and pre-paid uses (i.e., Ranch and hydrants).

The potential effects of future water conservation programs that the City chooses to implement have not been included in the demand forecast prepared during this step. Demand forecasting at this point in the planning process only incorporate trends in future customer water demand based on a continuation of the current and ongoing water conservation efforts and "passive conservation" as older fixtures and appliances wear out and are replaced with models that meet current efficiency standards. A revision to the demand forecast based on implementing the conservation measures selected by the City is made later during the planning process, and is presented in Section 8.

Forecasting Method

To begin with, the forecasting methods that were developed for this planning effort focused on predicting future treated water demand based on the continuation of ongoing trends in water use and expected population growth in the City's service area.[16] The forecasting methods were used to estimate average conditions water demand, as well as above average water demand in future years[17]. A presentation of the forecast model assumptions and results are provided in Appendix C.

The specific forecast model results of interest to this Plan and related analyses include future annual treated water demands and future peak day demands, both of which are based on estimated future

[16] Data for forecasting was based on average monthly per connection water use for the period 2005 through 2011; during which time recent trends in municipal water use were established. Characterizing variability in City water demands was performed using either this entire database, or some subset as is described in the assumptions listed in Appendix C.

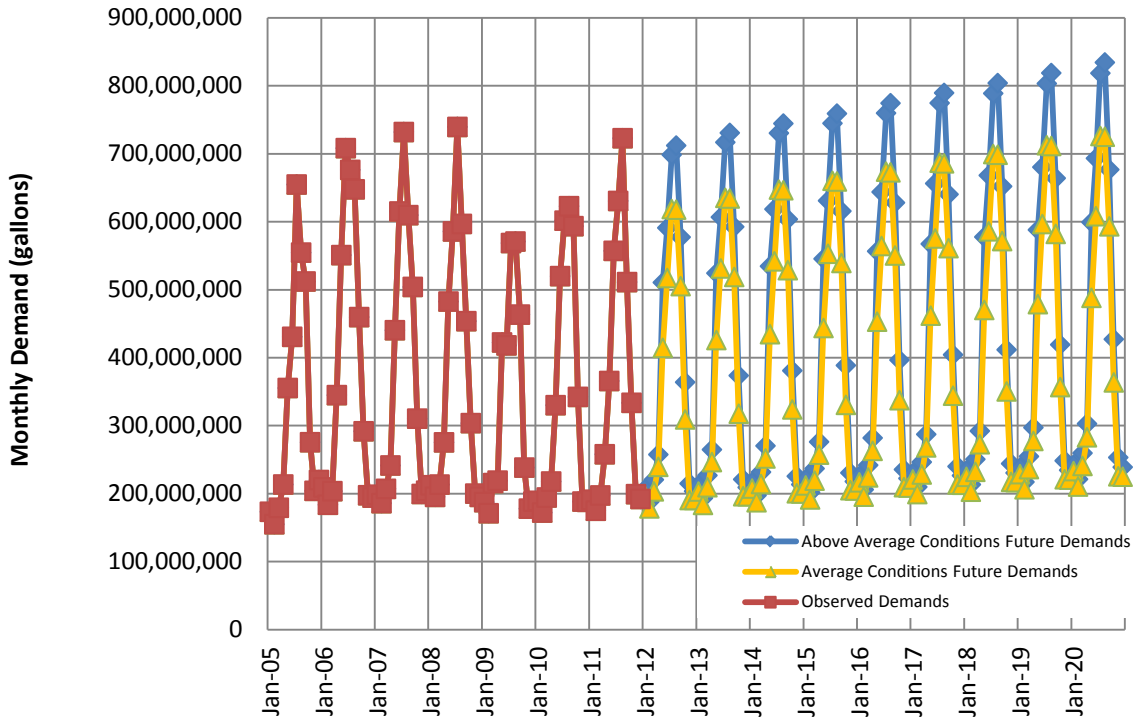
[17] Variability of future water demand was developed assuming that the water demand over the past record is normally distributed and that natural variability of weather and customer water use behaviors will continue through the planning period in a manner consistent with those observed since 2005. The available data was determined to be adequate for predicting variability in future demand over the coming 8 years, but not adequate to estimate extreme variations due to drought or wet weather with more than a 8 year return period.

monthly treated water demands. Therefore, the results for each of these three future demands are presented below.

Monthly Treated Water Demand

Monthly water demand is the basis of all other estimated future water demands. Appendix C presents how future monthly water demands were developed and how these demands were used to estimate future annual and peak daily demands. Figure 10 presents the results of the predicted monthly treated water demands throughout the planning period for both average and above average conditions[18].

Figure 10 - Past and Estimated Future Monthly Treated Water Demands



As this figure illustrates, future monthly demand is not expected to peak as sharply as has been observed in the past four years (from 2007 to 2011), based on average conditions. However, peak monthly treated water demand for above average conditions (i.e., one standard deviation above average conditions),

[18] The reduction of treated water demands related to expected passive savings are not included in the monthly treated water demands; since they are calculated on an annual basis. Therefore, passive savings are integrated into reported annual treated water demands. Monthly water demands are presented only to illustrate the seasonal nature of monthly demands and the relative differences between average and above average conditions.

which are about 12% higher than average conditions[19]. The peak treated water demand difference between average and above average conditions is about 110 million gallons in August 2020.

Annual Water Demand

Annual water demand projections were developed by summing the monthly water demands for each calendar year and subtracting the estimated annual impact of passive savings[20]. Figure 11 presents the annual treated water demands in the past and as estimated through the planning period as a result of those analyses presented in Appendix C.

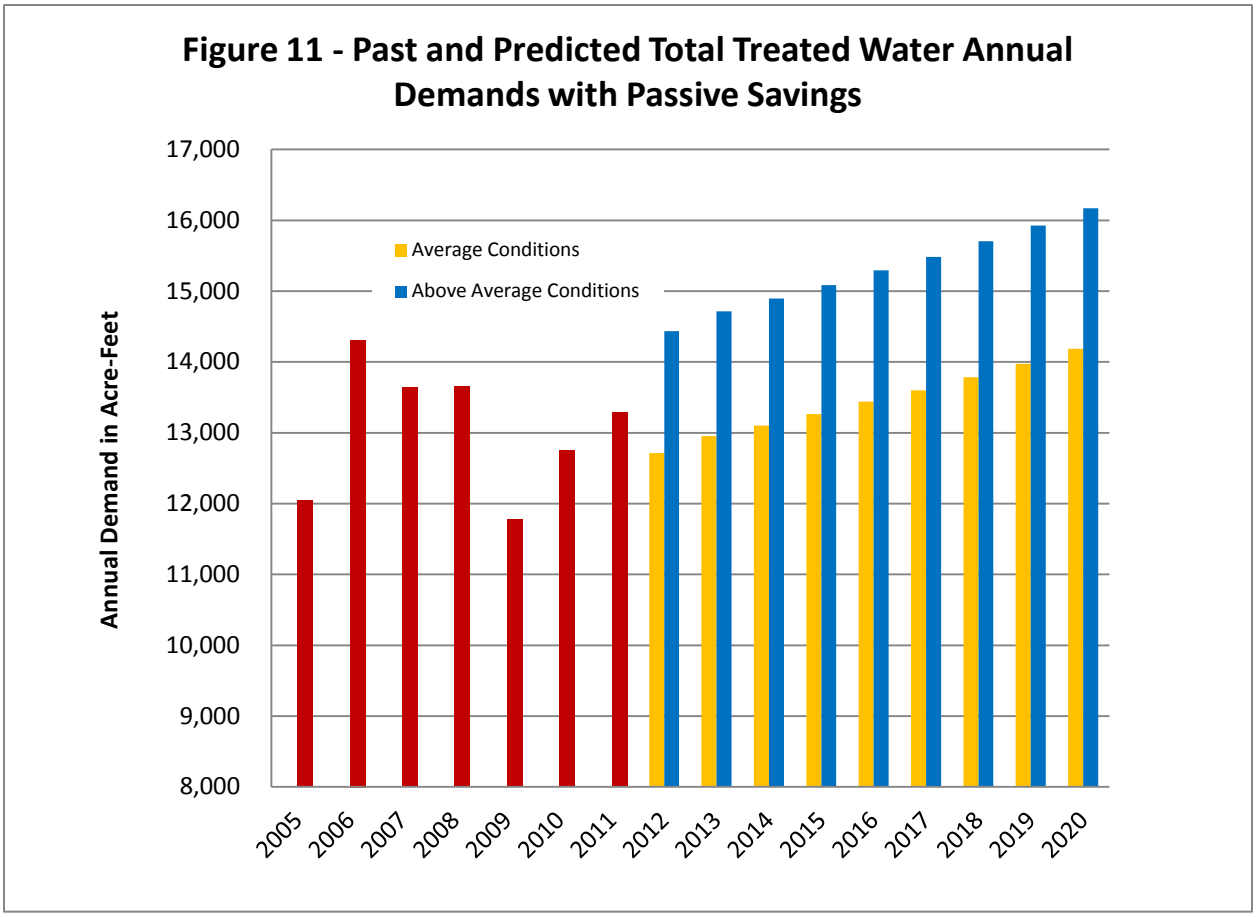


Figure 11 illustrates the relative impact of demand variability on estimated future treated water demands. Above average annual treated water demands vary over the planning period from about 14,440 to 16,170 acre-feet (AF), whereas average annual treated water demands vary from about 12,710 to 14,185 AF. This difference illustrates the challenge of planning for average conditions (i.e., those that occur only 5 out of

[19] Above average treated water demands vary from about 4 (January) to 23% (August) of monthly average treated water demands; averaging about 12% higher over the course of a year.
[20] Passive saving water demand reductions are estimated to be about one quarter billion gallons of treated water per year in 2020.

10 years), versus planning for conditions that occur 8 out of 10 years; given that demands may reasonably vary over average conditions by as much as 2,000 AF by the end of the planning horizon (2020).

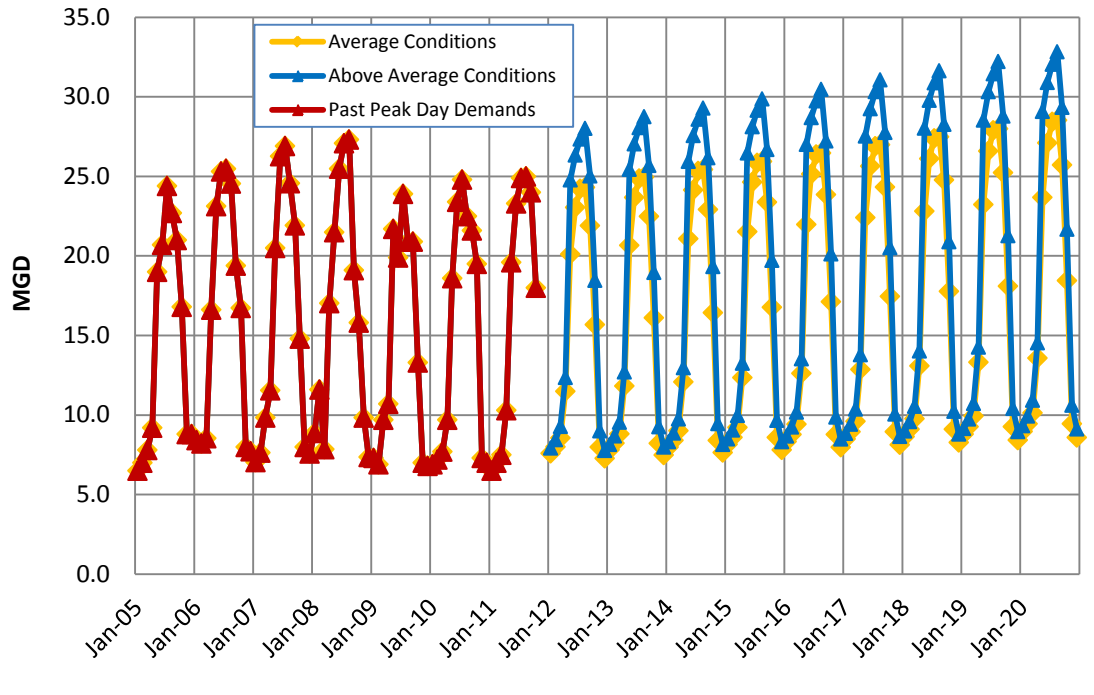
For the City of Loveland, this variability is not significant given the current water portfolio used to provide the City with potable water supply. It may be that at some time in the future, the estimated demand variability may impact the City's ability to provide potable water on an annual basis, but it is not expected to be rate limiting over the current planning horizon.

Peak Daily Forecasts

The City's current peak day treatment capacity is approximately 30 MGD; whereas peak daily demands in the summer of 2008 topped 27 MGD. Peak day treatment capacity is therefore an issue for the City.

Peak day demands were estimated for each month in the planning period based on the average peaking factors presented in Appendix C. Figure 12 presents the results of the forecast modeling used to estimate peak day treated water demands for the period 2012 through 2020 (compared against past peak day demands).

Figure 12 - Past and Predicted Peak Day Treated Water Demand for Average and Above Average Conditions



Based on the analyses presented in Figure 12, average conditions peak day treated water demands are not excepted to exceed 30 MGD during the planning period (the highest annual peak day demand in 2020 is estimated to be about 28.5 MGD); whereas for above average conditions, the highest annual peak day demand exceeds 30 MGD in 2016 (30.5 MGD). Although the City has the ability to utilize an interconnect

with Little Thompson Water District to meet peak day demands above 30 MGD, future peak day water demands in the summer will require that additional water treatment capacity is developed by the City, unless water conservation programs can be developed and implemented that “shave” peak day demands, effectively postponing (or eliminating) the need for the treatment plant capacity expansion.

Section 4
Capital Improvement Projects

The City maintains a detailed 5-year capital plan that identifies design, consulting and construction costs associated with ongoing and upcoming water related projects, including:

- Transmission and distribution projects (focusing on replacing steel and cast iron pipe with plastic in critical areas)
- Water treatment plant
- Water resources
- Upgrades and extensions (AKA – oversizing and extensions)
- Miscellaneous operations and maintenance (O&M) budgets

The projects that the Water Utility are currently tracking include water line replacements, water storage tank construction, meter upgrades and replacements, treatment plant upgrades and improvements, water resources projects, vehicle purchases, and various O&M projects. A specific breakdown of the City's 5-year detailed capital project list is provided in Table 6.

Table 6 – Summary of City's 5-Year (2012-2016) Detailed Capital Plan for Water Projects[21]

		5-Year Total
Transmission and Distribution		
	Water Line Replacements	3,281,273
	Water Storage Tanks	1,230,004
	Meter Replacements	320,920
Water Treatment Plant (general)		23,641,300
Water Resources		
SIF Projects		
	Water Lines	1,347,358
	Water Storage	4,920,016
	Inspecting Water Lines	189,920
	Water Treatment	8,418,533
General Plant		149,190
O&M Projects		1,959,280
	5-Year Total	45,457,794

Capital projects that are considered as a part of the City's water conservation programs include water line inspections, replacements and upgrades (which are expected to help reduce water losses); and meter replacements (which are expected to help reduce apparent water losses). The costs of these programs will be included in the overall water conservation program costs provided later in this Plan.

[21] From the 2012 CIP for the Water Utility

Section 5
Goals for Water Conservation

The City has a number of goals for its water conservation programs. Perhaps the most important relates to the City maintaining a connection with the community that it serves; such that it can promote the importance and value of water use efficiency in maintaining a reliable, secure and sustainable water supply now and into the future. To do this, the City will rely on a number of integrated programs, each of which is described in the following section. The City understands that it is the true integration of water conservation and water resources management, in a conscientious, deliberate and transparent manner that will allow for the City and its customers to work together to reach the overall goals stated below.

Specific goals that the City looks to achieve include:

- Reducing summertime peak daily demands in the future by about 1 mgd (or about 3 acre-feet (AF) per day which is about 10% of peak demand) during above average demand periods by 2016;
- Reducing non-revenue water from current levels to 10-11% of total treated water by 2020 (which is a reduction in real and apparent water loss of about 575 acre-feet[23]);
- Developing water rates that accurately reflect the cost of service for providing reliable, secure and sustainable water supplies, including infrastructure management and maintenance, and the impact of changing customer water use behavior patterns in the future;
- Supporting the City's "Sustainability Plan" in part by reducing City water use (indoor and outdoor) by another 5% by 2020; and
- Developing technical assistance programs that will support improved water use efficiency by the City's large commercial and irrigation only users.

Through the implementation of the Plan, and beyond, the City will strive to reduce per connection water use by about 11% between 2012 and 2020, for an estimated demand reduction of about 1750 AF[24,25] within that time frame.

[23] For the purposes of actual demand reductions and predicted impacts on future revenue, that real and apparent losses constitute 80% and 20% of the observed non-revenue water loss, respectively.
[24] Passive savings are estimated to be about 780 acre feet (AF) between 2012 and 2020; such that the City conservation goal of 1,750 AF is in addition to the estimated passive savings.
[25] The City's goal of 1,750 AF was developed based on an average per connection daily use from 2008 to 2011 of 480 gallons; decreasing to about 426 gallons per day per connection in 2020 (for an estimated 29,000 connections serving a population of about 80,000).

Section 6
Identification and Evaluation of Candidate Measures and Programs

As indicated in the previous section, the City has identified that water conservation efforts can best support the needs of the water utility through:

- Reducing summer time peak demand;
- Reducing current system wide water loss; and
- Supporting improved water use efficiency for the City's commercial and large irrigation customers

Therefore, the City will identify, evaluate and ultimately select water conservation measures and programs that support these goals.

The State has regulations (CRS 37-60-126 – see Appendix C) which require that covered entities that develop water conservation plans for review and approval by the CWCB consider a broad range of potential measures and programs for the plan to be complete. Table 7 presents each of the categories of water conservation measures and programs that the City considered, aligned with the regulation, as it developed its "short list" of measures and programs for detailed evaluation.

A few key points related to this analysis are noteworthy.

- Based on the CWCB SWSI Levels Analysis (June 2010), the City has decide not to actively support the retrofits and related incentives (e.g., rebates) for indoor water using fixtures and appliances, since home and business owners will be naturally replacing and upgrading toilets, faucet aerators, clothes washers and dishwashers naturally, with newer, high efficiency models in the future. This market driven process does not benefit from the City spending additional resources to accelerate the impact of these passive savings.

- The City does not currently provide water to any large commercial or industrial customer that would benefit from improved process water retrofits and upgrades. Hospitals and large laundry services, car washes, and greenhouses may benefit from improved water use efficiency upgrades; however, the City will focus its commercial programs with a higher rate of return on investment (e.g., faucet aerator retrofits, shower head replacement programs). In future years, the City may decide to evaluate process water efficiency improvements, but they are not included in this version of the City's Water Conservation Plan.

- The City has not agreed philosophically or politically with the use of inclining rate block structures for residential customers that are not based on the cost of service. For this reason, the City maintains a flat residential water rate, which is raised periodically as fixed and variable costs increase. The City does have a surcharge for commercial customers that exceed a specified quantity of water use in a year; which is associated with the cost of replacement water.

Table 7 – Summary of Measures and Programs that Must Be Considered During Plan Development

CRS 37-60-126 Category of Measures and Programs*	Current Efforts	Future Evaluations Proposed by the City
Water-efficient fixtures and appliances, including toilets, urinals, clothes washers, showerheads, and faucet aerators	The City currently provides replacement of showerheads and aerators through energy and water assessments and audit programs. The City does not currently have programs to support customer replacement and/or upgrade of appliances.	These types of programs will only be considered for large commercial customers, since residential customers will be replacing toilets, faucet aerators, clothes washers and dishwashers with more water efficient models organically (based on CWCB, 2010).
Low water use landscapes, drought-resistant vegetation, removal of phreatophytes, and efficient irrigation	The City does not currently have specific programs to support customer replacement of landscape materials; however the City supports Garden-in-a-Box (which provides water efficiency landscape materials to interested homeowners); has been installing water efficiency landscapes in selected City parks and facilities; and maintains a tap fee structure that allows for reduced impact fees for customers that can demonstrate the appropriate use of water efficient landscape materials.	The City will continue its current programs
Water-efficient industrial and commercial water-using processes	The City does not currently have a program for industrial or commercial water customers – associated with process water use.	The City's customer base does not justify development of a process water focused water conservation program.
Water reuse systems	The City has limited opportunities for reusing treated wastewater since a substantial portion of the City's water portfolio is direct diversions from east slope supplies or Colorado Big Thompson water, which cannot be reused. A portion of the City's water portfolio does include some reusable supply from its reservoirs and some Windy Gap allocations. However, reusing these water sources reduces overall firm yield, so the City does not practice reuse in its normal operations.	The City may obtain some water rights that would allow reuse through the Windy Gap firming project; however, until such that that project occurs, reuse opportunities do not exist for the City.

Table 7 – Summary of Measures and Programs that Must Be Considered During Plan Development (continued)

Distribution system leak identification and repair	The City currently has a water loss control program including leak detection and repair projects, meter testing and replacement, and water loss tracking; however these programs can be improved	The City will evaluate measures and programs to improve its current supply-side water loss management efforts. In addition, the City will evaluate strengthen its overall messaging regarding water use efficiency, water management, and the importance of maintaining and upgrading water infrastructure to support customer needs with respect to reliable, secure and sustainable water supply.
Dissemination of information regarding water use efficiency measures, including by public education, customer water use audits, and water-saving demonstrations	The City maintains a strong relationship with the community that it serves through messaging, educational efforts, and its "lead by example" mentality. The City also supports customer water use audits employing outdoor irrigation audits for residential customers (AKA, Slow the Flow); indoor audits and retrofits for low-income residences; and combined energy/water audits for selected commercial customers.	The City will evaluate the efficacy of each of these programs with respect to measurable results and maintain those that can be shown to have positive impacts on managing customer water demand.
Water rate structures and billing systems designed to encourage water use efficiency in a fiscally responsible manner.	The City has a flat residential block rate that is based on the cost of service which in turn is based on fixed and variable costs; including a reserve for infrastructure replacement and management. Commercial water rates are also a flat rate with a water use surcharge included for high annual water use. Irrigation only water rates are inclining block rate based on a water budget for established landscapes.	The City performs a rate study every 3-5 years to keep its rates in balance with costs. Additional water rates evaluations including a conservation oriented rate structure, post-2015, will be considered for inclusion in the implementation of this Plan.
Regulatory measures designed to encourage water conservation	The City maintains a water waste ordinance.	The City will evaluate methods to broaden its water waste ordinance.
Incentives to implement water conservation techniques, including rebates to customers to encourage the installation of water conservation measures	The City has not used rebates in the past to encourage water use efficiency.	These types of programs for indoor uses will only be considered for large commercial customers, since residential customers will be replacing toilets, faucet aerators, clothes washers and dishwashers with more water efficient models organically (based on CWCB, 2010). Outdoor water use efficiency incentives and rebates will be evaluated by the City.

* In developing a water conservation plan, state regulation requires that each covered entity shall, at a minimum, consider these categories of measures and programs.

- The City has an incentive program to reward landscape irrigation efficiency through either a refund of a new tap impact fee and/or a credit for water rights provided during development. This program is relatively new, and is in the pilot phase, but will continue to be offered as the Water Conservation Plan is implemented.

- The City has seen a consistent reduction in its own water use, both indoors and outdoors. Indoor water demand reduction has been associated with the installation of upgraded fixtures and more efficient water use practices. Outdoor water use efficiency has been improved with the installation and use of centralized irrigation controllers that manage each zone of each park individually. These improvements are examples of how the City "leads by example."

- In addition, the City Parks Department has developed an in depth Drought Management Plan detailing water use reductions in each park during times of water supply shortage.

- The City has a water waste ordinance that has been used in the past to respond to citizen complaints; however, the City has not allocated resources to conduct more hands-on efforts to identify and correct wasteful watering practices (e.g., driving inspections for over watering, time of day watering violations, etc.). The City may wish to consider allocating resources to conduct "on the street" assessments to help control summer peak demand in the future. In addition, the City may want to consider adding language to its current ordinance that would designate time of day watering restrictions and/or overspray requirements.

Based on the City's past efforts, current policies, and future infrastructure limitations, it proposed to evaluate the efficacy of implementing the following suite of water conservation measures and programs.

To reduce summer time peak day demands, the City will evaluate the following:

- Continue management of the City's parks utilizing the central controllers and drought management plan;
- Expand the City's water waste ordinance to detail actions that the City may take to identify and potentially penalize water waste repeat offenders;
- Continue to support residential outdoor irrigation audits (Slow the Flow) and residential Xeriscape planting (Garden-in-a-Box) programs;
- Develop and broadcast a new community water use messaging to stress the need for summertime use reductions (e.g., initiate voluntary watering restrictions), infrastructure management and maintenance, and general water use efficiency; and
- Initiate large commercial and irrigation only audit programs to improve outdoor irrigation efficiency.

To improve water loss management and water rate structures:

- Conduct a system-wide water audit using the American Water Works Association (AWWA) M-36 methodology;

- Implement recommendations from the system-wide water audit related to metering, data collection and management, and leak detection;
- Perform annual system-wide water audits as a means to track water loss patterns and verify that improvements are in-fact reducing real and apparent water losses; and
- Continue to perform water rate studies to evaluate and set water rates based on the cost of service for water supply to each customer. The water rate studies may also evaluate issues such as excess water use surcharges, commercial and industrial customer billing options, and creating more commercial customer categories.

Other relevant programs:

- Continue K-12 education by supporting the Loveland water fair;
- Continue to support the Energy and Water Efficiency Express such that water efficient faucet aerators and showerheads can be installed as energy audits are conducted; and
- Continue to support and offer the Larimer County Conservation Corps, Energy and Water Program and the Home Energy Audit Program for residential customers.

A detailed evaluation of each of these potential measures and programs are provided below.

Summertime Water Demand Management

Parks irrigation watering management – The City will continue its programs to manage the use of irrigation water on its parks, which has been a success story leveraging both human judgment and centralized controllers to efficiently apply irrigation water as conditions, and the City's irrigation conservation plan dictate. However, the parks will be evaluated for turf replacement with native plant materials, depending on the park use, location and character. In addition, minor improvements will be evaluated to further improve the current efficiency of the park irrigation efforts (MP rotors to replace older spray rotors, improving some hydrozones to support new native plantings, etc.).

Irrigation in the City main parks covers nearly 275 acres with about 26 AF per week during peak summertime use. The MP rotors will not only reduce total irrigation water demand for the City, but it will lower peak day demand by about 0.6 mgd.

Costs - $70,000 (for materials, no labor) for replacing all existing rotors with MP rotors over the next five years.

Estimated Savings – 70 to 80 AF (based on a 15% improvement in irrigation application efficiency)

Expanded Water Waste Ordinance - The City's water waste ordinance provides general guidelines for unacceptable water waste by its customers, and allows for the City to shut off service for offenders. The City will consider developing two key amendments to this section of the municipal code:

i) Time of day watering restrictions that discourage outdoor irrigation between 10 am and 6 pm from May 1st to September 15th.

ii) The ability of the City to fine observed water wasters for violations (see Appendix D for an example from the CWW BP Manual).

On the heels of these amendments, the City will consider methods to identify and if necessary, penalize repeat water wasters as a means of broadcasting a low tolerance for inappropriate irrigation practices.

Cost - $1,500 for Ordinance Revision

Estimated savings – savings are included as a part of the messaging campaign describe below.

Slow the Flow and Garden-in–a-Box – The City will determine whether or not to continue its support of two popular programs. Both are provided by the Center for ReSource Conservation (a non-profit operating out of Boulder). Costs carried by the City will include providing for up to 120 residential audits; and up to 80 Garden-in-a-Box native planting kits. Combined, these programs will continue the City's engagement and support of its residential customers, and in the future be linked to the City's overall efforts to reduce summertime peak water demand.

Cost - $17,200 (for 80 Garden-in–a-Box Kits (City pays $50 per kit); and 120 Slow the Flow residential irrigation audits (City pays about $110 per audit))

Estimated savings – 2.5 % of outdoor irrigation water use per connection in the program (about 6 AF[26])

Wise Water Use Messaging - The City will consider developing water messaging campaign that will include a tag line, logo, and related materials to help announce and publicize the implementation of the new water conservation programs; to educate and engage its customer base about the need to reduce summertime peak demand; and to ask for support of the new water waste ordinance, new water rates, overall infrastructure management and water loss control, and voluntary watering restrictions. The logo and messaging may also be incorporated into the stenciling on the City's service vehicles; water billings; educational programs; the City website; and printed information provided during customer water audits.

The City will connect the messaging effort to customer surveys that are conducted by the utility on to test messaging, identify customer hot buttons and key water topics, and evaluate public opinion regarding various water conservation strategies and programs.

[26] Based on residential summertime usage in 2007 and 875 total customers participating in the programs over 5 years.

Cost - $20,000 to $25,000 for message development and initial launch (printing, web update, etc.)

Estimated savings - dependent on the breath of the City's efforts to publicize and engage the community. Expect a reduction of about 0.75 to 1.5% of community water demand reduction due to combination of the messaging campaign with other City water conservation efforts including the water waste ordinance, the improved City facility water use, reduced distribution system water loss, and increased water rates. The messaging campaign will focus on creating synergies linking City actions with customer water use behaviors (e.g., lead by example), (75 to 100 AF[27]).

Commercial Water Audits and Retrofits – The City will consider initiating a program to provide free water audits to its largest water customers coupled with retrofits for showerheads, faucet aerators and pre rinse spray nozzles, depending on the nature of the business. The largest water users in the City have been identified to include schools, manufacturing facilities, churches, business offices, nursing homes and elderly care, and City facilities. Of these, the City will focus its audits and retrofits on those with large outdoor irrigation uses coupled with indoor uses that may be receptive to the proposed retrofits[28].

The proposed audit program that the City would implement would involve obtaining grant funding to support data collection and analysis efforts, water use modeling and retrofits to improve the water use efficiency at each location listed in Table 8. The proposed audit program would be similar to programs conducted in other parts of the State supported by CWCB water efficiency grant funding. To this point, the costs of the first year or two of commercial facility audits and the estimated water savings are in line with those reported by past CWCB grant recipients. Note that although the water savings predicted from the audits includes both indoor and outdoor water use reductions; the audits will be focused on those organizations that may reduce summer time irrigation use, thereby supporting the City's goal to reduce peak summertime demands.

Costs - $ 36,000 – $45,000 for audits and retrofit fixtures (depending on how many of each retrofit type is installed - faucet aerators, pre-rinse spray nozzles and showerheads). This estimated cost includes $12,000 to 15,000 for one nursing home facility customer.

Estimated savings – 8 AF and 20,600 gpd during peak demand (see Table 8).

[27] This water demand reduction is based on the positive results of the City's past efforts to reduce customer water use demand solely through messaging and public relationship programs.
[28] The retrofits being proposed are low cost and energy efficient, which therefore make them cost effective as compared to upgrades or improvements to kitchen and laundry equipment, air cooling equipment, and/or other commercial wash uses.

Table 8 – Summary of Potential Commercial Facility Audit Locations and Savings

	Average Annual Water Use (gallons)		Potential Savings	
	Indoor	Outdoor	AF (annual[c])	GPD (during peak)
Manufacturing Facility	2,355,000	1,970,000	1.5	3,500
Nursing Home and Elderly Care (one local customer)	9,375,000	3,172,000[a]	4.1	8,600
Church and Publishing Facility	988,000	2,931,000	1.2	3,900
Manufacturing Facility	303,000	584,000	0.3	1,000
Office Building	232,000	369,000[b]	0.2	600
Office Building	297,000	1,570,000	0.7	2,300
Office Building	135,000	537,000	0.2	700
			8.2	20,600

[a] uses last 4 years of water use for outdoor estimate

[b] high water use in 2010 not included in estimate of potential savings

[c] including savings from both indoor retrofits and outdoor efficiency improvements

Water Loss Management

System Wide Water Audit and Recommendations – The City will consider conducting a system wide water audit using the methodology specified in the AWWA M-36 Water Loss Control Manual. Specific tasks that the City should consider paying special attention to relate to tracking and quantifying, where possible, metered, unbilled and unmetered, unbilled water uses; as well as looking at meter reading accuracy for large taps. In addition, the City should evaluate the accuracy of its current billing system to track all billable water accounts including those that are transferred from one customer to another. Seasonal variations in non-revenue water should also be evaluated and characterized. The audit should be provided by a third party working closely with all utility departments that handle and manage water use accounting and billing.

Recommendations from the audit may include, but not be limited to such tasks and actions as:

- Install system pressure controllers to reduce system pressure and thereby reduce supply side leaks.
- Install meters on unmetered uses.
- Calibrate and repair/replace large meters including totalizing meters on treatment plant effluent, commercial and irrigation only customers, etc.
- Accelerate the installation of AMR and AMI technologies to assist the City in identify and tracking supply side and demand side leaks, improving data handling and billing accuracy, and reducing City loss time injuries.
- Add system metering redundancy for measuring treatment plant through put, distribution system subareas or management areas, and other key locations of potential apparent water loss.

Costs – for the audit $25,000 to $40,000 (depending chiefly on the extent to which meter testing is incorporated into the scope); with costs to implement audit recommendations variable based on findings during the audit.

Estimated savings – It is possible that the City will be able to reduce its current average water loss by about 3 percent (i.e., from about 13.5% of total demand to about 10.5% by 2020) as a result of the audit – which includes better understanding the City's real and apparent losses. This reduction corresponds to a reduction of non-revenue water by about 575 AF on average[29]. Noteworthy is that these savings will result from a combination of the audit and the implementation of key audit recommendations.

Water Rate Study and Implementation – The City has a policy of conducting water rate studies once every three to five years to maintain appropriate customer water rates based on the cost of service. The City has just completed a water rate study in 2012 to assess current and projected future costs, and to fine tune current policies regarding:

- Excess water use surcharge for commercial customers,
- Commercial and industrial customer billing options, and
- Creating more commercial customer categories.

A water rate study can also examine the impacts of alternative tap fee incentives for new and existing customers that install water efficient landscapes and appropriately designed irrigation systems for those landscapes.

The water rate study is important to the water conservation planning effort for three reasons. First, the water rates will need to be developed in a manner consistent with the projected future demands – based on the impacts of both passive and active savings and expected peak day demand reductions. Second, the development of new and/or expanded water rate categories (e.g., for different customer classes, to account for seasonal variability in fixed and/or variable costs, etc.) should support water use tracking as new water conservation measures and programs are implemented. This will help to ensure that water demand reductions can be attributed to active programs conducted and funded by the City.

Third, the water rates should include the costs of the water conservation measures and programs selected for implementation, such that the true cost of services can be included in the base and rate fee structure. In addition, the City should ensure that costs for emergencies, capital projects, leak detection and prevention, improved metering and data management, and overall system wide loss control are included in water rates and fees. Finally, the City will evaluate options and efficacy of including additional tiers of water rates in its pricing for residential and commercial customers.

[29] Real and apparent losses constitute non-revenue water. Based on the assumption in footnote 25, the real and apparent losses contribute 460 and 115 AF, respectively. The real loss reduction represents a reduction in demand; whereas the apparent loss reduction represents an increase in water sales revenue.

Currently, the City has identified substantial water rate increases that it will put into practice over the next 10 years. These rate increases, presented in Table 9, will be used to raise revenue for capital projects, as well as to assist in achieving specified water conservation goals. Insomuch as the rate increases will be happening, Plan implementation will include tracking the impacts of the rate increases on customer demand and water use – individually and collectively.

Table 9 - Proposed Water Rate Increases Through 2022*

Years	Rate Increase
2014	13%
2015-2019	9%
2020-2022	8%

[a] proposed rate increase have not been approved by Loveland City Council

These proposed rate increases will increase the cost of 1000 gallons of water by about 120% between 2013 and 2022.

Water demand reductions related to the proposed rate increases are expected to be significant[30] given the scope of the proposed program; although the actual savings are expected to be on the low end of the literature values given that water is currently priced at less than $2 per thousand gallons. Nonetheless, overall savings even at 0.1% per 1% increase is expected to total over 1,000 acre-feet by 2020, and perhaps as high as 3,000 acre-feet. Even with these large expected demand reductions, the City should plan to integrate the water rate fee changes with its messaging on wise water use and water conservation to help educate and engage its customer base regarding the justification for increased water rates, and to manage customer expectations regarding further water rate increases.

