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April 28, 2015

Mr. Ben Wade, CWCB
1313 Sherman Street, Room 721
Denver, CO 80203

RE: Town of Firestone Water Efficiency Plan Update

Dear Mr. Wade:

The Town of Firestone would like to submit a locally adopted Municipal Water Efficiency Plan update for review and approval by the Colorado Water Conservation Board's Office of Water Conservation and Drought Planning. This letter is also intended to meet the Cover Letter Submittal Requirements for CWCB review.

Name and contact information:

Town of Firestone
Attn: Wes LaVanchy, Town Manager
151 Grant Avenue
PO Box 100
Firestone, CO 80520-0100
T: (303) 833-3291
F: (303) 833-4863

List of organizations and individuals that assisted in plan development:

Clear Water Solutions, Inc.
Michelle Hatcher & Steve Nguyen

Quantify retail water delivery and population for past five years:

Table 1 –Water Demand by Customer Category

Customer Category	2006	2007	2008	2009	2010	2011	2012	2013	Average
	(values in acre-feet except were noted)								
Residential	1,308	1,263	1,312	1,170	1,325.47	1,381	1,558	1,301	1,347
Multi-Family	10	15	8	7	7.85	7	10	9	8
Commercial	137	142	176	171	188.75	185	206	177	185
Industrial	7	7	5	4	6.34	11	12	12	9
Parks	122	157	212	191	250.31	263	302	179	237
Open Space	214	199	149	125	116.94	129	149	121	128
Total	1,798	1,783	1,862	1,668	1,896	1,975	2,235	1,799	1,877
Population	7,325	8,365	9,520	9,681	10,147	10,319	10,477	10,699	10,265
Residential GPCD	159	135	123	109	117	120	134	109	118
Total GPCD	219	190	175	154	167	171	190	150	166

Table 2 – Town of Eaton Population

Year	Population	Growth Rate
2009	9,681	-
2010	10,147	2.25%
2011	10,319	1.70%
2012	10,477	1.53%
2013	10,699	2.12%
2014	10,962	2.46%
2015	11,291	3.00%
2016	11,742	4.00%
2017	12,447	6.00%
2018	13,193	6.00%
2019	13,985	6.00%
2020	14,544	4.00%
2021	15,126	4.00%
2022	15,731	4.00%
2023	16,361	4.00%
2024	17,015	4.00%

Public review and comment information:

The Town of Firestone held its public-review period from February 20, 2015 to April 21, 2015. Notification was posted in the Daily Times-Call on February 20, 2015 announcing the public review timeframe and that a draft plan would be available for the public to review at Town Hall. The draft plan was also posted on the Town of Firestone's website on February 20, 2015. During the public review period the Town did not receive any public comment on the Water Efficiency Plan update.

The Town is pleased with the Water Efficiency Plan update that has been developed and will commit the resources necessary, as they become available, for the implementation of the plan.

Please let me know if you have any further requirements.

Sincerely,

Wes LaVanchy
Town Manager

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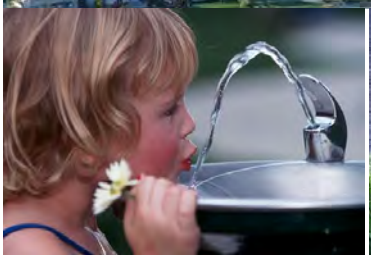
TOWN OF FIRESTONE

2015 MUNICIPAL WATER EFFICIENCY PLAN UPDATE



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EXECUTIVE SUMMARY

The Town of Firestone, Colorado ("Town" or "Firestone") is located approximately 30 miles north of Denver along the Colorado Front Range. The Town provides water services to approximately 11,000 people.

Firestone has developed a Municipal Water Efficiency Plan update in accordance with the Water Conservation Act of 2004 and to meet the provisions of Colorado Revised Statute section 37-60-126. As part of CRS 37-60-126, a State-approved Plan will qualify Firestone for funding from the Colorado Water Conservation Board (CWCB) and the Colorado Water Resources and Power Development Authority for water supply and delivery projects.

Currently, Colorado Big Thompson (CBT) water is Firestone's only water supply. Firestone's water is treated and delivered to Firestone's distribution system by Central Weld County Water District (Central Weld). After the Master meters, the Town is responsible for operating and maintaining its distribution system to its customers.

In 2013, Firestone's water customers used approximately 1,799 acre-feet. The Town is expected to increase its water demand through new growth to approximately 3,052 acre-feet over the planning period which extends through 2024. Water savings from this water conservation planning effort is estimated to save 2,811 acre-feet over the planning period. The savings from this planning effort will make a considerable contribution toward the water supplies needed to serve the 2024 demand.

This report documents Firestone's water system, past and future water use and the water efficiency planning process used in accordance with CWCB's *Municipal Water Efficiency Plan Guidance Document.*

Past and Current Water Efficiency Activities

Firestone has implemented a variety of water efficiency activities since 2007 when the last Water Efficiency Plan was prepared. The 2007 Plan called for savings of at least 280 acre-feet by 2015. The water efficiency activities that have been implemented since 2007 are shown in **Table ES-1**.

The water savings from several of the Town's Targeted Technical Assistance and Incentives activities are shown in **Table ES-2**. The estimated water savings evident over the last five years is approximately 124 acre-feet.

Table ES-1 – Firestone's Historical & Existing Water Efficiency Activities

Historical and Existing Water Efficiency Activities	Period of Implementation
Foundational Activities	
Automatic Meter Reading Installation and Operations	July 2014 - Present
Meter Upgrades	2012
Water Efficient Rate Structure with Regular Updates to Rate Study	2009 - Present
Targeted Technical Assistance and Incentives	
Irrigation Audits for Town Parks	2011
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	2012 - Present
Toilet Rebates	April 1, 2010 - Present
Water Efficient Washing Machine Rebates	April 1, 2010 - 2014
Give-Aways	2003 - Present
Ordinances and Regulations	
Time of Day Watering Restriction (Voluntary)	2004 - Present
Water Waste Ordinance	2007 - Present
Rain Sensors Installed On New Properties	May 2003 - Present
Wind Sensors Installed On New Properties Greater than 1 Acre	May 2003 - Present
Education Activities	
Water Efficiency Page on Town Website	Prior to 2007 - Present
Historic Water Usage Provided on Water Bills	
Bill Stuffers	
Newsletter	
K-12 Teacher and Classroom Education Programs	
Water Booth at Town Events	
Social Networking (e.g. Facebook)	
Customer Surveys	

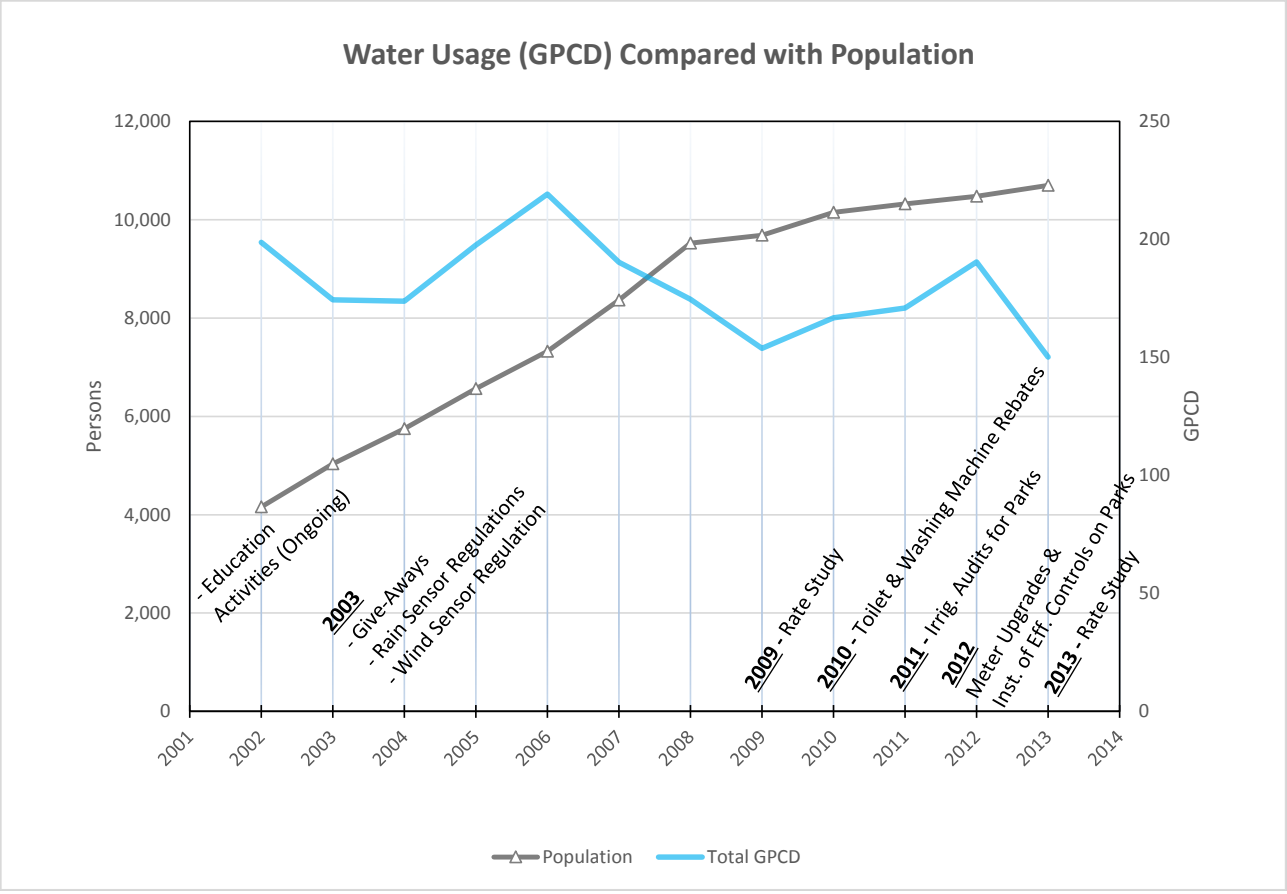
Table ES-2 – Water Savings Estimates of Individual Activities

Historical and Current Water Efficiency Activities	Annual Water Savings for Past Five Years (ac-ft)					Total Five-Year Water Savings	Average Annual Savings
	2009	*2010*	*2011*	*2012*	*2013*		
Targeted Technical Assistance and Incentives							
Irrigation Audits for Town Parks *Installation of Water Efficient Irrigation Controls on Park Irrigation Systems*	n/a	n/a	n/a	0	112	112	56
Toilet Rebates	n/a	0.2	0.6	0.9	1.1	3	0.7
Water Efficient Washing Machine Rebates	n/a	1.1	2.1	2.9	3.4	10	2.4
Total Savings		1	3	4	117	**124**	**59**

The water savings for the remaining activities shown in **Table ES-2,** who's saving were not analyzed above, are more difficult to quantify. Therefore we estimated the water savings of the remaining activities using demand data to compare historical annual per capita water demands before and after the implementation of the water efficiency activities. **Figure ES-1** shows the annual historical per capita water demands in relation to population and when water efficiency activities were implemented.

Figure ES-1 suggests a decreasing trend in gallons per capita per day (GPCD) despite a significant increase in population. We conclude that the water efficiency activities enacted since at least 2007 have contributed to the reduction of per capita demands. Because a majority of the water efficiency activities were more recently implemented, more time is needed to analyze the impact of these implemented activities. An increase in the 2012 GPCD may be due to the drought that started in 2012 and ended with the flooding in 2013.

Figure ES-1 – Water Usage Compared with Population



A preliminary set of goals have been developed prior to the selection of the water efficiency activities to provide a means to screen and evaluate the selected activities.

Goals from the Town's 2007 Municipal Water Efficiency Plan have been assessed and incorporated into the new goal development process.

A meeting was initially held with Town staff to discuss water efficiency goals appropriate for Firestone. The following preliminary goals were established by Town Staff:

- In keeping with the savings goal established in Firestone's 2007 Water Efficiency Plan, the targeted water savings goal for this Plan will be to lower the total water use by 12% over the planning period.
- The targeted planning period water savings goal for the following customer categories are as follows:
    - Residential – 15%
    - Multi-Family – 2.5%
    - Commercial – 5.0%
    - Industrial – 2.5%
    - Parks – 10%
    - Open Space – 10%
    - Non-Revenue – 6.0% (of total treated water demand)
- Develop a water efficiency program that can be implemented within Town staffing constraints and with Staff approval.
- Implement water efficiency activities that are compatible with the community and their Town Board representatives.

Firestone used a four-phase process for selecting and fully evaluating water efficiency activities. The four phases include: 1) assessment; 2) identification; 3) qualitative screening; and 4) evaluation and selection.

The initial screening of the water efficiency activities with Town staff resulted in selecting 15 candidate activities for further evaluation. The second screening was accomplished by evaluating each activity based on the following evaluation criteria:

- Practical from a cost/benefit standpoint
- Implementation costs are feasible from a financial and staff resource perspective
- Candidate activities collectively meet the targeted savings goals

All 15 evaluated activities were chosen for implementation. The activities selected are as follows:

- Automatic Meter Reading Installation and Operations
- Proactive Meter Testing and Replacement
- Water Efficiency Rate Structure with Regular Updates to Rate Study
- System Wide Water Audits
- Installation of Water Efficient Irrigation Controls on Park Irrigation Systems
- Installation of Water Efficient Irrigation Controls on HOA Irrigation Systems
- Toilet Rebates
- Give-Aways

- Rain Sensors Installed on New Properties
- Wind Sensors Installed on New Properties Greater than One Acre
- Water Efficiency Page on Town Website
- Bill Stuffers
- Historic Water Usage Provided on Water Bills
- Newsletter
- K-12 Teacher and Classroom Education Programs

Table ES-3 compares the anticipated water savings from the selected activities with the original goals and then adjusts the water saving goals for this plan update.

Table ES-3 – Water Efficiency Goals Comparison

Water Use Categories:	Total Projected Water Use (2014 to 2024)	Reduction Goals for Planning Horizon		Total Water Savings from Selected Programs	Resulting Reduction	Adjusted Reduction Goals for Planning Horizon	
	(ac-ft)	(%)	(ac-ft)	(ac-ft)	(%)	(%)	(ac-ft)
Residential	18,531	15.0%	2780	1,495	8.1%	8.1%	1,495
Multi-Family	123	2.5%	3	7	6.0%	6.0%	7
Commercial	2,522	5.0%	126	71	2.8%	2.8%	71
Industrial	170	2.5%	4	3.89	2.3%	2.3%	3.89
Parks	2,554	10.0%	255	759	29.7%	29.7%	759
Open Space	1,719	10.0%	172	348	20.2%	20.2%	348
Non-Revenue Water*	1,715	6.0%	0	128	5.8%	5.8%	128
Total Water Production:	27,333						
Total Demand Reduction:			3,340	2,811			2,811
Total Percent Reduction:			12%		10%	10%	

** The goal is to retain the non-revenue water at the current rate of 6%.*

Over the planning period, the selected activities provide an overall estimated water savings of 2,811 acre-feet. Preliminary goals were adjusted down for the Residential, Commercial and Industrial categories. The Multi-Family, Parks, Open Space and Non-Revenue Water category goals were adjusted up to match the estimated water savings resulting from the cost-benefit analysis. The adjusted goals reflect the goals believed to be obtainable by Town staff.

After the goals were adjusted to reflect the expected water savings, the estimated water use reduction is 10%. Therefore, Firestone will target a reduction in its water use by 10% over the planning period because of implementation of this plan.

Implementation and Monitoring Plan

All of the proposed water efficiency activities chosen will require staff and financial resources for implementation. This will require some strategy in implementing the most beneficial measures first. The proposed implementation schedule is shown in **Table ES-4**.

