FIRESTONE

A COMMUNITY IN MOTION

TOWN OF FIRESTONE

2012 DROUGHT MANAGEMENT PLAN

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EXECUTIVE SUMMARY

The Town of Firestone is located approximately 30 miles north of Denver along the Colorado Front Range. The Town's population in 2000 was 1,980 and exploded to 10,147 people in 2010. Currently, Colorado Big Thompson (CBT) water is Firestone's only water supply and the Town is looking to protect this resource and its constituents in times of a drought. The Town currently has a raw water master plan and a water conservation plan and believes this document will serve as another tool in their water resource planning toolbox.

Both drought plans and water conservation plans are designed to reduce water demands. The primary difference is drought plans are geared towards short-term mitigation actions to increase water supplies or reduce use and water conservation plans focus on long-term demand reductions through water conservation measures.

Planning Process

To develop an effective drought management plan, the Town followed a stakeholder review process. The stakeholders reviewed the plan throughout the process and provided valuable feedback for plan development. The Town developed a list of water use priorities, which guided the development of the document:

1. Health and Safety (all indoor uses for all customer categories)
2. Hydrant - New construction/dust control
3. Outdoor public (Tier 1 parks and outdoor irrigation for schools)
4. Outdoor residential and low priority parks (Tier 2 parks)
5. Outdoor business (commercial and industrial)
6. Private outdoor areas (HOA irrigated areas)

Drought Stages

Municipalities typically acquire water supplies from development before the development actually occurs. Since the Town's water supplies versus its demands fluctuate with time, a Water Supply Index (WSI) was created as a trigger to various drought stages.

$$\boldsymbol{WSI} = \frac{\boldsymbol{Supply}}{\boldsymbol{Demand}} = \frac{\boldsymbol{Carryover(last)} + \boldsymbol{(CBT\ Quota * No.of\ CBT\ Units)}}{\boldsymbol{(Demand * 130\%) + Carryover\ (next)}}$$

The inputs for supply are the CBT carryover from the previous year plus the number of CBT units the Town owns multiplied by the current CBT quota. The inputs for demand are the previous year's demand plus 10% for growth and a 20% surcharge for Central Weld (30% total) plus the estimated CBT carryover for next year.

The four stages of drought are shown below. The first level is a "Sustainable" level, which incorporates the on-going water saving practices by the Town and water customers. The trigger for this stage is a WSI over 110%. An example of an on-going measure is voluntary watering restrictions between 10 am and 6 pm. There is no targeted water savings with this level, even though water savings is occurring.

Table ES.1 – Drought Stages for the Town of Firestone

Drought Stage	Water Supply Index	Response Targets
Sustainable Level	>110%	None
Warning	101 – 109%	5-10%
Critical	90 – 100%	20-40%
Emergency	< 90%	40-60%

The second stage is a "Warning" level in which the supplies are reduced but still greater than the demand. The trigger for this stage would be a WSI = 101 to 109% with an estimated water savings of 5-10%. During this stage, the Town begins to get into place actions that should be ready to implement should the next stage of drought occur, such as a permit system for new landscaping. Mandatory three-day-a-week watering restrictions will be implemented for HOA's and business customers at this stage.

The third level of drought is a "Critical" level in which supplies have fallen below demand and the trigger is a WSI = 90 to 100%. This is a serious stage of drought in which the Town will evaluate leasing additional water from others. Mandatory two-day-a-week watering restrictions will be implemented for all water customers. Irrigation of new sod and landscape will be allowed by permit only. Irrigation of Tier 2 Town Parks will be restricted. Car washing will only be allowed at commercial car washes. The Town would consider implementing a drought surcharge or rate increase to further encourage water conservation and cover costs.

The last stage of drought is the "Emergency" level in which the WSI is anything less than 90%. This stage is the most serious and the Town starts to prohibit outdoor irrigation for all water use customers and allows restricted irrigation of the Town's most important Tier 1 parks (i.e., Sports Complex, Hart Park, Settlers Park and Patterson Park). The Town actively pursues leasing water from farmers and other entities. If interconnects with others exist, the Town will pursue acquiring water from those sources. All other restrictions from the "Critical" level will continue.

Here is an example to describe why using a WSI is important. The water supplies for 2003 were much different than in 2012. In 2003, the Town owned 3,696 CBT units with 693 acre-feet of carryover and the quota had been set at 50%. Central Weld calculated a demand of 1,170 acre-feet (including the 30%). This situation produced a WSI of 133% for the Town due to a much greater supply than demand. This correlates to the situation the Town described as being at the forefront of a lot of growth and having plenty of water they were able to lease to others. In 2012, the Town owned 4,823 CBT units with a calculated demand of 2,634 acre-feet from Central Weld which resulted in a