Cost – $25,000 for a water rate study in the future assuming the City has the engineering data need to assess meter reading accuracy and effectiveness, and characterize overall system wide water loss (which indicates that the system wide water audit should be completed prior to the next water rate study).

Savings – For a 46% water rate increase (about $0.84 per thousand, suing $1.83 as the current starting point), a water demand reduction of between 500 and 1,700 AF may occur by 2017 (and 1,100 and 3,500 AF in 2020[31]) could be expected under average conditions, especially if the City introduces the new wise water use messaging along with the increased water rates; however, due to the relatively low cost of water in the

[30] Water rate increases at the City may reduce overall water use by between 0.1 to 0.7% per 1% increase in water rate based on Stevens, et.al.(1992), at an average of about 0.33% (Olmstead, et. al., 2006).
[31] Increased demand reductions are estimated for 2020 based on increased water demand from a combination of growth and reduced apparent losses, both of which increase water deliveries to customers.

City, it is anticipated that actual water savings related to water rate increases will tend to be at the low end of the literature-based savings estimates[32].

Other Programs

K-12 Education – The City will continue its efforts to support local K-12 educational efforts including participation in the Loveland water fair, classroom presentations on responsible water use and management, and other adhoc water related events. The City's presence at these events helps to engage the community and instill a general sense of water awareness in its attendees. There is no specific attempt to quantify potential water savings that are attributed to these expenditures; however the City believes that the support of local K-12 education is a basic responsibility of the utility that will continue to be funded.

Cost – The City has $5,000 in the water utility budget for educational support, in addition to the other programs outlined in this plan.

Larimer County Conservation Corps, Energy and Water Program and the Home Energy Audit Program – The City has provided funding for these programs in the past to support the audits and retrofits of residential housing with water and energy efficient fixtures including faucet aerators, showerheads, toilet dams and dye tablets (for toilet leak detection). Although this program has not provided explicit reporting back to the City regarding measured water savings, the staff visit, audit and retrofit 200 homes each year. It is estimated that the showerheads and faucet aerators reduce the typical indoor single-family water use by about 10% (or about 135 gallons per connection per day for each of 200 homes).

Costs - $8,000 for 200 faucet aerators and showerheads to support residential retrofits (for quality 0.5 gpm faucet aerators and 1.5 gpm showerheads cost about $40 a set wholesale – without quality retrofits, the home owner is more likely to remove the retrofit and install less efficient models after the audit is completed) .

Savings – 6 AF (for each year the program is conducted)[33].

Efficiency Express through Platte River Power Authority – Loveland Water and Power has joined with the Platte River Power Authority to fund energy and water audits for qualifying commercial and industrial buildings to support building energy tune-ups and efficiency upgrade assistance. Although the program components are focused on energy efficiencies, some water use efficiencies are possible (with respect to ice making and other food service equipment). For example, the audit team will provide educational support to facility managers regarding rebate

[32] A 13% rate increase would increase an average water bill for a single family residential customer by about $1.20/month for wintertime use and by about $9.60/month for summertime use (assuming 5,000 per month and 40,000 per month, respectively).

[33] Based on reduction from 2.5 gpm to 1.5 gpm in the shower for an 8 minute shower per person per day; and from 2.2 gpm to 0.5 gpm for 2.3 minutes of bathroom sink use per person per day; for an average of 2.5 persons per audited household.

opportunities and technical support. Since the City is not supporting rebates, the potential water savings that could occur as a result of this program relate to City retrofits of faucet aerators and showerheads. The City could potentially link the commercial water audit program to the Efficiency Express Program to support finding interested and qualifying commercial water customers.

Given that the actual water savings related to this program will likely occur as the result of fixtures that are replaced by the City as part of its commercial water audit and retrofit program, the savings for this program are imbedded in that program.

Costs - $2,500 for 10 facilities in conjunction with the Brendle Group's scheduled facility assessment.

Savings – no savings were estimated for this program since the nature of the water savings can vary substantially from year to year, and the overall expected water savings are expected to be small.

Section 7

Summary of Candidate Measures and Programs

Table 10 presents a summary of the water conservation measures and programs evaluated and selected by the City for implementation during the period 2013 to 2017. Details of the proposed budget are provided in Section 9.

Table 10 - Summary of Selected Water Conservation Programs for Implementation

Measure/Program	Estimated Annual Cost	Estimated One Time Cost Over Planning Period	Estimated 5-Year Cost	Estimated Savings[34](AF)	Comment
Summertime Demand Management					
Park Irrigation Improvements		$70,000	$70,000	70	Includes both landscape efficiency and conversions from spray rotors to MP rotors
Expanded Water Waste Ordinance		$1,500	$1,500	Included in savings estimate for Smart Water Use Messaging	Includes increasing nature of ordinance to allow for penalties to water wasters
Slow the Flow/Garden-in–a-Box	$17,200		$86,000	6	Helps to develop good will and support the City's messaging
Wise Water Use Messaging	$8,000	$25,000	$65,000	92	must be performed in close coordination with other measures and programs identified for implementation to achieve savings
Commercial Water Audits		$30,000	$30,000	8	partnership for management of City's biggest customers
System Wide Water Audit and Recommendations	$275,000	$40,000	$1,415,000	294	mid-term commitment to future reduction of non-revenue water
Water Rate Study and Implementation		$25,000	$25,000	544	part of City's typical management program
K-12 Education	$5,000		$25,000	n/a	It is the right thing to do for the City
Water and Energy Assessments and Audits	$8,000		$40,000	31	Supports low income families
Efficiency Express	$2,500		$12,500	n/a	Included in Commercial Water Audits
	$ 315,700[b]	**$191,500[c]**	**$ 1,770,000**	**~1,045**	

[a] Includes $260,000 annually from CIP for meter and water line replacement
[b] includes $40,000 for financial software and public relations expenses
[c] includes $70,000 from parks, $25,000 from public relations; and $25,000 from finance and administration.

[34] Estimated as average annual water demand reduction after five years of program implementation

Note that one of the City's implementation goals for this Plan is to reduce summertime peak day demand by about 1 mgd by 2016. The projected savings of 1045 AF by 2020 represents about 0.93 mgd, which on first blush appears to be slightly short of the goal. However, the 1 mgd peak demand reduction goal only relates to a water supply condition that occurs during a few weeks in the summer, rather than over the entire year. Therefore, the total annual demand reduction related to summertime peaking is in the range of only 125 to 170 AF (which corresponds to a 6 to 8 week period). The summertime peak demand reductions related to irrigation improvements in the parks and at commercial facilities, as well as for residential customers, are focused on the current June through August peak day demands. These programs, if implemented by the City and its customers, could trim peak day water use by 1.5 to 2 mgd.

Section 8

Integration of Proposed Water Conservation Program with Water Demand and Sales

The impact of the proposed water conservation program will be apparent with regard to both total water demand and water sales in the City. The design of the water conservation program focuses on reducing both real and apparent water loss, summertime peak demand, and overall customer water use efficiency, helping to postpone capital improvement projects (i.e., the expansion of the water treatment plant) and reducing long-term water supply development requirements. However, water conservation and demand reduction cannot be counted on alone to reduce long-term water needs for the City. The City will need to continue its practices related to the integration of storage and efficient water use to meet the needs of its customers – since the nature of a future water supply that is reliable, secure and sustainable will change in response to a growing service population, evolving commercial and business uses, and changing climatic conditions.

It is also vital to note that overall water demand reductions are estimates based on experience, literature assessments and expected trends in the City's municipal and industrial water use. Actual water savings may vary widely dependent on customer behaviors, weather conditions, City messaging efforts, and any number of other external factors. However, with the City's investment in water conservation, individual customer water use will trend downward as more responsible water use is condoned and supported. For the City to manage its practices and understand the impact of its expenditures, it is vital that a robust water use monitoring program be established to track individual and sector water use on a daily, monthly, quarterly and annual basis as plan implementation occurs. Therefore, the City will need to commit staff resources to managing the implementation phase of the water conservation program such that mid-course corrections can be identified and executed, allowing the City to best leverage its resources to achieve meaningful water conservation.

Table 11 presents the estimated decreases in future water demand associated with the proposed water conservation measures and programs presented in the previous section. The table presents demand reductions for both average conditions and above average (i.e., one standard deviation above average demands) conditions. Above average conditions savings are greater due to the impact of improved water loss management, and the associated reduction of real losses associated to delivering future water to the City's customers, since real losses are accounted for as a percentage of water deliveries.

Figure 13 presents the predicted impact of improved water use efficiency on City water sales revenues. The base case of water sales revenues is calculated maintaining water rates at the current rate of $1.83 per thousand gallons. The scenario with the current plan absent the water rate increases is shown, with a decrease in water sales revenue of about $400,000 for average conditions based on reduced water sales revenues due to customer water conservation (which translates to about $500,000 in above average year - one standard deviation above average). With the water rate increase and the related water use reduction, revenue for the City is up by about $4.45 million in an average year, which translates to about $5 million in above average years. This increased water sales revenue clearly offset

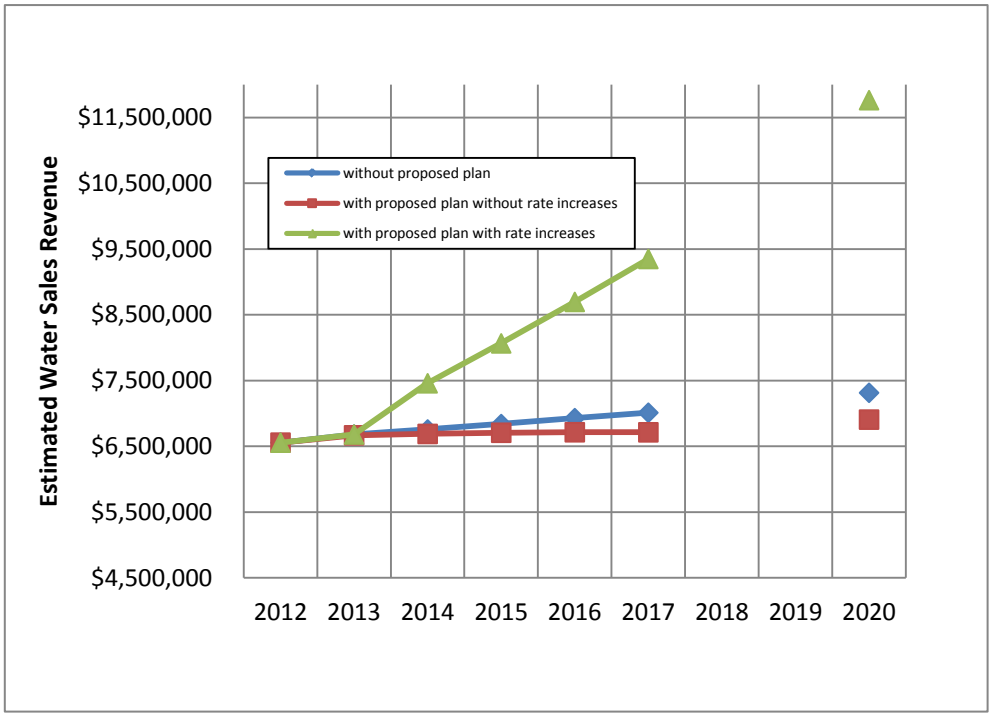
the impact of reduced customer water demand and provides for substantial revenue for treatment plant expansion and other capital improvement project needs.

Table 11 - Impact of Proposed Water Conservation Program on Average and Above Average Future Annual Water Supply Demands

	Average Conditions (AF)			Above Average Conditions[a] (AF)		
	Without Proposed Plan	With Proposed Plan	Demand Reductions	Without Proposed Plan	With Proposed Plan	Demand Reductions
2012	12,712	12,712	0	14,436	14,436	0
2013	12,954	12,933	21	14,717	14,696	21
2014	13,103	12,841	262	14,894	14,599	295
2015	13,324	12,837	487	15,084	14,535	549
2016	13,439	12,681	758	15,292	14,439	853
2017	13,599	12,555	1,044	15,484	14,307	1,177
2020	14,185	12,425	1,760	16,168	14,091	2,077

[a] above average conditions are described in Appendix C.

Figure 13 – Water Sales Revenue Impacts Related to Proposed Water Conservation Program and Proposed Water Rate Increases



Note that adjustments to water rates in the future will need to incorporate more factors than simply changes to future water demand associated with water conservation impacts. For example, the predicted impact of passive water conservation savings is in the range of 780 AF by 2020[35]. Water rates will need to be adjusted in accordance with expected passive water savings to maintain appropriate levels of water sales revenue independent of the impacts of the proposed water conservation program. Other factors such as changes in debt service, the need for cash reserves, costs of labor, energy and materials, and the scope of capital improvements will all affect future water rates as well.

The overall water demand reduction of 1,760 AF projected for the City by 2020 has a replacement value of about $20.9 million (based on the cost of storage, transmission, treatment and distribution).

[35] Lost revenue associated with passive water savings estimated in 2020 are calculated to be about $465,000 using the current rate of $1.83 per thousand.

Section 9
Implementation

The City has identified those measures and programs that it chooses to implement to reduce future customer water demand; however the specific staging and order of measure and program implementation is clarified in this implementation plan. Clearly the City will earnestly pursue meaningful water conservation in compliance with the elements of this Plan and the direction of City Council. Future capital funding and annual budgets will be developed in accordance with the funding requirements laid out in the preceding chapters. However, future appropriations of City funding for the various measures and programs contained herein cannot be guaranteed given that the nature of future City priorities may change due to acts of God, public health issues, or other unforeseeable issues.

To this point, the implementation plan for water use efficiency by the City needs to maintain flexibility to adapt to the changing needs and requirements of not only the City's resources, but the water use efficiency program as well. As portions of the water use efficiency program are implemented, new data and information will be acquired which may dictate or influence future water use efficiency program needs not predicted at the time of this planning effort. Therefore, this Plan will be implemented in an adaptive management approach, incorporating changing conditions and influences into the year to year, and month to month, water use efficiency activities planned and executed by the City. This City will also perform surveys on various customer classes to gain a better understanding of the customers' current perception of water, water use and interest in various water measures and programs. Results from these surveys will aid the City in planning and implementation of this Plan.

Given this framework and understanding of how water use efficiency will be best implemented in the City, the Plan is best served through the identification of the staging, or sequencing, of the various selected water use efficiency measures and programs; and a listing of those measures and programs that are of the highest priority to the City as of this writing. In this way, the first set of measures and programs that the City plans to implement can be identified (i.e., those measures and programs that will be implemented in the next 1 to 2 years). As new information becomes available over the next 1 to 2 years, the City will revise and update its water efficiency methods to best address the circumstances at that time (with regard to data collected, current fiscal resources, changing customer needs, etc.).

Sequencing

Although the City understands and supports the implementation of meaningful water conservation, its resources are not unlimited; therefore, it has chosen to sequence the implementation of its selected water use efficiency measures and programs in accordance with its current needs, expectations for future fund allocations, and perhaps most importantly due to the logical connection and interaction between specific measures and programs. For example, a system-wide audit of the City's water treatment, distribution and billing systems will be used to inform decisions to implement new meter testing, repair, and/or installation activities.

Table 12 presents a summary of the estimated annual costs for selected water use efficiency measures and programs as understood at this time. The costs have been developed based on the following assumptions:

- Various departments within the City will be included, and will contribute to the implementation of the water conservation program, including utility finance, public relations, and engineering;
- Individual water customers of the City's will be interested and participate in the various measures and programs, especially the residential and commercial programs;
- The system-wide audit will help to identify areas for City improvement regarding measuring and reducing non-revenue water uses; and
- The City will coordinate the budgeting of its Capital Improvement Projects with the annual water conservation budget.

Table 12 – Proposed Water Conservation Program Implementation Budget 2013- 2017

	2013	2014	2015	2016	2017
Park Irrigation Retrofits	$ 14,000	$ 14,000	$ 14,000	$ 14,000	$ 14,000
Water Waste Ordinance	1,500				
Slow the Flow	13,200	13,200	13,200	13,200	13,200
Garden-in–a-Box	4,000	4,000	4,000	4,000	4,000
Wise Water Use Messaging	25,000	8,000	8,000	8,000	8,000
Commercial Water Audits			15,000	15,000	
System Wide Water Audits	40,000	15,000	15,000	15,000	15,000
Meter and Water Line Replacement	260,000	260,000	260,000	260,000	260,000
Water Rate Study		25,000			25,000
K-12 Education	5,000	5,000	5,000	5,000	5,000
Larimer County Conservation Corps, Energy and Water Program and the Home Energy Audit Program	8,000	8,000	8,000	8,000	8,000
Efficiency Express	2,500	2,500	2,500	2,500	2,500
Total	**373,200**	**354,700**	**354,700**	**354,700**	**354,700**

Priorities

For the City, the implementation of water conservation to support future demand reduction begins with the management of current non-revenue water (which aligns with one of the State-defined foundational water use efficiency elements) and water rate increases. Non-revenue water management includes characterizing and reducing both apparent losses that effect City billings and revenue, and real losses, which effect City operational costs. The City is focused on reducing the current level of non-revenue water, estimated to be about 13.5% of total treated water to about 10.5% in the next 9 years. To achieve this goal, the City will need to:

- Plan for and conduct a system-wide water audit to better characterize current non-revenue water and identify areas for utility improvements (e.g., revising the customer billing categories, identifying unmetered uses, developing cost estimates for making various proposed improvements to current water accounting practices);
- Improve meter reading accuracy on existing accounts;
- Identify and measure unmetered water uses; and
- Continue testing and repair of water distribution lines to manage leaks and other real losses between the treatment works and customer meters.

The City has budgeted for both the system-wide water audit and meter and water line replacement projects, allowing for substantial investment to occur in improving and upgrading the City's infrastructure. The costs to conduct these projects, along with the costs to upgrade the water treatment plant and other projects presented in Table 6 (see page 24) is one of the motivations behind the proposed water rate increases.

For this reason, the water rate increases is another key component of the water conservation program implementation, for the rate increases not only will provide for the revenue needed to improve water loss management and construct new, required facilities; increased water rates are expected to reduce customer water demand assisting the City in achieving its specified water conservation goals. The linkage of these two programs is vital to the overall success of the City in continuing to maintain a high level of stewardship related to the management of its water resources.

It is also imperative that the City develop and launch a water value messaging campaign to inform and engage its customers regarding the value and importance of a water system that is reliable, secure and sustainable. The messaging effort will focus on developing talking points, themes, and outreach efforts that help water customers to understand the nature of water supply and development in the City; the importance and value of maintained water supply infrastructure; and the need for water use efficiency by all. The City will use the proposed water conservation measures related to water loss control, water rating setting, improved water use efficiency at City facilities, better defined water waste management via ordinance, and various customer support programs (commercial audits, Slow the Flow and Garden-in-a-Box, etc.) to lead by example. The City will also develop and execute a customer survey to initiate the messaging campaign, gathering information regarding customer perceptions and values regarding water and water supply.

These programs and projects are therefore funded in 2013 to initiate the City's water conservation program.

The next highest priority for the City will be to conduct those measures and programs that improve the water use efficiency of the City's facilities including those measures and programs that will improve water use efficiency for both indoor and outdoor uses.

Other water use efficiency measures and programs that will support a better understanding of specific customer uses and improve their water use efficiencies, while considered important to the management

of future water demand are considered less important than those measures and programs controlled entirely by the City. Future implementation of customer water conservation programs will be conducted dependent on available funding and overall customer water use trends.

Public Input and City Review and Approval

The Updated Water Conservation Plan underwent review by the City staff, City management and the public during the past months. After staff review and editing, staff presented the Final Draft Plan to the Loveland Utility Council (LUC) on February 20, 2013. Public review and comment was invited from February 21 to April 21, 2013, during which time staff presented the Final Draft Plan to the City Management Team (on April 4th). Once the public comment period closed, staff presented the Plan to the Loveland Construction Advisory Board (CAB), LUC and City Council. City Council reviewed the Plan at its May 14th meeting and provided final approval on June 4th.

Copies of the Final Draft Plan were made available for public review at City Hall, the Loveland Public Library and the Water Utility Offices. Appendix D contains copies of the public notices used by the City to advertise the public comment period. No public comments were received as a result of the notice.

Section 10
Monitoring and Evaluation of Measures and Programs

It is important to identify an approach to monitoring as many of the measures and programs as possible so the value of each program can be evaluated as it is implemented. In this way, adaptive management of the Plan components can be performed, and resources from the City allocated.

Generally, the City has selected water use efficiency measures and programs that can be tracked.[36] However, some measures and programs such as customer education and the effect of increasing water rates cannot be measured directly. For these measures and programs, overall customer water use metrics such as per capita residential water use and total per capita water use will be tracked. Other measures and programs, such as the audits conducted on large commercial water users and Slow the Flow can be monitored on an individual basis.

Monitoring efforts and metrics that the City proposes are summarized in Table 13.

Table 13 - Summary of Monitoring Methods for Estimating Water Savings

Use Efficiency Measure/Program	Real Water Losses	Apparent Water Loss Reductions	Quantity of Audits/Packages Used	Individual Water Use	Per Capita Water Use	Peak Monthly Demand
System-Wide Audit	X	X			X	
Messaging Campaign					X	X
Water Rate Increase				X	X	X
Residential Programs			X	X	X	X
Commercial Audits		X	X	X	X	X
Efficiency Express			X	X		
Water and Energy Assessments and Audits			X	X		

Plan Updates and Revisions

On an annual basis the City will monitor the metrics proposed in Table 13. The results will be reported to the Water Commission and City Council on a semi-annual and annual basis. The annual reports will help prepare the City for updating the Water Efficiency Plan every five to seven years, as required by the CWCB. It is the City's intent to update this Plan at the end of 2016.

[36] The City may have to implement some changes to its current protocols to track targeted customer water use, such as the City's water use and raw water uses, to complement the City's active water conservation efforts.

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Appendix A
City of Loveland Current Water Rates

CITY OF LOVELAND,

COLORADO

Water and Power Department

Schedule of Rates, Charges and Fees

Effective 1/1/13

TABLE OF CONTENTS

SUMMARY

Electric Rates

Annexation Surcharge	5%
Renewable Energy Premium per 100 kilowatt-hour (kWh)	$2.70

	Jan.-June, Oct.-Dec.	July-Sept.
Residential (Schedule R)		
Base Charge per Month	$8.91	$8.91
Energy Charge per kWh	$0.06600	$0.07220
PILT per kWh	$0.00593	$0.00633
Residential Demand (Schedule RD)		
Base Charge per Month	$18.00	$18.00
Energy Charge per kWh	$0.02800	$0.02800
PILT per kWh	$0.00466	$0.00497
Demand Charge per kW	$8.21	$8.75
Small General Service (Schedule SG)		
Base Charge per Month	$14.20	$14.20
Energy Charge per kWh	$0.06640	$0.07100
PILT per kWh	$0.00554	$0.00586
Plant Investment Fee per kWh	$0.00514	$0.00514
Large General Service (Schedule LG)		
Base Charge per Month	$65.00	$65.00
Energy Charge per kWh	$0.03350	$0.03490
PILT per kWh	$0.00466	$0.00499
Plant Investment Fee per kWh	$0.00514	$0.00514
Demand Charge per kW	$10.49	$11.51
Primary Service with Customer Owned Transformer (Schedule PT)		
Base Charge per Month	$81.00	$81.00
Energy Charge per kWh	$0.03276	$0.03413
PILT per kWh	$0.00384	$0.00412
Plant Investment Fee per kWh	$0.00499	$0.00499
Demand Charge per kW	$9.49	$10.51

Electric Rates Cont'd

Transmission Voltage by Contract (Schedule TS)

Area Lighting (Schedule AL)	Jan.-Dec.
Rate per watt of bulb	$0.04717
PILT per watt of bulb	$0.00353

Flat Rates (Schedule FR)	Jan.-Dec.
Signal Amplifiers	$27.80
PILT	$2.08
Automatic Sprinkler Controls	$4.13
PILT	$0.31
Bus Shelters	$17.09
PILT	$1.28

Wastewater Rates

Monthly Flat Rate	Inside City	Outside City
Single-family residential	$18.81	$28.22
Multi-family residential per unit	$11.22	$16.83
Non-residential property (Commercial or Industrial)	$125.87	$188.81
Metered Water Service		
Monthly base charge – single-family residential	$8.22	$12.33
Monthly base charge – multi-family residential	$3.43	$5.15
Monthly base charge – commercial	$8.00	$12.00
Volume charge per 1,000 gallons – single-family residential	$2.59	$3.89
Volume charge per 1,000 gallons – multi-family residential	$2.59	$3.89
Volume charge per 1,000 gallons – commercial	$3.21	$4.82
High Strength Surcharge		
BOD charge per pound when discharge is greater than 276 mg/l	$0.44	$0.66
TSS charge per pound when discharge is greater than 207 mg/l	$0.26	$0.39

Water Rates

Metered Rates

The monthly service charge shall be the sum of the base charge and the use fee per 1,000 gallons as set forth below:

Single-Family Residential Base Charge

Tap Size (in inches)	Inside City	Outside City
0.75	$10.07	$15.11
1.00	$12.97	$19.46
1.50	$15.86	$23.79
2.00	$23.84	$35.76
3.00	$82.53	$123.80
4.00	$104.27	$156.41
6.00	$155.00	$232.50

Multi-Family Residential Base Charge

Tap size (in inches)	Inside City	Outside City
0.75	$14.83	$22.25
1.00	$17.73	$26.60
1.25	$19.18	N/A
1.50	$20.62	$30.93
2.00	$28.59	$42.89
3.00	$87.24	$130.86
4.00	$108.96	$163.44
6.00	$159.64	$239.46

Commercial Base Charge

Tap size (in inches)	Inside City	Outside City
0.75	$10.07	$15.11
1.00	$12.97	$19.46
1.50	$15.86	$23.79
2.00	$23.84	$35.76
3.00	$82.53	$123.80
4.00	$104.27	$156.41
6.00	$155.00	$232.50

Water Rates Cont'd

Irrigation Base Charge

Tap size (in inches)	Inside City	Outside City
0.75	$10.07	$15.11
1.00	$12.97	$19.46
1.50	$15.86	$23.79
2.00	$23.84	$35.76
3.00	$82.53	$123.80
4.00	$104.27	$156.41
6.00	$155.00	$232.50

Charges for larger taps will be set by City Council.

Use Fee per 1,000 gallons	Inside City	Outside City
Single-Family Residential	$1.75	$2.63
Multi-Family Residential	$1.61	$2.42
Commercial	$1.76	$2.64
Irrigation	$2.15	$3.23

Hidden Valley Monthly Base Charge for 0.75 inch tap	$160.70
Excess Water Use – Surcharge per 1,000 gallons	$0.75

Water Rates Cont'd

Fire Hydrant Charge per month	
Residential	$2.50
Commercial	$6.20
Fire Protection Tap Service Fee per month	$1.80
Tank and Hydrant Rate per 300 gallons	$1.00

Plant Investment Fees - Electric

Residential Service	
Residential over 150 amp service	$1,630.00
Residential 150 amp service or less	$1,270.00
Non-Residential per kWh	
Small General Service	$0.00514
Large General Service	$0.00514
Primary Service w/customer equipment	$0.00499

System Impact Fees – Wastewater

	Inside City	Outside City
Detached one-family dwelling	$2,510.00	$3,770.00
Attached one-family dwelling, per unit	$2,240.00	$3,360.00
Two-family dwelling, per unit	$2,240.00	$3,360.00
Multifamily dwelling containing 3-8 dwelling units, per unit	$2,240.00	$3,360.00
Multifamily dwelling containing 9 or more dwelling units, per unit	$1,620.00	$2,430.00

Nonresidential

Tap size (in inches)	Inside City	Outside City
0.75	$5,450.00	$8,180.00
1.00	$17,820.00	$26,730.00
1.50	$31,360.00	$47,040.00

Nonresidential taps above 1.5-inch pays the capital recovery surcharge

Capital Recovery Surcharge – Wastewater

Inside City per 1,000 gallons of sewer billed	$0.745
Outside City per 1,000 gallons of sewer billed	$1.118

System Impact Fees – Water

	Inside City	Outside City
Detached one-family dwelling	$4,670.00	$7,010.00
Attached one-family dwelling, per unit	$2,810.00	$4,220.00
Two-family dwelling, per unit	$2,810.00	$4,220.00
Multifamily dwelling containing 3-8 dwelling units, per unit	$2,810.00	$4,220.00
Multifamily dwelling containing 9 or more dwelling units, per unit	$2,010.00	$3,020.00

Nonresidential

Tap size (in inches)	Inside City	Outside City
0.75	$5,480.00	$8,220.00
1.00	$17,350.00	$26,030.00
1.50	$31,890.00	$47,840.00

Irrigation

Tap size (in inches)	Inside City	Outside City
0.75	$11,930.00	$17,900.00
1.00	$32,760.00	$49,140.00
1.50	$84,120.00	$126,180.00
2.00	$105,940.00	$158,910.00
3.00	$271,720.00	$407,580.00

Tap sizes larger than 3-inch shall be established by City Council. The impact fee for taps larger than 1.5 inch applies only to irrigation meters. Nonresidential taps above 1.5 inch pay the capital recovery surcharge.

Hidden Valley Water Tap Activation Fee:
This fee applies to all water taps applied for on or after January 1, 2010 to serve lots authorized pursuant to Resolutions #R-35-2004 and #R-83-2005. Payment of this fee shall be due upon application for the water tap. The fee shall be calculated as follows: A x B x C = fee.

A = Number of months from July 1, 2005 to the activation fee due date
B = $67.00 per month
C = *Engineering News Record* 20 Cities Construction Cost Index (used to inflate the construction costs to current dollars)

Capital Recovery Surcharge - Water

Inside City per 1,000 gallons of water	$0.721
Outside City per 1,000 gallons of water	$1.082

Fire Tap Plant Investment Fee

Fire Tap Plant Investment Fee (outside City only)	$553.00

Raw Water Development Fee

Detached One-Family Dwelling	$1,000.00
Attached One-Family Dwelling, per unit	$1,000.00
Multifamily dwelling containing 2-24 dwelling units, per unit	$626.00
Multifamily dwelling containing 25 or more dwelling units, per unit	$123.00

Nonresidential

Tap size (in inches)	
0.75	$1,000.00
1.00	$1,700.00
1.50	$3,300.00
2.00	$5,300.00
3.00	$10,000.00

Tap sizes larger than 3-inch shall be established by City Council. The impact fee for taps larger than 1.5 inch applies only to irrigation meters. Commercial taps above 1.5 inch pay the capital recovery surcharge.

Raw Water Capital Recovery Surcharge Per 1,000 Gallons

Raw Water Capital Recovery Surcharge Per 1,000 Gallons	$0.15

Electric Fees

Service Turn-On at the meter	$35.00
Service Turn-On at the meter – After Hours	$65.00
Service Turn-Off at the meter resulting from an unauthorized Service Turn-On	$30.00
Disconnect/Reconnect Services	$155.00
Disconnect/Reconnect Services with Engineering	$255.00
Permanent Service Connect (No Disconnect Needed)	$155.00
Permanent Disconnect of Service	$155.00

Electric FeesCont'd

Charges When Access Denied	
Appointment or Special Trip to Read the Meter	$15.00
Appointment or Special Trip to Read the Meter After Hours	$25.00
Appointment or Special Trip to Change the Meter	$55.00
Appointment or Special Trip to Change Meter After Hours or Weekends	$70.00
Service is disconnected at the junction box or the overhead pole	$155.00
When access to the pole is denied, actual costs will be billed	
Residential Service Installations	
Typical Underground with 1/0 CIC	$590.00
Typical Underground with 4/0 CIC	$800.00
Typical Overhead	$310.00
Multiplex 3-6 Units	$700.00
Multiplex 7 or More Units (deposit, to be billed on actuals)	$855.00

Field Engineering Deposits

Residential and duplex single phase installations, 1-2 lots	$800.00
Single commercial buildings, transformer upgrades, raising, lowering, or removing existing power	$1,200.00
Residential subdivision of 3-25 lots, commercial subdivision of 2-10 lots, raising, lowering, or removing existing power	$1,600.00
Residential subdivision of more than 25 lots, commercial subdivision of more than 10 lots, malls, shopping centers, hospitals	$3,000.00
Other Deposits – See Section Fees – Electric "Other Deposits"	
Temporary Residential Connections	$170.00
Termination and energizing electric services to small devices	$285.00
Installation of Area Light	$325.00

Wastewater Fees

Pretreatment Inspection Fee	$70.00
Pretreatment Significant Industrial User (SIU) Laboratory Analysis	$60.00
Pretreatment SIU Public Notification of Violation	$82.00
Tapping Fees 4 inch or 6 inch Tap	$215.00
4 inch Saddle and Stainless Strap	$60.00
6 inch Saddle and Stainless Strap	$80.00

Water Fees

Construction Water Fee	
Tap size (in inches)	
0.75	$34.00
1.00	$56.00
1.50	$113.00
2.00	$180.00
3.00	$336.00
4.00	$559.00
Above 4.00 inch tap will be negotiated with the Water and Power Department	
Water Turn-on Fee – Regular Hours	$35.00
Water Turn-on Fee – After Regular Hours	$60.00
Water Turn-off Fee for Unauthorized Service Turn-on	$30.00
Water Meter Appointment Fee – Regular Hours	$20.00
Water Meter Appointment Fee – After Regular Hours	$30.00
Raw Water Cash-in-lieu Fee per Acre-Foot (City Code Sec.19.04.040)	Set by Loveland Utilities Commission
Native Raw Water Storage Fee per Acre-Foot	
Barnes Ditch	$5,750.00
Big Thompson Ditch & Manufacturing Co.	$3,530.00
Buckingham Irrigation Co. (Geo. Rist Ditch)	$7,400.00
Chubbuck Ditch	$7,400.00
Louden Irrigating Canal and Reservoir Co.	$6,850.00
South Side Ditch Company	$6,770.00

Water Fees Cont'd

Construction Hydrant Meter Deposit	$1,000.00
Hydrant Meter Rental	
Daily Rental	$5.00
Install Fee	$25.00
Remove Fee	$25.00
Moving Meter Fee	$25.00
Water Use	$1.00/300 gallons
Meter Fees	
0.75 inch Meter and Readout	$180.00
1.00 inch Meter and Readout	$255.00
Install Meter and Inspection	
Meter inspect	$45.00
Meter install	$75.00
Water Tapping Fee	
0.75 inch	$285.00
1.00 inch	$285.00
1.50 inch	$325.00
2.00 inch	$340.00
Above 2.00 inch	$355.00

Miscellaneous Fees

Late Payment Penalty	$12.00
Field Collection Fee	$18.00
New Account Fee	$11.00
Reactivation Fee	$10.00
New Account Meter Reading Fee	$10.00
Interfering or Tampering with a Meter – electric or water	$50.00
Return Check (Insufficient Funds) Charge	$25.00
Filing Fee for Unpaid Bills	$35.00

I. Rates - Electric

Resale of Electric Current Prohibited

It is unlawful for any consumer who purchases electric service from the City to sell such service to others.

Surcharge

There is imposed a surcharge in the amount of five percent of base charges plus charges for energy, demand, payment-in-lieu-of-taxes (PILT) for the sale of electric power to services that come into existence in all areas annexed to the City after January 31, 1987, which areas were formerly a part of an exclusive service territory granted to a cooperative electric association by the Public Utilities Commission. Such surcharge shall expire ten years after the effective date of annexation of each such area.

Renewable Energy Premium

Availability
The renewable energy premium is available as an option to all residential, commercial, and industrial customers served under Schedules R, RD, SG, LG, PS, and PT. The renewable energy premium is not available to Transmission Voltage Service, Area Light or Flat Rate customers served under Schedules TS, AL or FE.

Monthly Rate
Premium per each 100 kWh increment of energy $2.70
This charge is in addition to all other regular charges the customer incurs for electric service.

Monthly Minimum
The minimum bill shall be $2.70 for each 100 kWh increment requested by the customer in the service agreement, plus the minimum bill as identified in the principal rate schedule for the customer.

Conditions
Service Restrictions – The supply of renewable energy is limited to the resources made available to the department by its power supplier, Platte River Power Authority (PRPA), and is therefore subject to all terms and conditions identified in PRPA's tariff for Renewable Energy Service.

Service Agreement
The renewable energy premium is an optional charge and requires the customer to sign a service agreement with Loveland Water and Power.