Table ES-4 – Firestone Implementation Schedule

Selected Water Efficiency Activities	Period of Implementation
Foundational Activities	
Automatic Meter Reading Installation and Operations	July 2014 - Ongoing
Proactive Meter Testing and Replacement	2019
Water Efficiency Rate Structure with Regular Updates to Rate Study	2009 - Ongoing
System Wide Water Audits	2017
Targeted Technical Assistance and Incentives	
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	2012 - Ongoing
Installation of Water Efficient Irrigation Controls on Open Space/HOA Irrigation Systems	2016
Toilet Rebates	April 2010 - Ongoing
Give-Aways	2003 - Ongoing
Ordinances and Regulations	
Rain Sensors Installed on New Properties	May 2003 - Ongoing
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	May 2003 - Ongoing
Education Activities	
Bill Stuffers	Prior to 2007 - Ongoing
Historic Water Usage Provided on Water Bills	
Newsletter	
Water Efficiency Page on Website	
K-12 Education Program	

Julie Pasillas, Senior Administrative Specialist for the Town, is chiefly responsible for implementation and monitoring of this plan. Ms. Pasillas has been successfully implementing the Town's water efficiency program since 2007. Firestone monitors water demands on a daily basis and impacts from this Plan are evaluated annually during the first quarter of the year. Ms. Pasillas maintains water use data and evaluates water demands on a regular basis. Ms. Pasillas will monitor this Plan's implementation and evaluate impacts on a regular basis.

INTRODUCTION

The Town of Firestone is located approximately 30 miles north of Denver along the Colorado Front Range as shown in **Figure I.1** below. The Town's population in 2000 was 1,980 and exploded to 10,147 people in 2010. The Town has experienced a steady growth rate since 2010 and as of 2014 the population was estimated to be 10,962.

Currently, Colorado Big Thompson (CBT) water is Firestone's only water supply and the Town is looking to conserve this resource for its constituents as much as reasonably possible. CBT water originates in the Colorado River Basin and is pumped from Lake Granby through the Adam's Tunnel to the east slope near Estes Park. Water from Estes Park is distributed to several Front Range reservoirs.

Firestone's water is treated and delivered to Firestone's distribution system by Central Weld County Water District (Central Weld). Firestone entered a new twenty-year agreement for Central Weld in 2014 with automatic ten-year renewals. Central Weld has a water treatment plant at Carter Lake where it treats Firestone's water and delivers it to master meters located at various points surrounding the Town's limits. After the master meters, the Town is responsible for operating and maintaining its distribution system to its customers.

Firestone owns the CBT water it uses and transfers its CBT water to Central Weld on an annual basis for Central Weld to treat and deliver up to the master meters. The Town of Firestone is currently required to transfer water rights equal to 120% of the Town's water usage in the previous year plus additional water to meet anticipated growth in the coming year.

The Town currently has a Rate Study completed in 2011, a Rate Study update completed in 2014, a Drought Management Plan completed in 2012, and the initial Municipal Water Efficiency Plan (MWEP) completed in 2007. These documents were reviewed in the development of this MWEP update. The Town believes this updated MWEP will serve to further conserve and manage their limited water resources and evaluate the effectiveness of conservation efforts made since the initial MWEP.

In this Plan update, the Town of Firestone will perform the five steps of municipal water efficiency planning as outlined in the *Municipal Water Efficiency Plan Guidance Document*; 1) profile of existing water supply system, 2) profile of water demands and historical demand management, 3) integrated planning and water efficiency benefits and goals, 4) selection of water efficiency activities, and 5) implementation and monitoring plan. The Town has made many proactive conservation efforts to date and will continue this commitment into the future.

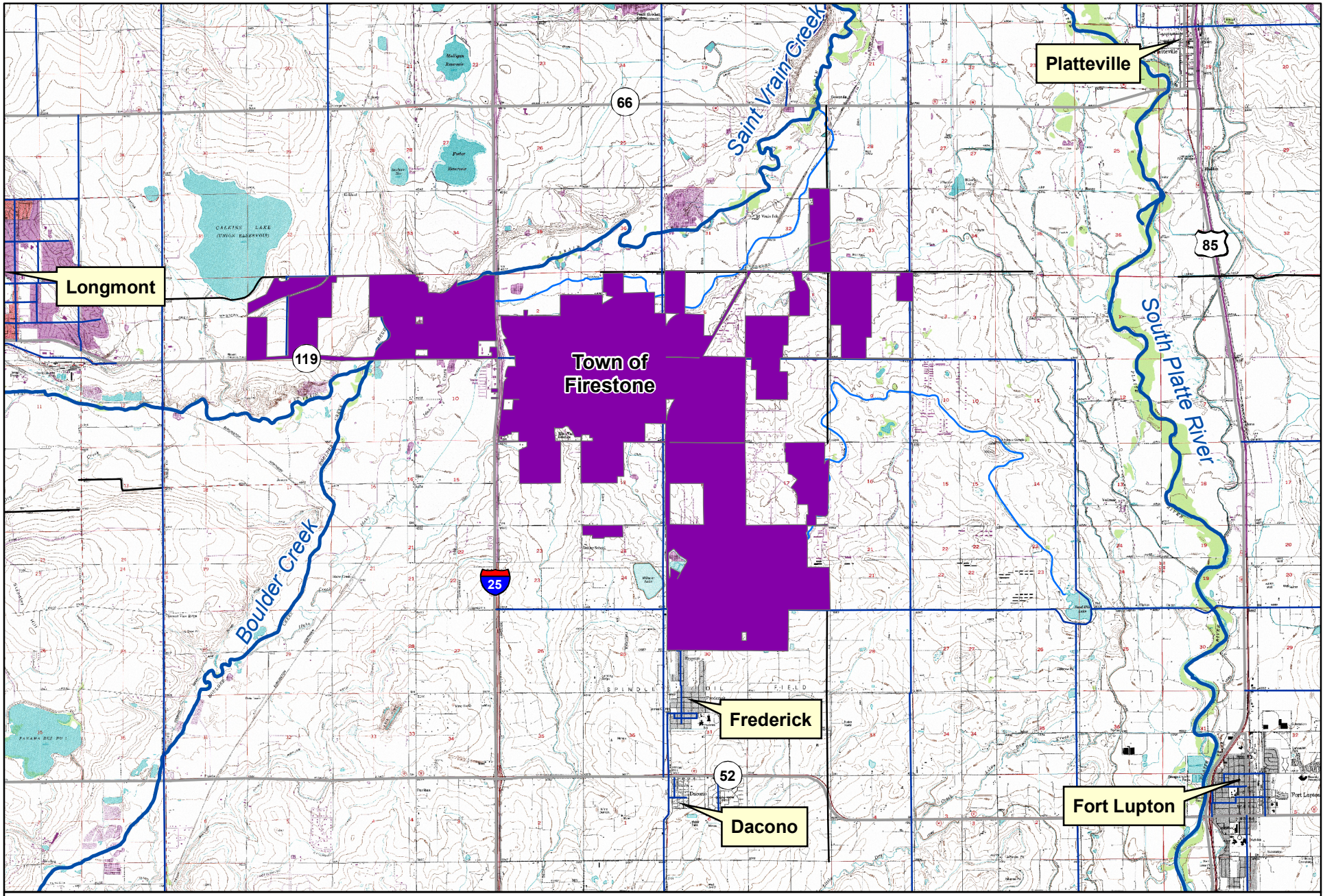


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Figure I.1

FIRESTONE TOWN LIMITS

There are many terms and terminology that are commonly used in water efficiency and planning, and some additional terms are common in this geographical area; a list of terms and their meanings is included in **Appendix A**.

The Town Board of Firestone is committed to water resource sustainability and water efficiency. The Town intends to do its part to preserve water for future generations. Both Staff and the Board understand the needs and benefits to implement long-term water efficiency activities.

SECTION 1.0 - PROFILE OF EXISTING WATER SUPPLY SYSTEM

1.1 Overview of Existing Water Supply System

Service Area

The Town's service area is generally located east of Interstate 25 between Highway 119 and Highway 52 and includes an area of 17 square miles as shown on **Figure I.1**. The planning area for the Town encompasses 26 square miles.

Water Supply

Firestone currently does not operate a water treatment plant and is a wholesale purchaser of potable water. Firestone does not have a dual water supply system.

The Town's water supply consists solely of CBT units of which the Town owns 5,095 units. The Town of Firestone transfers the CBT water it owns to Central Weld on an annual basis for Central Weld to treat and deliver up to the master meters. Firestone is currently required to transfer water rights equal to 120% of the Town's water usage in the previous year plus an additional 10% to meet anticipated growth in the coming year. This 20% safety factor is built in to account for system operations (i.e. backwashing of filters and minor system losses) and to ensure Central Weld can meet the water needs of the Town for the upcoming year. The forecasted demands in this report are for Firestone customer use only and do not reflect the additional 20% required by Central Weld.

The CBT system contains transbasin water that accumulates in the Colorado River Basin and is pumped from Lake Granby through the Adam's Tunnel to the east slope near Estes Park. Water is then distributed to several Front Range reservoirs. It was constructed by the Bureau of Reclamation between 1938 and 1957 and is maintained by the Northern Colorado Water Conservancy District (Northern Water).

Key Existing Facilities

Central Weld treats water at the Carter Lake Filter Plant, outside of Berthoud. Once treated, Central Weld delivers the water to the Town through their own distribution network consisting of a 25-mile pipeline delivery system. Additional CBT water is conveyed to the Town by developers as new development occurs.

Firestone has ten points of connection to Central Weld's system, each consisting of a master meter vault and appurtenances. Central Weld has storage

throughout its system, including 12 million gallons (MG) southeast of Town, to provide a reliable supply to its constituents. Firestone constructed a 1.5-MG storage tank at this location. This 1.5-MG tank helps to meet peak-hour demands and to stabilize pressure throughout the Town's distribution system.

Every service connection on the Town's distribution system, regardless of use, is metered. All of the system meters are read monthly, and the Town is confident in the design of the system to account for all water use – including hydrant meters used by contractors that buy construction water from the Town. The water use monitoring program the Town has been using for the past twelve years has been an integral part of Public Works' efforts to minimize system leakage.

Water Rates

The following table shows the current water rates for the Town's customers.

Table 1.1 – Firestone's Water Rates

Customer Category	Water Usage (gallons)	Rate Per 1,000 Gallons
Residential Tier 1	0-5,000	$1.91
Residential Tier 2	5,001-20,000	$3.37
Residential Tier 3	Above 20,000	$5.40
Commercial & Industrial	All Usage	$2.97
Irrigation Only	All Usage	$4.52
Mobile Home Parks	All Usage	$3.37

1.2 Water Supply Reliability

The Town of Firestone is located in the South Platte River Basin where the Statewide Water Supply Initiative (SWSI) 2010 identified a 58% gap between water needs and water supplies in the Basin by 2050. Water efficiency is one method the SWSI report identified for meeting this gap.

Water supply reliability is the ability of the Town's water supplies to meet the needs of its customers during times of stress. The CBT Project imports an average of 213,000 acre-feet of water each year to many public and private water users along the northern Front Range and northeastern Colorado for agricultural, municipal and industrial uses. The system has approximately 740,000 acre-feet of gross storage and consists of

310,000 units. There is approximately 2.3 times the storage than would be needed to deliver a 100% quota. This gives the CBT system some drought reliability.

In over fifty years of CBT project operation, the average yield has been 0.73 acre-feet per unit and the commonly used average quota is 70%. The yield has never been less than 0.50 acre-feet per unit (50% quota) or more than 1.0 acre-feet per unit (100% quota). The historical annual quota established by the Northern Water Board is shown on the following **Figure 1.1**.

Northern Water defines a CBT carryover program to CBT Allottees, which allows CBT owners to carry over unused CBT from the previous year to the following year. Per Northern Water's Annual Carryover Program Procedures:

> *The Board and District staff will review the advantages and consequences of the Annual Carryover Program on a continuing basis. While the Board recognizes the Program's benefit to many CBT Allottees, it may modify or discontinue the Annual Carryover Program at any time.*

Considering this procedure, a 50% quota is what most water provider's use as the firm yield for CBT. Since the Town only owns CBT units at this point, calculating the firm yield is relatively simple.

Figure 1.1 – Historical CBT Quota

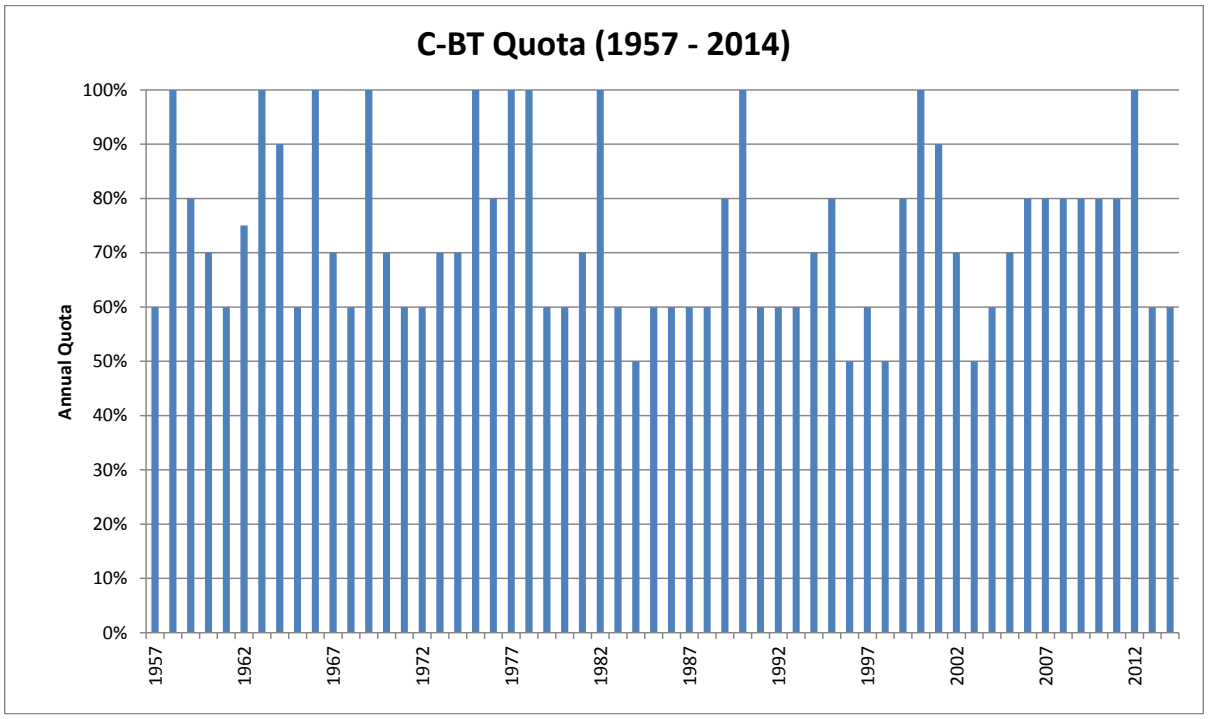


Table 1.2 – Firestone's Current Water Supply Firm Yield

No of Units	Unit Firm Yield (ac-ft per unit)	Total Firm Yield (ac-ft)
5,095	0.5	2,547.50

Other Factors that Potentially Impact Water Supply

The CBT supplies are stored in Lake Granby on the western slope of Colorado. Should a fire ever occur in the area, water quality would be a major issue for Firestone and other CBT Allottees. There is a tremendous amount of beetle kill to trees surrounding Lake Granby. This beetle kill poses an increased risk to fire. Firestone would be vulnerable to Central Weld's abilities to treat degraded water quality and east slope CBT storage, once segregated from the system to avoid contamination, is not enough storage to meet demands – particularly in a drought.

Firestone's water supplies would also be vulnerable in an extended drought. The Town currently maximizes its carryover each year through Northern Water, but a multi-year drought would likely decrease or eliminate Firestone's carryover account.

Typically, the Town leases out all of its excess water supplies. Firestone retained this excess in 2003 (after the 2002 drought), and it served as an adequate "cushion" to see how the 2003 year would play out. In the latter part of 2003, the Town was able to lease excess water out to other municipalities that needed it.

1.3 Supply-Side Limitations and Future Needs

Limitations with CBT

Current CBT supplies are sufficient to meet Firestone's water demands. To date, there have not been any potable supply shortages. However, it should be noted that the CBT system was originally designed as a supplemental supply to native water rights. Each year, the amount of water delivered by the CBT system (i.e. quota) was set based on demand. For example, in a dry year when water demands are highest, the quota would be set higher (i.e. 100%). Conversely, in a wet year, when native supplies are plentiful, the quota would be set lower (i.e. 50%). The years 2002 and 2003 were an exception when, for the first time in the system's history, the quota was set based on the limited supply in the CBT system.