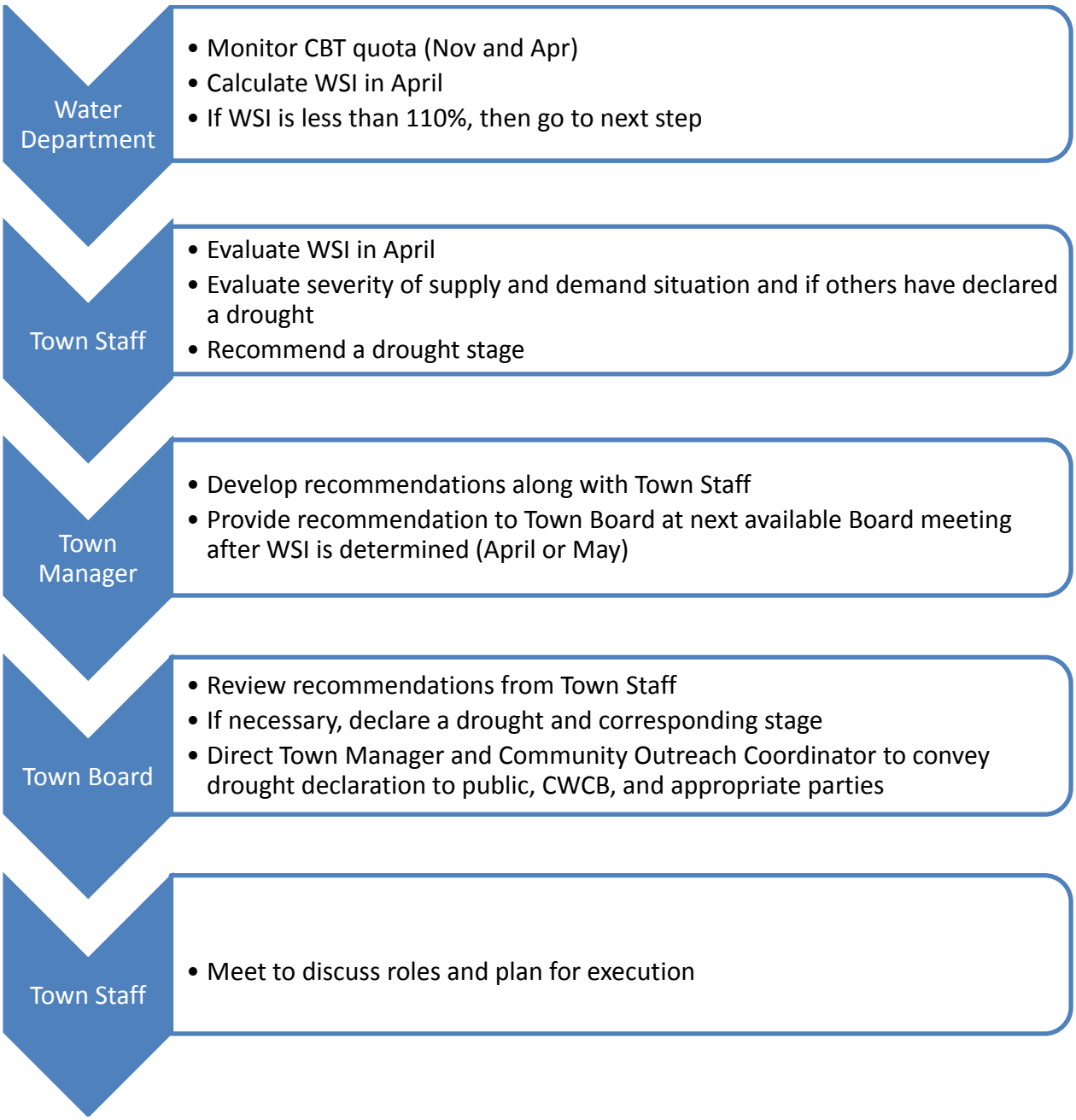
WSI of 95%. This puts the Town in a "Critical" Drought Stage, if the quota is not increased from the current 50% that was set in November 2011. In summary, a 50% CBT quota can mean two very different things depending on the Town's water supply and demand situation.

Drought Declaration

The Town will calculate a WSI every November when the quota is issued by Northern Colorado Water Conservancy District (Northern Water District). The WSI will be evaluated again in April when a potential supplemental quota is issued. At this point in the Water Year, the Town will want to declare the appropriate drought stage and take the proper measures. The Town will carefully monitor their water use as the irrigation year progresses. If the severity of the drought intensifies or weakens, the Town may choose to adjust measures accordingly.

The following steps will be taken to declare a drought:

Figure ES.1 – Steps for Drought Declaration



INTRODUCTION

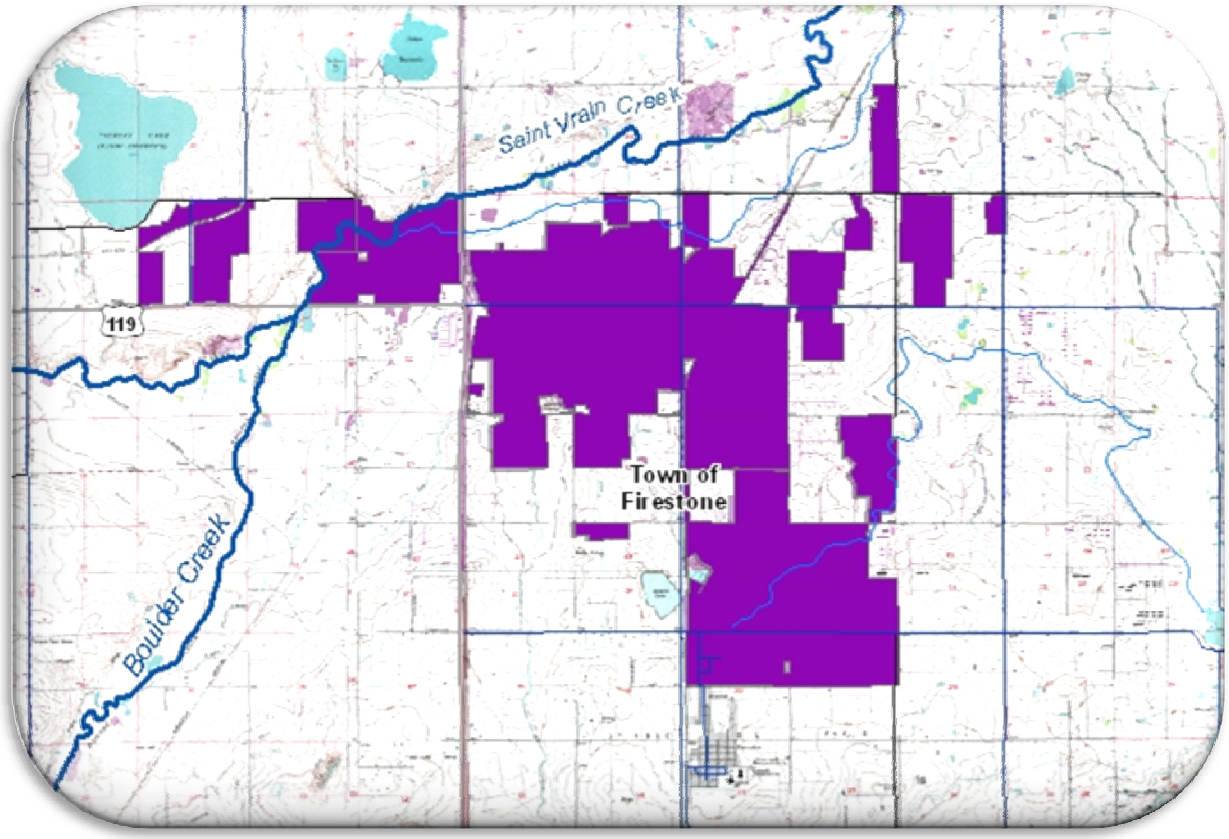
The Town of Firestone is located approximately 30 miles north of Denver along the Colorado Front Range. The Town's population in 2000 was 1,980 and exploded to 10,147 people in 2010. Currently, Colorado Big Thompson (CBT) water is Firestone's only water supply and the Town is looking to protect this resource and its constituents in times of a drought. The Town currently has a raw water master plan and a water conservation plan and believes this document will serve as another tool in their water resource planning toolbox.

I.1 Profile Existing 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 the figure below. The planning area for the Town encompasses 26 square miles.

Figure I.1 – Firestone Service Area



Firestone takes delivery of its CBT water from Central Weld County Water District (Central Weld). Central Weld treats water at the Carter Lake Filter Plant. Once treated, Central Weld delivers the water to the Town through a 25-mile pipeline delivery system. Over 95% of the Town's water system was installed after 1995 and is in excellent operating condition. Older pipe remains in the historic Old Town area and was installed in the 1970's. This older portion of the system primarily consists of 4-, 6- and 8-inch 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 pipe network needs to be replaced with larger capacity pipe to improve delivery, especially for fire suppression flows.

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. Firestone does not currently have a non-potable water system.

Existing Water Supplies

Firestone owns the CBT water it uses and transfers it 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 an additional 10% to meet anticipated growth in the coming year.

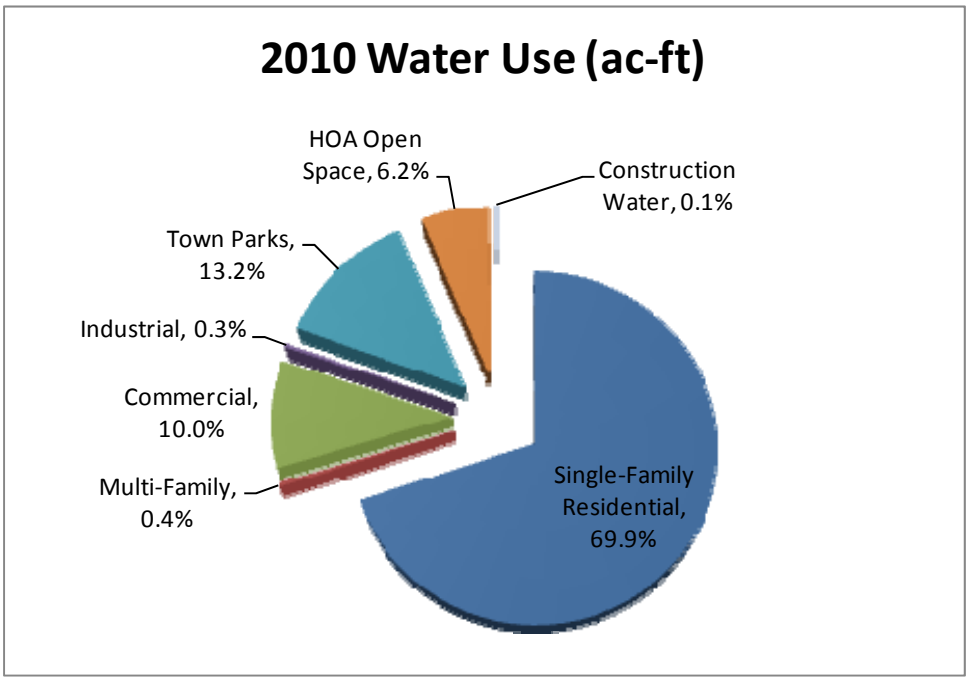
Every service connection on the Town's distribution system, regardless of use, is metered. All of the system meters are read monthly, and the Town is confident in the design of the system to account for all water use – including hydrant meters used by contractors that buy construction water from the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

Customer Water Use Profiles

Firestone's billing system tracks water usage for several customer categories: Single-Family Residential, Commercial, Industrial, Multi-family, Parks and HOA Open Space. In 2010, Firestone served 1,897 acre-feet of water, which is broken down as follows:

- Single-Family Residential - 1,325 acre-feet
- Multi-family - 8 acre-feet
- Commercial - 189 acre-feet
- Industrial - 6 acre-feet
- Parks - 250 acre-feet
- HOA Open Space - 117 acre-feet
- Construction Water - 2 acre-feet

Figure I.2 – 2010 Water Use



The overwhelming majority of the Town's potable water goes to Single-Family Residential water users. However, a significant portion also goes to Parks and HOA Open Space. At this time, there are not many big water users in the commercial and industrial sectors.