Service Agreement Period
The renewable energy premium for all eligible rate schedules shall be available for a minimum initial period of 12 consecutive months and then continuing month to month thereafter until terminated. After the minimum period, the obligation to purchase or provide renewable energy may be terminated upon 30 days notice by either party. Termination of the principal service shall also terminate the agreement unless the customer chooses to advance the agreement to the new service address.

Service Agreement Amount
Customer may request renewable energy in 100 kWh increments. The billable monthly renewable energy premium will be the number of 100 kWh increments requested by the customer in the service agreement. The actual kilowatt-hours used by the customer in any given month may be more or less than the average.

Self-Generation Rate

Availability
The Self-Generation Rate is available as an option to all electric service customers who own, operate and maintain their own generation equipment.

Monthly Rate – System Size 1-50 kW

	Jan. – June, Oct. – Dec.	**July – Sept.**
Residential		
Base charge	$8.91	$8.91
Energy charge per kWh	$0.06600	$0.07220
Buyback charge per kWh	$0.03798	$0.04071
Monthly minimum bill	$8.91	$8.91
System size range limitation	1-50 kW	1-50 kW
PILT per kWh	$0.00593	$0.00633
Small General		
Base charge	$14.20	$14.20
Energy charge per kWh	$0.06640	$0.07100
Buyback charge per kWh	$0.03798	$0.04071
Monthly minimum bill	$14.20	$14.20
System size range limitation	1-50 kW	1-50 kW
PILT per kWh	$0.00554	$0.00586
Plant Investment Fee per kWh	$0.00514	$0.00514
Large General		
Base charge	$65.00	$65.00
Energy charge per kWh	$0.03350	$0.03490
Demand per kW	$10.49	$11.51
Buyback charge per kWh	$0.03798	$0.04071
Monthly minimum bill	$65.00	$65.00
System size range limitation	1-50 kW	1-50 kW
PILT per kWh	$0.00466	$0.00500
Plant Investment Fee per kWh	$0.00514	$0.00514

Self-Generation Rate Cont'd

Conditions

The city will net meter all energy consumed by the customer and produced by the customer's generation system. Net metering shall be, for billing purposes, the net consumption as measured at the service meter on a monthly basis. Consumption will be measured monthly and in the event net metering is negative in a given month, such that the customer's generation system production is greater than the customer's consumption, there will not be a monthly cash credit for such production. All such excess energy, expressed in kilowatt-hours, shall be carried forward from month to month and credited against the customer's energy consumption, expressed in kilowatt-hours, in subsequent months. In the event that a negative net consumption balance remains after twelve consecutive months following the effective date of customer's commencing on the Self Generation Rate, or any annual anniversary thereafter, the City will pay the customer for such negative balances at the Self Generation Buyback Charge Rate.

Monthly Rate – System Size 51 – 400 kW

Large General Service	**Jan. – Jun.** **Oct. – Dec.**	**July – Sept.**
Base Energy	$65.00	$65.00
Energy Charge per kWh	$0.03350	$0.03490
PILT per kWh	$0.00466	$0.00500
Plant Investment Fee per kWh	$0.00514	$0.00514
Demand per kW	$10.49	$11.51
Buyback charge per kWh	$0.05290	$0.06220
Monthly Minimum Bill	$65.00	$65.00
System Size Range Limitation	51-400 kW	51-400 kW

The Self-Generating customer must be in compliance with the technical specifications and requirements contained in the Standard for Interconnecting Distributed Resources with the City of Loveland Electric Power System as found in the City's Municipal Code, Section 13.12.240 and must enter into a contract with the City.

Residential Service
Schedule R

Availability
Residential Service is available for single-family dwelling units and individually metered multi-family dwelling units at any location within the area served by Loveland Water and Power. Single-family dwelling units and individually metered multi-family dwelling units shall mean those buildings or units used solely as residences and not used in part for any other purpose. This rate is applicable to existing and new residential customers. Service will be delivered through a single meter per dwelling unit, at one point of delivery.

Monthly Rate
The rate for Residential Service shall consist of the sum of the base charge, energy charge, and PILT in accordance with the following table:

Monthly Rate
The rate for Residential Service shall consist of the sum of the base charge, energy charge, and PILT in accordance with the following table:

	Jan. – June, Oct. – Dec.	July – Sept.
Base charge	$8.91	$8.91
Energy charge per kWh	$0.06600	$0.07220
PILT charge per kWh	$0.00593	$0.00633
Monthly minimum bill	$8.91	$8.91

Residential Demand Service
Schedule RD

Availability
Residential Demand Service is available for single-family dwelling units and individually metered multi-family dwelling units at any location within the area served by Loveland Water and Power. Single-family dwelling units and individually metered multi-family units shall mean those buildings or dwelling units used solely as residences and not used in part for any other purpose. Existing accounts may elect service under this schedule by making application to Loveland Water and Power. Service will be delivered through a single meter per dwelling unit, at one point of delivery.

Monthly Rate
The rate for Residential Demand Service shall consist of the sum of the base charge, energy charge, demand charge and PILT in accordance with the following table:

	Jan. – June, Oct. – Dec.	July – Sept.
Base charge	$18.00	$18.00
Energy charge per kWh	$0.02800	$0.02800
PILT charge per kWh	$0.00466	$0.00497
Demand charge per kW	$8.21	$8.75
Monthly minimum bill	$18.00	$18.00

Billing Demand
The demand shall be the highest rate of use in kilowatts during any 15 minute interval of the billing period.

Power Factor Charge
Power factor charge of one hundred percent of the power factor charge incurred by the City on account of and attributable to service to the customer may be billed to the customer.

Small General Service
Schedule SG

Availability
Small General Service is required for all non-residential customers with less than or equal to 50 kW demand per month in ten months of a consecutive 12-month period. This also includes temporary power for non-permanent non-residential customers (for example: firework stands and holiday lights).

Monthly Rate
The rate for Small General Service shall consist of the sum of the base charge, energy charge and PILT in accordance with the following table:

	Jan. – June, Oct. – Dec.	July – Sept.
Base charge	$14.20	$14.20
Energy charge per kWh	$0.06640	$0.07100
PILT charge per kWh	$0.00554	$0.00586
Plant Investment Fee per kWh	$0.00514	$0.00514
Monthly minimum bill	$14.20	$14.20

Conditions
A. Whenever metered demand exceeds 50 kW in any three months out of a consecutive 12-month period, Loveland Water and Power will notify the customer and further service provided to such customer shall be furnished at the Large General Service Rate. The department may install such meters as it deems necessary in order to determine the metered demand.
B. For single-phase, three-wire service, the customer's equipment shall be connected so that the current carried by the neutral conductor shall be not greater than 15 percent of the maximum current in either of the two conductors. For three-phase wye or delta service, the customer's equipment shall be connected so that the current carried by any one-phase conductor shall be no greater than 115 percent of the current in either of the two-phase conductors.

Large General Service
Schedule LG

Availability
Large General Service is required for all non-residential customers exceeding 50 kW demand in any three months out of a consecutive 12-month period.

Continuation for Certain Customers
Customers on the Large General Service rate on January 31, 1999, with less than three months of 50 kW demand in a consecutive 12-month period will be grandfathered into the LG rate.

Monthly Rate
The rate for Large General Service shall consist of the sum of the base charge, energy charge, demand charge and PILT in according with the following table:

	Jan. – June, Oct. – Dec.	July – Sept.
Base charge	$65.00	$65.00
Energy charge per kWh	$0.03350	$0.03490
PILT charge per kWh	$0.00466	$0.00499
Demand charge per kW	$10.49	$11.51
Plant Investment Fee per kWh	$0.00514	$0.00514
Monthly minimum bill	$65.00	$65.00

Billing Demand
The demand shall be the highest rate of use in kilowatts during any 15-minute interval of the billing period.

Power Factor Charge
Power factor charge of one hundred percent of the power factor charge incurred by the City on account of and attributable to service to the customer may be billed to the customer.

Primary Service with Transformer
Schedule PT

Availability
Primary Service is available to all non-residential customers exceeding 50 kW demand in any three months within a 12-month period where service is delivered and metered at the available primary voltage and all serving facilities on the customer's side of the metering point are owned, operated and maintained by the customer.

Monthly Rate
The rate for Primary Service where the customer owns the transformers shall consist of the sum of the base charge, energy charge, demand charge and PILT in accordance with the following table:

	Jan. – June, Oct. – Dec.	July – Sept.
Base charge	$81.00	$81.00
Energy charge per kWh	$0.03276	$0.03413
PILT charge per kWh	$0.00384	$0.00412
Demand charge per kW	$9.49	$10.51
Plant Investment Fee per kWh	$0.00499	$0.00499
Monthly minimum bill	$81.00	$81.00

Billing Demand
The demand shall be the highest rate of use in kilowatts during any 15-minute interval of the billing period.

Power Factor Charge
A power factor charge of one hundred percent of the power factor charge incurred by the City on account of and attributable to service to the customer may be billed to the customer.

Conditions
Transformer ownership and maintenance is the responsibility of the customer receiving service under this rate schedule. The customer requesting this rate schedule is solely responsible for all costs associated with the installation and maintenance of the primary metering equipment and facilities. See the Water and Power Department's *Contractor Construction Standards* for equipment specifications.

Transmission Voltage Service
Schedule TS

Eligibility Requirements
Transmission Voltage Service is available to any customer: (i) whose load is of sufficient magnitude or of an unusual nature such that it cannot be served from the distribution system; and (ii) whose premises are adjacent to transmission lines that are, or by contract can become, lines that supply wholesale power to the city's system; and (iii) who meets the criteria for large user service as set forth in Platte River Power Authority's Tariff 9, or applicable successor tariff.

Character of Service
The power furnished under Schedule TS shall be three phase alternating current and approximately 60 hertz, and delivered at approximately 115kV, or at other voltages subject to conditions as agreed upon, metered at each delivery point.

Charges for Service
The charges for service under Schedule TS shall be determined based on the unique load characteristics and service requirements of the customer. The rate for service delivered under Schedule TS shall at a minimum be sufficient to recover the city's cost of service, including, without limitation, wholesale rates and the city's projected operating and maintenance costs. In addition, the customer shall be responsible for all wholesale charges and fees incurred by the city in providing service under Schedule TS to the customer, including, without limitation, power factor charges.

Conditions of Service
In order to receive service under Schedule TS, the customer must meet the eligibility requirements set forth above and enter into an electric service agreement with the city. All such agreements must meet the requirements of this Schedule TS, protect the integrity of the City's electric system, protect against interference with other city electric customers, and shall address, at a minimum, the following material terms:

- term of the agreement, including initial date of service;
- charges for service, including rate adjustments;
- metering, including configuration, ownership, and maintenance;
- infrastructure, including ownership and maintenance;
- load factor, including any penalties for failure to comply;
- nature and frequency of interruptions (if service is provided on an interruptible basis), including any penalties for failure to comply;
- any other terms and conditions required to be addressed pursuant to Platte River Power Authority's Tariff 9, or applicable successor tariff.

In addition, the agreement must include a waiver of all liability for the city and Platte River Power Authority for actual and consequential damages resulting from interruptions in accordance with the agreement.

The city manager shall be authorized to negotiate all such agreements, in consultation with Platte River Power Authority, and to execute such agreements on behalf of the city.

Area Lighting
Schedule AL

Availability
Area lights will be furnished to customers who request this service for the purpose of lighting private property or alleys or other areas where City street lighting would normally not be installed. Decisions for location of the lights shall be in the discretion of the City. Applications for area lights should be made at the City of Loveland Water and Power Department.

Monthly Rate (Jan.-Dec.)
The rate per watt for area lights shall be.....$0.04717
The PILT charge per watt for area lights shall be.....$0.00353

Conditions
All area lights shall be high pressure sodium vapor units.

Flat Rate Service
Schedule FE

Availability
Small devices attached to the City's electric distribution system for the purpose of amplifying cable TV and telephone signals or operating automatic sprinkler controls in remote locations after June 1, 1992, will not require metering and will be billed on a flat monthly rate. Accounts existing prior to June 1, 1992, shall continue to be metered and billed at their present rate unless the customer requests conversion to the flat rate set forth in this schedule.

Monthly Rates (Jan.-Dec.)

Signal amplifiers	$27.80
Signal amplifiers PILT charge	$2.08
Automatic sprinkler controls	$4.13
Automatic sprinkler controls PILT charge	$0.31
Bus shelters	$17.09
Bus shelters PILT charge	$1.28

Conditions
A. Signal amplifiers can be no greater than 5 amps per device.
B. Automatic sprinkler controls can be no greater than 1.0 amp per device.
C. The department may randomly install meters as it deems necessary in order to monitor the actual consumption.
D. A customer with multiple device locations existing prior to June 1, 1992, requesting a conversion of said devices to the Flat Rate Schedule, must convert all devices existing prior to June 1, 1992, to the Flat Rate Schedule.

II. Fees - Electric

Applications for Electric Service

Every person desiring a supply of electric current from the City, or an upgrade or other change in existing service, shall make application therefore to the City upon forms furnished for that purpose.

Plant Investment Fee

Plant Investment Fees provide for the additional electric transmission, substation and distribution facilities made necessary by the extension of electric service to new connections. The Plant Investment Fee provided herein shall be, in addition to, all of the rates and charges made in connection with the furnishing by the City of electric service, and shall be payable as provided for in this section.

A. Schedule R – Residential Service and Schedule RD – Residential Demand Service. At the time application is made for any dwelling unit to be built within the corporate boundaries of the City, or at the time of application for electric service for any dwelling unit to be built outside the corporate boundaries of the City, there shall be paid to the City a Plant Investment Fee in the amount of $1,630.00 for each electric meter to be installed in connection with the dwelling unit with a service size of greater than 150 amps and $1,270.00 for each electric meter to be installed in connection with the dwelling unit with a service size of 150 amps or less. (Each dwelling unit within a structure containing more than one dwelling unit shall be separately metered). No energization of a permanent connection to any dwelling unit served by the City shall occur unless and until the Plant Investment Fee is paid.

For the purpose of this section, "dwelling unit" means one or more rooms and a kitchen area designed for or occupied as a unit for living and cooking purposes, which is located within a single family, multiple family or mobile home, but excluding congregate care facilities, as those terms are defined in Municipal Code Chapter 18.04. A congregate care facility may receive service under Schedules R, RD, SG, LG, or PT.

Upon application, the Water and Power Department may allow a single meter to serve a multiple family dwelling if such multiple family dwelling is a federally assisted and federally supervised project and the project sponsor is required by the federal agency having jurisdiction thereof to include the provision of electric service within the rent structure for the project. Such project may receive service under Schedules R, RD, SG, LG, or PT. If any such projects should cease to be federally supervised, then the project shall revert to the requirement of individual metering, the Plant Investment Fee for residential service shall be paid and a credit shall be applied against such Plant Investment Fee in the amount of the Plant Investment Fees paid while receiving service under another class.

Plant Investment Fee (cont'd)

B. Schedule SG – Small General Service. The Plant Investment Fee for accounts receiving small general service shall be collected in each billing period. The amount of the Plant Investment Fee to be billed in each period shall be equal to $0.00514 per kWh used by the account during the billing period.

In establishing the Plant Investment Fees in 1979, customers served prior to May 1, 1979, are exempt from the Plant Investment Fee at the existing location only. Customers who have paid the five-year Plant Investment Fee for a particular location are exempt from the fee at the location covered.

C. Schedule LG – Large General Service. The amount of Plant Investment Fee to be billed in each billing period shall be equal to $0.00514 per kWh used by the account during the billing period.

D. Schedule PT– Primary Service with Transformer. The amount of Plant Investment Fee to be billed in each billing period shall be equal to $0.00499 per kWh used by the account during the billing period.

E. Discontinuance of Service. In addition to all of the remedies available to the City, electric service may be discontinued for failure to pay the Plant Investment Fee provided for in this section, and such discontinuance shall be in accordance with the notice procedures set forth in Municipal Code Section 13.02.070.

Service Turn-On Fee at the Meter

During regularly scheduled work hours, there is imposed a fee in the amount of $35.00 for each service turn-on where power is energized at the meter.

After regularly scheduled work hours, there is imposed a fee in the amount of $65.00 for each service turn on where the power is energized at the meter.

After hours fees apply to all requests received after 4 p.m. Monday through Friday, anytime Saturday or Sunday, and all holidays observed by the City of Loveland.

Disconnect and Reconnect Services

Water and Power will perform a typical service disconnect/reconnect where power is energized or de-energized on the line side of the meter, on a flat fee basis.

There is imposed a fee in the amount of $155.00 for each typical service disconnect/reconnect and $255.00 for each typical service disconnect/reconnect with engineering.

A typical service disconnect/reconnect is defined as one where there is no increase in wire size or length.

All other service disconnect/reconnects will be billed at Water and Power's actual cost.

Permanent Disconnect and Removal of Service

Where a request for permanent disconnection and removal of single-phase service has been requested, there is imposed a flat fee of $155.00.

Where a request for permanent termination of three-phase service has been requested, charges will be billed at Water and Power's actual cost.

Charges When Access Denied

There is imposed a charge as set forth in this section, that shall be due and payable when billed, to cover the additional costs and expenses incurred by the City whenever clear access to the meter location is denied. Clear access shall be deemed to be denied whenever, because of locked gates, animals confined in the same space as the meter location, or for any other reason, and after making a reasonable attempt to locate a person upon the premises to gain access, an authorized representative of the City is unable to read the meter, change the meter, or perform such other function as such representative is lawfully authorized to perform. The amount of such charge shall be as follows:

A. When clear access is denied for two successive meter readings, and an appointment is made with the consumer or a special trip is made for reading the meter, a charge of $15.00 is imposed for such appointment or special trip occurring during regular business hours, and $25.00 for such appointment occurring during off-duty hours and weekends.
B. When clear access is denied and a special trip is made to change a meter on the department's regular maintenance program, a $55.00 charge is imposed.
C. When clear access is denied for the purpose of disconnecting service, and service is disconnected at the junction box or overhead pole, a charge of $155.00 is imposed.
D. When clear access is denied for the purpose of disconnecting service at the junction box or overhead pole, the actual costs will be billed.

Residential Service Installations and Upgrades for Single Family and Duplex Dwellings

A. A typical new residential service installation will be performed by the Water and Power Department on a flat fee basis. A typical new underground service is defined as having a trench length of 100 feet or less; trenching to be performed in normal soil conditions.
    1. For a service using 1/0 triplex CIC with a panel size of 150 amps or less, the fee is $590.00 and the Plant Investment Fee, as described in the Resolution Schedule of Rates, Charges and Fees as adopted by City Council, shall also be collected.
    2. For a service using 4/0 triplex CIC with a panel size of 200 amps, the fee is $800.00 and the Plant Investment Fee, as described in the Resolution Schedule of Rates, Charges and Fees as adopted by City Council, shall also be collected.

    A typical new overhead service is defined as a service length of 80 feet of less, does not require setting a pole or transformer, is #2 triplex with a panel size of 150 amps or less, or 1/0 triplex with panel size of 200 amps. The fee for such service is $310.00.

Residential Service Installations and Upgrades for Single Family and Duplex Dwellings (cont'd)

A service not meeting the above criteria shall be billed at the Water and Power Department's actual cost of installation.

Within the city limits of the City of Loveland, the fees shall be collected by the department issuing the building permit for the residence. If outside the city limits, the fee will be collected by the Water and Power Department before work can proceed.

B. Residential service upgrades resulting in services larger than 150 amps and no larger than 200 amps shall require a deposit of $300.00 for overhead, and $800.00 for underground. This deposit will be applied to the actual costs billed by the Water and Power Department upon completion of work performed.

Residential Service Installations and Upgrades for Multiplex Service Installations

A. For purposes of this Resolution, a "multiplex" is defined as a structure containing not less than three and not more than six dwellings.

B. A "typical" multiplex electric service installation will be provided by and installed by the contractor per National Electric Code. It will be energized by the Water and Power Department on a flat fee basis.

A 3-6 unit multiplex service installation will be provided by the contractor in which an electrical secondary source is already in existence. The fee for installation of an electric service in a 3-6 unit multiplex project is $700.00 for the project and the Plant Investment Fee, as described in the current Schedule of Rates, Charges and Fees as adopted by the City Council, shall also be collected for each unit.

A 7 unit or more multiplex service termination and meter set service installation requires a deposit of $855.00 to be made at the Water and Power Department. The contractor is to provide and install all materials. This deposit will be applied to the actual costs billed by the Water and Power Department upon completion of work performed.

Multiplexes requiring an underground service in an overhead service area will have an underground service provided by and installed by the contractor per National Electric Code. They will be billed the actual costs incurred by the Water and Power Department.

If there is no existing source for electric service and an extension of secondary power is necessary, the customer shall pay the actual costs incurred by the Water and Power Department to extend the secondary power source.

Requests for overhead multiplex service installations will be evaluated for feasibility by the Water and Power Department. If overhead service is deemed appropriate, it will be installed and billed at the actual cost incurred by the Water and Power Department.

Residential Service Installations and Upgrades for Multiplex Service Installations (cont'd)

All services to multiplexes will be installed as described in the National Electric Code pertaining to commercial services. NOTE: Duplexes will be billed as outlined in the "Residential Service Installations and Upgrades for Single and Duplex Dwellings" section in the current Schedule of Rates and Charges – Electric.

C. Buildings with greater than six dwelling units:
Any complex containing more than six dwelling units shall pay the actual costs incurred by the Water and Power Department to have a contractor-installed service energized.

Field Engineering Deposits

A customer requesting a new or modified electric service, relocation of facilities, or other work requiring engineering and construction, must make a deposit with the department. If the project is cancelled, the deposit will be applied to the actual charges incurred, any resulting credit or debit will be refunded or billed to the customer. Upon completion of engineering, the customer will deposit with the department the total deposit required.

ENGINEERING DEPOSITS

A. Residential and duplex single phase installations, 1-2 lots.....$800.00
B. Single commercial buildings, transformer upgrades, raising, lowering, or removing existing power.....$1,200.00
C. Residential subdivision of 3-25 lots, commercial subdivision of 2-10 lots, raising, lowering, or removing existing power.....$1,600.00
D. Residential subdivision of more than 25 lots, commercial subdivision of more than 10 lots, malls, shopping centers, hospitals $3,000.00

Other Deposits

The following jobs are standard in nature, and specific deposits have been established for them. In all cases actual costs will be tracked and any resulting credit or debit will be refunded or billed to the customer.

A. Install and terminate secondary riser up to 100 feet (no transformer required)
   - Residential to 200 amps $1,155.00
   - Commercial (cable supplied and installed by customer) $805.00

B. Open transformer to pull in secondary and terminate cable up to 130' $565.00

C. Single phase padmount transformer upgrade (no other customers)
   - Upgrade one transformer size $1,965.00
   - Upgrade two transformer sizes $2,510.00
   - Upgrade three transformer sizes $3,055.00

D. Single phase padmount transformer upgrade (other customers)
   - Upgrade one transformer size $2,525.00
   - Upgrade two transformer sizes..... $3,070.00
   - Upgrade three transformer sizes $3,335.00

E. Single phase overhead transformer upgrade (no other customers)
   - Upgrade one transformer size $1,665.00
   - Upgrade two transformer sizes $2,175.00

F. Single phase overhead transformer upgrade (other customers)
   - Upgrade one transformer size $2,225.00
   - Upgrade two transformer sizes $2,735.00

Note: Work tickets (not work orders) will be opened for these jobs and the actual costs will be billed. The cutoff for work tickets is $1,000.00 except for transformer upgrades.

Temporary Extensions

The following requirements apply to all temporary extensions/connections necessary to serve customers such as transient shows, carnivals, fairs, circuses, concessions, residential construction work, or others of a temporary nature, excluding commercial development construction as defined in the *Contractor Construction Standards*.

A. The customer shall pay a flat rate of $170.00 for the cost of installation and removal of the temporary extension as defined in the *Contractor Construction Standards*, under "Temporary Construction Service". Customers with extensions not meeting these standards will be billed for the actual costs.
B. The customer shall pay for electric consumption monthly under the applicable rate.
C. No temporary service shall continue beyond the time of building occupancy, or eighteen months from connection of such temporary service, whichever occurs sooner, without the consent of the City.
D. The City may refuse to connect additional customers to temporary extensions until the temporary extensions have become permanent.

Area Lighting

A 100-watt high pressure sodium vapor fixture will be furnished and installed by the City at a fixed one time charge. Any fixture other than a 100-watt fixture, poles, secondary conductor and other apparatus, if required, will be provided at an additional charge based on actual costs incurred by the Water and Power Department. Decisions for location of the lights shall be at the discretion of the City. Applications for area lights should be made at the City of Loveland Water and Power Department. The fee for the installation of a 100-watt high pressure sodium vapor fixture is $325.00.

Energizing of Electric Service to Small Devices Qualifying for Flat Rate Service

There will be a flat fee for the energizing of electric service to small devices attached to the City's electric distribution system for the purpose of amplifying cable TV and telephone signals or operating automatic sprinkler controls in remote locations. A fee of $285.00 shall be charged to the customer for the actual installation of the service. No outlets will be permitted, nor shall there be lighting of any kind connected to this type of service. If there is no existing source and an extension of secondary power is necessary, the customer will pay for actual costs to energize the device

Pole Attachment Fee

Each attachment by a non-City utility to a City of Loveland power pole will be charged $21.64 per year.

III.Fees - Miscellaneous

After Hours
After hours fees apply to all requests received after 4:00 p.m. Monday through Friday, anytime Saturday or Sunday, and all holidays observed by the City of Loveland.

Fire Hydrant and Fire Protection Tap
A charge of $2.50 per residence and $6.20 per business per month shall be paid by water users outside the city who are located within one thousand feet of a fire hydrant, measured along roads or streets, and $6.20 per month per tap for each fire protection tap serving premises outside the city. If fire protection tap service is the only city utility service received by the premises, an administrative fee of $1.80 per month shall also be paid.

Hydrant Meter Guidelines
General: Fire hydrants are installed for the main purpose of fire protection. Whenever a hydrant meter is placed on a hydrant, that hydrant is, for all practical purposes, out of service and the chances of causing damage to that hydrant are increased. For these reasons and the potential for problems involved with providing hydrant meters on a rental basis, it has become necessary to establish more clearly defined guidelines for the use of hydrant meters.

Intent: The use of fire hydrant meters is intended for only those situations when a large volume of water is needed in a short period of time. These meters shall not be used as a temporary substitute for a permanent water service connection or a permanent irrigation tap. Examples of acceptable and unacceptable uses are as follows:

Acceptable:
- Providing water for increasing moisture during earthmoving.
- Filling swimming pools.
- Filling tanks on water truck (No chemicals allowed in tank).

Unacceptable
- Masonry work
- Car washes
- Irrigation
- Water for concrete saws
- Washing streets or parking lots

Hydrant Meter Guidelines (cont'd)

Guidelines & Procedures: The following guidelines shall be used for regulating the use of fire hydrant meters:

1. Requests for hydrant meters must be received a minimum of 48 hours prior to the time needed. All requests should be made by contacting the Water and Power Department at 970-962-3701. The applicant must sign the Hydrant Meter Request Form at the Water and Power Department, 200 N. Wilson Avenue, and post a deposit of $1,000.00 (money order or cashier's check) before the meter will be set. The deposit shall be held until all costs associated with the hydrant rental are paid in full and may be used to offset any such costs not paid within 30 days of issuance of the final invoice.
2. Each request will be reviewed to determine if the proposed use meets the intent of these guidelines. The use of the water from a hydrant meter for other than the stated purposes or misrepresentation of that use will result in the loss of the convenience of obtaining water in this manner.
3. The City will determine on a case-by-case basis whether or not a particular hydrant is acceptable for the installation of a meter. Not all hydrants are available for use with a meter. If the requested hydrant is not available, alternate hydrants will be suggested.
4. Water Utility personnel will install the meter, secure it to the hydrant, and operate the hydrant. Customer shall control flow of water with valve provided on meter assembly. Customer is responsible for securing this valve to prevent the unauthorized use of water by others. Removal of the handle or hand wheel from the control valve is not an acceptable method of securing the valve. ONLY trained City employees will be authorized to operate fire hydrants.
5. During the winter months, hydrant meters will be issued only on a day-to-day basis when outside temperatures are above freezing and are expected to remain above freezing for most of the day. Meters will be installed as soon after 8:00 a.m. as practical, and will be picked up at approximately 3:00 p.m. or earlier if outside temperatures drop below freezing, or if requested.
6. Meters will be issued with a male 2½" National Standard thread connection. No hoses or adapters will be provided.
7. Customer is responsible for all rental fees and other charges. A copy of the current fees is attached. These fees will include charges for all water use.
8. Customer is responsible for any and all damage to the meter and/or fire hydrant while meter is installed. If damage occurs, an invoice will be issued to cover all repair or replacement costs, and customer shall promptly pay the invoiced amount.
9. Number of hydrant meters is limited; therefore the meters are available on a first-come/first-served basis. A separate request form must be submitted for each location and/or time period requested.
10. In accordance with the City Code, it is unlawful to waste water. Every effort should be made to conserve this valuable resource. Wasteful uses will not be allowed.
11. Failure to comply with these guidelines, or illegally obtaining water from, or in any way tampering with a fire hydrant, is in violation of the City Code, and upon conviction is punishable by a fine or imprisonment.

Alternate Source of Water: For building construction projects, water is also available through permanent water taps at a construction billing rate. This source of water is handled by the Building Division, 500 E. 3rd Street, 962-2504, and typically issued along with a building permit.

Summary of Hydrant Meter Fees and Charges

Installation of meter	$25.00*
Moving meter	$25.00*
Removal of meter	$25.00*
Meter rental	$5.00/day
Water used	$1.00/300 gallons

*After hour services (normal hours are Monday through Friday, 7:30 a.m. to 4:00 p.m.) will be charged for overtime labor rates in addition to the $25.00 charge

New Account or Reactivation Fee and New Account Meter Reading Fee. Connection fees in the following amounts are hereby imposed, to be collected with the first utility bill rendered after utility service has been established or a customer account or utility service is reactivated following voluntary or involuntary termination:

Activation or establishment of a customer account for a service address $11.00
Meter reading charge for service address if read by Utility Billing Division.....$10.00
Reactivation of a customer account for a service address $10.00
Interfering or Tampering with a Meter $50.00

Automated Load Profile Metering Program (ALPS). No new ALPS customers will be accepted after 2009. Commercial and industrial customers will be given the option of utilizing specialized metering equipment that will allow them to monitor their utility consumption on a daily basis through a web-based program. The fees to participate in this program are according to the following schedule:

Monthly Fee Per Meter

First 9 meters	$67.50
Meters 10 through 19	$54.00
Meters 20 and up	$50.00

Customers that will be enrolling to use this service will need to provide their own telephone line, preferably a line dedicated solely for this purpose. The cost of the telephone line will be borne by the customer. If a customer signs up for the program, and then decides to leave the program in less than one year, the customer will be subject to a $200 exit fee per meter.

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Appendix B
City of Loveland Irrigation Plan

IRRIGATION CONSERVATION PLAN:

The purpose of this plan is for the conservation of irrigation water during a supply shortage. It includes both domestic and raw water irrigation systems stemming from Parks to Public Grounds. A multi-level approach was used to determine the extent of conservation needed based on water availability, budget considerations, local mandates, and emergency situations.

IRRIGATION SYSTEM WATER REQUIREMENTS:

1. Under normal operating conditions the Parks and Public Grounds irrigation systems are capable of applying 1.50" (inches) of water per week on average. This translates into about 40,712 gallons per acre during peak demand periods. Several factors need to be applied when calculating actual turf watering requirements: types of grasses being irrigated (Blue Grass, Buffalo Grass, Turf Type Fescue, etc.); site conditions (shady, sunny, hillside, low area, soil type, soil compaction, etc.); site impacts (low use, high use, sports turf, green belts, etc.); safety concerns regarding recreation activities (hard playing surfaces, large cracks in the soil, bare ground, etc.); current weather conditions (evapotransporation rates, temperatures, soil moisture levels, wind, sunshine, weekly rain totals); aesthetics (public buildings, sculpture parks, planned public events, etc.).

2. It would be impractical to develop a conservation plan that could take every possible environmental and site use consideration into account. The watering requirements under this plan will take an average for each area of consideration and place the highest priority on recreational safety, long-term turf damage and tree loss followed by aesthetics and special event considerations.

3. System designs and limitations will also play a key role in the ability to adjust programming and watering schedules. Several park sites lack the capacity to water the entire area in just one night. In these situations, half of the irrigation controllers will run one night and the other half of the controllers run the second night. This creates an odd/even watering schedule to accommodate at least several applications of water per week. In the event of a local mandate by the City Council to limit the watering days to specific days of the week rather than odd or even, we could lose 50% or more of our irrigation watering window. Example: a normal four-day schedule reduced to two days with the same watering window would equal a 50% reduction, on the other hand, a odd/even system reduced to two days per week would result in each controller operating only one time per week or a 75% reduction. This would exceed mandated target amounts and result in increased the losses to landscape.

SITE PRIORITIES:

Before a conservation plan can be implemented all sites need to be first ranked according to an individual priority within the entire system. This will allow for other considerations such as budgets, special events, raw water availability, and recreational programming needs. Sites that have high levels of recreational activities and community parks/public grounds are given top priority. Within each of these sites there is often an area of lessor priority that will be given a lower ranking in the site-specific conservation plan.

DETERMINING THE NEED FOR CONSERVATION:

The need to implement a water conservation plan may be driven by either internal or external factors. These factors may include community water shortages caused by a drought, disruption of the supply lines due to mechanical failures, water diversions to other communities experiencing shortages, or budget shortfalls. The severity and duration of such events will be a key factor as to the level of conservation that will be required. For the purposes of this plan, a four-tier approach will be used to conserve water to varying degrees. This will allow for a general systematic approach to conservation based on current conditions and restrictions. The intent of this plan is to provide a sound basis for conservation and to allow for changing variables.

FOUR TIER APPROACH:

A four-tier approach was used to determine a target level of required water savings and an action plan to achieve these targets for each individual site. The action plan for each site is based on the primary areas of use, function, and priority ranking.

Table 1 - Drought Stages and Impacts

Drought Stage	Reduction Goal	Response Options	Anticipated User Impacts	Anticipated Landscape Impacts
Stage I **Moderate**	10%	Reduce irrigation programs by 10%	N/A	No noticeable loss short term.
Stage II **Serious**	25%	Cut the equivalent of one watering day from the normal watering schedule.	1st year -aesthetic impact. Two or more years increased risk of sports injury and poor aesthetics.	1st year 5% turf loss. 2nd year 15% turf loss. 3 plus years > 15% turf loss and increased tree mortality in younger trees.
Stage III **Severe**	50%	Cut the equivalent of two days from the normal watering schedule	1st year- fields will show a significant increase in wear. 2nd year plus- fields may become a safety issue and might need to be closed or have restricted use	1st year-10% turf loss. 2nd year 30% turf loss. 3 plus years > 50% turf loss and increased tree mortality including established trees
Stage IV **Extreme**	75%	Cut the equivalent of three days from the normal watering schedule.	1st year- fields may become a safety issue and might need to be closed or have restricted use. 2nd year- Fields will be closed to all users.	1st year-50% turf loss. 2nd year plus >50% turf loss. And high tree mortality including established trees

TIER I - MODERATE

Use Reduction Target - 10 percent

This tier is intended for a seasonal drought or a possible minor disruption in water distribution system. A 10 percent reduction in the micro managed irrigation watering window will accomplish this goal. No noticeable loss of turf or landscape would be anticipated as a result of this short term reduction

TIER II - SERIOUS

Use Reduction Target - 25 percent

This tier is intended for a multiple year drought with imposed community watering restrictions with a target reduction rate of 25 percent. A 25 percent reduction in the micro managed watering window for sites requiring an odd/even programming schedule or the equivalent elimination of one watering day at all other locations with a normal program of four days per week will accomplish this goal. Some minor turf loss would be anticipated as a result of this reduction in the first two years. Continued reductions for more than two years at this level may result in an overall turf loss in excess of fifteen percent and a twenty percent increase in tree mortality rates. The most noticeable effects will be in high use areas

TIER III - SERVERE

Use Reduction Target - 50 percent

This tier is intended for a multiple year drought with imposed community watering restrictions with a target reduction rate of 50 percent. For sites requiring an odd/even programming schedule a change would be made to switch these sites to specific days of the week. Odd controllers would run Sunday and Wednesday; even controllers would run Monday and Thursday. Both types of controllers would run at 80 percent of normal to achieve a 50 percent reduction. The equivalent elimination of two watering days at all other locations normally programmed for four days per week will achieve a 50 percent reduction at those locations. At community parks and public grounds additional controller modifications may include reducing watering times on low use areas within a site and adding that savings to an extra run on a third day for high use areas at the same location. A ten to thirty percent overall turf loss would be anticipated as a result of this reduction in the first two years. Continued reductions for more than two years at this level may result in an overall turf loss in excess of fifty percent and an increase in tree mortality rates above twenty percent. The most noticeable effects will be in high use areas and recently planted landscape.