To maintain this delicate balance, and to prevent speculative water purchases, Northern Water has set limits on the amount of CBT water each entity can own in relation to its water demand. Since Firestone owns sufficient CBT to meet its demand, it has exceeded its CBT ownership as compared to the demand associated with its committed taps per Northern Water regulations. Because of this fact, the Town is "capped" and cannot purchase additional CBT supplies through the open market. Accordingly, the Town must rely on additional CBT acquisition through dedication from developers

annexing into the Town. This Northern Water requirement puts a burden on the Town to figure out other sources of domestic supply since it cannot purchase additional CBT water.

A key limitation with CBT water is the fact that it is in great demand and is converting from agricultural use to municipal/industrial use rapidly. Currently, the oil and gas industry it taking a significant amount of CBT water when it goes to the open market.

Limitations with Central Weld

Central Weld being the sole water provider to the Town limits the Town's options for water acquisition to meet future growth. Only CBT water can be acquired and transferred to Central Weld for treatment, unless Firestone chooses to construct its own water treatment facility. Because Firestone's sole source of water is CBT water treated by Central Weld, water reuse is not possible at this time.

In addition, there are portions of the Town where low water pressure is a problem. There are many portions of Central Weld's system near the Town that currently are not looped, so delivery of water at adequate pressures to key locations within the Town is a concern.

Town System Limitations

The Town of Firestone owns and operates a water distribution network of approximately 58.5 miles of pipeline and associated facilities. Over 95% of this network was installed after 1995 and was subject to design and installation in strict accordance with the Town's published criteria and standards and is in excellent operating condition. The remaining portion of the network is located in the historic "old town" area and was installed in the early 1970's. This older portion of the network is primarily 4", 6", and 8" diameter asbestos cement pipe. The integrity of the older pipe is adequate but system capacity evaluations have shown that over time this portion of the network needs to be replaced with larger capacity pipe to improve delivery, especially for fire suppression flows. The Town is scheduled to start replacing the water pipelines in the Old Town area in 2015.

The Town is currently operating five separate water distribution systems. Depending on location, if one part of the system goes down, i.e. repair, leak, etc., it could be difficult to deliver water at adequate pressures and volumes to other sections of Town. To solve this concern, the Town intends to loop these five systems together in the future. By looping the entire system together, the 1.5-MG tank can be effectively used to serve all portions of Town as needed.

Future Needs

The Town recognized the need to further develop their water supplies and is in the process of trying to acquire some Windy Gap shares. This need became evident for the

Town after the 2002 drought impacts, and more recently after the drought of 2012-2013. Firefighting capabilities for the Town suffered moderately during the droughts and an increased water supply and storage would help the Town sustain this service leading into the next drought.

Planning Initiatives

The Town of Firestone completed a Water Infrastructure Master Plan in 2003. This plan focused on infrastructure and system capacity needs to meet future growth and identified capital improvement projects within the Town.

The Town has recently completed a Water Rate Study update, which will help assess if there is a need to increase rates to continue to meet projected water needs and adequately serve the community.

The Town is currently completing a Water Resources Master Plan. This plan will address water demands associated with growth, evaluate current water supplies, identify new water supplies, determine which supplies the Town should acquire, and develop a plan to achieve the desired water portfolio. Due to the rapid growth the Town is experiencing, Firestone realizes the importance to complete a Water Resources Master Plan that will identify its water and storage needs and guide the Town intelligently into the future.

SECTION 2.0 – PROFILE OF WATER DEMANDS AND HISTORICAL DEMAND MANAGEMENT

2.1 Demographics and Key Characteristics of the Service Area

The Town of Firestone provides water and wastewater services to approximately 10,962 residents. The Town is projected to grow at an increased rate as the economic recovery effort in the area continues from the recent recession. The Town's billing system uses the following customer category assignments for its water service accounts:

- **Residential** - Firestone's Residential category includes all single-family residences from low to high density and mobile homes, but does not include Multi-Family units like apartment complexes, and assisted living facilities.
- **Multi-Family** - Firestone's Title 17, Zoning Codes (17.08.110) describe Multi-Family as "a building designed to be occupied in whole or in part by three or more families living independently of each other, but not including mobile homes or manufactured homes…"
- **Commercial** - The Commercial category contains businesses, retail stores, and community organizations like churches and school districts. The Commercial category represents the third largest water user category in Firestone.
- **Industrial** - Currently, there are two customers that make up the Industrial customer category. The Industrial category is one of the smallest water user categories in Firestone.
- **Parks** - The Parks customer category is water demand associated with turf areas owned and maintained by the Town. These include parks and irrigated areas around government buildings.
- **Open Space** - The Open Space customer category is water demand associated with irrigated areas owned and managed by independent entities, such as private home owner associations and not by the Town.

2.2 Historical Water Demands

Annual Treated Water

Central Weld delivers treated water to Firestone's master meters located at various points surrounding the Town limits. After the master meters, the Town is responsible for operating and maintaining its distribution system to its customers.

Table 2.1 shows the annual treated water deliveries made by Central Weld for the last five years.

Table 2.1 – Central Weld Annual Treated Water Delivery

Year	Annual Treated Water Deliveries (ac-ft)
2009	1,671
2010	1,806
2011	1,994
2012	2,257
2013	1,919

Annual Treated Water Use by Customer Category

The overwhelming majority of the Town's treated water goes to Residential water users. However, a significant portion also goes to Parks and Open Space categories. At this time, there are not many large water users in the commercial and industrial sectors. The Town's average water demand for 2006 through 2013 for each customer category is shown on **Table 2.2**. The total water usage has ranged from 1,668 to 2,235 acre-feet and averages 1,877 acre-feet. Also shown in **Table 2.2** is the total and Residential category per capita water use, expressed as gallons per capita per day (GPCD). The GPCD is calculated as the total water use or Residential (and Multi-Family) water use divided by the population.

Table 2.2 – Annual Treated Water Use by Customer Category

Customer Category	2006	2007	2008	2009	2010	2011	2012	2013	Average
	(values in acre-feet except were noted)								
Residential	1,308	1,263	1,312	1,170	1,325.47	1,381	1,558	1,301	1,347
Multi-Family	10	15	8	7	7.85	7	10	9	8
Commercial	137	142	176	171	188.75	185	206	177	185
Industrial	7	7	5	4	6.34	11	12	12	9
Parks	122	157	212	191	250.31	263	302	179	237
Open Space	214	199	149	125	116.94	129	149	121	128
Total	1,798	1,783	1,862	1,668	1,896	1,975	2,235	1,799	1,877
Population	7,325	8,365	9,520	9,681	10,147	10,319	10,477	10,699	10,265
Residential GPCD	159	135	123	109	117	120	134	109	118
Total GPCD	219	190	175	154	167	171	190	150	166

Figure 2.1 shows Firestone's Total GPCD for 2006 through 2013. **Figure 2.1** indicates an increase in GPDC in 2012 which may be due to the 2012 drought that lasted into early 2013.

Figure 2.1 – Firestone Total Water Use Per Capita

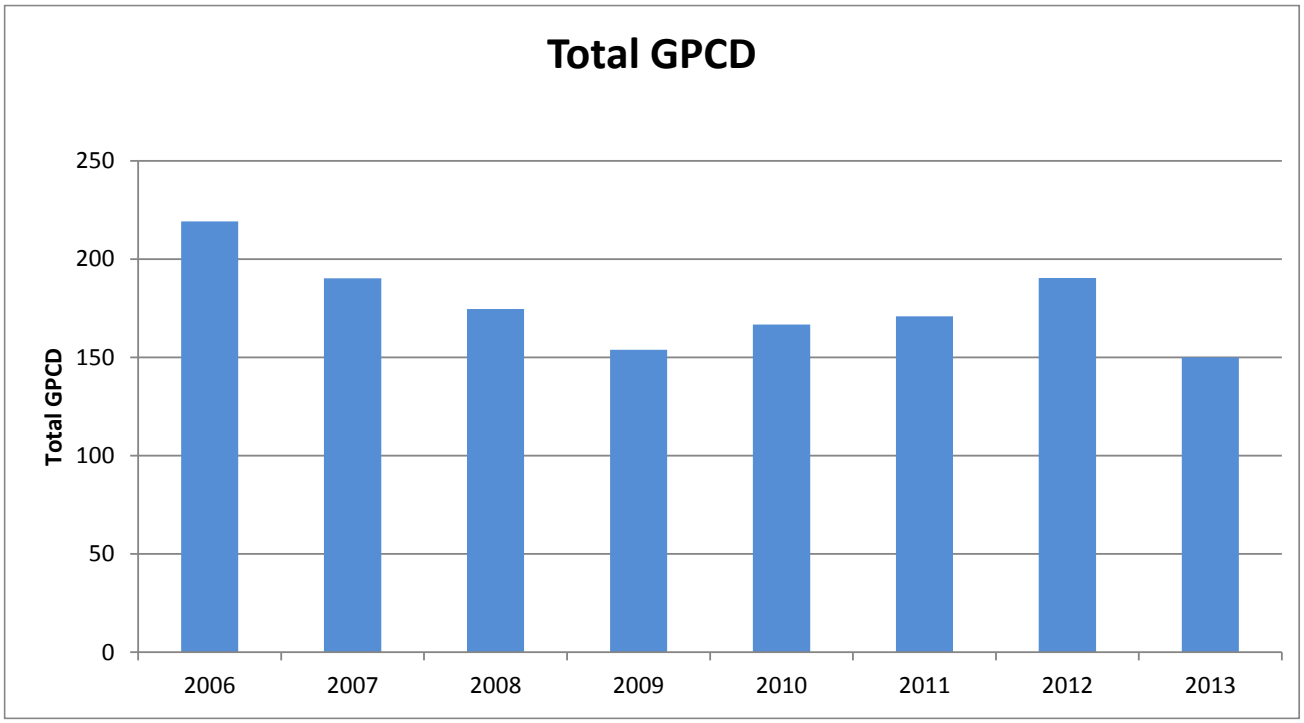
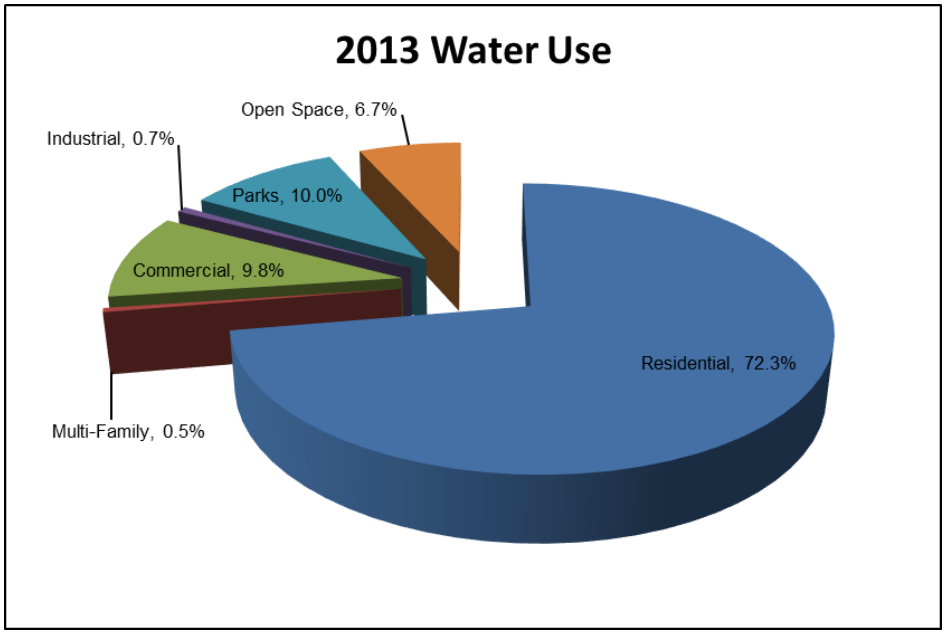


Figure 2.2 breaks out the water usage per customer category as a percentage of the total use for 2013. It shows the Residential category is the largest at approximately 72.3% of total usage.

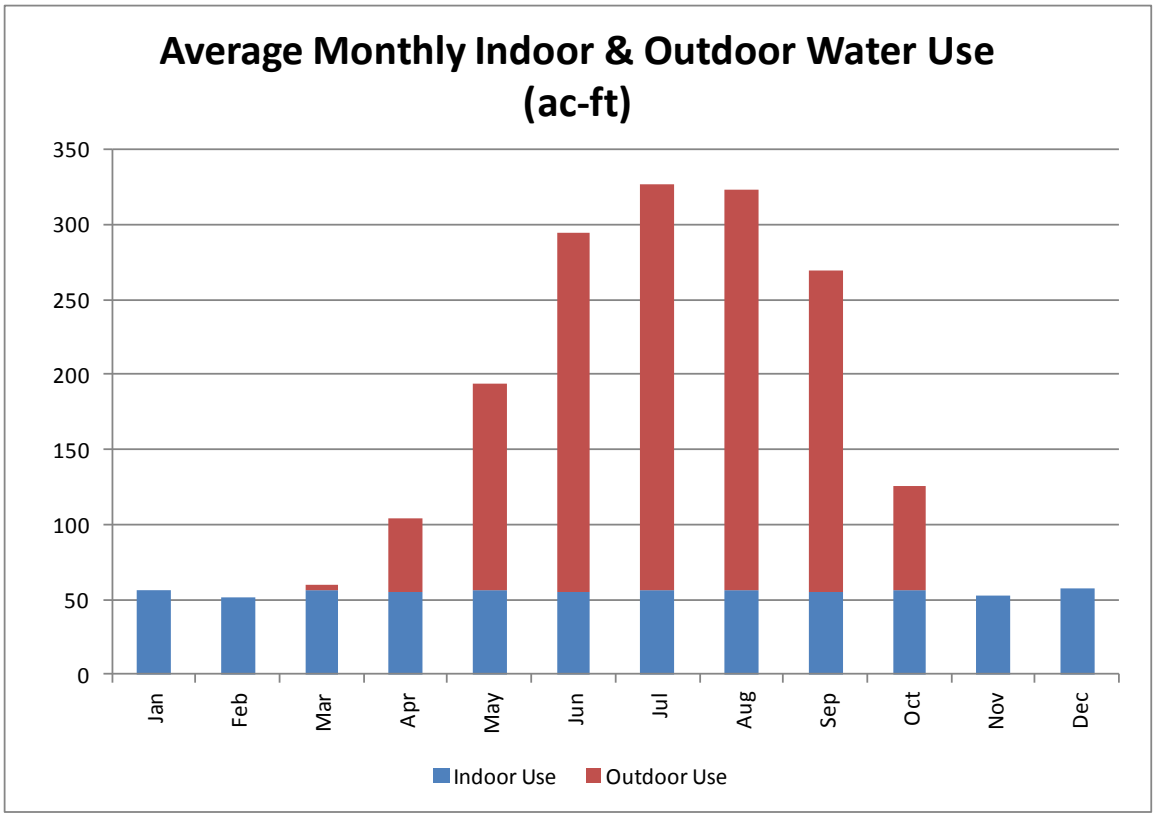
Figure 2.2 – 2013 Treated Water Use



Indoor and Outdoor Demands

The indoor and outdoor use was estimated using the total usage per month for the last five years of data 2009-2013. The total monthly water use between November and February was assumed to be only associated with indoor use. This total divided by the number of days between November and February was calculated as the average indoor use per day. The indoor use for the other months of the year, March through October, was calculated as the average indoor use per day multiplied by the days per month. The outdoor monthly use was assumed to be the difference between the total monthly use and the indoor monthly use. **Figure 2.3** is a chart breaking-out the estimated average monthly indoor and outdoor water use.