I.2 Drought Mitigation and Response Planning

A drought can be defined in many different ways. However, the most typical definition includes a lack of precipitation. Drought could also include a lack of stored reservoir water, a lack of soil moisture, etc. In general, drought is defined as a shortage of water supplies due to an extended period of lower than normal precipitation. What would impact CBT users such as Firestone the most, would be cumulative years of drought that would drain the CBT system or a fire that degraded water quality within the CBT system.

Impact of Drought on Town's Water Supplies

The CBT system is a robust system that 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. For the CBT system to have a reduction in yield it would have to have several dry years on both the west and east slopes, which is possible. During the 2002 drought, CBT system supplies were extremely low until the late March 2003 snowstorm replenished reservoirs and soil moisture conditions.

Future water supplies for the Town, in addition to CBT, include NISP and non-potable irrigation water. The NISP project will provide added water resources and reliability to Firestone's overall water portfolio. The reservoirs associated with the NISP project should add to the reliability of the Town's drought supplies. Further, Firestone is making plans to develop a non-potable irrigation system and altering its dedication policy to accept irrigation rights. The irrigation rights surrounding the Town are somewhat junior in nature, but a large planned reservoir at Firestone's future Central Park will help alleviate fluctuations in irrigation water deliveries. The planned non-potable irrigation system will take some pressure off of the Town's CBT and future NISP water, which provides added surety for drought supplies.

Purpose and Benefit of Drought Mitigation and Response Planning

Drought mitigation refers to the actions taken prior to a drought to help reduce the impact of a drought when it does occur. Drought response planning refers to the steps taken during a drought. For example, the action of declaring a drought when water supply and demand conditions meet certain trigger points is an action step for drought response planning.

The benefit of drought mitigation and response planning for the Town is that it can attempt to detect drought in its early stages and get several mitigation actions in place for when drought hits. This will decrease the impacts of the drought. Since Firestone's water supply relies on the CBT system, which has a large system of reservoirs, it will likely take several years of below average conditions for the Town to be in a serious drought.

I.3 Drought Planning Efforts

The Town does not currently have a drought plan in place. Firestone put mandatory watering restriction in place during the early part of 2003 when it appeared the 2002 drought was going to extend into the following year. These mandatory restrictions were revoked later in 2003 when the Northern Colorado Water Conservancy District (Northern Water District) raised the quota to a level that would not produce a shortfall for Firestone. The Town implemented several actions in response to the 2002 drought, some of which are still in place. Firestone requires all new residential and commercial lots to have a rain sensor installed before they are issued a building permit. A soils report must also be performed for every new lot, and the Town may incorporate recommendations from this report into the landscape plan.

I.4 Drought Planning and Water Conservation

Both drought plans and water conservation plans are designed to reduce water demands. The major difference is drought plans are concerned with short-term strategies to mitigate the impacts of reduced water supplies and likely increased water demands. Water conservation plans are focused on long-term demand reductions due

to the measures and programs that have been designed to reduce water use. However, there is some crossover as water conservation measures that result in ongoing reduction of demands can provide long-term drought mitigation benefits, such as requiring rain sensor on parks.

Table I.1 – Existing and On-going Water Conservation Practices

Conservation Measures
Voluntary watering restrictions from 10 a.m. to 6 p.m.
Toilet rebate program
Washing machine rebate program
Historic water usage provided on water bills
Water conservation page on website
Water waste ordinance
Wind and rain sensors must be installed on all new properties
Soil report must be performed on all new properties
Routine leak detection and repairs
Replace inaccurate meters
Three-tier rate structure with regular updates to rate study
Water efficient fixtures in Town buildings
Promote car washes to use re-circulation techniques
Performed irrigation audits on several Town parks

SECTION 1 – STAKEHOLDERS, OBJECTIVES AND PRINCIPLES

1.1 Stakeholder Committee

To develop an effective drought management plan, the Town followed a stakeholder review process. The stakeholders reviewed the plan throughout the process and provided valuable feedback for plan development. The stakeholders represented a wide variety of different disciplines that may be affected by drought.

The following is a list of the stakeholders:

Table 1.1 – Drought Plan Stakeholder Committee

Name	Job Description
Wes LaVanchy	Town Manager
Dave Lindsay	Town Engineer
Ron Lay	Finance Director
Theo Abkes	Public Works Director
Julie Pasillas	Water Department Director/Water Utility Clerk
Kristi Ritter	Communications Director

The Town held four meetings with the Stakeholder Committee as the plan was being developed. The stakeholders consisted primarily of Town staff. We added a meeting with the Town Board before we developed the Staged Drought Response Program in order to get feedback from all of the Board members instead of having just one of them as a Stakeholder. The Town attorney was also involved outside of the Stakeholder meetings to provide input on various aspects of the plan. However, he did not attend each stakeholder meeting to save on costs for the Town. The Town chose not to have members of the community on the Stakeholder Committee, but believes its public comment period will adequately provide a forum for the community to provide input.