TIER IV - EXTREME

Use Reduction Target - 75 percent

This tier is intended for a long term multiple year drought with imposed community watering restrictions with a target reduction rate of 75 percent. For sites requiring an odd/even programming schedule a change would be made to switch these sites to specific days of the week. Odd controllers would run Sunday and Wednesday; even controllers would run Monday and Thursday. Both types of controllers would run at 50 percent of normal and very low use areas would be turned off as needed to achieve a 75 percent reduction. The equivalent elimination of two watering days at all other locations normally programmed for four days per week and reducing these controllers to fifty percent of normal will achieve a 75 percent reduction at these locations. At community parks and public grounds additional controller modifications may include reducing watering times on low use areas within a site and adding that savings to increased percents on high use areas at the same location. A fifty percent or more overall turf loss would be anticipated as a result of this reduction in the first two years. Continued reductions for more than two years at this level may result in a complete turf loss and an increase in tree mortality rates above fifty percent including well established trees. The effects will be noticeable at all locations.

POTABLE WATER CONSERVATION - IRRIGATION:

This plan is broken down to specific sites that have a potable irrigation water source. These sites are listed on a priority basis. The first few sites on the list have the highest priority for irrigation and would be impacted last by any mandatory watering reductions if such mandates allow for selection. The sites listed further down the list are of lower priority for irrigation and would be subject to the initial water conservation. The second part of this plan has each site listed alphabetically. They have been divided into two sections, Parks and Public Grounds. Each site has a four-tier approach to water conservation with recommended irrigation programming schedules, zone deletions, and special considerations. The calculations show the amount of water that could potentially be saved when compared to normal operating practices. Each site is followed by a brief summary that explains the possible impacts, such as the long-term effects and recreational/aesthetic implications.

Site Priority Ranking

Parks:

1. Loch Lon
2. Osborn/Winona
3. Dwayne Webster
4. South Shore Parkway
5. Woodmere
6. Eagleview
7. Seven Lakes
8. Sherri-Mar
9. Edmondson
10. Silver Glen
11. Derby Hill
12. Namaqua
13. Junior Achievement
14. Estrella
15. Westside
16. Kirkview
17. Loch Mount

Public Grounds:

1. McWhinney Hahn Visitor Center
2. Police and Courts
3. Glen Arbor
4. Service Center
5. Fire Station #1
6. Fire Station #2
7. Fire Station #3
8. Fire Station #4
9. Fire Station #5
10. Fire Station #6
11. South West 14th
12. Xeriscape Garden
13. Park Maintenance Shop
14. Iron Shirt
15. Museum
16. Fire Training Center
17. Detention Pond Tyler
18. Detention Pond Dotsero

Note: Sites on the top of this list have the highest priority for continued irrigation and the sites on the bottom of this list have the lowest priority.

RAW WATER CONSERVATION - IRRIGATION:

This plan is broken down to specific sites that have a raw water irrigation source. These sites are listed on a priority basis. The first few sites on the list have the highest priority for irrigation and would be impacted last by any mandatory (political/budgetary) watering reductions if such mandates allow for selection. Most of these sites are independent of each other and rely on separate raw water sources. Conservation methods will normally be based on water availability from specific sources rather than by a site priority. When feasible the sites listed further down the list are of lower priority for irrigation and would be subject to the initial water conservation. The second part of this plan has each site listed alphabetically. They have been divided into two sections, Parks and Public Grounds. Each site has a four-tier approach to water conservation with recommended irrigation programming schedules, zone deletions, and special considerations. The calculations show the amount of water that could potentially be saved when compared to normal operating practices. Each site is followed by a brief summary that explains the possible impacts, such as the long-term effects and recreational/aesthetic implications.

Site Priority Ranking

Parks:

1. Loveland Sports Park
2. Fairgrounds/Barnes
3. North Lake
4. Centennial
5. Kroh
6. Benson
7. Sunnyside
8. McKee
9. Silver Lake

Public Grounds:

1. Civic Center

Note: Sites on the top of this list have the highest priority for continued irrigation if water sources allow and the sites on the bottom of this list have the lowest priority.

Park/Public Ground: Kroh Park

Brief Site Description:

This is a 37.3 acre community park used primarily for soccer. This facility is irrigated with raw water from the Louden Ditch Company with supplemental domestic water in the off-season. The holding pond that is located in the center of the park and has about a 12-acre foot capacity. During the peak of the irrigation season this site requires about 3.5 to 4.0 acre-feet of water per week. A total loss of irrigation would result in excessive turf damage and unsafe playing conditions on the soccer fields.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan.

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Sunday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact soccer fields. Set the water budget on field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Sunday, Wednesday, and Friday on the athletic field zones.

- Turn off two days on all non-athletic field area irrigation zones from the normal four day schedule. Athletic areas include soccer/ball fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering days will be Tuesday and Thursday

Tier#4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact soccer fields. Set the water budget on athletic field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include soccer/ball fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

- Turn off all half head zones in non-recreational areas.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: North Lake Park

Brief Site Description:

This is a 60.2-acre community park used primarily for recreation, swimming, picnics, community events, stage productions, and high school athletics. This facility is irrigated with raw water from the Louden Ditch Company. The holding pond that is located near the amphitheater has a 18-acre foot capacity. During the peak of the irrigation season this site requires about 4.5 to 5.0 acre-feet of water per week. A total loss of irrigation would result in excessive turf damage around shelters, the swim beach, recreation areas, event locations and would contribute to unsafe playing conditions on the soccer and baseball fields. Special Note: The School District shares this raw water source with North Lake Park and Benson Park. Any conservation methods would need to be done jointly with the School District in order to achieve the desired results. Please refer to the Benson Park conservation plan for further details relating to that facility.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan.

Tier #2 Conservation:

- Reduce the watering percent on the odd/even controllers by 25%, based on current weather and site considerations, but no more than 75% of normal. Watering days will continue to be odd/even.

- Turn off all buffalo grass zones

Tier#3 Conservation:

- Reduce the watering schedule to three days on lower use areas (controllers Ab, B, E, F, G, H, and L) from the normal odd/even cycle and water up to 50% of normal based on current weather and site considerations. Watering days on low use areas will be Sunday, Tuesday, and Friday. On high use areas including athletic fields and shelter areas change the odd/even schedule to four days per week (controllers A, D, I, J, K, and M) and water up to 70% of normal based on current weather and site considerations. Watering days on high use areas will be Saturday, Monday, Wednesday, and Thursday.

- Turn off all buffalo grass zones

- Turn off all half-head irrigation zones in non-recreational/low use areas and add savings to high use areas as needed.

Tier#4 Conservation:

- Reduce the watering schedule to two days on lower use areas (controllers Ab, B, E, F, G, H, and L) from the normal odd/even cycle and water up to 50% of normal based on current weather and site considerations. Watering days on low use areas will be Sunday and Friday. On high use areas including athletic fields and shelter areas change the odd/even schedule to two days per week (controllers A, D, I, J, K, and M) and water up to 60% of normal based on current weather and site considerations. Watering days on high use areas will be Monday and Thursday.

- Turn off all half-head irrigation zones in non-recreational/ low use areas and add savings to high use areas as needed.

- Turn off all buffalo grass zones

- Turn off parking island near the swim beech lot

- Turn off irrigation on flat area north and east of the tennis courts

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in athletic and shelter areas. Tier three may require the closure of some or all athletic fields after one year and potentially the cancellation of special events or shelter reservations. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in athletic and shelter areas. Tier four would require the immediate closure of all athletic fields, and the cancellation of shelter reservations and special events.

Park/Public Ground: Centennial Park

Brief Site Description:

This is a 35-acre community park used primarily for picnics, and baseball. This facility is irrigated with raw water from the Big Thompson Ditch Company. The holding pond that is located on the south side of First Street has a 30-acre foot capacity. During the peak of the irrigation season this site requires about 1.75 to 2.0 acre feet of water per week. A total loss of irrigation would result in excessive turf damage in the ball fields and around the playground. This would contribute to unsafe playing conditions on the baseball fields.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan.

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact ball fields. Set the water budget on field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the athletic field zones.

- Turn off two days on all non-athletic field area irrigation zones from the normal four day schedule. Athletic areas include all ball fields. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering days will be Tuesday and Thursday

Tier#4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact ball fields. Set the water budget on athletic field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include ball fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: Barnes Park

Brief Site Description:

This is a 24-acre community park used primarily for baseball. This facility is irrigated with raw water from the Farmers Ditch Company. The holding pond that is located in the southeast corner of the park has a 1-acre foot capacity. This holding pond also receives some of its water through ground water infiltration in wet years and can loses water due to groundwater outflow in dry years. During the peak of the irrigation season this site requires about 1.5 to 2.0 acre feet of water per week depending on ground water levels at the holding pond. A total loss of irrigation would result in excessive turf damage in the ball fields and around the playground. This would contribute to unsafe playing conditions on the baseball fields.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact ball fields. Set the water budget on field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the athletic field zones.

- Turn off two days on all non-athletic field area irrigation zones from the normal four day schedule. Athletic areas include all ball fields. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all non-recreational area half head zones. Recreational areas include ball fields only.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact ball fields. Set the water budget on athletic field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include ball fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: Loch Lon Park

Brief Site Description:

This is a 10.7 acre neighborhood park used for general recreation and soccer. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 410,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer fields and around the playground. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact soccer fields. Set the water budget on field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the athletic field zones.

- Turn off two days on all non-athletic field area irrigation zones from the normal four day schedule. Athletic areas include all soccer fields. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all non-recreational area half head zones. Recreational areas include soccer fields only.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact soccer fields. Set the water budget on athletic field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include soccer fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: Osborn Park/Pool

Brief Site Description:

This is a 13 acre neighborhood park and community pool complex used for soccer, softball and swimming. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 326,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer fields and around the pool area. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the soccer field and zones inside the pool area when the pool is open. Set the water budget on field zones at 75% and pool zones to 60% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the athletic field zones.

- Turn off two days on all non-athletic field area irrigation zones including the pool area during the months the pool is not open from the normal four day schedule. Athletic areas include all soccer fields. Reduce the percent on these zones to 65% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all non-recreational area half head zones unless the zone is sole source for a specific area. Recreational areas include soccer field and zones inside the pool fence only.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact soccer fields. Set the water budget on the soccer field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones including the pool area from the normal four-day schedule. Athletic areas include soccer fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas including the pool.

Park/Public Ground: Seven Lakes Park

Brief Site Description:

This is a 10.2 acre neighborhood park used for soccer and picnics. This facility is irrigated with raw water from the Seven Lakes Reservoir Company. This water reservoir is used jointly by the Upper and Lower Hoffman Lake property owners, Mckee Hospital and McKee/Seven Lakes Parks. Refer to the McKee Park conservation plan for further information. In the case of a raw water shortage McKee hospital will convert to a private domestic watering source. During the peak of the irrigation season this site requires about 1.25 acre-feet of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer fields and around the playground. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the soccer field. Set the water budget on field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the athletic field zones.

- Turn off two days on all non-athletic field area irrigation zones from the normal four day schedule. Athletic areas include the soccer field only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all non-recreational area half head zones unless a zone is sole source for a specific area. Recreational areas include soccer fields only.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact the soccer field. Set the water budget on athletic field zones at 75% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include the soccer field only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: Dwayne Webster Park

Brief Site Description:

This is a 5.4 acre neighborhood park used for picnics and family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 430,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in around the playground and shelter areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan.

Tier #2 Conservation:

- Reduce the watering percent on the odd/even controllers by 25%, based on current weather and site considerations, but no more than 75% of normal. Watering days will continue to be odd/even.

Tier#3 Conservation:

- Reduce the watering schedule from the normal odd/even schedule to a three day schedule. Implement the emergency micro management watering schedule to accommodate all zones watering in a single night. This will automatically cut 25% off the normal run times per zone on average. Set the water budget on this reduced schedule to 100% or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

- Turn off all non-recreational area half head zones unless a zone is sole source for a specific area. Recreational areas include shelter areas only.

Tier #4 Conservation:

- Reduce the watering schedule from the normal odd/even schedule to a two day schedule. Implement the emergency micro management watering schedule to accommodate all zones watering in a single night. This will automatically cut 25% off the normal run times per zone on average. Set the water budget on this reduced schedule to 75% or less based on current weather and site considerations. Watering days will be Monday and Friday.

- Turn off all non-recreational area half head zones unless a zone is sole source for a specific area. Recreational areas include shelter areas only.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of some or all athletic fields after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: South Shore Scenic Way

Brief Site Description:

This is a 5.3 acre scenic walkway along Lake Loveland. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 138,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the parking lots and poor aesthetics along highway 34.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on all zones. Set the water budget to 67% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget to 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased wear in high use areas near the parking lots. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would require a consideration to be made regarding the potential impacts of the Fourth of July celebration.

Park/Public Ground: Benson Park

Brief Site Description:

This is a 13.5 acre sculpture park. This facility is irrigated with raw water from the Louden Ditch Company. The pumping station is located on the holding pond in North Lake Park. This holding pond is used jointly by the RJ2 School District for Loveland High School and by North Lake/Benson Parks. During the peak of the irrigation season this site requires about 1.25 acre-feet of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics quality of the park and possible turf damage during major events. Please refer to the North Lake Park conservation plan for further details.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan.

Tier #2 Conservation:

- Reduce the watering percent on the odd/even controllers by 25%, based on current weather and site considerations, but no more than 75% of normal. Watering days will continue to be odd/even.

Tier#3 Conservation:

- Reduce the watering schedule to three days on lower use areas (controllers C and D) from the normal odd/even cycle and water up to 50% of normal based on current weather and site considerations. Watering days on low use areas will be Sunday, Tuesday, and Friday. On high use areas including the sculpture show section and the pavilion area change the odd/even schedule to four days per week (controllers A, B, and E) and water up to 60% of normal based on current weather and site considerations. Watering days on high use areas will be Saturday, Monday, Wednesday, and Thursday.

- Turn off all half-head irrigation zones in low use areas to provide water savings needed for the high use areas.

Tier#4 Conservation:

- Reduce the watering schedule to two days on lower use areas (controllers C and D) from the normal odd/even cycle and water up to 50% of normal based on current weather and site considerations. Watering days on low use areas will be Tuesday and Friday. On high use areas including the sculpture show area and pavilion change the odd/even schedule to two days per week (controllers A, B, and E) and water up to 60% of normal based on current weather and site considerations. Watering days on high use areas will be Monday and Thursday.

- Turn off all half-head irrigation zones in low use areas (all areas north of the pavilion and all zones along the ponds) this will provide savings for the high use areas as needed.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased turf loss near high traffic areas. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential turf failures in the sculpture show areas. Tier three may require the potential cancellation of special events such as the sculpture show. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would require the immediate cancellation of the sculpture show and other special events.

Park/Public Ground: Sunnyside Park

Brief Site Description:

This is a 3.6 acre neighborhood park used for general recreation and soccer. This facility is irrigated with well water. During the peak of the irrigation season this site requires about 125,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer fields. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the soccer field. Set the water budget on field zones at 60% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the soccer field zones.

- Turn off two days on all non-soccer field area irrigation zones from the normal four day schedule. Reduce the percent on these zones to 50% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all non-recreational area half head zones that are not sole source for a specific area. Recreational areas include soccer fields only.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact soccer fields. Set the water budget on athletic field zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include soccer fields only. Reduce the percent on these zones to 75% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of the soccer field area after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: Junior Achievement Park

Brief Site Description:

This is a 1.5 acre neighborhood park used for general recreation and skate boarding. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 60,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer/ball fields. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the athletic field area. Set the water budget on field zones at 60% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the field zones.

- Turn off two days on all non-athletic field area irrigation zones from the normal four day schedule. Reduce the percent on these zones to 50% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all non-recreational area half head zones that are not sole source for a specific area. Recreational areas include flat open area on the south side only.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones that impact athletic field. Set the water budget on athletic field zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in non-recreational areas.

- Turn off three days on all non-athletic field area irrigation zones from the normal four-day schedule. Athletic areas include soccer fields only. Reduce the percent on these zones to 65% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier three may require the closure of the athletic field area after one year. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in low use areas and field failures in high use areas. Tier four would require the immediate closure of all athletic fields/high use areas.

Park/Public Ground: Woodmere Park

Brief Site Description:

This is a 4.0 acre neighborhood park used for family and general recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 140,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer/ball field. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the ball field and playground area. Set the water budget on field zones at 70% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the field zones.

- Turn off two days on all low use area irrigation zones from the normal four day schedule. Reduce the percent on these zones to 50% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all half head zones not affecting the playground or ball field and are not sole source for a specific area.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the athletic field and playground area. Set the water budget on athletic field zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in low use areas.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the west end between the fence and the sidewalk and the entrance to the park from the south. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Eagleview Park

Brief Site Description:

This is a 12.0 acre neighborhood park (8.0 irrigated) used for family and general recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 280,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer/ball field. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the ball field and playground area. Set the water budget on field zones at 70% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the field zones.

- Turn off two days on all low use area irrigation zones from the normal four day schedule. Reduce the percent on these zones to 50% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all half head zones not affecting the playground or ball field and are not sole source for a specific area.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the athletic field and playground area. Set the water budget on athletic field zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in low use areas.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the west end between the soccer field and Lincoln Ave, the area adjacent to the west fence line just north of the church parking and the sledding hill. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Sherri-Mar Park

Brief Site Description:

This is a 2.7 acre neighborhood park used for family and general recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 110,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer/playing areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on zones that impact the playing field and playground area. Set the water budget on field zones at 60% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday on the field zones.

- Turn off two days on all low use area irrigation zones from the normal four day schedule. Reduce the percent on these zones to 50% or less based on current weather and site considerations. Watering days will be Monday and Thursday

- Turn off all half head zones not affecting the playground or playing field and are not sole source for a specific area.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the playing field and playground area. Set the water budget on athletic field zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the north third of the park. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in low use areas and potential field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Edmondson Park

Brief Site Description:

This is a 2.61 acre neighborhood park used for family and general recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 106,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the playing field and playground area. Set the water budget on the field and playground zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the area east of the tennis court. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Silver Glen Park

Brief Site Description:

This is a 3.88 acre neighborhood park used for family and general recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 157,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the playing field and playground area. Set the water budget on the field and playground zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the area east of the area between the playground sidewalk and the west fence. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Derby Hill Park

Brief Site Description:

This is a 3.45 acre neighborhood park used for family and general recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 120,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to no more than 75% of the normal odd/even based on current weather and site considerations. Watering days will continue to be odd/even.

Tier#3 Conservation:

- Reduce the watering schedule to two days by implementing the revised conservation micro schedule to replace the normal odd/even day cycle on all zones. Set the water budget on all zones on this revised micro schedule to 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

- Reduce the watering schedule to two days by implementing the revised conservation micro schedule to replace the normal odd/even day cycle on all zones. Set the water budget on all zones on this revised micro schedule to 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the area south east of the playground and the entrance area off Eugene. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Namaqua Park

Brief Site Description:

This is a 4.0 acre neighborhood park used for picnics and general family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 125,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the playing field, shelter, and playground area. Set the water budget on the field, shelter and playground zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the eastern third of the park. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Mckee Park

Brief Site Description:

This is a 3.8 acre neighborhood park used for general family recreation and picnics. This facility is irrigated with raw water from the Seven Lakes Reservoir Company. This is a shared reservoir with the Upper and Lower Hoffman Lake property owners and McKee Hospital. Refer to the Seven Lakes Park conservation plan for further details. During the peak of the irrigation season this site requires about 0.50 acre-feet of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage in the soccer/ ball fields and around the playground. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to no more than 75% of the normal odd/even based on current weather and site considerations. Watering days will continue to be odd/even.

Tier#3 Conservation:

- Reduce the watering schedule to two days by implementing the revised conservation micro schedule to replace the normal odd/even day cycle on all zones. Set the water budget on all zones on this revised micro schedule to 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

- Reduce the watering schedule to two days by implementing the revised conservation micro schedule to replace the normal odd/even day cycle on all zones. Set the water budget on all zones on this revised micro schedule to 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area or around the playground.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Estrella Park

Brief Site Description:

This is a 1.3 acre neighborhood park used for picnics and general family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 53,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in areas that impact the playing field, shelter, and playground area. Set the water budget on the field, shelter and playground zones at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones that are not sole source for a specific area or the playground.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Westside Park

Brief Site Description:

This is a 1.4 acre neighborhood park used for picnics and general family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 57,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Kirkview Park

Brief Site Description:

This is a 1.6 acre neighborhood park used for picnics and general family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 66,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Silver Lake Park

Brief Site Description:

This is a 5.0 acre neighborhood park used for picnics and general family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 204,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in excessive turf damage around the playground and general recreational areas. This would contribute to unsafe playing conditions.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Loch Mount Park

Brief Site Description:

This is a 0.9 acre neighborhood park used for general family recreation. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 37,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Civic Center

Brief Site Description:

This is a 7.66 acre public ground facility that is the site of the City of Loveland municipal building, library and recreation/senior center. This facility is irrigated with well water. During the peak of the irrigation season this site requires about 275,000 gallons of water per week plus varying amounts of water to refill the Foote Lagoon depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle on all zones. Set the water budget at 67% of normal or less based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier #4 Conservation:

- Reduce the watering schedule to two days from the normal four-day cycle on zones in all areas. Set the water budget at 55% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Turn off all half head zones in low use areas that are not sole source for a specific site.

- Turn off three days on all low use area irrigation zones from the normal four-day schedule. Low use areas include the area between the Senior Housing and the Chilson Center, the area west of the Library, and the areas south of the south parking lot. Reduce the percent on these zones to 60% or less based on current weather and site considerations. Watering day will be Monday

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf and could impact special events.

Park/Public Ground: McWhinney Hahn Visitor Center

Brief Site Description:

This is a 4.2 acre public ground facility that is the site of the City of Loveland Chamber of Commerce and Visitor Center. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 175,000 gallons of water per week plus varying amounts of water to refill the sculpture pond depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Police and Courts Center

Brief Site Description:

This is a 2.1 acre (irrigated) public ground facility that is the site of the City of Loveland Justice Center and Police Department. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 72,500 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Glen Arbor Parkway

Brief Site Description:

This is a 1.85 acre public ground facility that is primarily a green belt along highway 287. This facility is irrigated with domestic water. During the peak of the irrigation season this site requires about 70,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose potential safety concerns due to compaction and loss of turf.

Park/Public Ground: Service Center

Brief Site Description:

This is a 4.52 acre public ground maintenance facility for public works, water and power, traffic, vehicle maintenance and school district busses. This facility is irrigated with domestic water from two separate taps. One of these water taps also supplies potable water to the warehouse. During the peak of the irrigation season this site requires about 185,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 55% of normal or less based on current weather and site considerations. Turn off all zones south of the administration building in the flat area (golf course). Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Fire Station #1

Brief Site Description:

This is a 0.2 acre fire station. This facility is irrigated with domestic water from the service tap for the entire building including potable water for the station. During the peak of the irrigation season this site requires about 6,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Fire Station #2

Brief Site Description:

This is a 0.60 acre fire station. This facility is irrigated with domestic water from the service tap for the entire building including potable water for the station. During the peak of the irrigation season this site requires about 24,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Fire Station #3

Brief Site Description:

This is a 0.67 acre fire station. This facility is irrigated with domestic water from the service tap for the entire building including potable water for the station. During the peak of the irrigation season this site requires about 25,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Fire Station #4

Brief Site Description:

This is a 0.65 acre fire station. This facility is irrigated with domestic water from the service tap for the entire building including potable water for the station. During the peak of the irrigation season this site requires about 25,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Fire Station #5

Brief Site Description:

This is a 0.75 acre fire station. This facility is irrigated with domestic water from the service tap for the entire building including potable water for the station. During the peak of the irrigation season this site requires about 30,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Fire Station #6

Brief Site Description:

This is a 1.0 acre (irrigated) fire station. This facility is irrigated with domestic water from the service tap for the entire building including potable water for the station. During the peak of the irrigation season this site requires about 35,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: S.W. 14th

Brief Site Description:

This is a 1.06 acre highway median with buffalo grass and junipers. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 30,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Xeriscape Garden

Brief Site Description:

This is a 0.75 acre xeriscape demonstration garden with turf and shrub plots. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 18,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones by 10% of normal based on current weather and site considerations, but not to exceed 90% of the maximum settings as determined by the micro management plan

Tier #2 Conservation:

- Reduce the watering schedule to three days from the normal four day cycle and continue to water up to 100% of normal based on current weather and site considerations. Watering days will be Monday, Wednesday, and Friday.

- Reduce the watering schedule on normal three day zones to 75% or less based on current weather and site conditions. Watering days will be set as normal

Tier#3 Conservation:

Reduce the watering schedule to two days from the normal four day cycle on all zones. Set the water budget on all zones at 100% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Reduce the watering schedule to two days on normal three day zones and reduce the run time to 75% of normal or less based on current weather and site conditions. Watering days will be Monday and Thursday

Tier #4 Conservation:

Reduce the watering schedule to two days from the normal four-day cycle on all zones. Set the water budget at 50% of normal or less based on current weather and site considerations. Watering days will be Monday and Thursday.

- Reduce the watering schedule to one day on normal three day zones and set the run time to 100% of normal or less based on current weather and site conditions. Watering days will be Monday and Thursday

Summary:

Conservation methods in tier one would reduce the watering requirements by about 10% and would have no short term landscape impacts. Water conservation methods in tier two would reduce the watering requirements by about 25% and would result in turf loss in low use areas and increased field wear. Tier three would reduce the watering requirements by about 50% and would result in turf and tree loss in all areas and potential complete field failures in high use areas. Tier four would reduce the watering requirements by about 75% and would result in large scale turf and tree loss in all areas. Tier four would pose erosion concerns due to compaction and loss of turf.

Park/Public Ground: Park Maintenance Shop

Brief Site Description:

This is a 0.5 acre (landscaped area only) maintenance facility. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 20,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 80% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier #2 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 60% of the maximum settings as determined by the micro management plan and weather conditions**.**

- Turn off all drip irrigation.

Tier#3 Conservation:

- Turn off all drip irrigation zones.

- Reduce the water budget/ times on all remaining irrigation zones to a range between zero and 45% of the maximum settings as determined by the micro management plan and weather conditions**.**

Summary:

Conservation methods in tier one would reduce the watering requirements by about 20%. Water conservation methods in tier two would reduce the watering requirements by about 40%. Tier three would reduce the watering requirements by about 60%.

Park/Public Ground: Iron Shirt

Brief Site Description:

This is a 0.2 acre highway median. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 4,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 75% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier #2 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 60% of the maximum settings as determined by the micro management plan and weather conditions**.**

- Turn off all drip irrigation.

Tier#3 Conservation:

- Turn off all drip irrigation zones.

- Reduce the water budget/ times on all remaining irrigation zones to a range between zero and 40% of the maximum settings as determined by the micro management plan and weather conditions**.**

Summary:

Conservation methods in tier one would reduce the watering requirements by about 25%. Water conservation methods in tier two would reduce the watering requirements by about 40%. Tier three would reduce the watering requirements by about 60%.

Park/Public Ground: Museum

Brief Site Description:

This is a 0.03 acre facility with shrub beds only. This site is irrigated with domestic water from the museum building water supply. During the peak of the irrigation season this site requires about 750 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 75% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier #2 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 50% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier#3 Conservation:

- Reduce the water budget/ times on all remaining irrigation zones to a range between zero and 40% of the maximum settings as determined by the micro management plan and weather conditions**.**

Summary:

Conservation methods in tier one would reduce the watering requirements by about 25%. Water conservation methods in tier two would reduce the watering requirements by about 50%. Tier three would reduce the watering requirements by about 60%.

Park/Public Ground: Fire Training Center

Brief Site Description:

This is a 0.3 acre facility with one turf area. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 12,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 75% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier #2 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 50% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier#3 Conservation:

- Reduce the water budget/ times on all remaining irrigation zones to a range between zero and 40% of the maximum settings as determined by the micro management plan and weather conditions**.**

Summary:

Conservation methods in tier one would reduce the watering requirements by about 25%. Water conservation methods in tier two would reduce the watering requirements by about 50%. Tier three would reduce the watering requirements by about 60%.

Park/Public Ground: Detention Pond at 1st and Tyler

Brief Site Description:

This is a 1.28 acre storm water detention facility. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 46,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 75% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier #2 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 50% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier#3 Conservation:

- Reduce the water budget/ times on all remaining irrigation zones to a range between zero and 40% of the maximum settings as determined by the micro management plan and weather conditions**.**

Summary:

Conservation methods in tier one would reduce the watering requirements by about 25%. Water conservation methods in tier two would reduce the watering requirements by about 50%. Tier three would reduce the watering requirements by about 60%.

Park/Public Ground: Detention Pond at 1st and Dotsero

Brief Site Description:

This is a 1.04 acre storm water detention facility. This site is irrigated with domestic water. During the peak of the irrigation season this site requires about 32,000 gallons of water per week depending on evapotransporation rates. A total loss of irrigation would result in poor aesthetics.

Conservation Methods:

Tier #1 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 75% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier #2 Conservation:

- Reduce the water budget/ times on all irrigation zones to a range between zero and 50% of the maximum settings as determined by the micro management plan and weather conditions**.**

Tier#3 Conservation:

- Reduce the water budget/ times on all remaining irrigation zones to a range between zero and 40% of the maximum settings as determined by the micro management plan and weather conditions**.**

Summary:

Conservation methods in tier one would reduce the watering requirements by about 25%. Water conservation methods in tier two would reduce the watering requirements by about 50%. Tier three would reduce the watering requirements by about 60%.

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Appendix C
Forecasting Future Water Demands

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Forecasting Future Water Demands

This appendix presents the water demand forecasting used to estimate future water demand in the City assuming current trends in water use continued over the coming 8 years – including the effects on past and ongoing water conservation programs, and excluding the effects of new water conservation efforts that will be identified and implemented as a result of this Plan. The forecasting presented herein also characterized the impact of passive savings which are expected to occur over the planning period (i.e., from 2012 to 2020) as a result of customers replacing toilets, dishwashers and clothes washers with more water efficient models independent of any programs that the City implements.

Forecasting was initiated by segregating past monthly water demands for each major customer category:

- Residential – both for inside and outside the City limits – with separate categories for
    - single family,
    - multi-family, and
    - irrigation only accounts.
- Commercial – both for inside and outside the City Limits
- City facility water use including indoor and outdoor uses
- Wholesale water sales
- Other water sales (which relate specifically to pre-paid water sales at City hydrants and the City's stand pipe (AKA – Ranch water))

Forecasting was developed for each customer category individually to develop predictions of monthly and annual water demand for the planning period. The results of the individual predictions by customer category were summed to estimate total water delivery (i.e., billed water). Total treated water demand was calculated by estimating average monthly non-revenue water (based on the period 2005 to 2011) as a percentage of total treated water. Total treated water was finally estimated by dividing total billed water by one less the percentage of non-revenue for each month.

Three separate estimates of monthly total treated water demands were developed to support water conservation planning. The three separate estimates include:

- Estimates for average conditions based on current trends.
- Estimates for above average conditions (i.e., one standard deviation above average) based on current trends.
- Adjusted estimates for average and above average conditions including the impacts of passive water savings.

Average conditions (i.e., demands which will occur no more than 5 out of every 10 years) and above average conditions (i.e., demand which will occur no more than 8 out of 10 years) were forecasted to provide insight into the variability of future demands and the relative impact of proposed water conservation programs on variable future water use.

Assumptions

Specific assumptions used to estimate average future water demands without passive savings (passive savings were added into the forecasted demands under a separate step) are as follows:

- Residential water use inside the City limits will increase at a rate equivalent to the City's predicted growth of housing units (see Table C-1). The housing unit growth rate was used to adjust single family, multi-family and irrigation only water use based on average monthly water use observed over the last 4 years (i.e., 2008 through 2011[1]) for each year from 2012 to 2020, compounded annually.

Table C-1

Year	Population	Housing Units
2010	66,572	27,773
2011	67,455	28,120
2012	68,495	28,300
2013	69,690	29,037
2014	70,991	29,579
2015	72,403	30,167
2016	73,926	30,803
2017	75,449	31,437
2018	76,975	32,073
2019	78,502	32,709
2020	80,086	33,369

- Residential water use outside the City limits will not increase over the planning period, since the City does not currently plan to increase its service area. Therefore, future monthly water demand for each residential customer category outside the City limits (including single family, multi-family and special based use) was maintained at a demand equal to the average monthly water use observed over the last 4 years (i.e., 2008 through 2011[2]).
- Commercial water use, both inside and outside the City limits will increase at a rate equivalent to the City's predicted growth of housing units. The housing unit growth rate was used to adjust commercial water use for customers inside and outside the City limits, as well as commercial special base accounts, based on average monthly water use observed over the last 4 years (i.e., 2008 through 2011[3]) for each year from 2012 to 2020, compounded annually.
- City water use, at its various facilities and parks, will be maintained at current demands, based on average monthly demand for the period 2009 through 2011, since City indoor

[1] 2008 through 2011 were included in the analysis since it was only during this period that these customer categories were tracked by the City. Prior to 2008, the City lumped these accounts into one customer category.
[2] 2008 through 2011 were included in the analysis since it was only during this period that these customer categories were tracked by the City. Prior to 2008, the City lumped these accounts into one customer category.
[3] 2008 through 2011 were included in the analysis since it was only during this period that these customer categories were tracked by the City. Prior to 2008, the City lumped these accounts into one customer category.

water use dropped substantially during this period of time, and the City is not currently planning on expanding its facilities over the planning period.

- Wholesale water use, which represents that interconnection between Little Thompson Water District and the City, is not expected to change over the planning period. Monthly averages for the years 2010 and 2011 were used to estimate future water demand for this account given that prior to 2010 water use tracked by this account was negligible.
- Pre-paid water sold through fire hydrants across the City is not expected to change over the planning period. Monthly averages for the years 2010 and 2011 were used to estimate future water demand for this account given that prior to 2010 water use tracked by this account was negligible.
- Per-paid water sold through the City's stand pipe (i.e., Ranch water), will increase in accordance with future population growth. Analyses presented in Appendix C indicate that both a linear and logarithmic relationship exists between Ranch water use and a three-year rolling average[4] of population growth (which accounts for construction of infrastructure and residences/businesses over time). The logarithmic relationship between population growth and expected water use presented in Figure C-1 was used to estimate future monthly water demands for the planning period based on average monthly demands for the period 2005 to 2011.

Total water billings were estimated by summing the predicted monthly water use for each of these categories of customer water use. Non-revenue was added to total billed water to calculate total treated water demand throughout the planning period.