Figure 2.3 – Average Monthly Indoor & Outdoor Water Use



Annual Non-Revenue Water

Annual non-revenue water, or unaccounted for water, consists of unbilled authorized uses (e.g. hydrant flushing), apparent losses, and real losses. Apparent losses consist of unauthorized consumption, customer metering inaccuracies, and data handling errors. Real losses consist of leaks in the water distribution system that does not reach the end user.

To estimate Firestone's non-revenue treated water we examined the difference in the annual treated water delivery from Central Weld and what was metered at the water taps throughout the Town between 2009 and 2013. The data shows the non-revenue treated water for Firestone is less than 10% (6% in 2013), which is considered good by industry standards.

2.3 Past and Current Water Efficiency Activities and Impact to Demands

Firestone has implemented a variety of water efficiency activities since 2007 when the last water efficiency plan was prepared. The 2007 Plan called for savings of at least 280 acre-feet by 2015. The water efficiency activities that have been implemented since 2007 are shown in **Table 2.3**.

Table 2.3 – Firestone's Historical & Existing Water Efficiency Activities

Historical and Existing Water Efficiency Activities	Period of Implementation
Foundational Activities	
Automatic Meter Reading Installation and Operations	July 2014 - Present
Meter Upgrades	2012
Water Efficient Rate Structure with Regular Updates to Rate Study	2009 - Present
Targeted Technical Assistance and Incentives	
Irrigation Audits for Town Parks	2011
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	2012 - Present
Toilet Rebates	April 1, 2010 - Present
Water Efficient Washing Machine Rebates	April 1, 2010 - 2014
Give-Aways	2003 - Present
Ordinances and Regulations	
Time of Day Watering Restriction (Voluntary)	2004 - Present
Water Waste Ordinance	2007 - Present
Rain Sensors Installed On New Properties	May 2003 - Present
Wind Sensors Installed On New Properties Greater than 1 Acre	May 2003 - Present
Education Activities	
Water Efficiency Page on Town Website	Prior to 2007 - Present
Historic Water Usage Provided on Water Bills	
Bill Stuffers	
Newsletter	
K-12 Teacher and Classroom Education Programs	
Water Booth at Town Events	
Social Networking (e.g. Facebook)	
Customer Surveys	

Water Savings Estimates of Individual Activities

The water savings from several of the Town's Targeted Technical Assistance and Incentives activities are shown in **Table 2.4**. The estimated water savings evident over the last five years is approximately 124 acre-feet.

Table 2.4 – Water Savings Estimates of Individual Activities

Historical and Current Water Efficiency Activities	Annual Water Savings for Past Five Years (ac-ft)					Total Five-Year Water Savings	Average Annual Savings
	2009	*2010*	*2011*	*2012*	*2013*		
Targeted Technical Assistance and Incentives							
Irrigation Audits for Town Parks *Installation of Water Efficient Irrigation Controls on Park Irrigation Systems*	n/a	n/a	n/a	0	112	112	56
Toilet Rebates	n/a	0.2	0.6	0.9	1.1	3	0.7
Water Efficient Washing Machine Rebates	n/a	1.1	2.1	2.9	3.4	10	2.4
Total Savings		1	3	4	117	**124**	**59**

Irrigation Audits and Irrigation Controls for Town Parks

In 2011 Firestone conducted irrigation site assessments and audits for Settler's Park and Prairie Ridge Park. The intent of the irrigation site assessment was to obtain details regarding operation of the irrigation system, controller programming, general soil conditions, and discussion with maintenance staff to provide helpful insights of the irrigation system. Representative zones were audited to evaluate irrigation system performance and to gain an understanding of water efficiency opportunities.

Among the many recommendations made in the irrigation audit was the recommendation to replace existing Hunter ICC controller with a centrally controlled, weather based controller. By 2013 the Town had begun replacing the old irrigation controllers with Rain Master iCentral Controlled Irrigation Systems. By the end of 2013, ten controllers had been replaced.

Some of the features included with the iCentral System include:

- Local weather information is automatically sent to each controller every day

- ***Smart Alerts***™ are sent by iCentral for all field alarms generated when a "fault" occurs; text messages are sent to cell phone and email address
- Automatic initiation of "rain shutdown" to each controller if iCentral determines that precipitation in a designated area necessitates a shutdown.
- Automatically modifies irrigation schedules based upon daily ET, as well as plant watering requirements
- Manually turn on/off any station or program

Firestone staff estimated that the 2013 usage for the Parks with the new controllers decreased by 37% when compared to 2012. A total of 5.27 inches of precipitation was received in Firestone prior to the September 2013 rain storm that brought an additional 8.44 inches. 2013 was on track to be dryer than 2012, which makes the amount of water saved in 2013 very remarkable. 36,617,000 gallons of water was saved compared to 2012, which equates to 112.37 acre-feet of water.

Toilet and Washing Machine Rebate Activities

The Town began the Toilet and Washing Machine Rebate activities in August 2010 thanks to a Water Efficiency Grant provided by the Colorado Water Conservation Board (CWCB). As of December 31, 2014 the Town had issued approximately 245 washing machine rebates and 42 toilet rebates. In 2014, through September, the Town issued five washing machine rebates and one toilet rebate. Overall, the Town has had a slow and steady response for these rebates.

The Toilet Rebate program offers a $75.00 rebate for the installation of qualifying high-efficiency toilets purchased after April 1, 2010. Qualifying toilets are low flush (1.28 gallons/flush or less) and dual flush toilets. The Washing Machine Rebate program offered a $125.00 rebate for the installation of qualifying high-efficiency clothes washers purchased after April 1, 2010. Qualifying washers were listed on the Town's website.

For the water savings analysis, we considered the usage of the participants for the core winter months of November through February as all indoor use. The 2014 data did not include any usage for the core winter months and therefore was not analyzed in our study. Some of the participants applied for both the toilet and washing machine rebate program. Data from these participants was eliminated from our analysis because it was too difficult to determine which rebate program to associate the savings to. Data from participants was also eliminated if there was insufficient usage before or after the rebate was issued. This was often the case for the following reasons:

- The rebate was issued in early 2009.
- The rebate was issued in late 2013.
- The rebate was issued for new construction.
- The residence changed ownership during the study period and was vacant for part of the time.

Our analysis showed that the toilet rebate program has shown a higher water savings per participant than the washing machine program. For the Toilet Rebate program, after filtering the data as discussed above, we ended up with twelve participants that were analyzed. This rebate program showed an average savings of approximately 18.7%. The indoor average usage of each participant before the rebate was issued was 4,151 gallons per month (based on the core winter months) and after the rebate was issued it was 3,452 gallons per month. This equates to a savings of approximately 699 gallons per month, or 0.026 acre-feet per year per participant. The Town is planning on continuing the toilet rebate program.

The Washing Machine Rebate program had more participants, and therefore had a higher overall water savings associated with it. However, the water saving per participant was less with the Washing Machine Rebates. There were a total of 250 participants for this program and we looked at the data for 100 participants. After filtering the data, we had 96 participants that were analyzed. This rebate program showed an average savings of approximately 8.6%. The average indoor usage of each participant before the rebate was issued was 4,825 gallons per month and after the rebate was issued it was 4,436 gallons per month. This equates to a savings of approximately 389 gallons per month, or 0.014 acre-feet per year per participant.

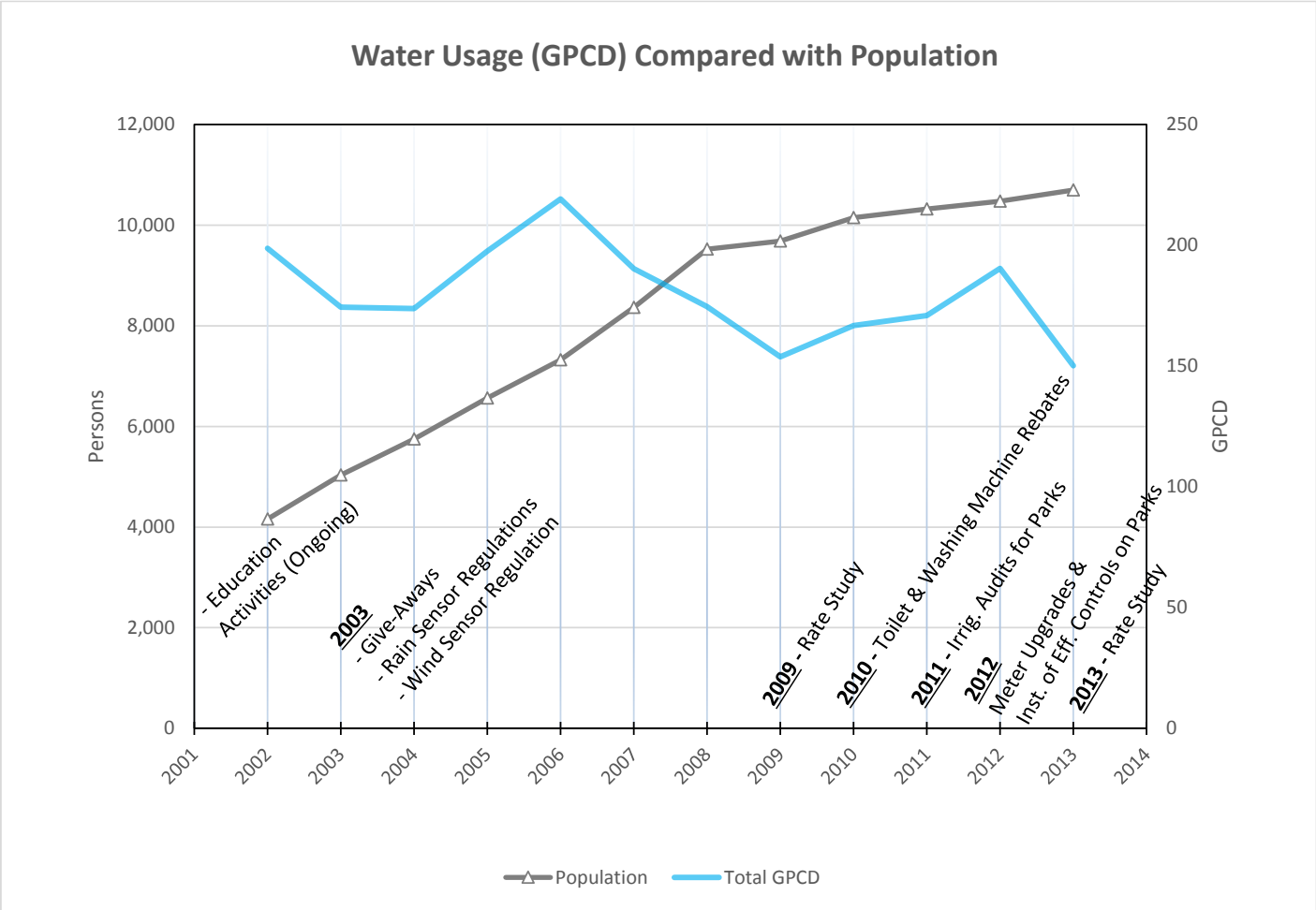
We spoke to the Town staff about the lackluster saving per participant evident for the washing machine program versus the toilet program and they felt many washing machine rebates went to new construction and were not being used to replace less efficient washing machines. Another adverse aspect of the washing machine rebate is that the water efficient washing machines are not a permanent fixture in the home and so if residents moved they often take the washing machines, and water savings, with them.

Water Savings Estimates Using Demand Data

The water savings for the remaining activities shown in **Table 2.3,** who's saving were not analyzed above, are more difficult to quantify. Therefore we estimated the water savings of the remaining activities using demand data to compare historical annual per capita water demands before and after the implementation of the water efficiency activities. **Figure 2.4** shows the annual historical per capita water demands in relation to population and when water efficiency activities were implemented.

Figure 2.4 suggests a decreasing trend in GPCD despite a significant increase in population. We conclude that the water efficiency activities enacted since at least 2007 have contributed to the reduction of per capita demands. Because a majority of the water efficiency activities were more recently implemented, more time is needed to analyze the impact of these implemented activities. An increase in the 2012 GPCD may be due to the drought that started in 2012 and ended with the flooding in 2013.

Figure 2.4 – Water Usage Compared with Population



The Town estimates that implementation of the plan has conserved at least 124 acre-feet through 2013 and based on this data, Firestone is on track to reaching the 2015 conservation goal.

2.4 Demand Forecasts

As part of the preparation of the water efficiency plan, we prepared an "unmodified" baseline demand forecast that does not include any impacts from water efficiency. This forecast shows demand starting in 2014 and going through the planning horizon of 2024 (11 years). The baseline forecast is based on a combination of anticipated demographic and land use changes in Firestone. In the baseline forecast, demands increase proportionally with the population at the current rate of usage.

Population is expected to grow from the 2013 level of 10,699 people to 17,015 people in 2024. The population forecast is shown in **Table 2.5**. The baseline water demand forecast is shown in **Table 2.6**.

Table 2.5 – Firestone Population Growth

Year	Population	Growth Rate
2009	9,681	-
2010	10,147	2.25%
2011	10,319	1.70%
2012	10,477	1.53%
2013	10,699	2.12%
2014	10,962	2.46%
2015	11,291	3.00%
2016	11,742	4.00%
2017	12,447	6.00%
2018	13,193	6.00%
2019	13,985	6.00%
2020	14,544	4.00%
2021	15,126	4.00%
2022	15,731	4.00%
2023	16,361	4.00%
2024	17,015	4.00%

Table 2.6 – Demand Projections

Year	TOTAL Treated Water Delivery from Central Weld to Firestone (ac-ft)	TOTAL Treated Water Use (ac-ft)	Residential 70.4% (ac-ft)	Multi-Family 0.4% (ac-ft)	Commercial 9.7% (ac-ft)	Industrial 0.5% (ac-ft)	Parks 12.3% (ac-ft)	Open Space 6.7% (ac-ft)
2014	1,966	1,843	1,384	8	191	9	241	132
2015	2,025	1,898	1,426	9	197	9	249	136
2016	2,106	1,974	1,483	9	205	10	259	141
2017	2,232	2,092	1,572	9	217	10	274	150
2018	2,366	2,218	1,666	10	230	11	291	159
2019	2,508	2,351	1,766	11	244	12	308	168
2020	2,609	2,445	1,837	11	254	12	320	175
2021	2,713	2,543	1,910	11	264	13	333	182
2022	2,822	2,644	1,987	12	274	13	346	189
2023	2,934	2,750	2,066	12	285	14	360	197
2024	3,052	2,860	2,149	13	297	14	375	205

3.1 Water Efficiency and Water Supply Planning

Forecasted Modified Water Demands

A modified demand forecast that includes the impacts of the proposed water efficiency activities are shown in **Figure 3.1** and **Table 3.1**. Under the revised forecast, it is estimated that total demands for Firestone in 2024 will be about 772 acre-feet greater than they are in 2014. Firestone plans to accomplish this level of water efficiency by focusing on water efficiency for large irrigated areas.