The following is a list of the Stakeholder Meetings, Town Board Meetings and the Public-Review Process:

a. Project Kick-off Meeting – Discuss differences between water conservation planning and drought planning. Reviewed the Stakeholder process and potential stakeholder members.

b. Stakeholder Meeting #1 – Review objectives and list of water use priorities. Gather info for Step 2 (Historical Drought) and Step 3 (Drought Vulnerability) and Step 4 (Mitigation Strategies).

c. Stakeholder Meeting #2 – Gather information for Step 4 (Mitigation Strategies) and Step 5 (Drought Stages and Triggers).

d. Stakeholder Meeting #3 – Obtain feedback on preliminary drought stages and triggers.

e. Town Board Meeting – Obtain feedback on preliminary drought stages and triggers.

f. Stakeholder Meeting #4 – Review draft plan and provide comments.

g. Public-Review Period – Plan review period for citizens and local businesses was published in the local paper, notice was provided on the Town website and customer water bills (60 days)

h. Town Board Meeting – Present final draft to Board

1.2 Objectives of Drought Management Plan

The Town developed objectives for this plan and operating principles to help guide them in the overall development of the plan. This was completed to insure the final plan reflected the Town of Firestone's vision for its community.

The objectives for this Drought Management Plan are as follows:

1. Plan for droughts before they occur.
2. Identify and determine severity of droughts given knowledge of Town water supply and use.
3. Outline an approach for Town staff and decision makers to respond to a drought in an organized manner.

The Stakeholder Committee also developed a list of water use priorities and operating principles to help guide them in the development of the Drought Management Plan.

The water use priorities for the Town are as follows:

1. Health and Safety (indoor use for all customer categories).
2. Hydrant use for new construction and dust control.
3. Outdoor public (Tier 1 parks and outdoor irrigation for schools).
4. Outdoor residential and low-priority parks (Tier 1 parks)
5. Outdoor business (commercial and industrial)
6. Private outdoor areas (HOA irrigated areas)

The operating principles for the Town are as follows:

- Creation of this plan will include a stakeholder process and include input from the public during a 60-day comment period.

- Drought response actions should be implemented in a manner that reflects the priorities that have been listed with the highest priority being health and safety.

- Effective coordination among Town staff is vital to the success of this plan. Exceptions to this plan may be necessary but must be communicated clearly to all staff.

- Economic development is important to the Town and providing adequate drought protection for current and future residents is important to providing a healthy sustainable community for future generations.

The operating principles will also be used as guideposts for this Drought Management Plan process to insure that the implementation of the plan is following the original intentions of the committee.

SECTION 2 – HISTORICAL DROUGHT AND IMPACT ASSESSMENT

2.1 Historical Assessment of Drought, Available Supplies and Demands

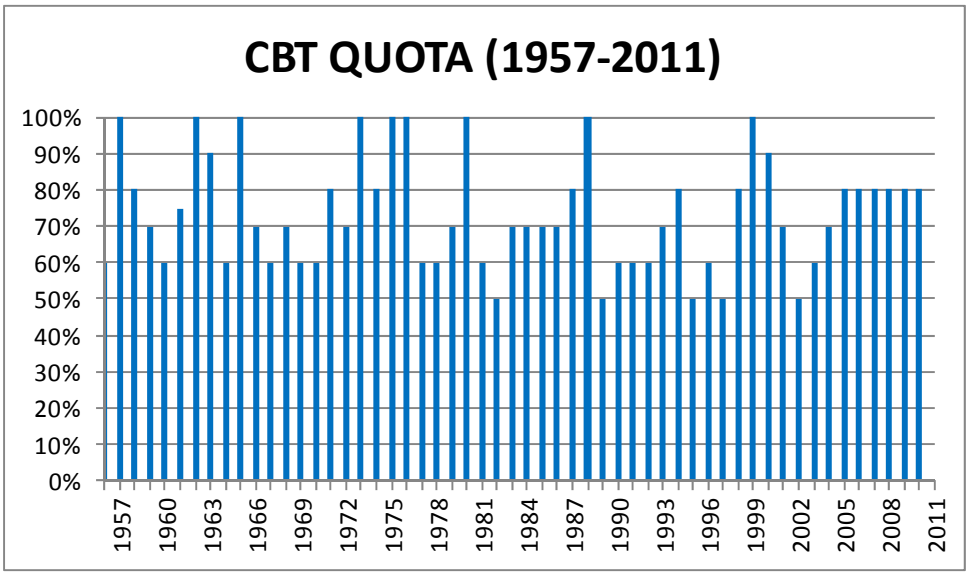
We evaluated the CBT system for Firestone since that is its current and historical supply of water. We met with Northern Water District staff to discuss the drought vulnerability of the CBT system. The system has approximately 740,000 acre-feet of gross storage and consists of 310,000 units. There is approximately 2.3 times the storage than would be needed to deliver a 100% quota. This gives the CBT system some drought reliability. The CBT system has an added advantage by diverting water from the West and East slope of Colorado. The system takes advantage of precipitation and snowpack occurring in several different areas, in case drought conditions are isolated to one region.

CBT facilities divert water from the western slope of Colorado to the Front Range to supplement the region's native water supplies. It is the largest trans-mountain water diversion project in Colorado. It was constructed by the Bureau of Reclamation between 1938 and 1957 and is maintained by the Northern Water District. 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 yield of CBT units is established each year by the Northern Water Board through what is known as the quota setting process. The basis for setting the quota is to attempt to make every year look like an average year. The Northern Water Board examines the region's native supplies and local storage before declaring a quota that meets the supplemental need of the region as a whole. As a result, the quota historically is lower in wet years because native supplies are plentiful and local reservoirs are full, so less CBT water is required to satisfy water demands. In dry years, the quota is historically higher to meet the higher demand for water. As CBT continues to transfer from agricultural to municipal use, the landscape of using the CBT project as a supplemental supply is changing.