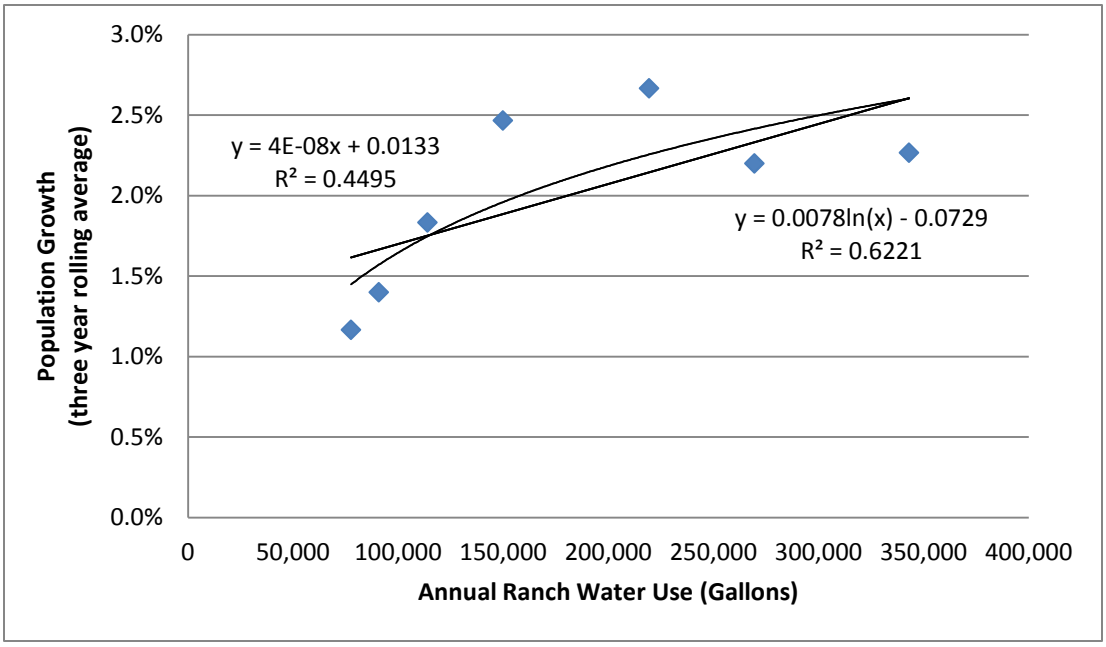
Note that past average monthly water use was not normalized to "per connection use" for the purposes of this analysis, given the expected combined influence of population growth and passive savings over the period 2008 to 2011. Growth in the City was estimated to be about 7% during this period; and passive saving reductions estimated from observed indoor residential water use over this same period of time were also about 7%. Therefore, these two factors were assumed to offset one another. The total treated water delivery in the City is presented in Figure C-2 to illustrate this point since there has not been a demand increase since 2008.

Above Average Conditions

To understand the potential variability on the City's future water demands, a statistical analysis was performed using the last four years of monthly water use data. For purposes of this analysis, it is assumed that the variability in water use relates to the natural variability of weather and behavioral impacts on water use in the City.

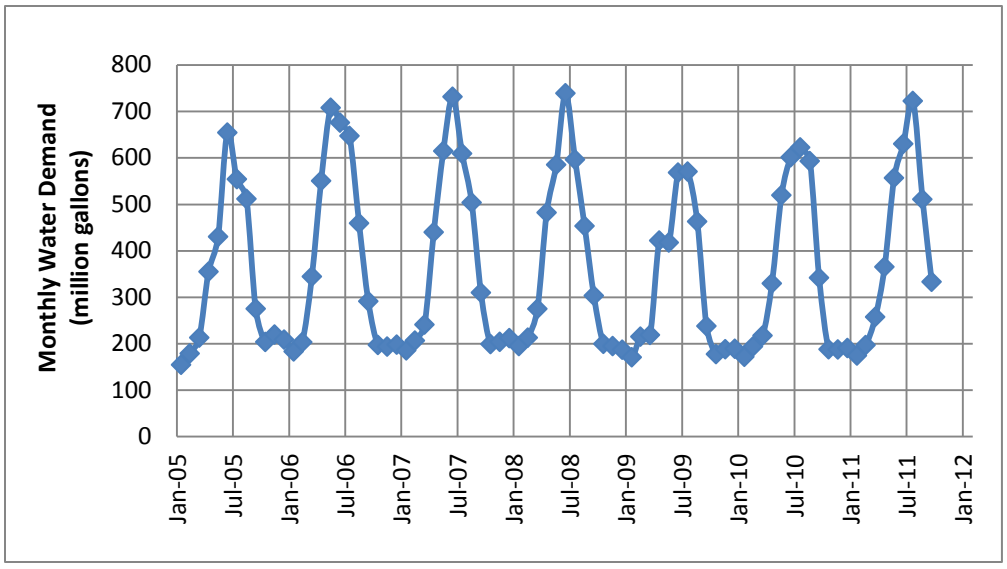
[4] A three-year rolling average was used to smooth the natural variation in the data, and allow for incorporating the multi-year impact of grow on the community (given that build a subdivision typically requires more than one year of construction to allow for building water, sewer and storm sewer systems, as well as individual residences.

Figure C-1 – Correlation of Ranch Water Use to Percent Growth[5]



The importance of developing an above average water demand is as follows: there is a 16% probability that total water demand will be greater than above average conditions (based on estimating water demands one standard deviation greater than average conditions); whereas there is a 50% probability that total water demand will be greater than average conditions. Therefore, above average conditions allows for planning to meet estimated water demands for 8 out of 10 years, as opposed to 5 out of ten years (which is what average conditions represent).

Figure C-2 Total Treated Water Delivery



[5] This figure illustrates a better correlation of Ranch Water use to percent growth using a logarithmic function (R~0.62) versus a linear approximation (R~0.45).

Passive Savings

To incorporate impacts of "passive savings," per capita residential water use (for treated water only) was estimated to decrease over the planning period by between 7.3 to 10.1 gallons per person per day (gpcd) in conjunction with those water demand reductions that are expected to occur as residential customers replace outmoded and broken toilets, dishwashers and clothes washers with new, high efficiency models without the influence of the City's water conservation efforts. Passive conservation only impacted future demands for single family and multi-family residential demands. Passive savings were developed based on recent analyses conducted by the CWCB (Great Western Institute, 2010).[6] For purposes of this plan, the total passive savings demand reductions of 8.7 gpcd (the average of the high and the low estimates) were applied to the annual residential uses for both inside and outside of the City limits, resulting in a reduced annual demand of about 254 million gallons in 2020, or about 700,000 gallons of treated water a day.

Table C-2
Peaking Factors

(MGD/Million Gals)	
Jan	3.85%
Feb	4.50%
Mar	4.22%
Apr	4.81%
May	4.86%
Jun	4.46%
Jul	3.92%
Aug	3.94%
Sep	4.34%
Oct	5.08%
Nov	4.20%
Dec	3.82%

Peak Day Water Demands

Peak daily water demands are of concern to any City that operates a water treatment plant. Loveland is no different. Past peak daily demands in the summer have approached the capacity of the treatment facility. To evaluate future peak daily demands, peaking factors were developed for each month of the year based on the ratio of highest peak daily demand in the month to total monthly demand – as an average over the period from January 2000 through October 2011.

The resulting peaking factors are provided in Table C-2. These peaking factors were multiplied by the average and above average monthly total treated water demands developed through the forecasting effort, to estimate future peak day demands for each month between January 2012 and December 2020.

List of Other Assumptions

In addition to those assumptions presented above, the following assumptions were used to develop the forecasted water demands.

- No substantial changes to current residential water use practices have been included to represent existing or future single and multi-family water use such as:

[6] Passive savings calculations were developed by estimating the reduction to per capita water use for those populations that existed or will exist at key dates during the development of high-efficiency products for consumer use (i.e., 1996 for low-flow toilets (1.6 gallons per flush (gpf)); 2005 for high-efficiency clothes washers and dishwashers; and 2015 for high-efficiency toilets (0.9 to 1.28 gpf)).

- Residential outdoor watering will not occur using grey-water or non-potable water systems; and
- Indoor water use will occur for the same basic configuration of bathroom, laundry and kitchen uses as exist today (noting that passive savings account for the use of new, more efficiency appliances and fixtures without changing the way that the appliance and fixtures are used).

- The City will maintain the current level of non-revenue water and water treatment plant efficiencies into the future.

- No large industrial, commercial and/or manufacturing facilities will be constructed within the City's service area over the next eight years requiring substantial new water supply.

- No substantial change from past measured conditions in current weather and precipitation patterns will occur over the planning period.

Results

The tables that are contained in this appendix provide the results of the forecasting, as described above. These tables are as follows:

- **Table C-3 –** Presentation of monthly water use data including past water use and forecasted monthly water use for average conditions.

- **Table C-4 –** Presentation of monthly water use data including past water use and forecasted monthly water use for above average conditions.

- **Table C-5 –** Presentation of Passive Savings estimates in the form of per capita water use adjusts to future estimated water demands

- **Table C-6 –** Summary of past and predicted annual water use for average and above average conditions without passive savings

- **Table C-7 –** Summary of past and predicted annual water use for average and above average conditions with passive savings

A graphic presentation of the results of the forecasting is provided in the main body of the text.

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Jan-05	109,547,839	-	-	109,547,839	8,390,000		-	-	8,390,000
Feb-05	91,946,900	-	-	91,946,900	6,731,000		-	-	6,731,000
Mar-05	95,470,039	-	-	95,470,039	7,029,100		-	-	7,029,100
Apr-05	121,536,723	-	-	121,536,723	7,677,600		-	-	7,677,600
May-05	160,891,579	-	-	160,891,579	9,462,300		-	-	9,462,300
Jun-05	279,120,014	-	-	279,120,014	13,130,000		-	-	13,130,000
Jul-05	424,146,200	-	-	424,146,200	18,902,000		-	-	18,902,000
Aug-05	425,802,200	-	-	425,802,200	18,743,000		-	-	18,743,000
Sep-05	394,132,748	-	-	394,132,748	17,333,000		-	-	17,333,000
Oct-05	279,788,600	-	-	279,788,600	11,851,800		-	-	11,851,800
Nov-05	128,564,600	-	-	128,564,600	6,710,200		-	-	6,710,200
Dec-05	112,596,900	-	-	112,596,900	7,637,100		-	-	7,637,100
Jan-06	117,025,547	-	-	117,025,547	8,404,900		-	-	8,404,900
Feb-06	103,678,953	-	-	103,678,953	7,021,000		-	-	7,021,000
Mar-06	102,035,487	-	-	102,035,487	7,009,000		-	-	7,009,000
Apr-06	138,511,159	-	-	138,511,159	8,567,000		-	-	8,567,000
May-06	293,578,622	-	-	293,578,622	13,179,800		-	-	13,179,800
Jun-06	496,795,889	-	-	496,795,889	21,564,200		-	-	21,564,200
Jul-06	525,171,479	-	-	525,171,479	23,378,000		-	-	23,378,000
Aug-06	477,540,475	-	-	477,540,475	19,200,600		-	-	19,200,600
Sep-06	404,186,500	-	-	404,186,500	16,057,400		-	-	16,057,400
Oct-06	279,511,911	-	-	279,511,911	11,850,000		-	-	11,850,000
Nov-06	123,457,000	-	-	123,457,000	6,932,914		-	-	6,932,914
Dec-06	125,055,758	-	-	125,055,758	6,958,428		-	-	6,958,428
Jan-07	103,665,559	-	-	103,665,559	7,801,189		-	16,000	7,817,189
Feb-07	100,225,253	-	-	100,225,253	6,533,383		-	10,000	6,543,383
Mar-07	99,508,230	-	-	99,508,230	6,596,000		-	43,000	6,639,000
Apr-07	115,275,789	-	-	115,275,789	7,256,000		-	16,000	7,272,000
May-07	178,867,000	-	-	178,867,000	9,201,800		-	58,000	9,259,800
Jun-07	363,240,631	-	-	363,240,631	15,624,200		-	59,000	15,683,200
Jul-07	550,764,689	-	-	550,764,689	22,827,000		-	171,000	22,998,000
Aug-07	493,982,153	-	-	493,982,153	18,844,000		-	223,000	19,067,000
Sep-07	432,263,247	-	-	432,263,247	16,830,000		-	443,000	17,273,000
Oct-07	293,196,700	-	-	293,196,700	11,589,000		-	261,000	11,850,000
Nov-07	142,514,904	-	-	142,514,904	7,512,000		-	118,000	7,630,000
Dec-07	116,274,289	-	-	116,274,289	7,198,000		-	11,000	7,209,000
Jan-08	90,773,689	22,654,400	93,000	113,521,089	6,864,000	244,000	1,000	19,000	7,128,000
Feb-08	80,380,636	21,288,000	35,000	101,703,636	6,330,000	230,000	1,000	12,000	6,573,000
Mar-08	83,119,897	21,065,000	49,000	104,233,897	6,354,000	231,000	58,000	21,000	6,664,000
Apr-08	91,141,367	21,638,200	1,363,000	114,142,567	7,106,700	244,000	118,000	33,000	7,501,700
May-08	194,438,100	28,272,300	31,814,000	254,524,400	10,956,300	355,000	588,000	94,000	11,993,300
Jun-08	245,541,100	34,400,000	74,413,000	354,354,100	13,763,000	444,000	1,157,000	95,000	15,459,000
Jul-08	335,981,000	39,914,000	96,411,500	472,306,500	18,422,000	530,000	1,668,000	227,000	20,847,000
Aug-08	373,924,800	49,564,000	131,737,000	555,225,800	20,187,000	662,000	1,470,000	181,000	22,500,000
Sep-08	242,903,000	38,169,000	89,143,485	370,215,485	14,858,000	400,700	860,000	78,000	16,196,700
Oct-08	186,940,500	32,226,000	61,023,827	280,190,327	10,003,000	311,000	934,000	180,000	11,428,000
Nov-08	100,178,000	22,921,000	11,371,809	134,470,809	6,895,000	220,000	51,000	48,000	7,214,000
Dec-08	90,803,000	21,571,000	439,343	112,813,343	7,074,000	239,000	1,000	12,000	7,326,000
Jan-09	91,414,696	22,682,000	(38,000)	114,058,696	7,097,000	234,000	2,000	19,000	7,352,000
Feb-09	79,107,256	20,625,000	1,000	99,733,256	6,145,000	198,000	7,000	14,000	6,364,000
Mar-09	87,262,000	20,671,000	77,505	108,010,505	7,074,000	206,000	103,000	17,000	7,400,000
Apr-09	98,029,000	22,648,440	1,149,554	121,826,994	7,138,000	246,000	26,000	16,000	7,426,000
May-09	134,661,000	25,045,000	20,549,518	180,255,518	9,038,000	231,000	138,000	87,000	9,494,000
Jun-09	196,335,000	31,328,000	57,576,486	285,239,486	11,347,000	281,000	556,000	224,000	12,408,000
Jul-09	241,904,000	34,540,000	73,796,899	350,240,899	13,360,026	290,000	820,000	117,000	14,587,026
Aug-09	256,740,000	40,609,000	94,380,799	391,729,799	14,110,000	389,000	975,000	87,000	15,561,000
Sep-09	257,340,000	38,203,000	88,816,521	384,359,521	13,858,000	443,000	998,000	86,000	15,385,000

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Oct-09	165,580,000	32,517,000	57,633,397	255,730,397	9,455,000	327,000	486,000	36,000	10,304,000
Nov-09	84,864,000	21,626,000	8,109,374	114,599,374	6,412,000	181,000	4,000	9,000	6,606,000
Dec-09	87,938,000	22,192,000	93,420	110,223,420	7,190,000	203,000	4,000	16,000	7,413,000
Jan-10	89,909,000	24,246,207	1,000	114,156,207	6,886,000	197,000	3,000	19,000	7,105,000
Feb-10	79,070,000	20,040,415	1,000	99,111,415	5,748,000	848,000	3,000	58,000	6,657,000
Mar-10	79,753,000	20,994,000	1,000	100,748,000	5,812,000	981,000	2,000	20,000	6,815,000
Apr-10	91,306,741	21,891,000	1,972,756	115,170,497	6,476,000	931,000	9,000	27,000	7,443,000
May-10	111,989,000	23,348,066	14,585,668	149,922,734	6,948,000	1,018,000	7,000	61,000	8,034,000
Jun-10	197,113,000	30,122,000	46,640,249	273,875,249	10,789,000	1,496,500	583,000	110,000	12,978,500
Jul-10	291,034,000	40,181,000	91,094,682	422,309,682	14,434,000	1,496,500	603,000	118,000	16,651,500
Aug-10	290,154,456	42,380,000	102,858,870	435,393,326	15,188,708	2,171,000	730,000	135,000	18,224,708
Sep-10	322,030,059	44,587,606	109,023,407	475,641,072	15,901,000	2,259,000	817,000	87,000	19,064,000
Oct-10	242,319,538	40,218,092	92,436,758	374,974,388	12,435,000	1,749,000	1,076,000	252,000	15,512,000
Nov-10	106,406,559	23,847,000	15,873,137	146,126,696	6,543,000	976,000	30,000	3,000	7,552,000
Dec-10	86,848,200	21,987,500	40,123	108,875,823	6,565,000	951,000	6,000	92,000	7,614,000
Jan-11	88,431,400	23,179,806	2,000	111,613,206	6,290,000	1,121,000	3,000	40,000	7,454,000
Feb-11	76,327,935	21,297,182	-	97,625,117	5,915,000	1,147,000	2,000	81,000	7,145,000
Mar-11	77,550,044	21,559,143	3,700	99,112,887	4,387,851	2,315,000	3,000	34,000	6,739,851
Apr-11	98,181,392	22,716,268	3,415,776	124,313,436	5,373,123	2,458,000	7,000	45,000	7,883,123
May-11	143,207,466	27,613,892	29,770,595	200,591,953	6,672,553	2,517,000	81,000	98,000	9,368,553
Jun-11	199,577,996	34,673,193	54,373,825	288,625,014	8,976,000	3,418,000	405,000	131,000	12,930,000
Jul-11	284,351,642	43,333,408	84,674,358	412,359,408	12,417,255	3,821,000	577,000	154,000	16,969,255
Aug-11	310,674,227	47,265,797	105,545,898	463,485,922	13,653,000	4,540,000	781,000	173,000	19,147,000
Sep-11	324,823,276	48,787,417	112,669,890	486,280,583	12,825,221	4,829,000	778,000	171,000	18,603,221
Oct-11	217,096,857	39,565,686	78,098,138	334,760,681	9,033,270	3,580,000	564,000	115,000	13,292,270
Nov-11	101,741,384	24,849,245	16,782,581	143,373,210	4,887,588	2,144,000	17,000	21,000	7,069,588
Dec-11	88,035,135	24,819,734	158,510	113,013,379	4,822,685	2,760,436	11,000	28,000	7,622,121
Jan-12	90,672,989	23,329,747	14,587	114,017,323	6,784,250	449,000	2,250	24,250	7,259,750
Feb-12	79,193,785	20,937,525	9,306	100,140,616	6,034,500	605,750	3,250	41,250	6,684,750
Mar-12	82,412,763	21,198,719	32,998	103,644,480	5,906,963	933,250	41,500	23,000	6,904,713
Apr-12	95,232,613	22,356,818	1,987,123	119,576,554	6,523,456	969,750	40,000	30,250	7,563,456
May-12	146,950,335	26,226,233	24,325,025	197,501,593	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-12	210,899,625	32,826,583	58,600,395	302,326,603	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-12	290,047,566	39,729,055	87,013,326	416,789,947	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-12	309,720,611	45,224,427	109,282,426	464,227,464	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-12	288,494,728	42,691,376	100,512,806	431,698,910	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-12	204,202,129	36,348,485	72,731,818	313,282,432	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-12	98,887,271	23,450,676	13,112,431	135,450,377	6,184,397	880,250	25,500	20,250	7,110,397
Dec-12	88,936,520	22,778,414	183,946	111,898,880	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-13	93,121,160	23,959,650	14,981	117,095,791	6,784,250	449,000	2,250	24,250	7,259,750
Feb-13	81,332,018	21,502,838	9,557	102,844,413	6,034,500	605,750	3,250	41,250	6,684,750
Mar-13	84,637,907	21,771,085	33,889	106,442,881	5,906,963	933,250	41,500	23,000	6,904,713
Apr-13	97,803,893	22,960,452	2,040,775	122,805,121	6,523,456	969,750	40,000	30,250	7,563,456
May-13	150,917,994	26,934,342	24,981,801	202,834,136	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-13	216,593,915	33,712,901	60,182,606	310,489,421	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-13	297,878,851	40,801,739	89,362,686	428,043,276	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-13	318,083,067	46,445,487	112,233,051	476,761,606	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-13	296,284,086	43,844,043	103,226,651	443,354,781	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-13	209,715,587	37,329,894	74,695,577	321,741,058	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-13	101,557,227	24,083,844	13,466,466	139,107,538	6,184,397	880,250	25,500	20,250	7,110,397
Dec-13	91,337,806	23,393,431	188,913	114,920,150	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-14	94,890,462	24,414,883	15,265	119,320,611	6,784,250	449,000	2,250	24,250	7,259,750
Feb-14	82,877,326	21,911,392	9,738	104,798,457	6,034,500	605,750	3,250	41,250	6,684,750
Mar-14	86,246,027	22,184,736	34,533	108,465,296	5,906,963	933,250	41,500	23,000	6,904,713
Apr-14	99,662,167	23,396,701	2,079,550	125,138,418	6,523,456	969,750	40,000	30,250	7,563,456
May-14	153,785,436	27,446,094	25,456,455	206,687,985	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-14	220,709,199	34,353,446	61,326,076	316,388,720	11,218,750	1,409,875	675,250	140,000	13,443,875

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Jul-14	303,538,549	41,576,972	91,060,577	436,176,098	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-14	324,126,646	47,327,951	114,365,479	485,820,076	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-14	301,913,484	44,677,080	105,187,958	451,778,522	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-14	213,700,183	38,039,162	76,114,793	327,854,138	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-14	103,486,814	24,541,437	13,722,329	141,750,581	6,184,397	880,250	25,500	20,250	7,110,397
Dec-14	93,073,225	23,837,906	192,502	117,103,633	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-15	96,788,271	24,903,181	15,571	121,707,023	6,784,250	449,000	2,250	24,250	7,259,750
Feb-15	84,534,873	22,349,620	9,933	106,894,426	6,034,500	605,750	3,250	41,250	6,684,750
Mar-15	87,970,948	22,628,430	35,224	110,634,602	5,906,963	933,250	41,500	23,000	6,904,713
Apr-15	101,655,411	23,864,635	2,121,141	127,641,186	6,523,456	969,750	40,000	30,250	7,563,456
May-15	156,861,144	27,995,016	25,965,584	210,821,744	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-15	225,123,383	35,040,515	62,552,597	322,716,495	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-15	309,609,320	42,408,512	92,881,788	444,899,620	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-15	330,609,179	48,274,510	116,652,789	495,536,478	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-15	307,951,753	45,570,622	107,291,717	460,814,092	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-15	217,974,186	38,799,945	77,637,089	334,411,220	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-15	105,556,551	25,032,266	13,996,776	144,585,592	6,184,397	880,250	25,500	20,250	7,110,397
Dec-15	94,934,689	24,314,664	196,352	119,445,705	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-16	98,820,825	25,426,148	15,898	124,262,871	6,784,250	449,000	2,250	24,250	7,259,750
Feb-16	86,310,105	22,818,962	10,142	109,139,209	6,034,500	605,750	3,250	41,250	6,684,750
Mar-16	89,818,338	23,103,627	35,963	112,957,928	5,906,963	933,250	41,500	23,000	6,904,713
Apr-16	103,790,174	24,365,792	2,165,685	130,321,651	6,523,456	969,750	40,000	30,250	7,563,456
May-16	160,155,229	28,582,911	26,510,861	215,249,001	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-16	229,850,974	35,776,366	63,866,202	329,493,541	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-16	316,111,116	43,299,090	94,832,306	454,242,512	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-16	337,551,971	49,288,275	119,102,497	505,942,744	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-16	314,418,740	46,527,605	109,544,843	470,491,188	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-16	222,551,644	39,614,744	79,267,468	341,433,856	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-16	107,773,238	25,557,944	14,290,708	147,621,890	6,184,397	880,250	25,500	20,250	7,110,397
Dec-16	96,928,318	24,825,272	200,475	121,954,065	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-17	100,896,062	25,960,097	16,232	126,872,391	6,784,250	449,000	2,250	24,250	7,259,750
Feb-17	88,122,617	23,298,160	10,355	111,431,132	6,034,500	605,750	3,250	41,250	6,684,750
Mar-17	91,704,523	23,588,803	36,718	115,330,045	5,906,963	933,250	41,500	23,000	6,904,713
Apr-17	105,969,768	24,877,473	2,211,165	133,058,406	6,523,456	969,750	40,000	30,250	7,563,456
May-17	163,518,488	29,183,153	27,067,589	219,769,230	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-17	234,677,844	36,527,669	65,207,392	336,412,905	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-17	322,749,449	44,208,371	96,823,784	463,781,605	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-17	344,640,563	50,323,329	121,603,650	516,567,541	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-17	321,021,534	47,504,685	111,845,285	480,371,503	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-17	227,225,229	40,446,653	80,932,085	348,603,967	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-17	110,036,476	26,094,661	14,590,813	150,721,950	6,184,397	880,250	25,500	20,250	7,110,397
Dec-17	98,963,812	25,346,603	204,685	124,515,101	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-18	102,913,984	26,479,299	16,556	129,409,839	6,784,250	449,000	2,250	24,250	7,259,750
Feb-18	89,885,069	23,764,124	10,562	113,659,755	6,034,500	605,750	3,250	41,250	6,684,750
Mar-18	93,538,614	24,060,579	37,453	117,636,646	5,906,963	933,250	41,500	23,000	6,904,713
Apr-18	108,089,163	25,375,023	2,255,388	135,719,574	6,523,456	969,750	40,000	30,250	7,563,456
May-18	166,788,858	29,766,816	27,608,941	224,164,615	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-18	239,371,401	37,258,223	66,511,540	343,141,164	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-18	329,204,438	45,092,539	98,760,260	473,057,237	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-18	351,533,374	51,329,795	124,035,723	526,898,892	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-18	327,441,964	48,454,778	114,082,190	489,978,933	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-18	231,769,733	41,255,587	82,550,726	355,576,046	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-18	112,237,206	26,616,554	14,882,629	153,736,389	6,184,397	880,250	25,500	20,250	7,110,397
Dec-18	100,943,088	25,853,535	208,779	127,005,403	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-19	104,972,263	27,008,885	16,887	131,998,036	6,784,250	449,000	2,250	24,250	7,259,750
Feb-19	91,682,771	24,239,406	10,773	115,932,950	6,034,500	605,750	3,250	41,250	6,684,750
Mar-19	95,409,386	24,541,791	38,202	119,989,379	5,906,963	933,250	41,500	23,000	6,904,713

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Apr-19	110,250,947	25,882,523	2,300,496	138,433,966	6,523,456	969,750	40,000	30,250	7,563,456
May-19	170,124,635	30,362,152	28,161,120	228,647,907	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-19	244,158,829	38,003,387	67,841,770	350,003,987	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-19	335,788,527	45,994,389	100,735,465	482,518,381	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-19	358,564,042	52,356,391	126,516,437	537,436,870	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-19	333,990,804	49,423,874	116,363,834	499,778,512	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-19	236,405,128	42,080,698	84,201,741	362,687,567	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-19	114,481,950	27,148,885	15,180,282	156,811,116	6,184,397	880,250	25,500	20,250	7,110,397
Dec-19	102,961,950	26,370,606	212,955	129,545,511	6,412,921	1,038,359	5,500	37,000	7,493,780
Jan-20	107,071,709	27,549,063	17,225	134,637,996	6,784,250	449,000	2,250	24,250	7,259,750
Feb-20	93,516,426	24,724,194	10,988	118,251,609	6,034,500	605,750	3,250	41,250	6,684,750
Mar-20	97,317,573	25,032,627	38,966	122,389,166	5,906,963	933,250	41,500	23,000	6,904,713
Apr-20	112,455,965	26,400,174	2,346,506	141,202,645	6,523,456	969,750	40,000	30,250	7,563,456
May-20	173,527,128	30,969,395	28,724,342	233,220,865	8,403,713	1,030,250	203,500	85,000	9,722,463
Jun-20	249,042,006	38,763,455	69,198,606	357,004,067	11,218,750	1,409,875	675,250	140,000	13,443,875
Jul-20	342,504,297	46,914,277	102,750,174	492,168,749	14,658,320	1,534,375	917,000	154,000	17,263,695
Aug-20	365,735,322	53,403,519	129,046,766	548,185,607	15,784,677	1,940,500	989,000	144,000	18,858,177
Sep-20	340,670,620	50,412,351	118,691,111	509,774,082	14,360,555	1,982,925	863,250	105,500	17,312,230
Oct-20	241,133,231	42,922,312	85,885,776	369,941,319	10,231,568	1,491,750	765,000	145,750	12,634,068
Nov-20	116,771,589	27,691,863	15,483,887	159,947,339	6,184,397	880,250	25,500	20,250	7,110,397
Dec-20	105,021,189	26,898,018	217,214	132,136,421	6,412,921	1,038,359	5,500	37,000	7,493,780

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses	Industrial
Jan-05	23,395,700	1,428,340	-	1,428,340	24,824,040	860,000	-	860,000	3,921,000
Feb-05	20,140,400	1,267,960	-	1,267,960	21,408,360	970,000	-	970,000	3,509,000
Mar-05	20,826,600	1,208,110	-	1,208,110	22,034,710	729,000	-	729,000	3,624,000
Apr-05	22,561,800	1,247,040	-	1,247,040	23,808,840	960,000	-	960,000	4,156,000
May-05	28,669,600	1,367,240	-	1,367,240	30,036,840	1,993,800	-	1,993,800	4,649,000
Jun-05	45,763,111	2,041,240	-	2,041,240	47,804,351	6,301,000	-	6,301,000	4,767,000
Jul-05	62,686,089	2,544,070	-	2,544,070	65,230,159	11,993,000	-	11,993,000	4,983,000
Aug-05	71,919,800	2,607,370	-	2,607,370	74,527,170	13,023,000	-	13,023,000	6,783,000
Sep-05	63,051,800	2,722,200	-	2,722,200	65,774,000	9,609,000	-	9,609,000	5,039,000
Oct-05	54,501,022	2,053,160	-	2,053,160	56,554,182	5,632,000	-	5,632,000	5,458,000
Nov-05	26,677,000	995,579	-	995,579	27,672,579	969,000	-	969,000	3,876,000
Dec-05	26,098,600	1,538,120	-	1,538,120	27,636,720	588,000	-	588,000	3,977,000
Jan-06	22,410,600	1,287,070	-	1,287,070	23,697,670	739,000	-	739,000	4,044,000
Feb-06	21,364,400	1,154,330	-	1,154,330	22,518,730	615,000	-	615,000	2,872,000
Mar-06	22,057,400	1,197,530	-	1,197,530	23,254,930	802,000	-	802,000	3,244,000
Apr-06	24,236,000	1,307,580	-	1,307,580	25,543,580	1,042,000	-	1,042,000	3,558,000
May-06	41,726,310	1,797,860	-	1,797,860	43,524,170	4,705,000	-	4,705,000	4,599,000
Jun-06	62,753,890	2,553,730	-	2,553,730	65,307,620	11,930,000	-	11,930,000	4,636,000
Jul-06	77,074,800	2,720,570	-	2,720,570	79,795,370	15,421,000	-	15,421,000	6,684,000
Aug-06	69,554,800	3,326,800	-	3,326,800	72,881,600	14,329,000	-	14,329,000	6,764,900
Sep-06	66,675,900	2,673,210	-	2,673,210	69,349,110	12,624,000	-	12,624,000	5,296,000
Oct-06	54,335,000	1,967,490	-	1,967,490	56,302,490	5,054,000	-	5,054,000	5,408,000
Nov-06	29,062,700	1,313,140	-	1,313,140	30,375,840	913,000	-	913,000	3,982,000
Dec-06	26,172,152	989,063	-	989,063	27,161,215	694,029	-	694,029	4,320,000
Jan-07	23,625,302	1,128,697	-	1,128,697	24,753,999	702,971	-	702,971	3,564,500
Feb-07	23,183,881	1,451,000	-	1,451,000	24,634,881	936,000	-	936,000	3,123,500
Mar-07	23,530,900	1,724,000	-	1,724,000	25,254,900	814,000	-	814,000	4,048,000
Apr-07	26,258,200	1,129,000	-	1,129,000	27,387,200	1,233,000	-	1,233,000	4,737,000
May-07	32,112,400	1,261,330	-	1,261,330	33,373,730	2,136,000	-	2,136,000	4,487,000
Jun-07	54,923,600	2,012,670	-	2,012,670	56,936,270	10,475,000	-	10,475,000	4,605,000
Jul-07	79,127,000	2,934,720	-	2,934,720	82,061,720	15,282,000	-	15,282,000	5,507,000
Aug-07	71,769,200	2,536,280	-	2,536,280	74,305,480	14,333,000	-	14,333,000	5,951,000
Sep-07	69,579,511	2,215,620	-	2,215,620	71,795,131	11,958,000	-	11,958,000	5,433,000
Oct-07	53,442,909	2,082,380	-	2,082,380	55,525,289	8,122,000	-	8,122,000	4,834,000
Nov-07	31,443,400	1,408,000	-	1,408,000	32,851,400	1,489,000	-	1,489,000	4,233,000
Dec-07	26,277,800	1,097,000	-	1,097,000	27,374,800	781,000	-	781,000	4,285,000
Jan-08	28,092,400	1,168,610	-	1,168,610	29,261,010	673,000	-	673,000	-
Feb-08	28,521,000	1,002,390	-	1,002,390	29,523,390	698,000	-	698,000	-
Mar-08	29,168,800	994,000	-	994,000	30,162,800	870,000	-	870,000	-
Apr-08	30,038,848	1,034,860	-	1,034,860	31,073,708	1,214,000	-	1,214,000	-
May-08	44,420,500	1,443,140	-	1,443,140	45,863,640	4,640,000	-	4,640,000	-
Jun-08	65,379,000	1,849,000	-	1,849,000	67,228,000	9,119,000	-	9,119,000	-
Jul-08	70,981,400	2,214,000	-	2,214,000	73,195,400	13,867,000	-	13,867,000	-
Aug-08	91,172,600	2,521,000	-	2,521,000	93,693,600	17,030,000	-	17,030,000	-
Sep-08	72,669,000	2,367,000	-	2,367,000	75,036,000	10,177,000	-	10,177,000	-
Oct-08	61,045,000	1,502,000	-	1,502,000	62,547,000	7,867,000	-	7,867,000	-
Nov-08	38,410,475	1,137,000	-	1,137,000	39,547,475	2,063,000	-	2,063,000	-
Dec-08	30,395,643	1,033,000	-	1,033,000	31,428,643	976,000	-	976,000	-
Jan-09	29,544,816	1,016,000	-	1,016,000	30,560,816	940,000	-	940,000	-
Feb-09	25,419,725	846,000	-	846,000	26,265,725	973,000	-	973,000	-
Mar-09	26,154,072	1,008,000	-	1,008,000	27,162,072	682,000	-	682,000	-
Apr-09	26,958,000	1,004,000	-	1,004,000	27,962,000	1,079,110	-	1,079,110	-
May-09	34,835,965	1,222,000	-	1,222,000	36,057,965	2,852,000	-	2,852,000	-
Jun-09	55,948,018	1,561,000	-	1,561,000	57,509,018	5,757,000	-	5,757,000	-
Jul-09	57,512,324	1,669,000	-	1,669,000	59,181,324	12,163,000	-	12,163,000	-
Aug-09	73,564,946	1,676,000	-	1,676,000	75,240,946	13,419,000	-	13,419,000	-
Sep-09	68,559,627	1,597,000	-	1,597,000	70,156,627	10,164,000	-	10,164,000	-