Figure 3.1– Forecasted Modified Water Demands

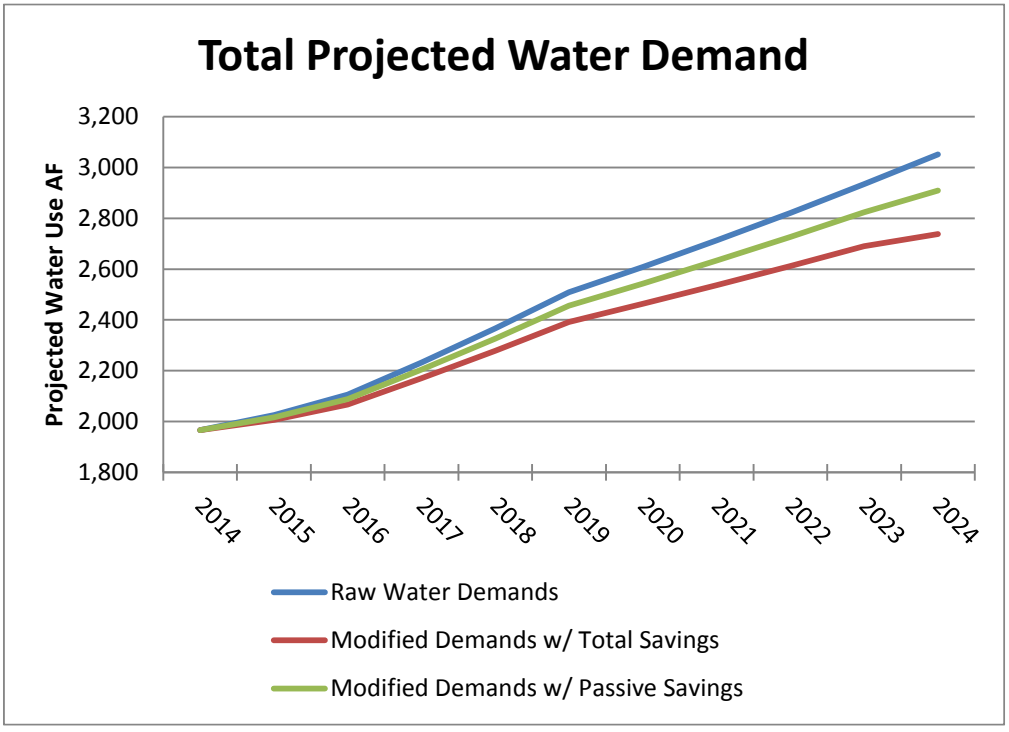


Table 3.1– Forecasted Modified Water Demands

Year	Raw Water Demands AF	Modified Demands w/ Passive Savings AF	Modified Demands w/ Total Savings AF
2014	1,966	1,966	1,966
2015	2,025	2,016	2,006
2016	2,106	2,087	2,067
2017	2,232	2,201	2,170
2018	2,366	2,323	2,279
2019	2,508	2,450	2,392
2020	2,609	2,536	2,464
2021	2,713	2,625	2,537
2022	2,822	2,717	2,612
2023	2,934	2,812	2,690
2024	3,052	2,895	2,738
Savings		5.1%	10.3%
Increase use from 2014	1,086	929	772
Difference from Unmodified		157	314

3.2 Water Efficiency Benefits

Water efficiency planning is very important to Firestone. The benefits of this planning effort may include:

- Freeing up water supplies for increased growth and development
- Additional water to cover shortages during droughts or other emergency situations
- Delaying the purchase of additional water supplies

3.3 Water Efficiency Goals

Water efficiency goals are intended to lay out a set of targeted objectives that if accomplished, will result in the identified benefits. A preliminary set of goals have been developed prior to the selection of the water efficiency activities to provide a means to screen and evaluate the selected activities. Goals from the Town's 2007 Municipal Water Efficiency Plan have been assessed and incorporated into the new goal development process.

A meeting was initially held with Town staff to discuss water efficiency goals appropriate for Firestone. The following preliminary goals were established by Town Staff:

- In keeping with the savings goal established in Firestone's 2007 Water Efficiency Plan, the targeted water savings goal for this Plan will be to lower the total water use by 12% over the ten-year planning period.
- The targeted ten-year water savings goal for the following customer categories are as follows:

    - Residential – 15%
    - Multi-Family – 2.5%
    - Commercial – 5.0%
    - Industrial – 2.5%
    - Parks – 10%
    - Open Space – 10%
    - Non-Revenue – 6.0% (of total treated water demand)

- Develop a water efficiency program that can be implemented within Town staffing constraints and with Staff approval.
- Implement water efficiency activities that are compatible with the community and their Town Board representatives.

The success of the stated goals will be measured through monitoring of billing data, screening and evaluating activities that are acceptable to Town Staff and soliciting Town Board and community feedback on water efficiency activities.

SECTION 4.0 – SELECTION OF WATER EFFICIENCY ACTIVITIES

4.1 Summary of Selection Process

Firestone used a four-phase process for selecting and fully evaluating water efficiency activities. The four phases include: 1) assessment; 2) identification; 3) qualitative screening; and 4) evaluation and selection.

Assessment, Identification and Qualitative Screening

Using the analysis performed and presented in Section 2.3, the Town identified areas where water efficiency could be enhanced. With the water saving success of the installation of water efficiency irrigation controls on park irrigation systems, the Town would like to continue this activity for other parks as well as expand to open space areas. In addition to these irrigation control activities, the Town generally wants to focus on activities that assist with meeting their water efficiency goals.

We utilized Worksheets D-G from the *Municipal Water Efficiency Plan Guidance Document* to identify a list of water efficiency activities that are generally compatible with the Town's needs. A copy of Worksheets D-G can be found in **Appendix B** of this report.

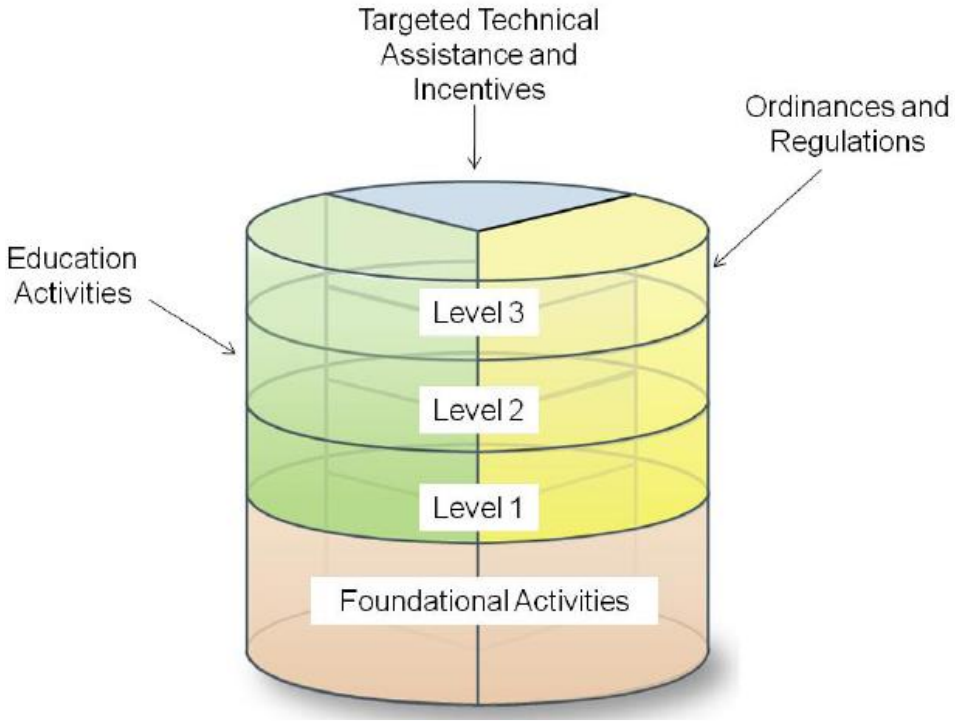
The list of activities evaluated are organized according to the SWSI Levels Framework. The SWSI Levels Framework was developed as a component of the 2010 SWSI update to organize water efficiency activities into a model that assists municipalities in prioritizing and selecting activities. The framework may be represented as a cylinder consisting of the following four categories in **Figure 4.1**.[1]

SWSI Levels Framework includes the following levels of water efficiency activities:

- **Foundational Activities** – Focus on system operations and water efficiencies that are under Firestone's direct control and can improve the effectiveness of the planning effort by ensuring sufficient metering and data tracking.
- **Targeted Technical Assistance and Incentives** – Covers activities that water providers and customers can do to improve existing water efficiency.

[1] These categories were initially introduced the 2010 SWSI Conservation Level Analysis Final Report as a component of CWCB's water conservation technical platform. Note: The SWSI Levels Framework terminology has been updated since this report.

Figure 4.1 – SWSI Levels Framework



- **Ordinances and Regulations** – Includes regulatory activities designed to encourage water efficiency.
- **Education Activities** – Educate the public on the benefits of water efficiency, inform customers on how they can reduce their water usage and publicize water efficiency activities that Firestone is implementing.

Further discussion regarding the SWSI Levels Framework is provided in subsequent sections.

Town staff developed qualitative screening criteria used to screen the preliminary list of activities. The screening criteria include: 1) beneficial in water savings; 2) Staff availability and approval; 3) Town Board and public approval. Activities not meeting the screening criteria were eliminated. The specific reason for elimination of activities can be found in Worksheets D-G, located in **Appendix B**.

Evaluation and Selection

The evaluation and selection phase of the selection process involves development of evaluation criteria, evaluation of the activities, and selection of the final activities for implementation. The evaluation criteria include:

- Practical from a cost/benefit standpoint
- Implementation costs are feasible from a financial and staff resource perspective
- Candidate activities collectively meet the targeted savings specified in Section 3.3

4.2 Evaluation of Candidate Activities

The initial screening of the water efficiency activities with Town staff resulted in selecting 15 candidate activities for further evaluation. Eliminated activities will be evaluated with future planning efforts. Some of the activities have been combined within their SWSI Levels Framework to assist in evaluation and avoid double counting savings. The water savings and costs of the selected activities are shown in **Table 4.1**. Details about the cost-benefit evaluation and information about each measure can be found in the following section with further detail available in **Appendix C**.

Foundational Activities

- **Automatic Meter Reading Installation and Operations** – This is an existing activity that was implemented in 2012. Town of Firestone installed a new meter reading system that allows water meters to be read hourly down to a single gallon of water. The system allows water customers to view and manage their water usage through AquaHawk, which is secure website where customers can set up alerts for notification on possible water leaks, irrigation usage issues, promote water conservation, set monthly water usage budgets and receive alerts if a set budget is going to be exceeded. Signing up to manage water usage through AquaHawk is completely voluntary. To date, only a small percentage of Firestone residents have signed up. Staff hopes to have more water users participate over the planning horizon.
- **Proactive Meter Testing and Replacement** – For this activity, existing meters will be tested periodically for leaks and accuracy and are replaced as necessary. Because meters were recently replaced (2012), we do not anticipate a significant annual water savings during this efficiency plan period.
- **Water Efficiency Rate Structure with Regular Updates to Rate Study** – The Town conducted their first water rate study in 2008 thanks to a grant provided by CWCB. The Town conducts a rate study update every three years. The rate study helps to ensure maximum water conservation savings.
- **System Wide Water Audits** – This activity would include leak detection and repair for Town water delivery infrastructure. A leak survey would be performed by a consultant.

Table 4.1 – Water Efficiency Activity Evaluation

Water Efficiency Activities for Evaluation	Existing/ Potential Activity	Targeted Customer Category	Review of Qualitative Screening			Evaluation						
			Qualitative Goals			Projected Water Savings				Quantitative Goals		
			Benefit in Water Savings	*Staff Approval and Availability*	*Town Board and Public Approval*	Total Water Savings over the Planning Period (AF)	Average Annual Water Savings (AF/yr)	Cost per 1,000 gal saved	Projected Implementation Costs over Planning Period Including Lost Revenue	*Helps to Achieve Overall Savings Goals*	*Low Cost w/ Significant Water Savings*	*Beneficial to Community*
Foundational Activities												
Automatic Meter Reading Installation and Operations	E	Res, M-F, Com, Ind, Open Space	X	X	X	**54.14**	**5.41**	**$5.09**	**$89,763**	X		X
Proactive Meter Testing and Replacement	P	Non Revenue Water	X	X	X	**58.22**	**5.82**	**$1.98**	**$37,500**	X	X	X
Water Efficiency Rate Structure with Regular Updates to Rate Study	E	Res, M-F, Com, Ind, Open Space	X	X	X	**1,049.76**	**104.98**	**$0.00**	**$0**	X	X	X
System Wide Water Audits	P	Non Revenue Water	X	X	X	**68.33**	**6.21**	**$5.39**	**$120,000**	X		X
Targeted Technical Assistance and Incentives												
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	E	Parks	X	X	X	**758.55**	**75.85**	**$0.33**	**$81,400**	X	X	X
Installation of Water Efficient Irrigation Controls on Open Space Irrigation Systems	P	Open Space	X	X	X	**182.60**	**3.32**	**$5.58**	**$331,742**	X		X
Toilet Rebates	E	Res	X	X	X	**105.80**	**1.92**	**$3.94**	**$135,845**	X		X
Give-Aways	E	Res, M-F		X	X	**27.37**	**0.50**	**$2.17**	**$19,350**	X		X
Ordinances and Regulations												
Rain Sensors Installed on New Properties	E	Res, M-F, Com, Open Space	X	X	X	**57.38**	**5.74**	**$0.00**	**$0**	X	X	X
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	E	Res, M-F, Com, Open Space	X	X	X	**3.16**	**0.32**	**$0.00**	**$0**	X	X	X
Education Activities												
Bill Stuffers	E	Res, M-F, Com, Ind	X	X	X					X		X
Historic Water Usage Provided on Water Bills	E	Res, M-F, Com, Ind	X	X	X					X		X
Newsletter	E	Res, M-F, Com, Ind	X	X	X	**445.98**	**44.60**	**$1.08**	**$157,222**	X		X
Water Efficiency Page on Website	E	Res, M-F, Com, Ind	X	X	X					X		X
K-12 Education Program	E	Res, M-F	X	X	X					X		X
					TOTAL	**2,811.30**	**254.67**	**-**	**$972,823.03**			

Targeted Technical Assistance and Incentives

- **Installation of Water Efficient Irrigation Controls on Park Irrigation Systems** – By the end of 2013, the Town of Firestone had Irrigation System Efficiency Devices or ET irrigation system controllers installed at approximately ten Town Parks. The Town would like to install these meters at all parks and estimate that approximately 31.5 acres of irrigated parks are left to be converted. Please refer to Section 2.3 of this report for further details on the controllers.
- **Installation of Water Efficient Irrigation Controls on HOA Irrigation Systems** – The Town of Firestone is proposing to work with Open Space customers to install Irrigation System Efficiency Devices or ET irrigation system controllers on the Open Space irrigated areas. The Town proposes to assist their Open Space customers by covering the cost of the Rain Master iCentral controller.
- **Toilet Rebates** – The Town desires to continue their existing Toilet Rebate program. Please refer to Section 2.3 for further details on this activity.
- **Give-Aways** – This is an existing activity. The Town gives away faucet aerators and low-flow shower heads at Town events for the public.

Ordinances and Regulations

- **Rain Sensors Installed on New Properties** – This regulation was first initiated in 2003 and develops standards that requires rain sensors for new developments. The Rain Sensor regulation applies to all customer categories except Parks and Industrial.
- **Wind Sensors Installed on New Properties Greater than One Acre** – This regulation was also first introduced in 2003. This regulation requires wind sensors for new properties irrigating more than 1-acre.

Educational Activities

- **Water Efficiency Page on Town Website, Bill Stuffers, Historic Water Usage Provided on Water Bills, Newsletter, K-12 Teacher and Classroom Education Programs, Water Booth at Town Events, Social Networking and Customer Surveys** – For evaluating the benefits and costs we combined all of the Town's educational activities. The Town provides educational activities for grade school children that focus on the Town's water supply and teaches water efficiency. Water efficiency questions are included in an annual customer survey.

Comparison of Benefits and Costs

As shown in **Table 4.1**, the cost for the evaluated activities varied from $0.00 per 1,000 gallons for water efficiency rate structures with regular updates to the rate study to

$5.58 per 1,000 gallons for installation of water efficient irrigation controls on Open Space irrigation systems.

4.3 Selection of Activities for Implementation

The second screening was accomplished by evaluating each activity based on the evaluation criteria discussed in Section 4.1. All 15 evaluated activities were chosen for implementation.

In Section 3, water efficiency goals were established for the customer categories:

- Residential – 15%
- Multi-Family – 2.5%
- Commercial – 5.0%
- Industrial – 2.5%
- Parks – 10%
- Open Space – 10%
- Non-Revenue Water – 6.0% (of total treated water demand)

The selected water efficiency activities and associated water savings were arranged within the targeted customer categories to more easily compare the anticipated savings to the original goals. Some of the measures contribute savings to more than one category. **Table 4.2** shows the water savings for the selected activities, sub-totaled for each category.

These savings were compared to the original goals set in Section 3. **Table 4.3** compares the anticipated water savings from the selected activities with the original goals and then adjusts the water saving goals for this plan.