In over fifty years of operation, the average yield has been 0.73 acre-feet per unit and the commonly used average quota is 70 percent. The yield has never been less than 0.50 acre-feet per unit (50 percent quota) or more than 1.0 acre-feet per unit (100 percent quota). The historical annual quota established by the Northern Water Board is shown on the following **Figure 2.1**.

Figure 2.1 – Historical CBT Quota



The Northern Water District 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 the Northern Water District'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.

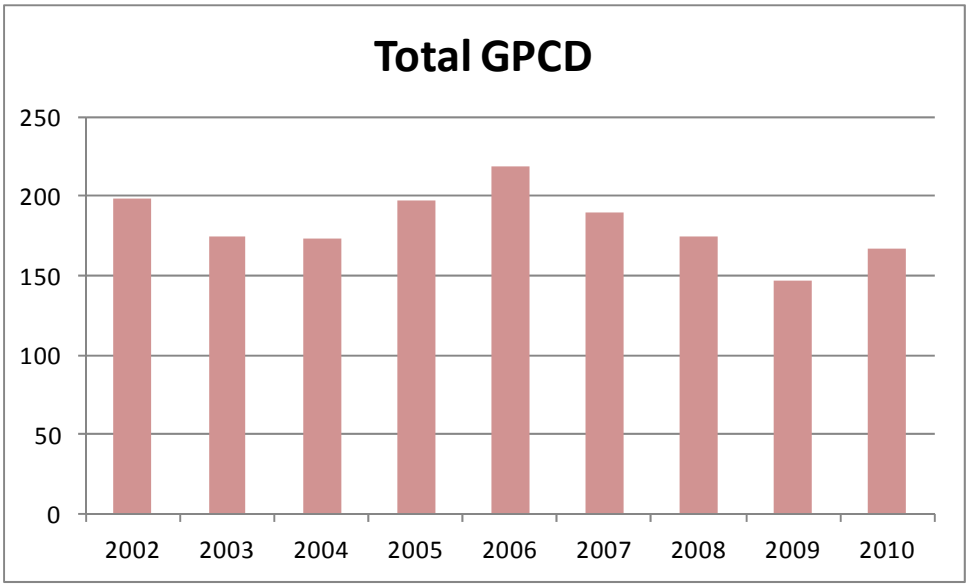
Considering this procedure, a 50% quota is what most water providers use as the firm yield for CBT. Historically, Firestone has used 60% as a "planning" quota with the position that this Carryover Program is much too valuable to the CBT Allottees, and the Northern Water District will do everything it can to keep the program intact. On an annual basis, the Town is allowed to carryover up to 20%, so has taken the position that including a 10% carryover is reasonable when planning the acquisition of new water supplies. However, for this Drought Management Plan, Firestone will use 50% as a firm yield. In discussions with staff, the Town feels being conservative in drought planning is appropriate whereas in water supply planning, using a higher quota essentially translates to the Town being less aggressive in its water acquisition.

The Town of Firestone is a growing community which is evidenced by its water use data over the past ten years. The Town has undergone a lot of growth in population and demand since the 2002 drought, so it makes it difficult to compare a GPCD from the drought years. The average GPCD for the 2002 and 2003 drought years is 187 GPCD. However, they completed a water conservation plan in 2007 and an overall downward trend in GPCD is observed, as seen on **Table 2.1**.

Table 2.1 – Historical Water Use by Customer Category

Category	2002	2003	2004	2005	2006	2007	2008	2009	2010
Residential	723	720	925	1,160	1,308	1,263	1,312	1,094	1,325
Multi-Family	8	7	4	4	10	15	8	7	8
Commercial	112	158	46	72	137	142	176	168	189
Industrial	6	6	7	7	7	7	5	4	6
Parks	22	33	53	116	122	157	212	191	250
Open Space	55	59	84	94	214	199	149	125	117
Total	926	983	1,119	1,453	1,798	1,783	1,862	1,589	1,895
% demand growth		6%	12%	23%	19%	-1%	4%	-17%	16%
Population	4,159	5,034	5,748	6,564	7,325	8,365	9,520	9,681	10,147
% pop growth		17%	12%	12%	10%	12%	12%	2%	5%
Residential GPCD	155	128	144	158	159	135	123	101	117
Total GPCD	199	174	174	198	219	190	175	147	167

Figure 2.2 – Firestone Water Use Per Capita



The manner in which the Town dealt with the 2002 drought provided the following lessons:

- 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.
- The storage in the CBT system itself provided some drought protection for the Town and delayed impacts until the following year. Had the large March 2003 storm not occurred, Firestone would have experience much more severe drought impacts.
- Firestone was able to cut its total use by 50% with their mandatory two-day-a-week watering restrictions for residents, reductions in irrigation of parks and open space, and installation of rain sensors on all parks.
- Police were needed for enforcement to remind people when they could water.
- Setting a time of day mandatory restrictions, i.e., no watering between 10 a.m. and 6 p.m., caused pressure issues in the distribution system because everyone started irrigating at 6 pm. Since then, the Town has constructed a 1.5-MG tank and looped its system to help address potential pressure issues in the future.
- Dust from vacant lots became a real problem for the Town and its residents. The Town has a high priority to responsibly use water for dust suppression during the next drought.

2.2 Historical Drought Impact, Mitigation and Response Assessment

The Town handled the 2002 drought better than most. However, there were several impacts that it experiences as shown on **Table 2.2**. Most of these were moderate in nature and did not extend past the 2002 drought. The Town did not have a formal drought plan in place at the time and recognizes the merit of drought management planning prior to the next drought. This Drought Management Plan will provide another tool in Firestone's water planning toolbox.