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses	Industrial
Oct-09	53,388,518	1,206,000	38,000	1,244,000	54,632,518	6,295,000	-	6,295,000	-
Nov-09	31,353,956	893,000	-	893,000	32,246,956	1,279,000	-	1,279,000	-
Dec-09	27,189,282	1,050,000	-	1,050,000	28,239,282	524,000	-	524,000	-
Jan-10	28,833,065	977,000	-	977,000	29,810,065	837,000	-	837,000	-
Feb-10	25,974,413	952,000	-	952,000	26,926,413	513,000	-	513,000	-
Mar-10	26,591,375	972,000	-	972,000	27,563,375	820,000	-	820,000	-
Apr-10	28,133,184	1,100,000	8,000	1,108,000	29,241,184	765,000	-	765,000	-
May-10	32,743,064	1,268,000	46,000	1,314,000	34,057,064	4,986,000	-	4,986,000	-
Jun-10	45,771,921	1,741,000	95,000	1,836,000	47,607,921	7,579,000	-	7,579,000	-
Jul-10	64,731,690	1,692,000	84,000	1,776,000	66,507,690	12,388,000	-	12,388,000	-
Aug-10	75,019,013	1,598,000	99,000	1,697,000	76,716,013	12,450,143	-	12,450,143	-
Sep-10	73,554,892	1,996,000	96,000	2,092,000	75,646,892	15,011,000	-	15,011,000	-
Oct-10	69,488,929	1,563,260	70,000	1,633,260	71,122,189	10,946,024	-	10,946,024	-
Nov-10	38,957,819	1,098,000	-	1,098,000	40,055,819	1,334,000	-	1,334,000	-
Dec-10	28,654,267	974,000	-	974,000	29,628,267	527,000	-	527,000	-
Jan-11	28,616,074	922,000	-	922,000	29,538,074	676,405	-	676,405	-
Feb-11	26,258,447	943,000	-	943,000	27,201,447	684,202	-	684,202	-
Mar-11	26,337,929	2,591,000	-	2,591,000	28,928,929	706,000	-	706,000	-
Apr-11	27,296,680	905,106	9,000	914,106	28,210,786	789,268	-	789,268	-
May-11	37,715,753	1,185,000	21,000	1,206,000	38,921,753	1,663,300	-	1,663,300	-
Jun-11	53,502,633	1,356,000	62,000	1,418,000	54,920,633	7,482,579	-	7,482,579	-
Jul-11	67,285,653	1,714,000	97,000	1,811,000	69,096,653	13,535,000	-	13,535,000	-
Aug-11	82,418,628	1,823,000	88,000	1,911,000	84,329,628	16,657,000	-	16,657,000	-
Sep-11	83,086,966	1,769,642	93,000	1,862,642	84,949,608	16,346,000	-	16,346,000	-
Oct-11	71,814,787	1,350,000	72,000	1,422,000	73,236,787	10,505,000	1,000	10,506,000	-
Nov-11	38,270,720	870,000	-	870,000	39,140,720	1,610,000	-	1,610,000	-
Dec-11	30,078,664	809,000	-	809,000	30,887,664	660,000	-	660,000	-
Jan-12	28,944,218	1,027,028	-	1,027,028	29,971,246	817,802		817,802	
Feb-12	26,702,657	941,463	-	941,463	27,644,119	723,401		723,401	
Mar-12	27,225,422	1,399,598	-	1,399,598	28,625,020	736,000		736,000	
Apr-12	28,275,318	1,017,057	4,276	1,021,333	29,296,651	961,845		961,845	
May-12	37,653,393	1,287,212	16,851	1,304,063	38,957,456	3,535,325		3,535,325	
Jun-12	55,481,295	1,636,511	39,486	1,675,996	57,157,291	7,484,395		7,484,395	
Jul-12	65,518,533	1,833,184	45,522	1,878,705	67,397,238	12,988,250		12,988,250	
Aug-12	81,027,060	1,915,927	47,031	1,962,958	82,990,017	14,889,036		14,889,036	
Sep-12	74,914,427	1,944,005	47,534	1,991,538	76,905,965	12,924,500		12,924,500	
Oct-12	64,317,914	1,413,747	45,270	1,459,017	65,776,931	8,903,256		8,903,256	
Nov-12	36,968,732	1,005,497	-	1,005,497	37,974,229	1,407,667		1,407,667	
Dec-12	29,253,941	972,299	-	972,299	30,226,240	570,333		570,333	
Jan-13	29,725,712	1,054,758	-	1,054,758	30,780,470	817,802		817,802	
Feb-13	27,423,628	966,882	-	966,882	28,390,510	723,401		723,401	
Mar-13	27,960,509	1,437,387	-	1,437,387	29,397,895	736,000		736,000	
Apr-13	29,038,752	1,044,518	4,391	1,048,909	30,087,661	961,845		961,845	
May-13	38,670,035	1,321,967	17,305	1,339,272	40,009,307	3,535,325		3,535,325	
Jun-13	56,979,290	1,680,696	40,552	1,721,248	58,700,538	7,484,395		7,484,395	
Jul-13	67,287,534	1,882,679	46,751	1,929,430	69,216,964	12,988,250		12,988,250	
Aug-13	83,214,790	1,967,657	48,300	2,015,957	85,230,747	14,889,036		14,889,036	
Sep-13	76,937,117	1,996,493	48,817	2,045,310	78,982,427	12,924,500		12,924,500	
Oct-13	66,054,498	1,451,918	46,492	1,498,410	67,552,908	8,903,256		8,903,256	
Nov-13	37,966,888	1,032,645	-	1,032,645	38,999,533	1,407,667		1,407,667	
Dec-13	30,043,797	998,551	-	998,551	31,042,348	570,333		570,333	
Jan-14	30,290,501	1,074,798	-	1,074,798	31,365,299	817,802		817,802	
Feb-14	27,944,677	985,253	-	985,253	28,929,930	723,401		723,401	
Mar-14	28,491,758	1,464,697	-	1,464,697	29,956,455	736,000		736,000	
Apr-14	29,590,488	1,064,364	4,474	1,068,838	30,659,326	961,845		961,845	
May-14	39,404,766	1,347,084	17,634	1,364,719	40,769,484	3,535,325		3,535,325	
Jun-14	58,061,897	1,712,630	41,322	1,753,952	59,815,848	7,484,395		7,484,395	

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses	Industrial
Jul-14	68,565,997	1,918,450	47,639	1,966,089	70,532,086	12,988,250		12,988,250	
Aug-14	84,795,871	2,005,043	49,218	2,054,261	86,850,132	14,889,036		14,889,036	
Sep-14	78,398,922	2,034,426	49,744	2,084,171	80,483,093	12,924,500		12,924,500	
Oct-14	67,309,534	1,479,504	47,376	1,526,880	68,836,414	8,903,256		8,903,256	
Nov-14	38,688,259	1,052,266	-	1,052,266	39,740,524	1,407,667		1,407,667	
Dec-14	30,614,629	1,017,524	-	1,017,524	31,632,153	570,333		570,333	
Jan-15	30,896,311	1,096,294	-	1,096,294	31,992,605	817,802		817,802	
Feb-15	28,503,571	1,004,958	-	1,004,958	29,508,529	723,401		723,401	
Mar-15	29,061,593	1,493,991	-	1,493,991	30,555,584	736,000		736,000	
Apr-15	30,182,298	1,085,651	4,564	1,090,215	31,272,513	961,845		961,845	
May-15	40,192,861	1,374,026	17,987	1,392,013	41,584,874	3,535,325		3,535,325	
Jun-15	59,223,135	1,746,882	42,149	1,789,031	61,012,165	7,484,395		7,484,395	
Jul-15	69,937,317	1,956,819	48,592	2,005,411	71,942,728	12,988,250		12,988,250	
Aug-15	86,491,789	2,045,143	50,202	2,095,346	88,587,134	14,889,036		14,889,036	
Sep-15	79,966,900	2,075,115	50,739	2,125,854	82,092,754	12,924,500		12,924,500	
Oct-15	68,655,724	1,509,095	48,323	1,557,418	70,213,142	8,903,256		8,903,256	
Nov-15	39,462,024	1,073,311	-	1,073,311	40,535,335	1,407,667		1,407,667	
Dec-15	31,226,922	1,037,874	-	1,037,874	32,264,796	570,333		570,333	
Jan-16	31,545,133	1,119,316	-	1,119,316	32,664,449	817,802		817,802	
Feb-16	29,102,146	1,026,062	-	1,026,062	30,128,208	723,401		723,401	
Mar-16	29,671,887	1,525,365	-	1,525,365	31,197,252	736,000		736,000	
Apr-16	30,816,126	1,108,450	4,660	1,113,109	31,929,235	961,845		961,845	
May-16	41,036,911	1,402,881	18,365	1,421,245	42,458,156	3,535,325		3,535,325	
Jun-16	60,466,821	1,783,567	43,034	1,826,600	62,293,421	7,484,395		7,484,395	
Jul-16	71,406,000	1,997,913	49,612	2,047,525	73,453,525	12,988,250		12,988,250	
Aug-16	88,308,116	2,088,091	51,257	2,139,348	90,447,464	14,889,036		14,889,036	
Sep-16	81,646,205	2,118,692	51,805	2,170,497	83,816,702	12,924,500		12,924,500	
Oct-16	70,097,494	1,540,786	49,338	1,590,124	71,687,618	8,903,256		8,903,256	
Nov-16	40,290,726	1,095,851	-	1,095,851	41,386,577	1,407,667		1,407,667	
Dec-16	31,882,687	1,059,669	-	1,059,669	32,942,357	570,333		570,333	
Jan-17	32,207,581	1,142,822	-	1,142,822	33,350,403	817,802		817,802	
Feb-17	29,713,291	1,047,609	-	1,047,609	30,760,900	723,401		723,401	
Mar-17	30,294,997	1,557,397	-	1,557,397	31,852,394	736,000		736,000	
Apr-17	31,463,265	1,131,727	4,758	1,136,485	32,599,749	961,845		961,845	
May-17	41,898,686	1,432,341	18,750	1,451,091	43,349,778	3,535,325		3,535,325	
Jun-17	61,736,624	1,821,022	43,937	1,864,959	63,601,583	7,484,395		7,484,395	
Jul-17	72,905,526	2,039,869	50,654	2,090,523	74,996,049	12,988,250		12,988,250	
Aug-17	90,162,587	2,131,941	52,333	2,184,274	92,346,861	14,889,036		14,889,036	
Sep-17	83,360,775	2,163,185	52,893	2,216,078	85,576,853	12,924,500		12,924,500	
Oct-17	71,569,542	1,573,142	50,374	1,623,516	73,193,058	8,903,256		8,903,256	
Nov-17	41,136,832	1,118,863	-	1,118,863	42,255,695	1,407,667		1,407,667	
Dec-17	32,552,224	1,081,922	-	1,081,922	33,634,146	570,333		570,333	
Jan-18	32,851,733	1,165,678	-	1,165,678	34,017,411	817,802		817,802	
Feb-18	30,307,557	1,068,561	-	1,068,561	31,376,118	723,401		723,401	
Mar-18	30,900,897	1,588,545	-	1,588,545	32,489,442	736,000		736,000	
Apr-18	32,092,530	1,154,362	4,853	1,159,214	33,251,744	961,845		961,845	
May-18	42,736,660	1,460,988	19,125	1,480,113	44,216,773	3,535,325		3,535,325	
Jun-18	62,971,356	1,857,442	44,816	1,902,258	64,873,614	7,484,395		7,484,395	
Jul-18	74,363,637	2,080,666	51,667	2,132,333	76,495,970	12,988,250		12,988,250	
Aug-18	91,965,838	2,174,580	53,380	2,227,960	94,193,798	14,889,036		14,889,036	
Sep-18	85,027,991	2,206,449	53,951	2,260,399	87,288,390	12,924,500		12,924,500	
Oct-18	73,000,933	1,604,605	51,382	1,655,986	74,656,919	8,903,256		8,903,256	
Nov-18	41,959,568	1,141,241	-	1,141,241	43,100,809	1,407,667		1,407,667	
Dec-18	33,203,268	1,103,561	-	1,103,561	34,306,829	570,333		570,333	
Jan-19	33,508,767	1,188,992	-	1,188,992	34,697,759	817,802		817,802	
Feb-19	30,913,708	1,089,933	-	1,089,933	32,003,641	723,401		723,401	
Mar-19	31,518,914	1,620,316	-	1,620,316	33,139,231	736,000		736,000	

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses	Industrial
Apr-19	32,734,380	1,177,449	4,950	1,182,399	33,916,779	961,845		961,845	
May-19	43,591,393	1,490,208	19,508	1,509,715	45,101,109	3,535,325		3,535,325	
Jun-19	64,230,783	1,894,591	45,712	1,940,303	66,171,087	7,484,395		7,484,395	
Jul-19	75,850,910	2,122,279	52,700	2,174,980	78,025,890	12,988,250		12,988,250	
Aug-19	93,805,155	2,218,072	54,447	2,272,519	96,077,674	14,889,036		14,889,036	
Sep-19	86,728,551	2,250,578	55,030	2,305,607	89,034,158	12,924,500		12,924,500	
Oct-19	74,460,951	1,636,697	52,409	1,689,106	76,150,057	8,903,256		8,903,256	
Nov-19	42,798,759	1,164,065	-	1,164,065	43,962,825	1,407,667		1,407,667	
Dec-19	33,867,334	1,125,632	-	1,125,632	34,992,966	570,333		570,333	
Jan-20	34,178,943	1,212,772	-	1,212,772	35,391,714	817,802		817,802	
Feb-20	31,531,982	1,111,731	-	1,111,731	32,643,713	723,401		723,401	
Mar-20	32,149,293	1,652,723	-	1,652,723	33,802,015	736,000		736,000	
Apr-20	33,389,068	1,200,998	5,049	1,206,047	34,595,115	961,845		961,845	
May-20	44,463,221	1,520,012	19,898	1,539,910	46,003,131	3,535,325		3,535,325	
Jun-20	65,515,399	1,932,483	46,627	1,979,109	67,494,508	7,484,395		7,484,395	
Jul-20	77,367,928	2,164,725	53,754	2,218,479	79,586,407	12,988,250		12,988,250	
Aug-20	95,681,258	2,262,433	55,536	2,317,969	97,999,228	14,889,036		14,889,036	
Sep-20	88,463,122	2,295,589	56,130	2,351,719	90,814,841	12,924,500		12,924,500	
Oct-20	75,950,170	1,669,431	53,457	1,722,888	77,673,059	8,903,256		8,903,256	
Nov-20	43,654,735	1,187,347	-	1,187,347	44,842,081	1,407,667		1,407,667	
Dec-20	34,544,680	1,148,145	-	1,148,145	35,692,825	570,333		570,333	

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Jan-05	1,384,500	-	5,305,500	1,069,100	4,377,700	154,374,179	10.7%	172,900,000
Feb-05	1,478,000	-	4,987,000		4,536,200	130,579,460	15.5%	154,500,000
Mar-05	1,480,000	-	5,104,000	-	4,026,700	134,393,549	24.8%	178,800,000
Apr-05	1,610,100	-	5,766,100	207,000	7,768,900	167,725,163	21.3%	213,000,000
May-05	1,743,900	-	6,392,900	428,000	8,017,000	217,222,419	38.8%	355,000,000
Jun-05	3,547,500	-	8,314,500	362,000	10,162,300	365,194,165	15.1%	430,300,000
Jul-05	4,003,500	-	8,986,500	555,000	11,601,800	541,414,659	17.3%	654,400,000
Aug-05	7,250,407	-	14,033,407	463,000	13,149,200	559,740,977	-1.0%	554,200,000
Sep-05	6,325,000	-	11,364,000	453,000	10,567,200	509,232,948	0.5%	511,700,000
Oct-05	5,655,000	-	11,113,000	434,000	8,990,400	374,363,982	-36.0%	275,200,000
Nov-05	2,865,000	-	6,741,000	303,300	10,628,300	181,588,979	10.9%	203,700,000
Dec-05	1,163,000	-	5,140,000	335,700	3,174,832	157,109,252	28.5%	219,600,000
Jan-06	1,281,400	-	5,325,400	332,000	12,375,350	167,899,867	19.5%	208,700,000
Feb-06	1,593,600	-	4,465,600	330,000	7,982,600	146,611,883	20.0%	183,200,000
Mar-06	1,603,000	-	4,847,000	323,000	9,696,090	147,967,507	27.2%	203,200,000
Apr-06	2,162,000	-	5,720,000	384,000	8,455,200	188,222,939	45.4%	344,500,000
May-06	3,374,000	-	7,973,000	502,000	9,015,700	372,478,292	32.3%	550,500,000
Jun-06	7,503,000	-	12,139,000	625,000	13,238,400	621,600,109	12.2%	707,900,000
Jul-06	7,842,000	-	14,526,000	579,000	8,827,300	667,698,149	1.2%	675,900,000
Aug-06	6,605,000	-	13,369,900	621,000	12,736,595	610,679,170	5.7%	647,300,000
Sep-06	6,262,000	-	11,558,000	468,000	10,225,300	524,468,310	-14.2%	459,300,000
Oct-06	4,115,000	-	9,523,000	373,000	12,306,530	374,920,931	-28.7%	291,300,000
Nov-06	2,369,000	-	6,351,000	299,000	10,742,100	179,070,854	9.2%	197,200,000
Dec-06	1,108,700	-	5,428,700	266,000	7,871,800	173,435,930	10.5%	193,700,000
Jan-07	-	-	3,564,500	230,000	3,512,600	144,246,818	27.1%	197,900,000
Feb-07	-	-	3,123,500	206,000	3,240,100	138,909,117	25.1%	185,500,000
Mar-07	-	-	4,048,000	299,000	6,089,900	142,653,030	31.0%	206,600,000
Apr-07	-	-	4,737,000	275,000	3,618,000	159,797,989	33.7%	241,000,000
May-07	-	-	4,487,000	297,000	3,671,400	232,091,930	47.3%	440,000,000
Jun-07	-	-	4,605,000	339,000	2,668,484	453,947,585	26.2%	614,700,000
Jul-07	-	-	5,507,000	709,000	3,477,700	680,800,109	6.9%	731,600,000
Aug-07	1,838	-	5,952,838	334,000	2,911,657	610,886,128	-0.3%	609,300,000
Sep-07	-	-	5,433,000	282,000	5,501,700	544,506,078	-8.1%	503,700,000
Oct-07	-	-	4,834,000	277,000	7,319,834	381,124,823	-23.0%	309,900,000
Nov-07	-	-	4,233,000	242,000	6,950,000	195,910,304	1.6%	199,100,000
Dec-07	-	-	4,285,000	193,000	4,959,300	161,076,389	21.0%	203,900,000
Jan-08	-	-	-	227,000	1,890,000	152,700,099	27.9%	211,900,000
Feb-08	-	-	-	251,000	3,873,400	142,622,426	26.8%	194,800,000
Mar-08	-	-	-	308,000	7,891,900	150,130,597	29.5%	212,900,000
Apr-08	-	-	-	285,000	9,582,200	163,799,175	40.4%	275,000,000
May-08	-	-	-	343,000	7,898,300	325,262,640	32.5%	482,200,000
Jun-08	-	-	-	450,000	6,113,100	452,723,200	22.7%	585,300,000
Jul-08	-	-	-	451,000	5,792,200	586,459,100	20.7%	739,100,000
Aug-08	-	-	-	354,000	6,936,800	695,740,200	-16.7%	596,400,000
Sep-08	5,078	-	5,078	406,000	7,112,500	479,148,763	-5.7%	453,300,000
Oct-08	-	-	-	329,000	8,689,000	371,050,327	-22.3%	303,300,000
Nov-08	-	-	-	334,000	4,418,600	188,047,884	5.8%	199,600,000
Dec-08	-	-	-	295,000	8,759,300	161,598,286	17.0%	194,800,000
Jan-09	-	-	-	277,000	4,552,700	157,741,212	15.6%	187,000,000
Feb-09	-	-	-	295,000	2,568,300	136,199,281	20.2%	170,700,000
Mar-09	-	-	-	361,000	5,615,800	149,231,377	30.6%	215,100,000
Apr-09	-	-	-	203,000	3,143,100	161,640,204	26.1%	218,700,000
May-09	-	-	-	228,000	2,748,300	231,635,783	45.1%	422,000,000
Jun-09	-	-	-	319,000	2,776,578	364,009,082	12.9%	417,700,000
Jul-09	179	-	179	268,000	3,548,147	439,988,575	22.6%	568,300,000
Aug-09	-	-	-	311,000	1,535,051	497,796,796	12.7%	570,500,000
Sep-09	-	-	-	262,000	3,482,027	483,809,175	-4.5%	463,000,000

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Oct-09	-	-	-	233,000	3,891,639	331,086,554	-39.2%	237,900,000
Nov-09	-	-	-	239,000	5,155,060	160,125,390	9.8%	177,500,000
Dec-09	-	-	-	170,000	1,986,800	148,556,502	21.0%	188,000,000
Jan-10	-	-	-	188,000	2,680,860	154,777,132	18.1%	189,000,000
Feb-10	6,830	-	6,830	202,000	3,377,500	136,794,158	20.3%	171,700,000
Mar-10	-	-	-	289,000	4,325,250	140,560,625	27.5%	193,900,000
Apr-10	-	-	-	253,000	2,314,500	155,187,181	28.6%	217,400,000
May-10	-	-	-	227,000	2,155,900	199,382,698	39.5%	329,700,000
Jun-10	47,000	28,000	75,000	422,000	2,794,500	345,332,170	33.5%	519,600,000
Jul-10	214,000	-	214,000	379,000	2,555,465	521,005,337	13.3%	601,200,000
Aug-10	377,000	1,000	378,000	435,000	2,683,100	546,280,290	12.2%	622,500,000
Sep-10	319,000	40,000	359,000	363,000	1,476,600	587,561,564	0.9%	593,100,000
Oct-10	246,000	-	246,000	322,000	3,338,100	476,460,701	-39.4%	341,900,000
Nov-10	14,000	-	14,000	305,000	3,794,200	199,181,715	-6.0%	187,900,000
Dec-10	1,000	1,000	2,000	322,000	1,173,000	148,142,090	21.0%	187,500,000
Jan-11	1,000	(1,000)	-	362,000	3,704,300	153,347,985	19.5%	190,600,000
Feb-11	1,000	-	1,000	233,000	3,265,300	136,155,066	21.9%	174,400,000
Mar-11	-	-	-	273,000	1,705,845	137,466,512	30.2%	196,900,000
Apr-11	1,000	-	1,000	235,000	1,191,700	162,624,313	36.8%	257,500,000
May-11	10,000	-	10,000	316,000	301,200	251,172,759	31.2%	365,300,000
Jun-11	10,000	-	10,000	310,000	3,221,500	367,499,726	34.0%	556,800,000
Jul-11	224,000	15,675	239,675	343,000	3,634,000	516,176,991	18.1%	630,200,000
Aug-11	267,000	29,000	296,000	495,000	2,514,300	586,924,850	18.8%	722,500,000
Sep-11	447,000	-	447,000	298,000	3,250,300	610,174,712	-19.5%	510,800,000
Oct-11	200,000	125	200,125	326,000	2,284,700	434,606,563	-30.4%	333,200,000
Nov-11	13,000	-	13,000	198,000	1,847,200	193,251,718	2.8%	198,805,395
Dec-11	3,000	-	3,000	195,000	984,714	153,365,878	20.0%	191,717,971
Jan-12			-	275,000	1,992,953	154,334,074	21.7%	197,029,234
Feb-12			3,915	217,500	1,737,004	137,151,305	22.9%	177,828,457
Mar-12			-	281,000	2,369,820	142,561,033	29.8%	202,934,286
Apr-12			500	244,000	2,172,420	159,815,425	33.1%	239,017,485
May-12			5,000	271,500	2,035,969	252,029,307	39.1%	414,080,611
Jun-12			42,500	366,000	2,467,583	383,288,247	25.8%	516,830,018
Jul-12			226,838	361,000	2,374,947	517,401,915	16.3%	618,319,433
Aug-12			337,000	465,000	2,557,424	584,324,118	5.4%	617,464,248
Sep-12			403,000	330,500	2,506,171	542,081,277	-7.4%	504,901,399
Oct-12			223,063	324,000	2,819,600	403,963,350	-30.9%	308,707,252
Nov-12			13,500	251,500	2,621,787	184,829,457	2.8%	190,141,095
Dec-12			2,500	258,500	1,740,999	152,191,233	20.0%	190,249,583
Jan-13			-	275,000	2,575,459	158,804,272	21.7%	202,736,072
Feb-13			3,915	217,500	2,244,700	141,109,189	22.9%	182,960,194
Mar-13			-	281,000	3,062,478	146,824,967	29.8%	209,003,956
Apr-13			500	244,000	2,807,381	164,469,962	33.1%	245,978,739
May-13			5,000	271,500	2,631,048	259,008,780	39.1%	425,547,787
Jun-13			42,500	366,000	3,188,815	393,715,544	25.8%	530,890,298
Jul-13			226,838	361,000	3,069,103	531,169,125	16.3%	634,771,891
Aug-13			337,000	465,000	3,304,916	599,846,481	5.4%	633,866,966
Sep-13			403,000	330,500	3,238,682	556,546,119	-7.4%	518,374,137
Oct-13			223,063	324,000	3,643,721	415,022,073	-30.9%	317,158,286
Nov-13			13,500	251,500	3,388,090	190,278,225	2.8%	195,746,449
Dec-13			2,500	258,500	2,249,863	156,537,475	20.0%	195,682,687
Jan-14			-	275,000	3,188,986	162,227,448	21.7%	207,106,239
Feb-14			3,915	217,500	2,779,433	144,137,386	22.9%	186,886,511
Mar-14			-	281,000	3,792,023	150,135,487	29.8%	213,716,449
Apr-14			500	244,000	3,476,156	168,043,700	33.1%	251,323,567
May-14			5,000	271,500	3,257,817	264,249,574	39.1%	434,158,339
Jun-14			42,500	366,000	3,948,456	401,489,794	25.8%	541,373,181

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Jul-14			226,838	361,000	3,800,226	541,348,192	16.3%	646,936,352
Aug-14			337,000	465,000	4,092,214	611,311,634	5.4%	645,982,369
Sep-14			403,000	330,500	4,010,202	567,242,046	-7.4%	528,336,459
Oct-14			223,063	324,000	4,511,730	423,286,667	-30.9%	323,474,058
Nov-14			13,500	251,500	4,195,202	194,469,371	2.8%	200,058,041
Dec-14			2,500	258,500	2,785,826	159,846,726	20.0%	199,819,480
Jan-15			-	275,000	3,783,476	165,835,656	21.7%	211,712,626
Feb-15			3,915	217,500	3,297,574	147,330,095	22.9%	191,026,133
Mar-15			-	281,000	4,498,931	153,610,829	29.8%	218,663,567
Apr-15			500	244,000	4,124,180	171,807,680	33.1%	256,952,916
May-15			5,000	271,500	3,865,139	269,806,045	39.1%	443,287,543
Jun-15			42,500	366,000	4,684,526	409,749,956	25.8%	552,511,272
Jul-15			226,838	361,000	4,508,663	552,190,793	16.3%	659,893,766
Aug-15			337,000	465,000	4,855,084	623,527,908	5.4%	658,891,493
Sep-15			403,000	330,500	4,757,783	578,634,859	-7.4%	538,947,870
Oct-15			223,063	324,000	5,352,805	432,061,554	-30.9%	330,179,793
Nov-15			13,500	251,500	4,977,271	198,881,262	2.8%	204,596,721
Dec-15			2,500	258,500	3,305,160	163,340,775	20.0%	204,187,283
Jan-16			-	275,000	4,121,072	169,400,944	21.7%	216,264,220
Feb-16			3,915	217,500	3,591,814	150,488,796	22.9%	195,121,661
Mar-16			-	281,000	4,900,365	156,977,258	29.8%	223,455,647
Apr-16			500	244,000	4,492,177	175,512,864	33.1%	262,494,332
May-16			5,000	271,500	4,210,021	275,451,467	39.1%	452,562,891
Jun-16			42,500	366,000	5,102,522	418,226,253	25.8%	563,940,803
Jul-16			226,838	361,000	4,910,966	563,446,786	16.3%	673,345,202
Aug-16			337,000	465,000	5,288,298	636,227,718	5.4%	672,311,577
Sep-16			403,000	330,500	5,182,315	590,460,435	-7.4%	549,962,362
Oct-16			223,063	324,000	5,830,431	441,036,291	-30.9%	337,038,252
Nov-16			13,500	251,500	5,421,388	203,212,918	2.8%	209,052,861
Dec-16			2,500	258,500	3,600,076	166,821,611	20.0%	208,538,569
Jan-17			-	275,000	4,121,072	172,696,417	21.7%	220,471,357
Feb-17			3,915	217,500	3,591,814	153,413,412	22.9%	198,913,676
Mar-17			-	281,000	4,900,365	160,004,517	29.8%	227,764,921
Apr-17			500	244,000	4,492,177	178,920,132	33.1%	267,590,190
May-17			5,000	271,500	4,210,021	280,863,317	39.1%	461,454,485
Jun-17			42,500	366,000	5,102,522	426,453,779	25.8%	575,034,889
Jul-17			226,838	361,000	4,910,966	574,528,403	16.3%	686,588,251
Aug-17			337,000	465,000	5,288,298	648,751,913	5.4%	685,546,085
Sep-17			403,000	330,500	5,182,315	602,100,901	-7.4%	560,804,440
Oct-17			223,063	324,000	5,830,431	449,711,842	-30.9%	343,668,075
Nov-17			13,500	251,500	5,421,388	207,182,096	2.8%	213,136,105
Dec-17			2,500	258,500	3,600,076	170,074,436	20.0%	212,604,826
Jan-18			-	275,000	3,948,668	175,728,469	21.7%	224,342,199
Feb-18			3,915	217,500	3,441,551	156,106,990	22.9%	202,406,132
Mar-18			-	281,000	4,695,360	162,743,160	29.8%	231,663,354
Apr-18			500	244,000	4,304,248	182,045,366	33.1%	272,264,242
May-18			5,000	271,500	4,033,896	285,949,572	39.1%	469,811,130
Jun-18			42,500	366,000	4,889,059	434,240,606	25.8%	585,534,730
Jul-18			226,838	361,000	4,705,517	585,098,507	16.3%	699,220,019
Aug-18			337,000	465,000	5,067,063	660,708,966	5.4%	698,181,286
Sep-18			403,000	330,500	4,965,514	613,203,067	-7.4%	571,145,139
Oct-18			223,063	324,000	5,586,516	457,903,867	-30.9%	349,928,390
Nov-18			13,500	251,500	5,194,585	210,814,846	2.8%	216,873,253
Dec-18			2,500	258,500	3,449,467	173,086,813	20.0%	216,370,505
Jan-19			-	275,000	3,783,476	178,831,823	21.7%	228,304,068
Feb-19			3,915	217,500	3,297,574	158,863,731	22.9%	205,980,483
Mar-19			-	281,000	4,498,931	165,549,253	29.8%	235,657,800

Table C-3 - Monthly Water Demands Past and Future for Average Conditions
City of Loveland

Date	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Apr-19			500	244,000	4,124,180	185,244,725	33.1%	277,049,154
May-19			5,000	271,500	3,865,139	291,148,442	39.1%	478,352,801
Jun-19			42,500	366,000	4,684,526	442,196,369	25.8%	596,262,367
Jul-19			226,838	361,000	4,508,663	595,892,716	16.3%	712,119,603
Aug-19			337,000	465,000	4,855,084	672,918,840	5.4%	711,083,648
Sep-19			403,000	330,500	4,757,783	624,540,683	-7.4%	581,705,138
Oct-19			223,063	324,000	5,352,805	466,274,816	-30.9%	356,325,437
Nov-19			13,500	251,500	4,977,271	214,534,276	2.8%	220,699,572
Dec-19			2,500	258,500	3,305,160	176,168,750	20.0%	220,223,140
Jan-20			-	275,000	3,948,668	182,330,930	21.7%	232,771,173
Feb-20			3,915	217,500	3,441,551	161,966,439	22.9%	210,003,411
Mar-20			-	281,000	4,695,360	168,808,254	29.8%	240,296,958
Apr-20			500	244,000	4,304,248	188,871,807	33.1%	282,473,762
May-20			5,000	271,500	4,033,896	296,792,180	39.1%	487,625,383
Jun-20			42,500	366,000	4,889,059	450,724,403	25.8%	607,761,661
Jul-20			226,838	361,000	4,705,517	607,300,456	16.3%	725,752,384
Aug-20			337,000	465,000	5,067,063	685,801,111	5.4%	724,696,540
Sep-20			403,000	330,500	4,965,514	636,524,667	-7.4%	592,867,174
Oct-20			223,063	324,000	5,586,516	475,285,279	-30.9%	363,211,199
Nov-20			13,500	251,500	5,194,585	218,767,069	2.8%	225,054,008
Dec-20			2,500	258,500	3,449,467	179,603,827	20.0%	224,517,224

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Jan-05	109,547,839	-	-	109,547,839	8,390,000		-	-	8,390,000
Feb-05	91,946,900	-	-	91,946,900	6,731,000		-	-	6,731,000
Mar-05	95,470,039	-	-	95,470,039	7,029,100		-	-	7,029,100
Apr-05	121,536,723	-	-	121,536,723	7,677,600		-	-	7,677,600
May-05	160,891,579	-	-	160,891,579	9,462,300		-	-	9,462,300
Jun-05	279,120,014	-	-	279,120,014	13,130,000		-	-	13,130,000
Jul-05	424,146,200	-	-	424,146,200	18,902,000		-	-	18,902,000
Aug-05	425,802,200	-	-	425,802,200	18,743,000		-	-	18,743,000
Sep-05	394,132,748	-	-	394,132,748	17,333,000		-	-	17,333,000
Oct-05	279,788,600	-	-	279,788,600	11,851,800		-	-	11,851,800
Nov-05	128,564,600	-	-	128,564,600	6,710,200		-	-	6,710,200
Dec-05	112,596,900	-	-	112,596,900	7,637,100		-	-	7,637,100
Jan-06	117,025,547	-	-	117,025,547	8,404,900		-	-	8,404,900
Feb-06	103,678,953	-	-	103,678,953	7,021,000		-	-	7,021,000
Mar-06	102,035,487	-	-	102,035,487	7,009,000		-	-	7,009,000
Apr-06	138,511,159	-	-	138,511,159	8,567,000		-	-	8,567,000
May-06	293,578,622	-	-	293,578,622	13,179,800		-	-	13,179,800
Jun-06	496,795,889	-	-	496,795,889	21,564,200		-	-	21,564,200
Jul-06	525,171,479	-	-	525,171,479	23,378,000		-	-	23,378,000
Aug-06	477,540,475	-	-	477,540,475	19,200,600		-	-	19,200,600
Sep-06	404,186,500	-	-	404,186,500	16,057,400		-	-	16,057,400
Oct-06	279,511,911	-	-	279,511,911	11,850,000		-	-	11,850,000
Nov-06	123,457,000	-	-	123,457,000	6,932,914		-	-	6,932,914
Dec-06	125,055,758	-	-	125,055,758	6,958,428		-	-	6,958,428
Jan-07	103,665,559	-	-	103,665,559	7,801,189		-	16,000	7,817,189
Feb-07	100,225,253	-	-	100,225,253	6,533,383		-	10,000	6,543,383
Mar-07	99,508,230	-	-	99,508,230	6,596,000		-	43,000	6,639,000
Apr-07	115,275,789	-	-	115,275,789	7,256,000		-	16,000	7,272,000
May-07	178,867,000	-	-	178,867,000	9,201,800		-	58,000	9,259,800
Jun-07	363,240,631	-	-	363,240,631	15,624,200		-	59,000	15,683,200
Jul-07	550,764,689	-	-	550,764,689	22,827,000		-	171,000	22,998,000
Aug-07	493,982,153	-	-	493,982,153	18,844,000		-	223,000	19,067,000
Sep-07	432,263,247	-	-	432,263,247	16,830,000		-	443,000	17,273,000
Oct-07	293,196,700	-	-	293,196,700	11,589,000		-	261,000	11,850,000
Nov-07	142,514,904	-	-	142,514,904	7,512,000		-	118,000	7,630,000
Dec-07	116,274,289	-	-	116,274,289	7,198,000		-	11,000	7,209,000
Jan-08	90,773,689	22,654,400	93,000	113,521,089	6,864,000	244,000	1,000	19,000	7,128,000
Feb-08	80,380,636	21,288,000	35,000	101,703,636	6,330,000	230,000	1,000	12,000	6,573,000
Mar-08	83,119,897	21,065,000	49,000	104,233,897	6,354,000	231,000	58,000	21,000	6,664,000
Apr-08	91,141,367	21,638,200	1,363,000	114,142,567	7,106,700	244,000	118,000	33,000	7,501,700
May-08	194,438,100	28,272,300	31,814,000	254,524,400	10,956,300	355,000	588,000	94,000	11,993,300
Jun-08	245,541,100	34,400,000	74,413,000	354,354,100	13,763,000	444,000	1,157,000	95,000	15,459,000
Jul-08	335,981,000	39,914,000	96,411,500	472,306,500	18,422,000	530,000	1,668,000	227,000	20,847,000
Aug-08	373,924,800	49,564,000	131,737,000	555,225,800	20,187,000	662,000	1,470,000	181,000	22,500,000
Sep-08	242,903,000	38,169,000	89,143,485	370,215,485	14,858,000	400,700	860,000	78,000	16,196,700
Oct-08	186,940,500	32,226,000	61,023,827	280,190,327	10,003,000	311,000	934,000	180,000	11,428,000
Nov-08	100,178,000	22,921,000	11,371,809	134,470,809	6,895,000	220,000	51,000	48,000	7,214,000
Dec-08	90,803,000	21,571,000	439,343	112,813,343	7,074,000	239,000	1,000	12,000	7,326,000
Jan-09	91,414,696	22,682,000	(38,000)	114,058,696	7,097,000	234,000	2,000	19,000	7,352,000
Feb-09	79,107,256	20,625,000	1,000	99,733,256	6,145,000	198,000	7,000	14,000	6,364,000
Mar-09	87,262,000	20,671,000	77,505	108,010,505	7,074,000	206,000	103,000	17,000	7,400,000
Apr-09	98,029,000	22,648,440	1,149,554	121,826,994	7,138,000	246,000	26,000	16,000	7,426,000
May-09	134,661,000	25,045,000	20,549,518	180,255,518	9,038,000	231,000	138,000	87,000	9,494,000
Jun-09	196,335,000	31,328,000	57,576,486	285,239,486	11,347,000	281,000	556,000	224,000	12,408,000
Jul-09	241,904,000	34,540,000	73,796,899	350,240,899	13,360,026	290,000	820,000	117,000	14,587,026
Aug-09	256,740,000	40,609,000	94,380,799	391,729,799	14,110,000	389,000	975,000	87,000	15,561,000
Sep-09	257,340,000	38,203,000	88,816,521	384,359,521	13,858,000	443,000	998,000	86,000	15,385,000