Over the planning period, the selected activities provide an overall estimated water savings of 2,811 acre-feet. Preliminary goals were adjusted down for the Residential, Commercial and Industrial categories. The Multi-Family, Parks, Open Space and Non-Revenue Water category goals were adjusted up to match the estimated water savings resulting from the cost-benefit analysis. The adjusted goals reflect the goals believed to be obtainable by Town staff.

After the goals were adjusted to reflect the expected water savings, the estimated water use reduction is 10%. Therefore, Firestone will target a reduction in its water use by 10% over the planning period because of implementation of this plan.

Table 4.2 – Combined Water Savings of Selected Water Efficiency Activities

Conservation Measures and Programs	Estimated Annual Water Savings after full Implementation (MG)	Estimated Total Water Savings over Planning Period (MG)
Non-Revenue Water		
Automatic Meter Reading Installation and Operations	0.05	0.5
Proactive Meter Testing and Replacement	1.90	18.97
System Wide Water Audits	2.02	22.3
Subtotal - MG	**3.97**	**41.7**
Acre-Feet	**12.2**	**128**
Residential (Single Family)		
Automatic Meter Reading Installation and Operations	1.65	16.5
Water Efficiency Rate Structure with Regular Updates to Rate Study	27.4	274
Toilet Rebates	0.6	34.5
Give-Aways	0.1	7.7
Rain Sensors Installed on New Properties	1.6	16.1
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	0.1	0.8
Education Activities	13.72	137.2
Subtotal - MG	**45.3**	**487**
Acre-Feet	**139**	**1,495**
Multi-Family		
Automatic Meter Reading Installation and Operations	0.00	0.04
Water Efficiency Rate Structure with Regular Updates to Rate Study	0.1	0.7
Give-Aways	0.0	1.3
Rain Sensors Installed on New Properties	0.0004	0.004
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	0.0001	0.001
Education Activities	0.04	0.4
Subtotal - MG	**0.1**	**2.4**
Acre-Feet	**0.4**	**7**
Commercial		
Automatic Meter Reading Installation and Operations	0.0	0.4
Water Efficiency Rate Structure with Regular Updates to Rate Study	1.5	14.9
Rain Sensors Installed on New Properties	0.0	0.1
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	0.0	0.1
Education Activities	0.75	7.5
Subtotal - MG	**2.30**	**23.0**
Acre-Feet	**7.1**	**71**
Industrial		
Automatic Meter Reading Installation and Operations	0.001	0.0
Water Efficiency Rate Structure with Regular Updates to Rate Study	0.1	1.0
Education Activities	0.03	0.3
Subtotal - MG	**0.13**	**1.3**
Acre-Feet	**0.39**	**3.9**

Conservation Measures and Programs	Estimated Annual Water Savings after full Implementation (MG)	Estimated Total Water Savings over Planning Period (MG)
Parks		
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	24.7	247
Subtotal - MG	**24.7**	**247**
Acre-Feet	**75.9**	**759**
Open Space		
Automatic Meter Reading Installation and Operations	0.025	0.25
Water Efficiency Rate Structure with Regular Updates to Rate Study	5.09	50.92
Installation of Water Efficient Irrigation Controls on Open Space/HOA Irrigation Systems	1.08	59.50
Rain Sensors Installed on New Properties	0.25	2.55
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	0.01	0.13
Subtotal - MG	**6.47**	**113.34**
Acre-Feet	**19.84**	**347.84**
Grand Total - (MG)	**83**	**916**
Acre-Feet	**255**	**2,811**

Table 4.3 – Water Efficiency Goals Comparison

Water Use Categories:	Total Projected Water Use (2014 to 2024)	Reduction Goals for Planning Horizon		Total Water Savings from Selected Programs	Resulting Reduction	Adjusted Reduction Goals for Planning Horizon	
	(ac-ft)	(%)	(ac-ft)	(ac-ft)	(%)	(%)	(ac-ft)
Residential	18,531	15.0%	2780	1,495	8.1%	8.1%	1,495
Multi-Family	123	2.5%	3	7	6.0%	6.0%	7
Commercial	2,522	5.0%	126	71	2.8%	2.8%	71
Industrial	170	2.5%	4	3.89	2.3%	2.3%	3.89
Parks	2,554	10.0%	255	759	29.7%	29.7%	759
Open Space	1,719	10.0%	172	348	20.2%	20.2%	348
Non-Revenue Water*	1,715	6.0%	0	128	5.8%	5.8%	128
Total Water Production:	27,333						
Total Demand Reduction:			3,340	2,811			2,811
Total Percent Reduction:			12%		10%	10%	

** The goal is to retain the non-revenue water at the current rate of 6%.*

SECTION 5.0 – IMPLEMENTATION AND MONITORING PLAN

5.1 Implementation Plan

The implementation plan defines the process necessary to carry out the selected water efficiency activities. Julie Pasillas, Senior Administrative Specialist, is chiefly responsible for implementation of this Plan. Ms. Pasillas has been successfully implementing the Town's water efficiency program since 2007. The Town will continue to work to budget money and pursue CWCB water efficiency grants to meet its water efficiency goals. Firestone has developed a phased implementation approach to the efficiency. The proposed implementation schedule is shown in **Table 5.1**.

Table 5.1 – Firestone Implementation Schedule

Selected Water Efficiency Activities	Period of Implementation
Foundational Activities	
Automatic Meter Reading Installation and Operations	July 2014 - Ongoing
Proactive Meter Testing and Replacement	2019
Water Efficiency Rate Structure with Regular Updates to Rate Study	2009 - Ongoing
System Wide Water Audits	2017
Targeted Technical Assistance and Incentives	
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	2012 - Ongoing
Installation of Water Efficient Irrigation Controls on Open Space/HOA Irrigation Systems	2016
Toilet Rebates	April 2010 - Ongoing
Give-Aways	2003 - Ongoing
Ordinances and Regulations	
Rain Sensors Installed on New Properties	May 2003 - Ongoing
Wind Sensors Installed On New Properties Irrigating more than 1-Acre	May 2003 - Ongoing
Education Activities	
Bill Stuffers	Prior to 2007 - Ongoing
Historic Water Usage Provided on Water Bills	
Newsletter	
Water Efficiency Page on Website	
K-12 Education Program	

5.2 Monitoring Plan

Firestone monitors water demands on a daily basis and Water Efficiency Plan impacts are evaluated annually during the first quarter of the year. Ms. Pasillas maintains water use data and evaluates water demands on a regular basis. Ms. Pasillas will monitor this Plan's implementation and evaluate impacts on a regular basis.

A summary of the data to be collected for Water Efficiency Plan monitoring is presented in **Table 5.2** which is based on Worksheet K from the Guidance Document. Every year on a regular and on-going basis, the Town inputs new supply and demand data into the CWCB Water Efficiency Data Portal, to project water supplies under the most recent hydrologic, growth, and demand scenarios.

Table 5.2 – Selection of Demand Data for Efficiency Plan Monitoring

Monitoring Data	HB 10-1051 Reporting Requirement					Selection			
	Annual	Monthly	Bi-Monthly	Daily		Annual	Monthly	Bi-Monthly	Daily
Total Water Use									
Total treated water produced (metered at Master Meters)							X		
Total treated water delivered (sum of customer meters)	√						X		X
Raw non-potable deliveries									
Reclaimed water produced (metered at WWTP discharge)									
Reclaimed water delivered (sum of customer meters)									
Per capita water use						X			
Indoor and outdoor treated water deliveries									
Treated water peak day produced									
Reclaimed water peak day produced									
Raw water peak day produced/delivered									
Non-revenue water	√					X			
Water Use by Customer Type									
Treated water delivered		√					X		
Raw non-potable deliveries									
Reclaimed water delivered									
Residential per capita water use						X			
Unit water use (e.g. AF/account or AF/irrigated acre)						X			
Indoor and outdoor treated water deliveries									
Large users							X		
Toilet Rebate participant water use						X			
Park Irrigation water use						X			
Open Space Irrigation water use						X			
Other Demand Related Data									
Irrigated landscape (e.g. AF/acre or number of irrigated acres)						X			
Precipitation							X		
Temperature							X		
Evapotranspiration							X		
Drought index information						X			
Economic conditions									
Population							X		
New taps							X		

SECTION 6.0 – ADOPTION OF NEW POLICY, PUBLIC REVIEW AND FOMAL APPROVAL

6.1 Public Review Process

A public review process is required for all State approved plans. Since Firestone has had a municipal water efficiency program in place since 2007, the public has become familiar with the efficiency concept and activities. The Town's public education program has contributed to this level of awareness. For this water efficiency planning process, the public was notified of the 60-day comment period from February 20, 2015 to April 21, 2015 and how to submit comments. The plan was made available on Firestone's website and at Town Hall for review. No comments were received during the 60 day comment period. Copies of public notice announcements and the official plan adoption resolution are provided in **Appendix D**.

6.2 Local Adoption and State Approval Process

The Town of Firestone Water Efficiency Plan Update was submitted to the CWCB Office of Water Conservation and Drought Planning on April 28, 2015. On September 2, 2015 the Town received official notification that the plan was approved by the CWCB.

6.3 Periodic Review and Update

The City plans to review and update this conservation plan every seven years. The next update is scheduled to be completed in 2022.

APPENDIX A

Definition of Terms

Acre-foot (ac-ft):	The amount of water it would take to cover one acre of land to a depth of one foot; approximately 325,851 gallons.
CBT:	Colorado Big Thompson
CBT Quota:	The percentage set by the NCWCD Board of Directors each water year which determines the amount of ac-ft per unit of CBT, i.e. 70% quota equals 0.7 ac-ft per CBT unit.
Central Weld (CWCWD):	Central Weld County Water District
Demand Management:	The implementation of water efficiency activities to reduce water deliveries (demands) and or improve efficiencies within the distribution system. For purposes of this document, demand management refers to both system and customer water demands. Demand management is used interchangeably with water efficiency.
Demand-side:	The distribution and consumption of treated water supplies for domestic purposes or the delivery and use of reclaimed water or untreated raw (i.e. ditch water, groundwater) for non-potable purposes such as irrigation or industrial processes.
Dual Water Supply Systems:	Water supply systems that use a combination of treated water to meet potable water needs and reclaimed water and/or non-treated water (i.e. untreated ditch water and groundwater) to meet non-potable water needs.
ET Controllers:	Evapotranspiration controllers adjust the amount of water applied from sprinkler systems based on soil moisture and weather conditions.
GPCD:	Gallons per Capita per Day
gpd:	Gallons per day
MWEP:	Municipal Water Efficiency Plan
NISP:	Northern Integrated Supply Project
Non-Potable Use:	Water that is not treated and used for irrigation or other uses than potable. The District currently does not have a non-potable water supply.
Non-Revenue Water:	Annual non-revenue water (previously referred to as unaccounted for water) consists of unbilled authorized uses (i.e. hydrant flushing), apparent losses, and real

	losses1. Real losses consist of leaks in the water distribution system that does not reach the end user. Apparent losses consist of unauthorized consumption, customer metering inaccuracies, and data handling errors.
Northern Water:	Northern Colorado Water Conservancy District
Phreatophytes:	Species of plants and trees that consume groundwater through their root zones below the water table such as Cottonwood and Russian olive trees.
Potable Use:	Water that is treated to drinking water standards for municipal use, including residential and commercial use.
Supply-Side:	Water supply operations and facilities that include the diversion, extraction, storage, and transmission of untreated water.
System Water Demand:	Volume of water necessary to meet customer water needs within a certain period of time. System water demand is typically measured at the point of discharge from the water treatment plant and includes non-revenue water. In dual water supply systems, system water demand may also include the distribution and delivery of non-potable water (i.e.: reclaimed water and untreated ditch and groundwater) to meet irrigation needs.
Water Efficiency:	Water efficiency includes the practices, techniques, and technologies that extend water supplies either directly through water savings or through substituting alternative supplies such as reuse. For purposes of this document, water efficiency is inclusive of water conservation and is used instead of "water conservation." The term water efficiency captures the essential objective of a local plan which is to improve the efficiency of a municipal demand and water supply system. Water efficiency includes both system demands and customer water demands.
Water Efficiency Activities:	Traditionally water efficiency activities have been referred to as water conservation measures and or water conservation programs. For purposes of this document, measures and programs are replaced with water efficiency activities. Water efficiency activities

[1] Source: American Water Works Association. 2006 *Water Conservation Programs – A Planning Manual. Manual of Water Supply Practices M52.* First Edition.

	encompass all efforts to either save water or improve efficiencies within a water supply system.
WTP:	Water treatment plant

APPENDIX B

Municipal Water Efficiency Plan Guidance Document Worksheets

WORKSHEET D - IDENTIFICATION AND SCREENING OF FOUNDATIONAL ACTIVITIES

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification		Qualitative Screening [5]				Carry to Evaluation [6]	Reason for Elimination [7]
		Existing/ Potential Activity [3]	Targeted Customer Category [4]	*Benefit in Water Savings*	*Staff Approval and Availability*	*Town Board and Public Approval*	Notes on Additional Pros/Cons to Consider		
Metering									
Automatic Meter Reading Installation and Operations	V, VII	E	Res, M-F, Com, Ind, Open Space	X	X	X		X	
Meter Upgrades	V	E	Res, M-F, Com, Ind	X	X	X			Meter upgrades completed in 2012
Submetering for Large Users (Indoor and Outdoor)	V	E	Res, M-F, Com, Ind, Open Space	X	X	X			A majority of large users are submetered
Proactive Meter Testing and Replacement	V	P	All Categories	X	X	X		X	
Identify Unmetered/Unbilled Treated Water Uses	V	E	All Categories	X	X	X			Fire hydrant flushing and fire flow testing are the only unmetered uses
Data Collection - Monitoring and Verification									
Frequency of Meter Reading	VII	E	All Categories	X	X	X			Residents/Staff can obtain hourly readings through AquaHawk Alerting System
Tracking Water Use by Customer Type	VII	E	All Categories	X	X	X			Part of existing billing system
Upgrade Billing System to Track Use by Sufficient Customer Types	VII	E	All Categories	X	X	X			Part of existing billing system
Tracking Water Use for Large Customers	VII	E	All Categories	X	X	X			Part of existing billing system
Area of Irrigated Lands in Service Area (e.g. acres)	VII	E	Parks	X	X	X			Park irrigated area is evaluated annually
Water Use Efficiency Oriented Rates and Tap Fees									
Three-tier Rate Structure with Regular Updates to Rate Study	VII, VIII	E	Res, M-F, Com, Ind, Open Space	X	X	X		X	
Frequency of Billing	VII	E	All Categories	X	X	X			Monthly billing is sufficient
Water Budgets	VII, VIII		All Categories	X					Not interested in further evaluation
Tap Fees with Water Use Efficiency Incentives	VII		Res, M-F, Com, Ind, Open Space						Not interested in further evaluation
System Water Loss Management and Control									
System Wide Water Audits	V	P		X	X	X		X	
Leak Detection and Repair	V			X					The system is fairly new and very efficient. Staff would like to Audit the system prior to pursuing a leak detection and repair program.
Water Line Replacement Program	V	P		X	X	X		X	
Planning									
Master Plans/Water Supply Plans		E	All Categories	X	X	X			Water Supply planning is ongoing. Difficult to estimate measurable water savings benefits.
Capital Improvement Plans		E	All Categories	X	X	X			CIP are part of the Town's ongoing planning regime. Difficult to estimate measurable water savings benefits.
Feasibility Studies			All Categories						No feasibility studies are planned at this time
Staff									
Water Conservation Coordinator			All Categories	X					No Funds are available at this time

Notes:

[1] This column provides a list of possible activities.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Identifies whether the activity is "Existing" or a "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] Specifies which customer category (Residential Res, Multi-Family M-F, commercial Com, Industrial Ind, Parks or Open Space) is/would be impacted by the activity.
[5] Screening criteria based on qualitative goals developed in Step 3.
[6] Based on the screening process, indicates which activities will be carried onto the evaluation phase with an "X".
[7] Why an activity was eliminated via screening.