Table 2.2 – Historical Drought Impacts

Historical Impact	Severity
Loss of revenue from water sales	Minor
Increased cost and staff time to deal with drought	Moderate
Reduced firefighting capacity	Moderate
Increased political conflict	Moderate
Increased dust storms from vacant lots	Significant at times, moderate overall
Heightened awareness of water conservation and re-evaluation of social values/priorities	Moderate

Minor – very little impact, did not require much staff time or resources to address

Moderate – some impact, required more staff time to address
Significant – key impact concern, occupied staff time

Prior to 2002, the Town did not take mitigation actions before a drought. Because the Town was growing rapidly and obtained water through annexation well ahead of some developments coming online, Firestone has plenty of supplies to buffer the onset of an unforeseen drought.

During the 2002 drought, increased dust storms from vacant lots caused the largest problem for the Town. The County has regulations for air quality control for new developments. Although the dust storms were a significant problem at times, the Town did not require additional dust mitigation in 2002. The Town overall managed very well through 2002 and thus did not have to do much drought response during 2002. Although the Town had adequate supplies, Firestone implemented watering restrictions as a good faith measure in 2002.

SECTION 3 – DROUGHT VULNERABILITY ASSESSMENT

3.1 Water Supply Reliability and Drought Management Planning

Water supply reliability is the ability of the Town's water supplies to meet the needs of its customers during times of stress. For example, does the firm yield of the water rights provide adequate coverage during drought? This can easily overlap into the drought planning process that evaluates water supplies. The goal of this plan is to focus on drought monitoring, mitigation actions and response to lessen impacts of drought. It is important to assess both water supply reliability and drought management planning as part of the overall water planning process.

As stated above, the Town will use a 50% CBT as a firm yield. Since the Town only owns CBT units at this point, calculating the firm yield is relatively simple.

Table 3.1 – Firestone's Current Water Supply Firm Yield

No of Units	Unit Firm Yield (acre-feet per unit)	Total Firm Yield (acre-feet)
4,823	0.5	2,411.5

Summary of Water Planning Documents

The Town completed a Water Master Plan in 2003. This plan outlined infrastructure capacity and the needs of the Town's water transmission and distribution systems. This plan was updated in 2010 based on the revised Urban Growth Boundary, which was approved by the Town in 2008. The purpose of the update was to make recommendations for improvements to the existing water system that would support growth as development progresses. Water usage was evaluated along with demand forecasting, future water ownership requirements, water storage requirements, hydraulic modeling, and capital improvement projects.

Firestone also completed a Raw Water Irrigation System Master Plan in 2010. The goal of this plan was to provide a raw water system design for irrigation of both existing and future public parks, as well as HOA's and open space areas with non-potable supplies. The plan evaluated areas that could benefit from raw water service and delivery capabilities of irrigation ditches, in addition to other detailed hydraulic calculations.

In 2007, Clear Water Solutions completed a Raw Water Master Plan for the Town. The purpose of this plan was to outline goals for raw water acquisition

and development. This plan evaluates future water demands and evaluates water supply options available to meet those demands.

Clear Water Solutions also completed a Water Conservation Plan for the Town in 2007. This plan addresses how the Town can reduce water demands and conserve water through implementation of water conservation measures and programs.

In 2008, Firestone received a grant from the Colorado Water Conservation Board (CWCB) to perform a rate study that was in turn implemented in January 2009. The primary purpose of water rates is to recover expenditures funded with rates through a rate structure that is not unduly discriminatory to any class of customers, while encouraging water conservation. The three tiered rate structure was revamped to encourage water conservation. In 2011, the rate study was updated to assess future rate increases as well as the success of implementing the 2009 rate structure.

Firestone also completed a 2010 Master Plan. This plan defines a consistent vision for the Town's future growth and land use. The plan defines areas for future residential development, both high and low density, areas for commercial and industrial development, as well as areas for parks and open space.

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 as east slope CBT storage, once segregated from the system to avoid contamination, is likely 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 the Northern Water District, but a multi-year drought would like decrease or eliminate Firestone's carryover account.

3.2 Drought Impact Assessment

The Town could experience a variety of drought-related impacts which are outlined in **Table 3.2**. The severity of these impacts is related to the magnitude and duration of the drought, as well as the effectiveness of the drought response efforts.

Table 3.2 – Potential Future Drought Impacts

Future Impact	Severity
Damage to Landscaping and Lawns	Significant
Loss of revenue from water sales	Moderate
Increased cost and staff time to deal with drought	Moderate
Reduced firefighting capacity	Moderate
Reductions in distribution service pressure	Moderate/Potentially Significant
Increased political conflict	Moderate
Increased dust storms from vacant lots	Significant
Increased data/information needs to monitor and implement drought mitigation plan	Minor

Minor – very little potential impact, will not require much staff time or resources to address
Moderate – some potential impact, will require more staff time to address
Significant – key potential impact concern, will be primary focus for staff

SECTION 4 – DROUGHT MITIGATION AND RESPONSE STRATEGIES

4.1 Drought Mitigation Measures

A preliminary list of potential drought mitigation steps was developed by utilizing the CWCB's Drought Management Guidance Document worksheets. The measures were screened during the second Stakeholder Committee meeting.