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Oct-09	165,580,000	32,517,000	57,633,397	255,730,397	9,455,000	327,000	486,000	36,000	10,304,000
Nov-09	84,864,000	21,626,000	8,109,374	114,599,374	6,412,000	181,000	4,000	9,000	6,606,000
Dec-09	87,938,000	22,192,000	93,420	110,223,420	7,190,000	203,000	4,000	16,000	7,413,000
Jan-10	89,909,000	24,246,207	1,000	114,156,207	6,886,000	197,000	3,000	19,000	7,105,000
Feb-10	79,070,000	20,040,415	1,000	99,111,415	5,748,000	848,000	3,000	58,000	6,657,000
Mar-10	79,753,000	20,994,000	1,000	100,748,000	5,812,000	981,000	2,000	20,000	6,815,000
Apr-10	91,306,741	21,891,000	1,972,756	115,170,497	6,476,000	931,000	9,000	27,000	7,443,000
May-10	111,989,000	23,348,066	14,585,668	149,922,734	6,948,000	1,018,000	7,000	61,000	8,034,000
Jun-10	197,113,000	30,122,000	46,640,249	273,875,249	10,789,000	1,496,500	583,000	110,000	12,978,500
Jul-10	291,034,000	40,181,000	91,094,682	422,309,682	14,434,000	1,496,500	603,000	118,000	16,651,500
Aug-10	290,154,456	42,380,000	102,858,870	435,393,326	15,188,708	2,171,000	730,000	135,000	18,224,708
Sep-10	322,030,059	44,587,606	109,023,407	475,641,072	15,901,000	2,259,000	817,000	87,000	19,064,000
Oct-10	242,319,538	40,218,092	92,436,758	374,974,388	12,435,000	1,749,000	1,076,000	252,000	15,512,000
Nov-10	106,406,559	23,847,000	15,873,137	146,126,696	6,543,000	976,000	30,000	3,000	7,552,000
Dec-10	86,848,200	21,987,500	40,123	108,875,823	6,565,000	951,000	6,000	92,000	7,614,000
Jan-11	88,431,400	23,179,806	2,000	111,613,206	6,290,000	1,121,000	3,000	40,000	7,454,000
Feb-11	76,327,935	21,297,182	-	97,625,117	5,915,000	1,147,000	2,000	81,000	7,145,000
Mar-11	77,550,044	21,559,143	3,700	99,112,887	4,387,851	2,315,000	3,000	34,000	6,739,851
Apr-11	98,181,392	22,716,268	3,415,776	124,313,436	5,373,123	2,458,000	7,000	45,000	7,883,123
May-11	143,207,466	27,613,892	29,770,595	200,591,953	6,672,553	2,517,000	81,000	98,000	9,368,553
Jun-11	199,577,996	34,673,193	54,373,825	288,625,014	8,976,000	3,418,000	405,000	131,000	12,930,000
Jul-11	284,351,642	43,333,408	84,674,358	412,359,408	12,417,255	3,821,000	577,000	154,000	16,969,255
Aug-11	310,674,227	47,265,797	105,545,898	463,485,922	13,653,000	4,540,000	781,000	173,000	19,147,000
Sep-11	324,823,276	48,787,417	112,669,890	486,280,583	12,825,221	4,829,000	778,000	171,000	18,603,221
Oct-11	217,096,857	39,565,686	78,098,138	334,760,681	9,033,270	3,580,000	564,000	115,000	13,292,270
Nov-11	101,741,384	24,849,245	16,782,581	143,373,210	4,887,588	2,144,000	17,000	21,000	7,069,588
Dec-11	88,035,135	24,819,734	158,510	113,013,379	4,822,685	2,760,436	11,000	28,000	7,622,121
Jan-12	91,971,580	24,078,211	70,469	116,120,259	7,130,087	897,456	3,207	34,750	8,065,500
Feb-12	80,912,068	21,544,549	26,582	102,483,199	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-12	86,671,725	21,568,001	70,275	108,310,001	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-12	99,230,346	22,900,594	3,014,975	125,145,915	7,348,755	2,013,288	92,694	42,343	9,497,081
May-12	181,989,124	28,527,114	32,430,753	242,946,991	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-12	235,016,235	35,097,917	70,382,587	340,496,739	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-12	328,788,928	43,399,302	96,802,255	468,990,485	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-12	359,342,753	49,416,805	125,501,513	534,261,071	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-12	331,497,599	47,921,786	113,301,964	492,721,349	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-12	238,083,628	40,726,277	88,967,307	367,777,211	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-12	108,281,615	24,830,623	17,183,412	150,295,651	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-12	90,632,748	24,261,532	362,729	115,257,009	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-13	94,454,812	24,728,322	72,372	119,255,506	7,130,087	897,456	3,207	34,750	8,065,500
Feb-13	83,096,694	22,126,252	27,299	105,250,246	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-13	89,011,862	22,150,337	72,172	111,234,371	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-13	101,909,565	23,518,910	3,096,379	128,524,854	7,348,755	2,013,288	92,694	42,343	9,497,081
May-13	186,902,830	29,297,347	33,306,384	249,506,560	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-13	241,361,673	36,045,560	72,282,917	349,690,151	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-13	337,666,229	44,571,083	99,415,916	481,653,228	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-13	369,045,008	50,751,059	128,890,054	548,686,120	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-13	340,448,034	49,215,674	116,361,117	506,024,825	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-13	244,511,886	41,825,886	91,369,424	377,707,196	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-13	111,205,219	25,501,050	17,647,364	154,353,633	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-13	93,079,832	24,916,593	372,523	118,368,948	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-14	96,249,454	25,198,160	73,747	121,521,361	7,130,087	897,456	3,207	34,750	8,065,500
Feb-14	84,675,531	22,546,651	27,818	107,250,000	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-14	90,703,087	22,571,194	73,543	113,347,824	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-14	103,845,847	23,965,769	3,155,211	130,966,827	7,348,755	2,013,288	92,694	42,343	9,497,081
May-14	190,453,984	29,853,996	33,939,205	254,247,185	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-14	245,947,545	36,730,426	73,656,293	356,334,264	13,193,952	2,852,944	1,005,830	197,914	17,250,639

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Jul-14	344,081,888	45,417,933	101,304,818	490,804,639	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-14	376,056,863	51,715,329	131,338,965	559,111,156	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-14	346,916,546	50,150,772	118,571,979	515,639,297	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-14	249,157,611	42,620,578	93,105,443	384,883,633	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-14	113,318,118	25,985,570	17,982,664	157,286,352	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-14	94,848,349	25,390,008	379,601	120,617,958	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-15	98,174,443	25,702,124	75,222	123,951,788	7,130,087	897,456	3,207	34,750	8,065,500
Feb-15	86,369,042	22,997,584	28,374	109,395,000	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-15	92,517,149	23,022,618	75,014	115,614,780	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-15	105,922,764	24,445,084	3,218,315	133,586,163	7,348,755	2,013,288	92,694	42,343	9,497,081
May-15	194,263,063	30,451,076	34,617,989	259,332,129	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-15	250,866,496	37,465,034	75,129,418	363,460,949	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-15	350,963,525	46,326,292	103,330,914	500,620,732	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-15	383,578,000	52,749,636	133,965,744	570,293,380	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-15	353,854,877	51,153,787	120,943,418	525,952,083	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-15	254,140,764	43,472,990	94,967,552	392,581,305	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-15	115,584,481	26,505,281	18,342,318	160,432,079	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-15	96,745,316	25,897,808	387,193	123,030,318	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-16	100,236,106	26,241,868	76,801	126,554,776	7,130,087	897,456	3,207	34,750	8,065,500
Feb-16	88,182,792	23,480,533	28,970	111,692,295	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-16	94,460,009	23,506,093	76,589	118,042,691	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-16	108,147,142	24,958,431	3,285,899	136,391,473	7,348,755	2,013,288	92,694	42,343	9,497,081
May-16	198,342,588	31,090,549	35,344,967	264,778,103	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-16	256,134,693	38,251,800	76,707,136	371,093,629	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-16	358,333,759	47,299,144	105,500,864	511,133,767	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-16	391,633,138	53,857,378	136,779,025	582,269,541	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-16	361,285,830	52,228,017	123,483,230	536,997,076	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-16	259,477,720	44,385,922	96,961,871	400,825,513	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-16	118,011,755	27,061,892	18,727,506	163,801,153	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-16	98,776,968	26,441,662	395,324	125,613,954	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-17	102,341,064	26,792,948	78,414	129,212,426	7,130,087	897,456	3,207	34,750	8,065,500
Feb-17	90,034,630	23,973,624	29,579	114,037,833	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-17	96,443,669	23,999,721	78,198	120,521,587	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-17	110,418,232	25,482,558	3,354,903	139,255,694	7,348,755	2,013,288	92,694	42,343	9,497,081
May-17	202,507,782	31,743,450	36,087,211	270,338,443	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-17	261,513,521	39,055,088	78,317,986	378,886,595	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-17	365,858,768	48,292,426	107,716,382	521,867,576	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-17	399,857,434	54,988,383	139,651,384	594,497,201	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-17	368,872,832	53,324,805	126,076,378	548,274,015	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-17	264,926,752	45,318,027	98,998,070	409,242,849	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-17	120,490,002	27,630,192	19,120,784	167,240,977	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-17	100,851,284	26,996,937	403,626	128,251,847	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-18	104,387,886	27,328,806	79,983	131,796,674	7,130,087	897,456	3,207	34,750	8,065,500
Feb-18	91,835,323	24,453,097	30,170	116,318,590	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-18	98,372,542	24,479,715	79,762	122,932,019	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-18	112,626,597	25,992,209	3,422,001	142,040,807	7,348,755	2,013,288	92,694	42,343	9,497,081
May-18	206,557,938	32,378,319	36,808,955	275,745,212	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-18	266,743,791	39,836,190	79,884,346	386,464,327	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-18	373,175,944	49,258,275	109,870,709	532,304,928	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-18	407,854,583	56,088,151	142,444,412	606,387,145	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-18	376,250,289	54,391,301	128,597,905	559,239,495	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-18	270,225,287	46,224,387	100,978,031	417,427,705	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-18	122,899,802	28,182,796	19,503,200	170,585,797	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-18	102,868,310	27,536,876	411,698	130,816,884	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-19	106,475,643	27,875,383	81,582	134,432,608	7,130,087	897,456	3,207	34,750	8,065,500
Feb-19	93,672,029	24,942,159	30,774	118,644,962	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-19	100,339,993	24,969,309	81,357	125,390,659	7,043,996	1,922,115	90,138	30,528	9,086,777

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Inside Residential	Inside Multi-Family	Inside Irrigation	Inside Residential Total SF+ MF	Outside Residential	Outside Multi-Family	Outside Irrigation	Outside Res - Special Base	Outside Residential Total SF+ MF
Apr-19	114,879,129	26,512,054	3,490,441	144,881,624	7,348,755	2,013,288	92,694	42,343	9,497,081
May-19	210,689,096	33,025,886	37,545,134	281,260,117	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-19	272,078,667	40,632,914	81,482,033	394,193,613	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-19	380,639,463	50,243,440	112,068,124	542,951,026	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-19	416,011,674	57,209,914	145,293,300	618,514,888	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-19	383,775,295	55,479,127	131,169,863	570,424,285	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-19	275,629,792	47,148,875	102,997,592	425,776,260	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-19	125,357,798	28,746,451	19,893,264	173,997,513	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-19	104,925,676	28,087,614	419,932	133,433,222	7,507,279	2,236,967	9,703	74,292	9,828,240
Jan-20	108,605,156	28,432,890	83,214	137,121,260	7,130,087	897,456	3,207	34,750	8,065,500
Feb-20	95,545,470	25,441,002	31,389	121,017,861	6,290,034	1,074,466	5,880	75,205	7,445,585
Mar-20	102,346,793	25,468,696	82,984	127,898,473	7,043,996	1,922,115	90,138	30,528	9,086,777
Apr-20	117,176,711	27,042,295	3,560,250	147,779,256	7,348,755	2,013,288	92,694	42,343	9,497,081
May-20	214,902,878	33,686,403	38,296,037	286,885,319	10,406,548	2,079,907	465,384	101,633	13,053,471
Jun-20	277,520,241	41,445,572	83,111,673	402,077,486	13,193,952	2,852,944	1,005,830	197,914	17,250,639
Jul-20	388,252,252	51,248,309	114,309,486	553,810,047	17,299,251	3,145,516	1,429,382	205,620	22,079,770
Aug-20	424,331,908	58,354,112	148,199,166	630,885,186	18,789,352	3,842,450	1,326,590	186,973	24,145,366
Sep-20	391,450,801	56,588,710	133,793,261	581,832,771	15,680,938	4,068,683	959,123	149,352	20,858,097
Oct-20	281,142,388	48,091,853	105,057,544	434,291,785	11,753,226	3,038,551	1,049,912	237,860	16,079,548
Nov-20	127,864,954	29,321,380	20,291,129	177,477,463	7,072,667	1,798,784	45,542	40,206	8,957,198
Dec-20	107,024,190	28,649,366	428,331	136,101,886	7,507,279	2,236,967	9,703	74,292	9,828,240

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Total Residential	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses
Jan-05		23,395,700	1,428,340	-	1,428,340	24,824,040	860,000	-	860,000
Feb-05		20,140,400	1,267,960	-	1,267,960	21,408,360	970,000	-	970,000
Mar-05		20,826,600	1,208,110	-	1,208,110	22,034,710	729,000	-	729,000
Apr-05		22,561,800	1,247,040	-	1,247,040	23,808,840	960,000	-	960,000
May-05		28,669,600	1,367,240	-	1,367,240	30,036,840	1,993,800	-	1,993,800
Jun-05		45,763,111	2,041,240	-	2,041,240	47,804,351	6,301,000	-	6,301,000
Jul-05		62,686,089	2,544,070	-	2,544,070	65,230,159	11,993,000	-	11,993,000
Aug-05		71,919,800	2,607,370	-	2,607,370	74,527,170	13,023,000	-	13,023,000
Sep-05		63,051,800	2,722,200	-	2,722,200	65,774,000	9,609,000	-	9,609,000
Oct-05		54,501,022	2,053,160	-	2,053,160	56,554,182	5,632,000	-	5,632,000
Nov-05		26,677,000	995,579	-	995,579	27,672,579	969,000	-	969,000
Dec-05		26,098,600	1,538,120	-	1,538,120	27,636,720	588,000	-	588,000
Jan-06		22,410,600	1,287,070	-	1,287,070	23,697,670	739,000	-	739,000
Feb-06		21,364,400	1,154,330	-	1,154,330	22,518,730	615,000	-	615,000
Mar-06		22,057,400	1,197,530	-	1,197,530	23,254,930	802,000	-	802,000
Apr-06		24,236,000	1,307,580	-	1,307,580	25,543,580	1,042,000	-	1,042,000
May-06		41,726,310	1,797,860	-	1,797,860	43,524,170	4,705,000	-	4,705,000
Jun-06		62,753,890	2,553,730	-	2,553,730	65,307,620	11,930,000	-	11,930,000
Jul-06		77,074,800	2,720,570	-	2,720,570	79,795,370	15,421,000	-	15,421,000
Aug-06		69,554,800	3,326,800	-	3,326,800	72,881,600	14,329,000	-	14,329,000
Sep-06		66,675,900	2,673,210	-	2,673,210	69,349,110	12,624,000	-	12,624,000
Oct-06		54,335,000	1,967,490	-	1,967,490	56,302,490	5,054,000	-	5,054,000
Nov-06		29,062,700	1,313,140	-	1,313,140	30,375,840	913,000	-	913,000
Dec-06		26,172,152	989,063	-	989,063	27,161,215	694,029	-	694,029
Jan-07		23,625,302	1,128,697	-	1,128,697	24,753,999	702,971	-	702,971
Feb-07		23,183,881	1,451,000	-	1,451,000	24,634,881	936,000	-	936,000
Mar-07		23,530,900	1,724,000	-	1,724,000	25,254,900	814,000	-	814,000
Apr-07		26,258,200	1,129,000	-	1,129,000	27,387,200	1,233,000	-	1,233,000
May-07		32,112,400	1,261,330	-	1,261,330	33,373,730	2,136,000	-	2,136,000
Jun-07		54,923,600	2,012,670	-	2,012,670	56,936,270	10,475,000	-	10,475,000
Jul-07		79,127,000	2,934,720	-	2,934,720	82,061,720	15,282,000	-	15,282,000
Aug-07		71,769,200	2,536,280	-	2,536,280	74,305,480	14,333,000	-	14,333,000
Sep-07		69,579,511	2,215,620	-	2,215,620	71,795,131	11,958,000	-	11,958,000
Oct-07		53,442,909	2,082,380	-	2,082,380	55,525,289	8,122,000	-	8,122,000
Nov-07		31,443,400	1,408,000	-	1,408,000	32,851,400	1,489,000	-	1,489,000
Dec-07		26,277,800	1,097,000	-	1,097,000	27,374,800	781,000	-	781,000
Jan-08		28,092,400	1,168,610	-	1,168,610	29,261,010	673,000	-	673,000
Feb-08		28,521,000	1,002,390	-	1,002,390	29,523,390	698,000	-	698,000
Mar-08		29,168,800	994,000	-	994,000	30,162,800	870,000	-	870,000
Apr-08		30,038,848	1,034,860	-	1,034,860	31,073,708	1,214,000	-	1,214,000
May-08		44,420,500	1,443,140	-	1,443,140	45,863,640	4,640,000	-	4,640,000
Jun-08		65,379,000	1,849,000	-	1,849,000	67,228,000	9,119,000	-	9,119,000
Jul-08		70,981,400	2,214,000	-	2,214,000	73,195,400	13,867,000	-	13,867,000
Aug-08		91,172,600	2,521,000	-	2,521,000	93,693,600	17,030,000	-	17,030,000
Sep-08		72,669,000	2,367,000	-	2,367,000	75,036,000	10,177,000	-	10,177,000
Oct-08		61,045,000	1,502,000	-	1,502,000	62,547,000	7,867,000	-	7,867,000
Nov-08		38,410,475	1,137,000	-	1,137,000	39,547,475	2,063,000	-	2,063,000
Dec-08		30,395,643	1,033,000	-	1,033,000	31,428,643	976,000	-	976,000
Jan-09		29,544,816	1,016,000	-	1,016,000	30,560,816	940,000	-	940,000
Feb-09		25,419,725	846,000	-	846,000	26,265,725	973,000	-	973,000
Mar-09		26,154,072	1,008,000	-	1,008,000	27,162,072	682,000	-	682,000
Apr-09		26,958,000	1,004,000	-	1,004,000	27,962,000	1,079,110	-	1,079,110
May-09		34,835,965	1,222,000	-	1,222,000	36,057,965	2,852,000	-	2,852,000
Jun-09		55,948,018	1,561,000	-	1,561,000	57,509,018	5,757,000	-	5,757,000
Jul-09		57,512,324	1,669,000	-	1,669,000	59,181,324	12,163,000	-	12,163,000
Aug-09		73,564,946	1,676,000	-	1,676,000	75,240,946	13,419,000	-	13,419,000
Sep-09		68,559,627	1,597,000	-	1,597,000	70,156,627	10,164,000	-	10,164,000

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Total Residential	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses
Oct-09		53,388,518	1,206,000	38,000	1,244,000	54,632,518	6,295,000	-	6,295,000
Nov-09		31,353,956	893,000	-	893,000	32,246,956	1,279,000	-	1,279,000
Dec-09		27,189,282	1,050,000	-	1,050,000	28,239,282	524,000	-	524,000
Jan-10		28,833,065	977,000	-	977,000	29,810,065	837,000	-	837,000
Feb-10		25,974,413	952,000	-	952,000	26,926,413	513,000	-	513,000
Mar-10		26,591,375	972,000	-	972,000	27,563,375	820,000	-	820,000
Apr-10		28,133,184	1,100,000	8,000	1,108,000	29,241,184	765,000	-	765,000
May-10		32,743,064	1,268,000	46,000	1,314,000	34,057,064	4,986,000	-	4,986,000
Jun-10		45,771,921	1,741,000	95,000	1,836,000	47,607,921	7,579,000	-	7,579,000
Jul-10		64,731,690	1,692,000	84,000	1,776,000	66,507,690	12,388,000	-	12,388,000
Aug-10		75,019,013	1,598,000	99,000	1,697,000	76,716,013	12,450,143	-	12,450,143
Sep-10		73,554,892	1,996,000	96,000	2,092,000	75,646,892	15,011,000	-	15,011,000
Oct-10		69,488,929	1,563,260	70,000	1,633,260	71,122,189	10,946,024	-	10,946,024
Nov-10		38,957,819	1,098,000	-	1,098,000	40,055,819	1,334,000	-	1,334,000
Dec-10		28,654,267	974,000	-	974,000	29,628,267	527,000	-	527,000
Jan-11		28,616,074	922,000	-	922,000	29,538,074	676,405	-	676,405
Feb-11		26,258,447	943,000	-	943,000	27,201,447	684,202	-	684,202
Mar-11		26,337,929	2,591,000	-	2,591,000	28,928,929	706,000	-	706,000
Apr-11		27,296,680	905,106	9,000	914,106	28,210,786	789,268	-	789,268
May-11		37,715,753	1,185,000	21,000	1,206,000	38,921,753	1,663,300	-	1,663,300
Jun-11		53,502,633	1,356,000	62,000	1,418,000	54,920,633	7,482,579	-	7,482,579
Jul-11		67,285,653	1,714,000	97,000	1,811,000	69,096,653	13,535,000	-	13,535,000
Aug-11		82,418,628	1,823,000	88,000	1,911,000	84,329,628	16,657,000	-	16,657,000
Sep-11		83,086,966	1,769,642	93,000	1,862,642	84,949,608	16,346,000	-	16,346,000
Oct-11		71,814,787	1,350,000	72,000	1,422,000	73,236,787	10,505,000	1,000	10,506,000
Nov-11		38,270,720	870,000	-	870,000	39,140,720	1,610,000	-	1,610,000
Dec-11		30,078,664	809,000	-	809,000	30,887,664	660,000	-	660,000
Jan-12		29,549,811	1,133,415	-	1,133,415	30,683,226	950,644		950,644
Feb-12		28,074,472	1,007,206	-	1,007,206	29,081,679	955,892		955,892
Mar-12		28,649,152	2,204,368	-	2,204,368	30,853,520	809,729		809,729
Apr-12		29,663,153	1,098,688	9,229	1,107,917	30,771,071	1,182,347		1,182,347
May-12		42,771,325	1,402,130	38,851	1,440,980	44,212,305	5,094,831		5,094,831
Jun-12		63,611,275	1,853,891	87,051	1,940,942	65,552,217	8,858,535		8,858,535
Jul-12		71,241,054	2,096,566	98,356	2,194,922	73,435,976	13,827,391		13,827,391
Aug-12		89,152,527	2,339,909	101,524	2,441,433	91,593,960	17,185,310		17,185,310
Sep-12		81,095,821	2,278,619	102,434	2,381,054	83,476,874	16,150,915		16,150,915
Oct-12		72,785,016	1,575,001	79,276	1,654,277	74,439,293	11,110,465		11,110,465
Nov-12		40,598,776	1,143,825	-	1,143,825	41,742,601	1,585,037		1,585,037
Dec-12		30,732,944	1,082,893	-	1,082,893	31,815,838	648,001		648,001
Jan-13		30,347,656	1,164,017	-	1,164,017	31,511,673	950,644		950,644
Feb-13		28,832,483	1,034,401	-	1,034,401	29,866,884	955,892		955,892
Mar-13		29,422,680	2,263,886	-	2,263,886	31,686,565	809,729		809,729
Apr-13		30,464,059	1,128,352	9,479	1,137,831	31,601,890	1,182,347		1,182,347
May-13		43,926,151	1,439,987	39,900	1,479,887	45,406,037	5,094,831		5,094,831
Jun-13		65,328,779	1,903,946	89,402	1,993,347	67,322,127	8,858,535		8,858,535
Jul-13		73,164,562	2,153,174	101,011	2,254,185	75,418,747	13,827,391		13,827,391
Aug-13		91,559,645	2,403,087	104,265	2,507,352	94,066,997	17,185,310		17,185,310
Sep-13		83,285,408	2,340,142	105,200	2,445,342	85,730,750	16,150,915		16,150,915
Oct-13		74,750,211	1,617,526	81,417	1,698,943	76,449,154	11,110,465		11,110,465
Nov-13		41,694,943	1,174,708	-	1,174,708	42,869,651	1,585,037		1,585,037
Dec-13		31,562,734	1,112,132	-	1,112,132	32,674,865	648,001		648,001
Jan-14		30,924,261	1,186,133	-	1,186,133	32,110,394	950,644		950,644
Feb-14		29,380,300	1,054,055	-	1,054,055	30,434,355	955,892		955,892
Mar-14		29,981,710	2,306,900	-	2,306,900	32,288,610	809,729		809,729
Apr-14		31,042,876	1,149,791	9,659	1,159,450	32,202,326	1,182,347		1,182,347
May-14		44,760,747	1,467,347	40,658	1,508,004	46,268,752	5,094,831		5,094,831
Jun-14		66,570,026	1,940,121	91,100	2,031,221	68,601,247	8,858,535		8,858,535

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Total Residential	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses
Jul-14		74,554,689	2,194,084	102,930	2,297,015	76,851,703	13,827,391		13,827,391
Aug-14		93,299,278	2,448,745	106,246	2,554,992	95,854,270	17,185,310		17,185,310
Sep-14		84,867,830	2,384,605	107,199	2,491,804	87,359,634	16,150,915		16,150,915
Oct-14		76,170,465	1,648,259	82,964	1,731,222	77,901,688	11,110,465		11,110,465
Nov-14		42,487,147	1,197,027	-	1,197,027	43,684,174	1,585,037		1,585,037
Dec-14		32,162,426	1,133,262	-	1,133,262	33,295,688	648,001		648,001
Jan-15		31,542,746	1,209,856	-	1,209,856	32,752,602	950,644		950,644
Feb-15		29,967,906	1,075,136	-	1,075,136	31,043,042	955,892		955,892
Mar-15		30,581,345	2,353,038	-	2,353,038	32,934,382	809,729		809,729
Apr-15		31,663,733	1,172,787	9,852	1,182,639	32,846,372	1,182,347		1,182,347
May-15		45,655,962	1,496,694	41,471	1,538,165	47,194,127	5,094,831		5,094,831
Jun-15		67,901,426	1,978,923	92,922	2,071,846	69,973,272	8,858,535		8,858,535
Jul-15		76,045,783	2,237,966	104,989	2,342,955	78,388,737	13,827,391		13,827,391
Aug-15		95,165,264	2,497,720	108,371	2,606,092	97,771,356	17,185,310		17,185,310
Sep-15		86,565,187	2,432,297	109,343	2,541,640	89,106,827	16,150,915		16,150,915
Oct-15		77,693,874	1,681,224	84,623	1,765,847	79,459,721	11,110,465		11,110,465
Nov-15		43,336,890	1,220,968	-	1,220,968	44,557,858	1,585,037		1,585,037
Dec-15		32,805,674	1,155,927	-	1,155,927	33,961,601	648,001		648,001
Jan-16		32,205,144	1,235,263	-	1,235,263	33,440,407	950,644		950,644
Feb-16		30,597,232	1,097,714	-	1,097,714	31,694,946	955,892		955,892
Mar-16		31,223,553	2,402,451	-	2,402,451	33,626,004	809,729		809,729
Apr-16		32,328,672	1,197,416	10,059	1,207,474	33,536,146	1,182,347		1,182,347
May-16		46,614,738	1,528,124	42,342	1,570,466	48,185,204	5,094,831		5,094,831
Jun-16		69,327,356	2,020,481	94,874	2,115,354	71,442,711	8,858,535		8,858,535
Jul-16		77,642,744	2,284,963	107,194	2,392,157	80,034,901	13,827,391		13,827,391
Aug-16		97,163,734	2,550,172	110,647	2,660,820	99,824,554	17,185,310		17,185,310
Sep-16		88,383,056	2,483,375	111,639	2,595,014	90,978,070	16,150,915		16,150,915
Oct-16		79,325,446	1,716,530	86,400	1,802,930	81,128,375	11,110,465		11,110,465
Nov-16		44,246,964	1,246,608	-	1,246,608	45,493,573	1,585,037		1,585,037
Dec-16		33,494,593	1,180,202	-	1,180,202	34,674,795	648,001		648,001
Jan-17		32,881,452	1,261,203	-	1,261,203	34,142,655	950,644		950,644
Feb-17		31,239,774	1,120,766	-	1,120,766	32,360,540	955,892		955,892
Mar-17		31,879,247	2,452,903	-	2,452,903	34,332,150	809,729		809,729
Apr-17		33,007,574	1,222,561	10,270	1,232,831	34,240,405	1,182,347		1,182,347
May-17		47,593,647	1,560,215	43,231	1,603,446	49,197,093	5,094,831		5,094,831
Jun-17		70,783,231	2,062,911	96,866	2,159,777	72,943,007	8,858,535		8,858,535
Jul-17		79,273,242	2,332,947	109,445	2,442,392	81,715,634	13,827,391		13,827,391
Aug-17		99,204,173	2,603,726	112,971	2,716,697	101,920,870	17,185,310		17,185,310
Sep-17		90,239,100	2,535,526	113,983	2,649,509	92,888,609	16,150,915		16,150,915
Oct-17		80,991,280	1,752,577	88,214	1,840,791	82,832,071	11,110,465		11,110,465
Nov-17		45,176,150	1,272,787	-	1,272,787	46,448,938	1,585,037		1,585,037
Dec-17		34,197,980	1,204,986	-	1,204,986	35,402,966	648,001		648,001
Jan-18		33,539,081	1,286,428	-	1,286,428	34,825,509	950,644		950,644
Feb-18		31,864,570	1,143,181	-	1,143,181	33,007,750	955,892		955,892
Mar-18		32,516,832	2,501,961	-	2,501,961	35,018,793	809,729		809,729
Apr-18		33,667,725	1,247,012	10,475	1,257,488	34,925,213	1,182,347		1,182,347
May-18		48,545,520	1,591,419	44,096	1,635,515	50,181,035	5,094,831		5,094,831
Jun-18		72,198,895	2,104,169	98,803	2,202,972	74,401,868	8,858,535		8,858,535
Jul-18		80,858,706	2,379,606	111,634	2,491,240	83,349,946	13,827,391		13,827,391
Aug-18		101,188,256	2,655,801	115,230	2,771,031	103,959,287	17,185,310		17,185,310
Sep-18		92,043,882	2,586,236	116,263	2,702,500	94,746,382	16,150,915		16,150,915
Oct-18		82,611,106	1,787,628	89,979	1,877,607	84,488,713	11,110,465		11,110,465
Nov-18		46,079,673	1,298,243	-	1,298,243	47,377,916	1,585,037		1,585,037
Dec-18		34,881,939	1,229,086	-	1,229,086	36,111,025	648,001		648,001
Jan-19		34,209,863	1,312,156	-	1,312,156	35,522,019	950,644		950,644
Feb-19		32,501,861	1,166,044	-	1,166,044	33,667,905	955,892		955,892
Mar-19		33,167,169	2,552,000	-	2,552,000	35,719,169	809,729		809,729

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City of Loveland

Date	Total Residential	Inside Commercial	Outside Commercial	Outside Com - Special Base	Outside Com Total	Total Commercial	Inside - City	Outside - City	City Uses
Apr-19		34,341,080	1,271,953	10,685	1,282,638	35,623,717	1,182,347		1,182,347
May-19		49,516,430	1,623,248	44,977	1,668,225	51,184,655	5,094,831		5,094,831
Jun-19		73,642,873	2,146,252	100,779	2,247,032	75,889,905	8,858,535		8,858,535
Jul-19		82,475,881	2,427,198	113,867	2,541,065	85,016,945	13,827,391		13,827,391
Aug-19		103,212,021	2,708,917	117,535	2,826,451	106,038,473	17,185,310		17,185,310
Sep-19		93,884,760	2,637,961	118,588	2,756,550	96,641,309	16,150,915		16,150,915
Oct-19		84,263,328	1,823,381	91,778	1,915,159	86,178,487	11,110,465		11,110,465
Nov-19		47,001,267	1,324,208	-	1,324,208	48,325,475	1,585,037		1,585,037
Dec-19		35,579,578	1,253,667	-	1,253,667	36,833,246	648,001		648,001
Jan-20		34,894,060	1,338,399	-	1,338,399	36,232,459	950,644		950,644
Feb-20		33,151,898	1,189,365	-	1,189,365	34,341,264	955,892		955,892
Mar-20		33,830,512	2,603,040	-	2,603,040	36,433,553	809,729		809,729
Apr-20		35,027,901	1,297,392	10,899	1,308,290	36,336,192	1,182,347		1,182,347
May-20		50,506,759	1,655,713	45,877	1,701,590	52,208,348	5,094,831		5,094,831
Jun-20		75,115,731	2,189,177	102,795	2,291,972	77,407,703	8,858,535		8,858,535
Jul-20		84,125,398	2,475,742	116,144	2,591,886	86,717,284	13,827,391		13,827,391
Aug-20		105,276,262	2,763,095	119,885	2,882,980	108,159,242	17,185,310		17,185,310
Sep-20		95,762,455	2,690,720	120,960	2,811,680	98,574,135	16,150,915		16,150,915
Oct-20		85,948,594	1,859,849	93,614	1,953,462	87,902,057	11,110,465		11,110,465
Nov-20		47,941,292	1,350,692	-	1,350,692	49,291,984	1,585,037		1,585,037
Dec-20		36,291,170	1,278,741	-	1,278,741	37,569,911	648,001		648,001