WORKSHEET E - IDENTIFICATION AND SCREENING OF TARGETED TECHNICAL ASSISTANCE INCENTIVES

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification					Qualitative Screening [6]				Carry to Evaluation [7]	Reason for Elimination [8]
		Existing/ Potential Activity [3]	SWSI Framework Levels [4]			Targeted Customer Category [5]	*Benefit in Water Savings*	*Staff Approval and Availability*	*Town Board and Public Approval*	Notes on Additional Pros/Cons to Consider		
			Level 1 Municipal Uses	Level 2 Customers with the Largest Water Use	Level 3 Customer Type(s) in Service Area							
Installation of Water Efficient Fixtures and Appliances												
Indoor Audits	I			X	X	Res, M-F, Com						Lack of staff to implement these activities possible legal issues and contraints
Toilet Retrofits	I			X	X	Res, M-F, Com						
Urinal Retrofits	I			X	X	Res, M-F, Com						
Showerhead Retrofits	I			X	X	Res, M-F						
Faucet Retrofits (e.g. aerator installation)	I			X	X	Res, M-F, Com						
Water Efficient Washing Machines	I			X	X	Res, M-F						
Water Efficient Dishwashers	I			X	X	Res, M-F						
Efficient Swamp Cooler and Air Conditioning Use	I			X	X	Res, M-F, Com						
Low Water Use Landscapes												
Installation of Water Efficient Irrigation Controls on Park Irrigation Systems	II	E	X			Parks	X	X	X		X	
Installation of Water Efficient Irrigation Controls on HOA Irrigation Systems	II	P			X	Open Space	X	X	X		X	
Irrigation Audits for Town Parks	I, V	E	X			Parks	X	X	X			Town will use recommendations from existing audit performed in 2011
Removal of Phreatophytes	II		X	X	X	Res, M-F, Com, Parks, Open Space	X					Town does not have any large water use phreatophytes w/in the system that require removal. Unfavorable to public and coucil
Irrigation Efficiency Evaluations/Outdoor Water Audits	II			X	X	Res, M-F, Open Space	X					Town staff will evaluate further with future planning efforts
Residential Outdoor Meter Installations	II			X	X	Res, M-F	X					Lack of staff and funding would make this activity difficult to manage
Xeriscape	II		X	X	X	Res, M-F, Com, Parks, Open Space						Town will evaluate Xeriscape activities for future planning efforts.
Water- Efficient Industrial and Commercial Water-Using Processes												
Specialized Nonresidential Surveys, Audits and Equipment Efficiency Improvements	III			X	X	Com, Ind	X					Town will evaluate activities that specifically target commercial and Industrial customers in future planning efforts. Currently, these categories make up 10.5% of total water use. Town will focus staff time on other activities.
Commercial Indoor Fixture and Appliance Rebates/Retrofits	III			X	X	Com, Ind						
Cooling Equipment Efficiency	III			X	X	Com, Ind						
Restaurant equipment	III			X	X	Com, Ind						
Incentives												
Toilet Rebates	X	E		X	X	Res, M-F	X	X	X		X	
Water Efficient Washing Machine Rebates	X	E		X	X	Res, M-F						Please refer to the *Past and Current Demand Management Activities and Impact to Demands* section of this plan for explaination of activity elimination.
Urinal Rebates	X			X	X	Res, M-F, Com						Not interested in further evaluation
Showerhead Rebates	X			X	X	Res, M-F						Showerheads are included in Give-aways
Water Efficient Faucet or Aerator Rebates	X			X	X	Res, M-F						Faucet aerators are included in Give-aways
Water Efficient Dishwasher Rebates	X			X	X	Res, M-F						Not interested in further evaluation at this time
Landscape Water Budgets Information and Customer Feedback	X			X	X	Res, Com	X					Lack of staff to implement
Turf Replacement Programs/Xeriscape Incentives	X			X	X	Res, M-F, Com, Open Space						Not interested in further evaluation at this time
Give-aways	X	E			X	Res, M-F, Com		X	X		X	

Notes:

[1] This column provides a list of possible activities.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Identifies whether the activity is "Existing" or a "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] Specifies which level the historical/potential activities fall under by entering an "X" in the appropriate column.
[5] Specifies which customer category (Residential Res, Multi-Family M-F, commercial Com, Industrial Ind, Parks or Open Space) is/would be impacted by the activity.
[6] Screening criteria based on qualitative goals developed in Step 3.
[7] Based on the screening process, indicates which activities will be carried onto the evaluation phase with an "X".
[8] Why an activity was eliminated via screening.

WORKSHEET F - IDENTIFICATION AND SCREENING OF ORDINANCES AND REGULATIONS

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification					Qualitative Screening [6]				Carry to Evaluation [7]	Reason for Elimination [8]
		Existing/ Potential Activity [3]	SWSI Framework Levels [4] Level 1 Customer Type(s) within the Existing Service Area	Level 2 New Development	Level 3 Point of Sales on Existing Building Stock	Targeted Customer Category [5]	*Benefit in Water Savings*	*Staff Approval and Availability*	*Town Board and Public Approval*	Notes on Additional Pros/Cons to Consider		
General Water Use Regulations												
Water Waste Ordinance	IX	E	X			Res, M-F, Com, Ind, Open Space						Water savings would be difficult to evaluate
Time of Day Watering Restriction	IX	E	X			Res, M-F, Com, Ind, Open Space	X					Currently voluntary. Public response was positive with impressive water savings. No further evaluation.
Day of Week Watering Restriction	IX		X			Res, M-F, Com, Ind, Open Space	X					Any new regulations will be evaluated and implemented through the Town's Drought Management Plan
Water Overspray Limitations	IX		X			Res, M-F, Com, Ind, Open Space	X					
Landscape Design/Installation Rules and Regulations												
Rain Sensors Installed On New Properties	II	E			X	Res, M-F, Com, Open Space, Parks	X	X	X		X	
Wind Sensors Installed On New Properties Greater than 1 Acre	II	E		X	X	Res, M-F, Com, Open Space, Parks	X	X	X		X	
Rules and Regulations for Landscape Design/Installation	IX	E		X		Res, M-F, Com, Open Space	X	X	X			No further evaluation at this time
Landscaper Training and Certification	IX		X	X								Lack of staff to implement
Irrigation System Installer Training and Certification	IX		X	X								
Soil Amendment Requirements	IX	E		X			X	X	X			No further evaluation at this time
Irrigation Equipment Requirements	IX		X									Lack of staff. Not interested in further evaluation
Outdoor Water Audits/Irrigation Efficiency Regulations	IX		X									
Outdoor Green Building Construction	IX			X								
Indoor and Commercial Regulations												
High Efficiency Fixture and Appliance Replacement	IX		X		X	Res, M-F, Com						Lack of staff. Not interested in further evaluation
Commercial Cooling and Process Water Requirements	IX			X		Com						
Green Building Construction	IX			X		Res, M-F, Com						
Indoor Plumbing Requirements	IX			X		Res, M-F, Com						Included in existing plumbing code
Required Indoor Residential Audits	IX		X			Res, M-F						Lack of staff. Not interested in further evaluation
Required Indoor Commercial Audits	IX		X			Com						
Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.)	IX			X		Com						

Notes:

[1] This column provides a list of possible activities.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Identifies whether the activity is "Existing" or a "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] Specifies which level the activities fall under by entering an "X" in the appropriate column.
[5] Specifies which customer category (Residential Res, Multi-Family M-F, commercial Com, Industrial Ind, Parks or Open Space) is/would be impacted by the activity.
[6] Screening criteria based on qualitative goals developed in Step 3.
[7] Based on the screening process, indicates which activities will be carried onto the evaluation phase with an "X".
[8] Why an activity was eliminated via screening.

WORKSHEET G - IDENTIFICATION AND SCREENING OF EDUCATION ACTIVITIES

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification					Qualitative Screening [6]				Carry to Evaluation [7]	Reason for Elimination [8]
		Existing/ Potential Activity [3]	SWSI Framework Levels [4]			Targeted Customer Category [5]	*Benefit in Water Savings*	*Staff Approval and Availability*	*Town Board and Public Approval*	Notes on Additional Pros/Cons to Consider		
			Level 1 One-Way	Level 2 One-Way with Feedback	Level 3 Two-way communication							
Customer Education												
Bill Stuffers	VI	E	X			Res, M-F, Com, Ind	X	X	X		X	
Historic Water Usage Provided on Water Bills	VI	E	X			Res, M-F, Com, Ind	X	X	X		X	
Newsletter	VI	E	X			Res, M-F, Com, Ind	X	X	X		X	
Water Efficiency Page on Town Website	VI	E	X			Res, M-F, Com, Ind	X	X	X		X	
K-12 Education Program	VI	E	X			Res, M-F	X	X	X		X	
Water Booth at Town Events	VI	E	X			Res, M-F, Com						Town does not wish to expand upon this activity at this time.
Interactive Websites	VI			X		Res, M-F, Com, Ind						Town will continue to utilize Water Efficiency Page on Website
Newspaper Articles	VI		X			Res, M-F, Com						Do not have a Town paper
Mass Mailings	VI		X			Res, M-F, Com, Ind						Town would prefer to use bill stuffers rather than mass mailings for messaging
Water Fairs	VI		X			Res, M-F						Lack of public interest
Social Networking (e.g. Facebook)	VI	E		X		Res, M-F, Com, Ind		X	X			Town does not wish to expand their social media water efficiency messaging activities, at this time
Customer Surveys	VI	E		X		Res, M-F, Com, Ind		X	X			A number of questions specific to water efficiency are included in the annual Town survey
Focus Groups	VI				X	Res, M-F, Com, Ind						Not interested at this time. Town will evaluate with future planning efforts
Citizen Advisory Boards	VI				X	Res, M-F, Com, Ind						
Technical Assistance												
Customer Water Use Workshops	VI			X		Res, M-F, Com	X					Because of lack of staff time and funding, the Town recommends customers seek these opportunities through other organizations (i.e. Northern Water)
Landscape Design and Maintenance Workshops	VI			X		Res, M-F, Com, Open Space	X					
Xeriscape Demonstration Garden	VI		X			Res, M-F, Com, Open Space						
Water Conservation Expert Available	VI			X		All Categories	X					Not feasible at this time. Town will evaluate through future planning efforts.

Notes:

[1] This column provides a list of possible activities.

[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.

[3] Identifies whether the activity is "Existing" or a "Potential" activity to carry through screening by entering an "E" or "P", respectively.

[4] Specifies which level the activities fall under by entering an "X" in the appropriate column. Level 1 - Info is conveyed w/out tracking. Level 2 - Info is conveyed and feedback is received. Level 3 - Customers are actively engaged in developing and implementing the water efficiency plan.

[5] Specifies which customer category (Residential Res, Multi-Family M-F, commercial Com, Industrial Ind, Parks or Open Space) is/would be impacted by the activity.

[6] Screening criteria based on qualitative goals developed in Step 3.

[7] Based on the screening process, indicates which activities will be carried onto the evaluation phase with an "X".

[8] Why an activity was eliminated via screening.

APPENDIX C

Activity Cost and Benefit Analysis

Automatic Water Meter Reading Installation and Operations - Existing Activity

In 2012, the Town of Firestone installed a new meter reading system that allows water meters to be read hourly down to a single gallon of water. The system allows water customers to view and manage their water usage through AquaHawk, which is secure website where customers can set up alerts for notification on possible water leaks, irrigation usage issues, promote water conservation, set monthly water usage budgets and receive alerts if a set budget is going to be exceeded.

Planning Period	2015 to 2024
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Customer Category	Avg. Annual Water Use over Planning Period (MG)	Estimated Annual Savings Rate	Estimated Annual Water Savings (MG/yr)
Non-Revenue Water	49.65	1%	0.050
Residential	548.95	3%	1.647
Multi-Family	3.64	1%	0.004
Commercial	74.71	0.5%	0.037
Industrial	5.03	0.25%	0.001
Open Space	50.92	0.5%	0.025

Estimated Annual Water Savings	**1.76**	MG/yr
Estimated Savings over Planning Period	**17.64**	MG

Notes:

Estimated savings rate are used until more data can be obtained to establish an actual savings rate.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	45	/year
Hourly Cost	$50.00	/hour
Annual Labor	**$2,250.00**	/year

AquaHawk Service Fees

Monthly Fee	$200.00	
Annual Cost	**$2,400.00**	/year

Notes:

Annual labor costs are for implementing the program, including website access. Estimated annual staff time is estimated at approximately 45 hours. This time includes water savings tracking.

The revenue calculations do not include the base fee since the base fee does not cover any usage volume.

Estimated Revenue assumes that the current rates will not change over the planning period.

Water Rates

Rate Category	Average Monthly Usage (gals/tap)	Current Rates/Fees (per 1,000 gals)
Residential usage Fee - *first two* usage *rates split*	11,608	$2.49
Multi-Family Fee - *first two usage rates split*	15,233	$2.49
Commercial fee - fixed rate for all usage	121,353	$2.80
Industrial fee - fixed rate for all usage	106,383	$2.80
Open Space fee - fixed rate for all usage	106,383	$4.26

Estimated Average Annual Revenue without Water Savings	$1,816,106.52	/year
Estimated Average Annual Revenue with Water Savings	$1,811,780.23	/year
Estimated Annual Revenue Loss Related to Water Savings	$4,326.29	/year

Estimated Annual Cost	**$8,976.29**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$26,250.00**	
Estimated Total Cost over Planning Period Including Lost Revenue	**$89,762.92**	
Cost per 1000 Gallons Saved	**$5.09**	

Proactive Meter Testing and Replacement

Existing meters are tested periodically for leaks and accuracy and are replaced as necessary. Faulty meters account for apparent losses, or losses due to meter inaccuracies, and real losses also known as physical losses.

Planning Period	2014 to 2023
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Annual Estimated Savings Rate	0.25%	
Annual Estimated Water Production without Savings	759	MG/yr
Estimated Water Production over Planning Period without Savings	8,348	MG
Estimated Annual Water Savings	**1.90**	MG/yr
Estimated Savings over Planning Period	**18.97**	MG

Notes:

2013 system leakage/loss rate was 6%. Natural Resources Defense Council estimate 10% of homes have leaks that waste 90 gals or more per day. These leaks are often unaccounted for in faulty meters.

Because meters were recently replaced (2012), we do not anticipate a significant annual savings.

Costs

Total Cost to Water Provider

Materials Costs		
Unit Cost	$150.00	/participant
Number of Participants	25	/year
Annual Materials	**$3,750.00**	/year

The $150 unit cost includes meter testing, replacement costs, and labor.

Estimated Annual Cost	**$3,750.00**	/year
Estimated Total Cost over Planning Period	**$37,500.00**	
Cost per 1000 Gallons Saved	**$1.98**	

Water Efficient Rate Structure with Regular Updates to Rate Study - Existing Activity

Based on many studies, an water efficient water rate most effectively encourages efficient water use. A rate study may be necessary to ensure maximum water conservation savings.

Planning Period	2015 to 2024
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Customer Category	Average Water Use (MG/yr)	Annual Estimated Savings Rate	*Estimated Annual Water Savings (MG/yr)*
Residential	548.95	5%	27.45
Multi-Family	3.64	2%	0.07
Commercial	74.71	2%	1.49
Industrial	5.03	2%	0.10
Open Space	50.92	10%	5.09

Estimated Annual Water Savings **34.21** MG/yr

Estimated Savings over Planning Period **342.07** MG

Notes:

Assumed a conservative reduction of per customer category of projected total billed water. Rate change studies have shown a greater savings (Southwest Florida Water Management District study - 13%).

Costs

Total Cost to Water Provider

Estimated Annual Cost	**$0.00** /year
Estimated Total Cost over Planning Period Including Set-up	**$0.00**
Cost per 1000 Gallons Saved	**$0.00**

Notes:

General costs and revenue loss are absorbed by the usage rates customers pay.

System Wide Water Audits - Leak Detection and Repair Program

This measure would include leak detection and repair for Town water delivery infrastructure.

Planning Period	2014 to 2023
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Annual Estimated Savings Rate	0.25%	
Annual Estimated Water Production without Savings	809.7	MG/yr
Estimated Water Production over Planning Period without Savings	8,907	MG
Estimated Annual Water Savings	**2.02**	MG/yr
Estimated Savings over Planning Period	**22.27**	MG

Notes:

2013 system leakage/loss rate was 6%.

The estimated production (without savings) equals the current projected water usage including metered and non-revenue water.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	20	/year
Hourly Cost	$50.00	/hour
Annual Staff Costs	$1,000.00	
Third Party Costs (Leak Detection Consult)	$10,000.00	/year
Evaluation and Follow-up Costs (Labor/Consultant)	$1,000.00	/year
Annual Labor	**$12,000.00**	/year

Notes:

Third Party Costs include:
- Leak survey preformed annually by a consultant.

Annual staff costs include coordination with consultants.

Estimated Annual Cost	**$12,000.00**	/year
Estimated Total Cost over Planning Period Including Set-up	**$120,000.00**	
Cost per 1000 Gallons Saved	**$5.39**	

Requiring Rain Sensors for New Properties - Existing Activity

This activity was initiated in 2003 and requires rain sensors for all houses/commercial structures built in new Town developments.

Planning Period	2015 to 2024	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	Average Outdoor Water Use Over Planning Period (MG)	Annual Estimated Savings Rate	*Estimated Annual Water Savings (gallons/yr)*
Residential	321	5%	1,605,066
Multi-Family	0.35	1%	353
Commercial	39.1	0.25%	9,773
Open Space	51	5%	254,576

Estimated Annual Water Savings	**1.87**	MG/yr
Estimated Savings over Planning Period	**18.70**	MG

Notes:

Estimated assumes all Open-Space use is outdoor use and the outdoor potion of use for the other categories is based on following percentages calculated from average 2009-2013 data:
** Residential 58.5%*
** Multi-Family 9.7%*
** Commercial 52.3%*

Colorado Water Wise estimates a total water savings of 5-20% can be achieved for best practice landscaping, resulting in elimination of over-irrigation, compared to poorly designed, installed, and maintained landscaping.

Program has already been implemented and costs are absorbed by the customers. Because this program is for new properties, revenue losses are not considered

Estimated Annual Cost	**$0.00**	/year
Estimated Total Cost over Planning Period Including Set-up	**$0.00**	
Cost per 1000 Gallons Saved	**$0.00**	

Requiring Wind Sensors for New Properties Irrigating more than 1-acre - Existing Activity

This regulation, initiated in 2003, requires wind sensors for new properties irrigating more than 1-acre.

Planning Period	2015 to 2024	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Residential, M-F, and Commercial Irrigation Lots > 1.0 acres	5%
Annual Estimated Savings Rate	5%

Customer Category	Average Outdoor Water Use Over Planning Period (MG)	*Estimated Annual Water Savings (gallons/yr)*
Residential	321	80,253
Multi-Family	0.4	88
Commercial	39	9,773
Open Space (assume all > 1.0 irrigated acres)	51	12,729

Estimated Annual Water Savings	**0.10**	MG/yr
Estimated Savings over Planning Period	**1.03**	MG

Notes:

Estimated outdoor potion of use based on following percentages calculated from average 2009-2013 data:
** Residential 58.5%*
** Multi-Family 9.7%*
** Commercial 52.3%*

Estimate assumes all Parks and Open Space category use is outdoor use.

Program has already been implemented and costs are absorbed by the customers. Because this program is for new properties, revenue losses are not considered

Estimated Annual Cost	**$0.00**	/year
Estimated Total Cost over Planning Period Including Set-up	**$0.00**	
Cost per 1000 Gallons Saved	**$0.00**	

Installation of Water Efficient Irrigation Controls on Park Irrigation Systems - Existing Activity

The Town of Firestone currently has Irrigation System Efficiency Devices or ET irrigation system controllers, that are predominantly Rain based sensors called Rain Master iCentral controlled irrigation systems, installed at a number of parks. The Town would like to install these meters at all parks.

Planning Period	2015 to 2024	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	0.87	acre-foot per irrigated acre

Customer Category	Irrigated Acreage of Town Parks Converted through 2013 (acres)	Irrigated Acreage of Town Parks to be Converted (acres)	Estimated Annual Water Savings for Town Parks to be Converted (ac-ft/yr)
Parks	56.0	31.5	27.3

Estimated Annual Water Savings of Parks Already Converted	**15.81**	MG/yr
Estimated Annual Water Savings of Parks to be Converted	**8.91**	MG/yr
Total Estimated Savings	**24.72**	MG/yr
Estimated Savings over Planning Period	**247.17**	MG

Notes:

The amount of water that can be saved through improved programming of an irrigation system controller varies but is estimated to be at least 10% to 15%. The Town's own savings with the iCentral controllers when used on the 56 acres of irrigated parks, saved approximately 32% or 0.87 AF/acre of water usage between 2011 (typical year) and 2013.

Costs

Annual Labor Costs		
Staff Hours	50	/year
Hourly Cost	$50.00	/hour
Annual Labor	**$2,500.00**	/year

Material Costs		
iCentral Controller Material Cost	$4,700.00	/unit
Estimated Number of Controllers	12	
Unit Installation Labor/Material Cost	**$56,400.00**	

Notes:

An iCentral controller is approximately $4,700. The Town needs approximately 12 more controllers installed for all of the parks to be converted.

Labor costs include staff time for installing systems on additional parks, maintenance, and operation of existing systems.

There is no revenue loss with this measure since it only applies to the Town controlled parks.

Estimated Annual Cost	**$8,140.00**	/year
Estimated Cost over Planning Period	**$81,400.00**	
Cost per 1000 Gallons Saved	**$0.33**	

Installation of Water Efficient Irrigation Controls on HOA Irrigation Systems

The Town of Firestone is proposing to work with Open Space customers to install Irrigation System Efficiency Devices or ET irrigation system controllers on the Open Space irrigated areas. These controllers are predominantly Rain based sensors called Rain Master iCentral controlled irrigation systems.

Planning Period	2015 to 2024	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	13%	Percent/Irrigation Controller

Customer Category	Average Water Use per tap (MG)	Estimated No. of Taps Converted per Year	Estimated Annual Water Savings for Taps (MG/yr)
Open Space	2.2	4	1.1

Estimated Annual Water Savings	**1.08**	MG/yr
Estimated Savings over Planning Period	**59.50**	MG

Notes:

Estimated Water Use is based on the *following 2009-2013 average: Open Space = 6.64 af/tap (max from data provided by Town). The amount of water that can be saved through improved programming of an irrigation system controller varies but is estimated to be at least 10% to 15%. The Town's own savings when used on their irrigated parks, saved approximately 32%, for approx. 8 installed controllers.*

Costs

Annual Labor Costs

Staff Hours	10	/year
Hourly Cost	$50.00	/hour
Annual Labor	**$500.00**	/year

Material Costs per HOA Tap Converted

iCentral Controller Material Cost	$4,700.00	/unit
Portion of iCentral Controller Cost Covered by Town	100%	
Cost of iController Covered by Town	$4,700.00	
Estimated Number of Controllers	40	
Total Material Cost	**$188,000.00**	

Open-Space (HOA) Conversion

Rate Category	Current Rates/Fees (per 1,000 gals)
Open Space fee - fixed rate for all usage	$4.26

Notes:

An iCentral controller costs approximately $4,700.

Labor costs include staff time for processing documents and following-up to ensure controllers are installed and operating correctly. The HOA will be covering the cost of installing and operating the controllers, but the Town proposes to cover the cost of the iCentral controllers.

The annual revenue loss was estimated based on current Open-Space tap rates per 1,000 gallons.

Estimated Revenue assumes that the current rates will not change over the planning period.

Estimated Average Annual Revenue without Water Savings	**$110,993.55**	/year
Estimated Average Annual Revenue with Water Savings	**$97,119.36**	/year
Annual Revenue Loss Related to Water Savings	**$13,874.19**	/year

Estimated Annual Cost	**$33,174.19**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$193,000.00**	
Estimated Total Cost over Planning Period Including Lost Revenue	**$331,741.94**	
Cost per 1000 Gallons Saved	**$5.58**	

Residential Low-Flow Toilet Rebate - Existing Activity

The Toilet Rebate program offers a $75.00 rebate for the installation of qualifying high-efficiency toilets purchased after April 1, 2010. Qualifying toilets are low flush (1.28 gallons/flush or less) and dual flush toilets.

Planning Period	2015 to 2024
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Annual Estimated Percent Savings	**18%**

Annual Estimated Water Use Per Tap without Savings

Customer Category	Water Use Per Tap gallons/tap	Annual Program Participants/taps
Residential	139,297	25

Estimated Annual Water Savings	**0.63**	MG/yr
Estimated Savings over Planning Period	**34.48**	MG

Notes:

Estimated Water Use is based on the *following 2009-2013 average:*
Residential = 0.43 af/tap

A rebate would be available for toilets using 1.28 gallons per flush or dual flush toilets.

Savings based on 2009-2014 Toilet Rebate program data provided by Town of Firestone staff. After the data was filtered, calculated savings came to 18% for this Cost/Benefit analysis.

Estimated Savings over Planning Period is calculated by compounding the estimated annual water savings per the total number of audit participants for each given year.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	70	/year
Hourly Cost	$50.00	/hour
Annual Labor	$3,500.00	/year

Rebates

Rebate Cost	$75.00	
Number of Participants	20	/year
Annual Rebate Cost	**$1,500.00**	

Notes:

Annual staff time is estimated at approximately 25 hours. This time includes water savings tracking.

Water Rates

Rate Category	Average Monthly Usage (gals/tap)	Current Rates/Fees (per 1,000 gals)
Residential usage Fee *- first two* usage *rates split*	11,608	$2.49

Notes:

Revenue losses are only based on the water use and do not include the base rates.

Estimated revenue assumes that the current rates will not change over the planning period.

Estimated Average Annual Revenue without Water Savings	$47,691.81	/year
Estimated Average Annual Revenue with Water Savings	$39,107.28	/year
Annual Revenue Loss Related to Water Savings	**$8,584.53**	/year

Estimated Annual Cost	**$13,584.53**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$50,000.00**	
Estimated Total Cost over Planning Period Including Lost Revenue	**$135,845.26**	
Cost per 1000 Gallons Saved	**$3.94**	

Give-Aways (Educational Kits)- Existing Activity

The Town gives-away faucet aerators and low-flow shower heads at Town events for the public.

Planning Period	2015 to 2024
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Annual Estimated Savings Rate: 0.50%

	Water Use (gallons/tap)	Annual Program Participants	Estimated Annual Water Savings (gallons/yr)
Residential	139,297	200	139,297
Multi-Family	182,794	25	22,849

Estimated Annual Water Savings **0.16** MG/yr

Estimated Savings over Planning Period **8.92** MG

Notes:

Estimated Savings over Planning Period is calculated by compounding the estimated annual water savings per the total number of participants for each given year. Estimated Water Use is based on the following 2009-2013 average:
Residential = 0.43 af/tap Potable Multi-Family = 0.56 af/tap

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours (Website updates, etc.)	8	/year
Hourly Cost	$50.00	/hour
Annual Labor	**$400.00**	/year

Notes:

Residential water conservation educational kits are available at wholesalers like AM Conservation Group, Inc. for $5.99 per unit for a bulk purchase of kits. Kits can be customized to include the Firestone's logo.

Give Aways per Year

Give Away Kits per Year	**225**	/year
Materials Cost (estimated at $6.00 per kit)	**$1,350.00**	/year

Water Rates

Rate Category	Average Monthly Usage (gals/tap)	Current Rates/Fees (per 1,000 gals)
Residential usage Fee *- first two* usage *rates split*	11,608	$2.49
Multi-Family Fee *- first two usage rates split*	15,233	$2.49

Notes:

The annual revenue loss was estimated based on current rates for all Town customers.

Estimated revenue assumes that the current rates will not change over the planning period.

Estimated Average Annual Revenue without Water Savings	$37,009.87	/year
Estimated Average Annual Revenue with Water Savings	$36,824.82	/year
Annual Revenue Loss Related to Water Savings	**$185.05**	/year

Estimated Annual Cost	**$1,935.05**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$17,500.00**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$19,350.49**	
Cost per 1000 Gallons Saved	**$2.17**	

Educational Activities

Analysis of costs and benefits for educational activities are combined as shown below. Activities include Bill Stuffers, Historic Water Usage Provided on Water Bills, Newsletter, Water Efficiency Page on Town Website and K-12 Education Program.

Planning Period	2015 to 2024
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Customer Category	Avg. Annual Water Use over Planning Period (MG)	Estimated Annual Savings Rate	Estimated Annual Water Savings (MG/yr)
Residential	548.95	2.5%	13.72
Multi-Family	3.64	1%	0.04
Commercial	74.71	1%	0.75
Industrial	5.03	0.5%	0.03

Estimated Annual Water Savings 14.53 MG/yr

Estimated Savings over Planning Period **145.32** MG

Notes:

K-12 Education Program only affects projected Residential and Multi-Family water usage.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	180	/year
Hourly Cost	$50.00	/hour
Annual Labor	**$9,000.00**	/year

Materials Costs

Unit Cost (cost of Bill Stuffers)	$0.75	/participant
Avg. Number of Participants (receiving bill stuffers) over Planning Period	4,106	/year
Annual Materials	**$3,079.74**	/year

Water Rates

Rate Category	Average Monthly Usage (gals/tap)	Current Rates/Fees (per 1,000 gals)
Residential usage Fee - *first two* usage *rates split*	11,608	$2.49
Multi-Family Fee - *first two usage rates split*	15,233	$2.49
Commercial fee - fixed rate for all usage	121,353	$2.80
Industrial fee - fixed rate for all usage	106,383	$2.80

Estimated Average Annual Revenue without Water Savings	$1,599,207.54	/year
Estimated Average Annual Revenue with Water Savings	$1,562,782.49	/year
Estimated Annual Revenue Loss Related to Water Savings	**$36,425.05**	/year

Estimated Annual Cost	**$48,504.79**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$120,797.37**	
Estimated Total Cost over Planning Period Including Lost Revenue	**$157,222.42**	
Cost per 1000 Gallons Saved	**$1.08**	

Notes:

Staff hours include time spent preparing newsletter, updating website, preparing bill stuffers and for the K-12 Education Program.

In 2013 there was an average of 3,250 active tap accounts, not including the Parks and Open-Space category. The average affected number of taps during the planning period is projected to be 4,113.

The AWWA has bill stuffers available for purchase. Average cost per bill stuffer ranged from $0.50 to $0.75 per item. The Town may also purchase bi-lingual bill stuffers and offer bi-lingual information on their website.

The annual revenue loss was estimated based on current rates for all Town customers and assumes rates will not change over the planning period.

APPENDIX D

Public Comments and Plan Adoption

AFFIDAVIT OF PUBLICATION

TIMES-CALL

State of Colorado
County of Boulder

I, the undersigned agent, do solemnly swear that the LONGMONT TIMES-CALL is a daily newspaper printed, in whole or in part, and published in the City of Longmont, County of Boulder, State of Colorado, and which has general circulation therein and in parts of Boulder 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 19, 2015**.

TERRY LOWE

Agent

Subscribed and sworn to before me this 19th day of **February, 2015** in the County of Boulder, State of Colorado.

Melissa L. Majera

Notary Public

Account #221841
Ad #5639612
Fee $16.02

MELISSA L MAJERA
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20064049936
MY COMMISSION EXPIRES DEC. 11, 2018

NOTICE OF WATER EFFICIENCY PLAN UPDATE
TOWN OF FIRESTONE

The Town of Firestone has completed a draft water efficiency plan update. The goal of the plan is for the Town to develop strategies and programs for efficient and sustainable water use. The Town implemented mandatory watering restrictions in 2003 and since has requested voluntary participation from its residents to not water between 10am and 6pm. Before finalizing the water efficiency plan update, the Town welcomes input from its residents. The Town shall have a 60-day public review period beginning the date of this notice through April 20, 2015. A complete draft copy will be kept at Town Hall located at 151 Grant Avenue for your review. The Town will also post the draft plan on its website at www.firestoneco.gov. All written comments are due to Julie Pasillas, prior to April 20, 2015 at P.O. Box 100, Firestone, CO 80520 or may be dropped off at Town Hall located at Town Hall located at 151 Grant Avenue.

TOWN OF FIRESTONE
Carissa Medina, Town Clerk
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