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Industrial	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Jan-05	3,921,000	1,384,500	-	5,305,500	1,069,100	4,377,700	154,374,179	10.7%	172,900,000
Feb-05	3,509,000	1,478,000	-	4,987,000		4,536,200	130,579,460	15.5%	154,500,000
Mar-05	3,624,000	1,480,000	-	5,104,000	-	4,026,700	134,393,549	24.8%	178,800,000
Apr-05	4,156,000	1,610,100	-	5,766,100	207,000	7,768,900	167,725,163	21.3%	213,000,000
May-05	4,649,000	1,743,900	-	6,392,900	428,000	8,017,000	217,222,419	38.8%	355,000,000
Jun-05	4,767,000	3,547,500	-	8,314,500	362,000	10,162,300	365,194,165	15.1%	430,300,000
Jul-05	4,983,000	4,003,500	-	8,986,500	555,000	11,601,800	541,414,659	17.3%	654,400,000
Aug-05	6,783,000	7,250,407	-	14,033,407	463,000	13,149,200	559,740,977	-1.0%	554,200,000
Sep-05	5,039,000	6,325,000	-	11,364,000	453,000	10,567,200	509,232,948	0.5%	511,700,000
Oct-05	5,458,000	5,655,000	-	11,113,000	434,000	8,990,400	374,363,982	-36.0%	275,200,000
Nov-05	3,876,000	2,865,000	-	6,741,000	303,300	10,628,300	181,588,979	10.9%	203,700,000
Dec-05	3,977,000	1,163,000	-	5,140,000	335,700	3,174,832	157,109,252	28.5%	219,600,000
Jan-06	4,044,000	1,281,400	-	5,325,400	332,000	12,375,350	167,899,867	19.5%	208,700,000
Feb-06	2,872,000	1,593,600	-	4,465,600	330,000	7,982,600	146,611,883	20.0%	183,200,000
Mar-06	3,244,000	1,603,000	-	4,847,000	323,000	9,696,090	147,967,507	27.2%	203,200,000
Apr-06	3,558,000	2,162,000	-	5,720,000	384,000	8,455,200	188,222,939	45.4%	344,500,000
May-06	4,599,000	3,374,000	-	7,973,000	502,000	9,015,700	372,478,292	32.3%	550,500,000
Jun-06	4,636,000	7,503,000	-	12,139,000	625,000	13,238,400	621,600,109	12.2%	707,900,000
Jul-06	6,684,000	7,842,000	-	14,526,000	579,000	8,827,300	667,698,149	1.2%	675,900,000
Aug-06	6,764,900	6,605,000	-	13,369,900	621,000	12,736,595	610,679,170	5.7%	647,300,000
Sep-06	5,296,000	6,262,000	-	11,558,000	468,000	10,225,300	524,468,310	-14.2%	459,300,000
Oct-06	5,408,000	4,115,000	-	9,523,000	373,000	12,306,530	374,920,931	-28.7%	291,300,000
Nov-06	3,982,000	2,369,000	-	6,351,000	299,000	10,742,100	179,070,854	9.2%	197,200,000
Dec-06	4,320,000	1,108,700	-	5,428,700	266,000	7,871,800	173,435,930	10.5%	193,700,000
Jan-07	3,564,500	-	-	3,564,500	230,000	3,512,600	144,246,818	27.1%	197,900,000
Feb-07	3,123,500	-	-	3,123,500	206,000	3,240,100	138,909,117	25.1%	185,500,000
Mar-07	4,048,000	-	-	4,048,000	299,000	6,089,900	142,653,030	31.0%	206,600,000
Apr-07	4,737,000	-	-	4,737,000	275,000	3,618,000	159,797,989	33.7%	241,000,000
May-07	4,487,000	-	-	4,487,000	297,000	3,671,400	232,091,930	47.3%	440,000,000
Jun-07	4,605,000	-	-	4,605,000	339,000	2,668,484	453,947,585	26.2%	614,700,000
Jul-07	5,507,000	-	-	5,507,000	709,000	3,477,700	680,800,109	6.9%	731,600,000
Aug-07	5,951,000	1,838	-	5,952,838	334,000	2,911,657	610,886,128	-0.3%	609,300,000
Sep-07	5,433,000	-	-	5,433,000	282,000	5,501,700	544,506,078	-8.1%	503,700,000
Oct-07	4,834,000	-	-	4,834,000	277,000	7,319,834	381,124,823	-23.0%	309,900,000
Nov-07	4,233,000	-	-	4,233,000	242,000	6,950,000	195,910,304	1.6%	199,100,000
Dec-07	4,285,000	-	-	4,285,000	193,000	4,959,300	161,076,389	21.0%	203,900,000
Jan-08	-	-	-	-	227,000	1,890,000	152,700,099	27.9%	211,900,000
Feb-08	-	-	-	-	251,000	3,873,400	142,622,426	26.8%	194,800,000
Mar-08	-	-	-	-	308,000	7,891,900	150,130,597	29.5%	212,900,000
Apr-08	-	-	-	-	285,000	9,582,200	163,799,175	40.4%	275,000,000
May-08	-	-	-	-	343,000	7,898,300	325,262,640	32.5%	482,200,000
Jun-08	-	-	-	-	450,000	6,113,100	452,723,200	22.7%	585,300,000
Jul-08	-	-	-	-	451,000	5,792,200	586,459,100	20.7%	739,100,000
Aug-08	-	-	-	-	354,000	6,936,800	695,740,200	-16.7%	596,400,000
Sep-08	-	5,078	-	5,078	406,000	7,112,500	479,148,763	-5.7%	453,300,000
Oct-08	-	-	-	-	329,000	8,689,000	371,050,327	-22.3%	303,300,000
Nov-08	-	-	-	-	334,000	4,418,600	188,047,884	5.8%	199,600,000
Dec-08	-	-	-	-	295,000	8,759,300	161,598,286	17.0%	194,800,000
Jan-09	-	-	-	-	277,000	4,552,700	157,741,212	15.6%	187,000,000
Feb-09	-	-	-	-	295,000	2,568,300	136,199,281	20.2%	170,700,000
Mar-09	-	-	-	-	361,000	5,615,800	149,231,377	30.6%	215,100,000
Apr-09	-	-	-	-	203,000	3,143,100	161,640,204	26.1%	218,700,000
May-09	-	-	-	-	228,000	2,748,300	231,635,783	45.1%	422,000,000
Jun-09	-	-	-	-	319,000	2,776,578	364,009,082	12.9%	417,700,000
Jul-09	-	179	-	179	268,000	3,548,147	439,988,575	22.6%	568,300,000
Aug-09	-	-	-	-	311,000	1,535,051	497,796,796	12.7%	570,500,000
Sep-09	-	-	-	-	262,000	3,482,027	483,809,175	-4.5%	463,000,000

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Industrial	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Oct-09	-	-	-	-	233,000	3,891,639	331,086,554	-39.2%	237,900,000
Nov-09	-	-	-	-	239,000	5,155,060	160,125,390	9.8%	177,500,000
Dec-09	-	-	-	-	170,000	1,986,800	148,556,502	21.0%	188,000,000
Jan-10	-	-	-	-	188,000	2,680,860	154,777,132	18.1%	189,000,000
Feb-10	-	6,830	-	6,830	202,000	3,377,500	136,794,158	20.3%	171,700,000
Mar-10	-	-	-	-	289,000	4,325,250	140,560,625	27.5%	193,900,000
Apr-10	-	-	-	-	253,000	2,314,500	155,187,181	28.6%	217,400,000
May-10	-	-	-	-	227,000	2,155,900	199,382,698	39.5%	329,700,000
Jun-10	-	47,000	28,000	75,000	422,000	2,794,500	345,332,170	33.5%	519,600,000
Jul-10	-	214,000	-	214,000	379,000	2,555,465	521,005,337	13.3%	601,200,000
Aug-10	-	377,000	1,000	378,000	435,000	2,683,100	546,280,290	12.2%	622,500,000
Sep-10	-	319,000	40,000	359,000	363,000	1,476,600	587,561,564	0.9%	593,100,000
Oct-10	-	246,000	-	246,000	322,000	3,338,100	476,460,701	-39.4%	341,900,000
Nov-10	-	14,000	-	14,000	305,000	3,794,200	199,181,715	-6.0%	187,900,000
Dec-10	-	1,000	1,000	2,000	322,000	1,173,000	148,142,090	21.0%	187,500,000
Jan-11	-	1,000	(1,000)	-	362,000	3,704,300	153,347,985	19.5%	190,600,000
Feb-11	-	1,000	-	1,000	233,000	3,265,300	136,155,066	21.9%	174,400,000
Mar-11	-	-	-	-	273,000	1,705,845	137,466,512	30.2%	196,900,000
Apr-11	-	1,000	-	1,000	235,000	1,191,700	162,624,313	36.8%	257,500,000
May-11	-	10,000	-	10,000	316,000	301,200	251,172,759	31.2%	365,300,000
Jun-11	-	10,000	-	10,000	310,000	3,221,500	367,499,726	34.0%	556,800,000
Jul-11	-	224,000	15,675	239,675	343,000	3,634,000	516,176,991	18.1%	630,200,000
Aug-11	-	267,000	29,000	296,000	495,000	2,514,300	586,924,850	18.8%	722,500,000
Sep-11	-	447,000	-	447,000	298,000	3,250,300	610,174,712	-19.5%	510,800,000
Oct-11	-	200,000	125	200,125	326,000	2,284,700	434,606,563	-30.4%	333,200,000
Nov-11	-	13,000	-	13,000	198,000	1,847,200	193,251,718	2.8%	198,805,395
Dec-11	-	3,000	-	3,000	195,000	984,714	153,365,878	20.0%	191,717,971
Jan-12				-	398,037	4,858,120	161,075,785	21.7%	205,635,979
Feb-12				8,037	239,420	4,602,170	144,815,983	22.9%	187,766,371
Mar-12				-	292,314	5,234,987	154,587,328	29.8%	220,053,603
Apr-12				1,207	256,728	5,037,586	171,891,935	33.1%	257,078,927
May-12				12,071	334,433	4,901,136	310,555,238	39.1%	510,237,893
Jun-12				88,462	445,196	5,332,750	438,024,537	25.8%	590,637,023
Jul-12				244,992	386,456	5,240,113	584,205,183	16.3%	698,152,455
Aug-12				394,983	507,426	5,422,591	673,510,708	5.4%	711,709,083
Sep-12				465,225	376,462	5,371,338	619,420,259	-7.4%	576,935,911
Oct-12				255,501	326,828	5,684,767	475,673,613	-30.9%	363,507,962
Nov-12				14,207	327,160	5,486,954	208,408,808	2.8%	214,398,070
Dec-12				3,207	348,303	4,606,166	162,506,764	20.0%	203,144,712
Jan-13				-	398,037	5,440,626	165,621,985	21.7%	211,439,845
Feb-13				8,037	239,420	5,109,867	148,875,931	22.9%	193,030,443
Mar-13				-	292,314	5,927,644	159,037,401	29.8%	226,388,240
Apr-13				1,207	256,728	5,672,547	176,736,654	33.1%	264,324,614
May-13				12,071	334,433	5,496,214	318,903,618	39.1%	523,954,164
Jun-13				88,462	445,196	6,053,982	449,709,091	25.8%	606,392,602
Jul-13				244,992	386,456	5,934,269	599,544,853	16.3%	716,484,077
Aug-13				394,983	507,426	6,170,082	691,156,285	5.4%	730,355,434
Sep-13				465,225	376,462	6,103,848	635,710,122	-7.4%	592,108,496
Oct-13				255,501	326,828	6,508,888	488,437,580	-30.9%	373,262,137
Nov-13				14,207	327,160	6,253,257	214,360,144	2.8%	220,520,436
Dec-13				3,207	348,303	5,115,030	166,986,595	20.0%	208,744,810
Jan-14				-	398,037	6,054,153	169,100,088	21.7%	215,880,135
Feb-14				8,037	239,420	5,644,600	151,977,890	22.9%	197,052,399
Mar-14				-	292,314	6,657,189	162,482,443	29.8%	231,292,226
Apr-14				1,207	256,728	6,341,323	180,447,838	33.1%	269,875,003
May-14				12,071	334,433	6,122,984	325,133,726	39.1%	534,190,145
Jun-14				88,462	445,196	6,813,623	458,391,965	25.8%	618,100,683

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Industrial	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Jul-14				244,992	386,456	6,665,392	610,860,344	16.3%	730,006,617
Aug-14				394,983	507,426	6,957,381	704,155,892	5.4%	744,092,319
Sep-14				465,225	376,462	6,875,368	647,724,998	-7.4%	603,299,305
Oct-14				255,501	326,828	7,376,896	497,934,559	-30.9%	380,519,692
Nov-14				14,207	327,160	7,060,369	218,914,499	2.8%	225,205,674
Dec-14				3,207	348,303	5,650,993	170,392,391	20.0%	213,002,291
Jan-15				-	398,037	6,648,643	172,767,213	21.7%	220,561,738
Feb-15				8,037	239,420	6,162,741	155,249,718	22.9%	201,294,606
Mar-15				-	292,314	7,364,097	166,102,080	29.8%	236,444,744
Apr-15				1,207	256,728	6,989,347	184,359,245	33.1%	275,724,844
May-15				12,071	334,433	6,730,305	331,751,366	39.1%	545,062,835
Jun-15				88,462	445,196	7,549,693	467,626,745	25.8%	630,552,961
Jul-15				244,992	386,456	7,373,829	622,921,908	16.3%	744,420,749
Aug-15				394,983	507,426	7,720,250	718,018,070	5.4%	758,740,695
Sep-15				465,225	376,462	7,622,949	660,532,558	-7.4%	615,228,428
Oct-15				255,501	326,828	8,217,972	508,031,341	-30.9%	388,235,615
Nov-15				14,207	327,160	7,842,438	223,715,978	2.8%	230,145,138
Dec-15				3,207	348,303	6,170,326	173,989,997	20.0%	217,499,548
Jan-16				-	398,037	6,986,238	176,395,601	21.7%	225,193,888
Feb-16				8,037	239,420	6,456,980	158,493,156	22.9%	205,500,002
Mar-16				-	292,314	7,765,532	169,623,047	29.8%	241,456,808
Apr-16				1,207	256,728	7,357,343	188,222,325	33.1%	281,502,406
May-16				12,071	334,433	7,075,188	338,533,300	39.1%	556,205,457
Jun-16				88,462	445,196	7,967,688	477,146,859	25.8%	643,389,986
Jul-16				244,992	386,456	7,776,133	635,483,410	16.3%	759,432,330
Aug-16				394,983	507,426	8,153,464	732,480,644	5.4%	774,023,518
Sep-16				465,225	376,462	8,047,481	673,873,327	-7.4%	627,654,191
Oct-16				255,501	326,828	8,695,597	518,421,828	-30.9%	396,175,985
Nov-16				14,207	327,160	8,286,555	228,464,883	2.8%	235,030,518
Dec-16				3,207	348,303	6,465,242	177,581,743	20.0%	221,989,480
Jan-17				-	398,037	6,986,238	179,755,500	21.7%	229,483,273
Feb-17				8,037	239,420	6,456,980	161,504,288	22.9%	209,404,194
Mar-17				-	292,314	7,765,532	172,808,090	29.8%	245,990,686
Apr-17				1,207	256,728	7,357,343	191,790,805	33.1%	286,839,370
May-17				12,071	334,433	7,075,188	345,105,530	39.1%	567,003,538
Jun-17				88,462	445,196	7,967,688	486,440,122	25.8%	655,921,122
Jul-17				244,992	386,456	7,776,133	647,897,952	16.3%	774,268,287
Aug-17				394,983	507,426	8,153,464	746,804,620	5.4%	789,159,883
Sep-17				465,225	376,462	8,047,481	687,060,805	-7.4%	639,937,175
Oct-17				255,501	326,828	8,695,597	528,542,860	-30.9%	403,910,439
Nov-17				14,207	327,160	8,286,555	232,860,073	2.8%	239,552,016
Dec-17				3,207	348,303	6,465,242	180,947,807	20.0%	226,197,292
Jan-18				-	398,037	6,813,834	182,850,198	21.7%	233,434,091
Feb-18				8,037	239,420	6,306,718	164,281,993	22.9%	213,005,727
Mar-18				-	292,314	7,560,527	175,700,159	29.8%	250,107,519
Apr-18				1,207	256,728	7,169,414	195,072,797	33.1%	291,747,867
May-18				12,071	334,433	6,899,062	351,320,115	39.1%	577,214,014
Jun-18				88,462	445,196	7,754,225	495,263,252	25.8%	667,818,325
Jul-18				244,992	386,456	7,570,684	659,764,167	16.3%	788,448,968
Aug-18				394,983	507,426	7,932,230	760,511,747	5.4%	803,644,414
Sep-18				465,225	376,462	7,830,681	699,667,256	-7.4%	651,678,985
Oct-18				255,501	326,828	8,451,683	538,140,443	-30.9%	411,244,876
Nov-18				14,207	327,160	8,059,752	236,907,068	2.8%	243,715,315
Dec-18				3,207	348,303	6,314,634	184,070,295	20.0%	230,100,619
Jan-19				-	398,037	6,648,643	186,017,450	21.7%	237,477,535
Feb-19				8,037	239,420	6,162,741	167,124,544	22.9%	216,691,338
Mar-19				-	292,314	7,364,097	178,662,746	29.8%	254,324,734

Table C-4 - Monthly Water Demands Past and Future for Above Average Conditions
City of Loveland

Date	Industrial	Inside - Wholesale	Outside - Wholesale	Total Other	Hydrant	Ranch	Total Consupmtion	% Non-Revenue	Treated Water Demand
Apr-19				1,207	256,728	6,989,347	198,432,051	33.1%	296,771,915
May-19				12,071	334,433	6,730,305	357,669,883	39.1%	587,646,594
Jun-19				88,462	445,196	7,549,693	504,276,043	25.8%	679,971,270
Jul-19				244,992	386,456	7,373,829	671,880,411	16.3%	802,928,444
Aug-19				394,983	507,426	7,720,250	774,506,696	5.4%	818,433,091
Sep-19				465,225	376,462	7,622,949	712,539,243	-7.4%	663,668,117
Oct-19				255,501	326,828	8,217,972	547,945,061	-30.9%	418,737,527
Nov-19				14,207	327,160	7,842,438	241,049,028	2.8%	247,976,307
Dec-19				3,207	348,303	6,170,326	187,264,545	20.0%	234,093,653
Jan-20				-	398,037	6,813,834	189,581,734	21.7%	242,027,847
Feb-20				8,037	239,420	6,306,718	170,314,777	22.9%	220,827,750
Mar-20				-	292,314	7,560,527	182,081,372	29.8%	259,191,115
Apr-20				1,207	256,728	7,169,414	202,222,225	33.1%	302,440,441
May-20				12,071	334,433	6,899,062	364,487,535	39.1%	598,847,901
Jun-20				88,462	445,196	7,754,225	513,882,246	25.8%	692,924,379
Jul-20				244,992	386,456	7,570,684	684,636,624	16.3%	818,172,714
Aug-20				394,983	507,426	7,932,230	789,209,742	5.4%	833,970,025
Sep-20				465,225	376,462	7,830,681	726,088,286	-7.4%	676,287,868
Oct-20				255,501	326,828	8,451,683	558,417,867	-30.9%	426,740,805
Nov-20				14,207	327,160	8,059,752	245,712,802	2.8%	252,774,109
Dec-20				3,207	348,303	6,314,634	190,814,182	20.0%	238,530,945

Table C-5 - Estimates of Passive Savings - Past and Future
City of Loveland

Year	Population	Passive Savings (in gpcd) Toilet High	Toilet Low	D/W + Clothes Washers* High	D/W + Clothes Washers* Low	Total High	Total Low	Reduced Demand (1000s of gallons/day) High	Reduced Demand (1000s of gallons/day) Low	
2005										
2006		6.61	1.98	0.95	0.62					
2007		7.27	2.18	1.91	1.25					
2008		7.93	2.38	2.86	1.87					
2009		8.59	2.58	3.82	2.49					
2010		9.25	2.78	4.77	3.12					
2011	67455	9.91	2.97	5.73	3.74	4.84	2.46	326.81	166.19	Estimate of Past Water Demand Reductions from Passive Savings
2012	68495	10.57	3.17	6.68	4.36	1.61	0.82	110.62	56.25	
2013	69690	11.23	3.37	7.63	4.98	3.23	1.64	225.09	114.46	
2014	70991	11.89	3.57	8.59	5.61	4.84	2.46	343.94	174.90	
2015	72403	12.56	3.77	9.54	6.23	6.46	3.28	467.71	237.84	
2016	73926	12.91	3.95	10.50	6.85	7.77	4.09	574.30	302.25	
2017	75449	13.26	4.13	11.45	7.48	9.08	4.89	684.88	369.12	
2018	76975	13.62	4.31	11.45	8.10	9.43	5.70	726.03	438.44	
2019	78502	13.97	4.49	11.45	8.72	9.79	6.50	768.27	510.23	
2020	80086	14.33	4.67	11.45	9.35	10.14	7.30	812.16	584.88	Estimate of Future Passive Savings Demand Reductions in 2020

* dish washers plus clothes washers

Table C-6 - Past and Forecasted Annual Water Demands without Passive Savings

City of Loveland

Average Conditions

	Billed Water (in 1000s of gallons)							
	Residential		Commercial					
Year	Inside City	Outside City	Inside City	Outside City	City Use	Other Uses	Hydrant	Ranch
2005	2,623,544	133,597	466,292	21,020	53,628	93,248	4,610	97,001
2006	3,186,549	150,123	517,424	22,288	68,868	101,227	5,102	123,473
2007	2,989,778	139,242	515,274	20,981	68,262	54,810	3,683	53,921
2008	2,967,702	140,831	590,295	18,266	69,194	5	4,033	78,957
2009	2,516,008	120,300	510,429	14,786	56,127	0	3,166	41,004
2010	2,816,305	133,651	538,454	16,429	68,156	1,295	3,707	32,669
2011	2,875,155	134,224	572,683	16,680	71,316	1,221	3,584	27,905
2012	2,810,555	132,251	556,283	16,639	65,942	1,258	3,646	27,397
2013	2,886,440	132,251	571,303	17,089	65,942	1,258	3,646	35,404
2014	2,941,283	132,251	582,157	17,413	65,942	1,258	3,646	43,838
2015	3,000,108	132,251	593,800	17,762	65,942	1,258	3,646	52,011
2016	3,063,110	132,251	606,270	18,135	65,942	1,258	3,646	56,651
2017	3,127,436	132,251	619,002	18,516	65,942	1,258	3,646	56,651
2018	3,189,984	132,251	631,382	18,886	65,942	1,258	3,646	54,281
2019	3,253,784	132,251	644,010	19,264	65,942	1,258	3,646	52,011
2020	3,318,860	132,251	656,890	19,649	65,942	1,258	3,646	54,281
	47,566,602	2,142,230						
	96%	4%						

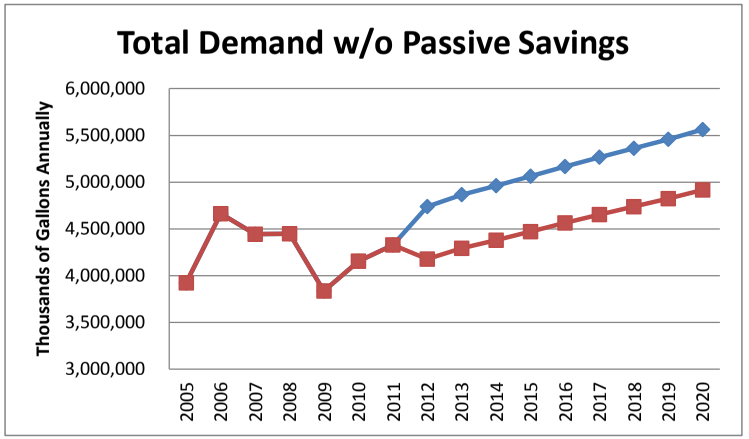
Above Average Conditions

	Billed Water (in 1000s of gallons)							
	Residential		Commercial					
Year	Inside City	Outside City	Inside City	Outside City	City Use	Other Uses	Hydrant	Ranch
2005	2,623,544	133,597	466,292	21,020	53,628	93,248	4,610	97,001
2006	3,186,549	150,123	517,424	22,288	68,868	101,227	5,102	123,473
2007	2,989,778	139,242	515,274	20,981	68,262	54,810	3,683	53,921
2008	2,967,702	140,831	590,295	18,266	69,194	5	4,033	78,957
2009	2,516,008	120,300	510,429	14,786	56,127	0	3,166	41,004
2010	2,816,305	133,651	538,454	16,429	68,156	1,295	3,707	32,669
2011	2,875,155	134,224	572,683	16,680	71,316	1,221	3,584	27,905
2012	3,164,806	166,347	607,925	19,733	78,359	1,488	4,239	61,779
2013	3,250,256	166,347	624,339	20,266	78,359	1,488	4,239	69,786
2014	3,312,010	166,347	636,202	20,651	78,359	1,488	4,239	78,220
2015	3,378,251	166,347	648,926	21,064	78,359	1,488	4,239	86,393
2016	3,449,194	166,347	662,553	21,506	78,359	1,488	4,239	91,033
2017	3,521,627	166,347	676,467	21,958	78,359	1,488	4,239	91,033
2018	3,592,060	166,347	689,996	22,397	78,359	1,488	4,239	88,663
2019	3,663,901	166,347	703,796	22,845	78,359	1,488	4,239	86,393
2020	3,737,179	166,347	717,872	23,302	78,359	1,488	4,239	88,663

Table C-6 - Past and Forecasted Annual Water Demands without Passive Savings
City of Loveland

Average Conditions

Year	Total Billed	Total Non-Revenue	Total Demand (1000 gallons)	Acre-Feet of Demand
2005	3,492,940	430,360	3,923,300	12,040
2006	4,175,054	487,646	4,662,700	14,309
2007	3,845,950	597,250	4,443,200	13,636
2008	3,869,283	579,317	4,448,600	13,652
2009	3,261,820	574,580	3,836,400	11,773
2010	3,610,666	544,734	4,155,400	12,752
2011	3,702,767	625,956	4,328,723	13,284
2012	3,613,971	563,532	4,177,503	12,820
2013	3,713,332	579,385	4,292,717	13,174
2014	3,787,788	591,383	4,379,171	13,439
2015	3,866,777	604,074	4,470,851	13,721
2016	3,947,263	616,825	4,564,088	14,007
2017	4,024,701	628,876	4,653,577	14,281
2018	4,097,630	640,110	4,737,740	14,540
2019	4,172,164	651,599	4,823,763	14,804
2020	4,252,776	664,254	4,917,031	15,090
		13.5%		



Above Average Conditions

Year	Total Billed	Total Non-Revenue	Total Demand (1000 gallons)	Acre-Feet of Demand
2005	3,492,940	430,360	3,923,300	12,040
2006	4,175,054	487,646	4,662,700	14,309
2007	3,845,950	597,250	4,443,200	13,636
2008	3,869,283	579,317	4,448,600	13,652
2009	3,261,820	574,580	3,836,400	11,773
2010	3,610,666	544,734	4,155,400	12,752
2011	3,702,767	625,956	4,328,723	13,284
2012	4,104,676	634,582	4,739,258	14,544
2013	4,215,080	651,925	4,867,005	14,936
2014	4,297,517	665,000	4,962,516	15,229
2015	4,385,066	678,846	5,063,912	15,541
2016	4,474,720	692,834	5,167,555	15,859
2017	4,561,518	706,149	5,267,667	16,166
2018	4,643,549	718,611	5,362,161	16,456
2019	4,727,368	731,353	5,458,721	16,752
2020	4,817,449	745,287	5,562,736	17,071
		13.4%		

Table C-7 - Past and Forecasted Annual Water Demand with Passive Savings
City of Loveland

Average Conditions

	Billed Water (in 1000s of gallons)							
	Residential		Commercial					
Year	Inside City	Outside City	Inside City	Outside City	City Use	Other Uses	Hydrant	Ranch
2005	2,623,544	133,597	466,292	21,020	53,628	93,248	4,610	97,001
2006	3,186,549	150,123	517,424	22,288	68,868	101,227	5,102	123,473
2007	2,989,778	139,242	515,274	20,981	68,262	54,810	3,683	53,921
2008	2,967,702	140,831	590,295	18,266	69,194	5	4,033	78,957
2009	2,516,008	120,300	510,429	14,786	56,127	0	3,166	41,004
2010	2,816,305	133,651	538,454	16,429	68,156	1,295	3,707	32,669
2011	2,875,155	134,224	572,683	16,680	71,316	1,221	3,584	27,905
2012	2,781,414	130,939	556,283	16,639	65,942	1,258	3,646	27,397
2013	2,827,141	129,581	571,303	17,089	65,942	1,258	3,646	35,404
2014	2,850,674	128,171	582,157	17,413	65,942	1,258	3,646	43,838
2015	2,876,894	126,702	593,800	17,762	65,942	1,258	3,646	52,011
2016	2,910,033	125,357	606,270	18,135	65,942	1,258	3,646	56,651
2017	2,943,371	123,962	619,002	18,516	65,942	1,258	3,646	56,651
2018	2,986,628	123,093	631,382	18,886	65,942	1,258	3,646	54,281
2019	3,030,515	122,196	644,010	19,264	65,942	1,258	3,646	52,011
2020	3,074,886	121,264	656,890	19,649	65,942	1,258	3,646	54,281

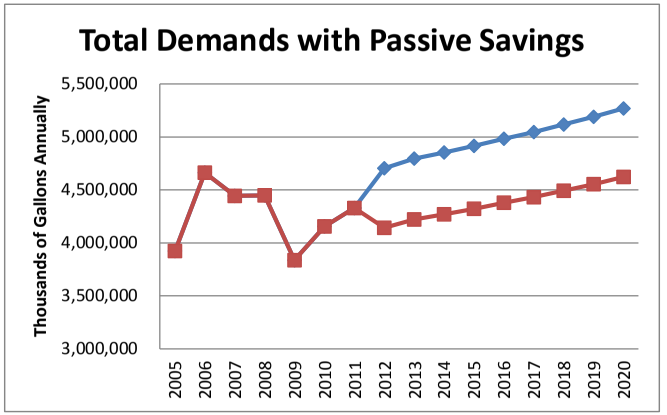
Above Average Conditions

	Billed Water (in 1000s of gallons)							
	Residential		Commercial					
Year	Inside City	Outside City	Inside City	Outside City	City Use	Other Uses	Hydrant	Ranch
2005	2,623,544	133,597	466,292	21,020	53,628	93,248	4,610	97,001
2006	3,186,549	150,123	517,424	22,288	68,868	101,227	5,102	123,473
2007	2,989,778	139,242	515,274	20,981	68,262	54,810	3,683	53,921
2008	2,967,702	140,831	590,295	18,266	69,194	5	4,033	78,957
2009	2,516,008	120,300	510,429	14,786	56,127	0	3,166	41,004
2010	2,816,305	133,651	538,454	16,429	68,156	1,295	3,707	32,669
2011	2,875,155	134,224	572,683	16,680	71,316	1,221	3,584	27,905
2012	3,135,665	165,035	607,925	19,733	78,359	1,488	4,239	61,779
2013	3,190,957	163,677	624,339	20,266	78,359	1,488	4,239	69,786
2014	3,221,402	162,267	636,202	20,651	78,359	1,488	4,239	78,220
2015	3,255,036	160,798	648,926	21,064	78,359	1,488	4,239	86,393
2016	3,296,116	159,453	662,553	21,506	78,359	1,488	4,239	91,033
2017	3,337,563	158,058	676,467	21,958	78,359	1,488	4,239	91,033
2018	3,388,703	157,189	689,996	22,397	78,359	1,488	4,239	88,663
2019	3,440,631	156,292	703,796	22,845	78,359	1,488	4,239	86,393
2020	3,493,205	155,360	717,872	23,302	78,359	1,488	4,239	88,663

Table C-7 - Past and Forecasted Annual Water Demand with Passive Savings
City of Loveland

Average Conditions

Year	Total Billed	Total Non-Revenue	Total Demand (1000 gallons)	Acre-Feet of Demand
2005	3,492,940	430,360	3,923,300	12,040
2006	4,175,054	487,646	4,662,700	14,309
2007	3,845,950	597,250	4,443,200	13,636
2008	3,869,283	579,317	4,448,600	13,652
2009	3,261,820	574,580	3,836,400	11,773
2010	3,610,666	544,734	4,155,400	12,752
2011	3,702,767	625,956	4,328,723	13,284
2012	3,583,517	558,784	4,142,301	12,712
2013	3,651,363	569,716	4,221,079	12,954
2014	3,693,099	576,599	4,269,698	13,103
2015	3,738,014	583,958	4,321,972	13,264
2016	3,787,292	591,827	4,379,118	13,439
2017	3,832,347	598,820	4,431,167	13,599
2018	3,885,115	606,912	4,492,027	13,786
2019	3,938,840	615,159	4,553,998	13,976
2020	3,997,815	624,431	4,622,247	14,185
		13.5%		



Above Average Conditions

Year	Total Billed	Total Non-Revenue	Total Demand (1000 gallons)	Acre-Feet of Demand
2005	3,492,940	430,360	3,923,300	12,040
2006	4,175,054	487,646	4,662,700	14,309
2007	3,845,950	597,250	4,443,200	13,636
2008	3,869,283	579,317	4,448,600	13,652
2009	3,261,820	574,580	3,836,400	11,773
2010	3,610,666	544,734	4,155,400	12,752
2011	3,702,767	625,956	4,328,723	13,284
2012	4,074,223	629,874	4,704,096	14,436
2013	4,153,111	642,341	4,795,451	14,717
2014	4,202,827	650,348	4,853,175	14,894
2015	4,256,302	658,912	4,915,214	15,084
2016	4,314,748	668,066	4,982,814	15,292
2017	4,369,164	676,371	5,045,536	15,484
2018	4,431,034	685,723	5,116,758	15,703
2019	4,494,043	695,256	5,189,299	15,925
2020	4,562,488	705,843	5,268,331	16,168
		13.4%		

Appendix D
Public Notices

WATER CONSERVATION PLAN

PUBLIC NOTICE OF WATER CONSERVATION PLAN

CITY OF LOVELAND

PUBLIC COMMENT PERIOD: FEBRUARY 21 – APRIL 21, 2013

PUBLIC HEARING: CITY COUNCIL MEETING, MAY 14, 2013

Notice is hereby given that the City of Loveland is updating its Water Conservation Plan, pursuant to State Law. The City is seeking public comment over the next 60-days, and will conduct a Public Hearing on the Plan during the City Council Meeting on Tuesday, May 14, 2013. The City Council Meeting will be called to order at 6:30 p.m. in the City Council Chambers, 500 East Third Street, Loveland. Comments on the Water Conservation Plan will be received during the time designated in the meeting's agenda.

The City's Water Conservation Plan is designed to promote the efficient consumption of all water usage by residents, businesses, and local governments to more beneficially use our water resources, and insure a future adequate water supply.

The Water Conservation Plan is available for review and comment by the public at the City Service Center, 200 North Wilson Avenue, and at the Loveland Public Library, 300 North Adams, during regular business hours or online by viewing a copy of the updated Water Conervation Plan here and submitting comments to SustainLoveland@cityofloveland.org.

The point of contact for the Water Conservation Plan is Lindsey Bashline, Customer Relations Specialist, who can be reached at 970-962-3727.

AFFIDAVIT OF PUBLICATION

REPORTER-HERALD

State of Colorado
County of Larimer

I, the undersigned agent, do solemnly swear that the LOVELAND REPORTER-HERALD is a daily newspaper printed, in whole or in part, and published in the City of Loveland, County of Larimer, State of Colorado, and which has general circulation therein and in parts of Larimer and Weld counties; that said newspaper has been continuously and uninterruptedly published for a period of more than six months next prior to the first publication of the annexed legal notice of advertisement, that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879, or any, amendments thereof, and that said newspaper is a daily newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado; that a copy of each number of said newspaper, in which said notice of advertisement was published, was transmitted by mail or carrier to each of the subscribers of said newspaper, according to the accustomed mode of business in this office.

The annexed legal notice or advertisement was published in the regular and entire edition of said daily newspaper once; and that one publication of said notice was in the issue of said newspaper dated **February 23, 2013**.

Agent

Subscribed and sworn to before me this **25th** day of **February**, 2013 in the County of Larimer, State of Colorado.

Notary Public

DEBRA K RYSAVY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID # 19934006283
MY COMMISSION EXPIRES APRIL 30, 2017

Account # 222255
Ad #5580546
Fee $22.31

PUBLIC NOTICE OF WATER CONSERVATION PLAN
CITY OF LOVELAND
PUBLIC COMMENT PERIOD: FEBRUARY 21 - APRIL 21, 2013
PUBLIC HEARING: CITY COUNCIL MEETING, MAY 14, 2013

Notice is hereby given that the City of Loveland is updating its Water Conservation Plan, pursuant to State Law. The City is seeking public comment over the next 60-days, and will conduct a Public Hearing on the Plan during the City Council Meeting on Tuesday, May 14, 2013. The City Council Meeting will be called to order at 6:30 p.m. in the City Council Chambers, 500 East Third Street, Loveland. Comments on the Water Conservation Plan will be received during the time designated in the meeting's agenda.

The City's Water Conservation Plan is designed to promote the efficient consumption of all water usage by residents, businesses, and local governments to more beneficially use our water resources, and insure a future adequate water supply.

The Water Conservation Plan is available for review and comment by the public at the City Service Center, 200 North Wilson Avenue, and at the Loveland Public Library, 300 North Adams, during regular business hours or online at www.cityofloveland.org/WCP.

The point of contact for the Water Conservation Plan is Lindsey Bashline, Customer Relations Specialist, who can be reached at 970-962-3727.

City of Loveland
Teresa G. Andrews, City Clerk
Published: Loveland Reporter-Herald on Feb. 23, 2013. Ad #5580546