The preliminary mitigation list was screened using the following criteria:

- *Technical feasibility* - Will the mitigation or response strategy work as intended in a timely manner? Is there staff available to implement the action?
- *Perceived benefits* - Will the selected mitigation or response strategy provide an adequate amount of water savings?
- *Enforceable* - Is the measure worth the cost/effort of enforcing it?
- *Public acceptance* - How will the public accept the selected mitigation or response strategy?
- *Cost-effectiveness* - Assessment of cost versus water savings

The following is a list of the final mitigation measures that were selected:

- *Drought management planning* - This drought management plan is being prepared in advance of drought, and therefore, is considered a drought mitigation step. It includes objectives and operating principles, assessment of historical and potential drought impacts, drought-related monitoring, drought stages, trigger points and response targets, declaration of a drought, development of drought-related ordinances, and a public drought information campaign.
- *Monitoring of drought indicators* - The Town will calculate the water supply index on an annual basis and complete further monitoring as described in Section 5.
- *Develop management strategies and water supply options* - The Town will maximize CBT carryover and consider leasing excess CBT supplies when they exist. The Town will be prepared to lease raw water from farmers and other entities for treatment by Central Weld when it is necessary. Firestone will also evaluate leasing treated water from other entities that could be delivered through future interconnects with the Town. In the

future, the Town may have non-potable supplies that could be exchanged for treatable water such as CBT.

- *Contract negotiations* – Discuss with Central Weld a temporary reduction in raw water transfer requirements.

- *Existing operation and maintenance activities that improve water distribution efficiency* – The Town routinely conducts distribution system audits and repairs leaks as necessary. They also calibrate and replace inaccurate meters as necessary.

- *On-going practices by Town to promote water sustainability* – The Town has many on-going practices that promote water conservation that can also act as drought mitigation measures, see Table I.1.

- *Maintain an operating reserve account* – The Town maintains a 20% reserve balance in its Water Fund that is used for emergencies such as a drought.

4.2 Supply-Side Response Strategies

The supply-side response strategies were chosen using the same criteria as the drought mitigation measures described in Section 4.1. The Town will seek financial and technical assistance opportunities early in the process when possible. The strategies chosen and shown in **Table 4.1** reflect the list of water use priorities and operating principles that was selected by the Town.

Table 4.1 – Supply-Side Response Strategies

Category	Response Strategy
Seek technical and financial assistance	• Identify state, federal, county and private financial assistance opportunities, which could include grant or loans for emergency drought related planning, drought relief, and/or water use efficiency improvements.
Develop management strategies and water supply options	• Maximize CBT carryover options and evaluate leasing excess CBT supplies. • Evaluate leasing raw water from farmers and other entities for treatment by Central Weld, and evaluate leasing treated water from other entities that could be delivered through future interconnects with the Town. • In the future, consider exchanging non-potable supplies for treatable supplies like CBT water. • Consider trucking in water or distributing bottled water in times of extreme drought.
Operational practices	• Consider reducing service distribution pressures.

4.3 Demand-Side Response Strategies

The demand-side response strategies were chosen using the same criteria as the drought mitigation measures and the supply-side response strategies. The goal of demand-side measures is to decrease water use for the Town and its constituents. The strategies chosen and shown in **Table 4.2** reflect the list of water use priorities and operating principles that was selected by the Town.

Table 4.2 – Demand-Side Response Strategies

Category	Response Strategy
Town Operations (actions taken by Town staff to conserve water)	• Promote efficient water use on Town properties. • Restrict/eliminate irrigation on Town parks and landscaping. • Turn off ornamental fountains. • Limit/prohibit washing of Town vehicles except at commercial car washes. • Limit/prohibit street and sidewalk cleaning. • Limit hydrant flushing. • Limit water used for fire training. • Provide a drought reserve (cash fund) and/or drought surcharge or rate increase as necessary.
Water Customers	• Enforce outdoor watering restrictions. • Limit number of watering days and duration of watering time. • Limit watering to hand-held hose or low-volume spray device. • Allow installation of new sod and landscape by permit only. • Limit/prohibit personal vehicle washing except at commercial car washes. • Limit/prohibit washing of impervious surfaces such as driveways and/or sidewalks. • Promote indoor reduction of water use. • Limit use of construction water. • Promote/enforce service of water in restaurants only upon request. • Promote/enforce reduction of frequency of linen and towel washing in hotels.

4.4 Drought Public Information Campaign

The public drought campaign will be coordinated by the Communications and Community Outreach Department, which will also work with the Water Department to

distribute water conservation information. Both the drought management plan and water conservation plan will promote the importance of saving water during drought and non-drought years.

The public drought campaign objectives are:

- Distribute clear, concise information to water customers and media.
- Adjust the intensity of public outreach depending on the severity of the drought within each drought stage.
- Coordinate campaign efforts with other entities when feasible.

The Communications and Community Outreach Department and the Water Department will monitor the drought conditions and messaging used by surrounding municipalities and water providers. This will be helpful if the Town needs to explain the difference between the Town's drought stages and measures being implemented versus other entities.

Table 4.3 is a list of public information messaging that should occur before a drought and is part of an ongoing drought information coordination program. This includes basic information about the plan, where it is located and how it could impact water users. Some of these items may need to be coordinated with other entities, such as monitoring others' drought status. The Town should be able to explain the difference between its drought stages compared to others and the subsequent measures taken compared to others. Some of these messages will continue throughout all drought stages.

Table 4.3 – Public Drought Campaign Messages (pre-drought)

Message	Coordination
Status of current drought conditions and corresponding drought stages	Be current on the messaging and drought stages being used by other entities and be ready to explain the difference to water customers and media.
Long-term sustainability of water system	n/a
Location where Drought Management Plan may be accessed	n/a
Measures and/or impacts that customers can expect if drought continues or intensifies	n/a
Factors that could influence water supply services and cost of services	n/a
Water provider's actions to save water and/or acquire new water	Be aware of other water providers' drought efforts that could be used for the Town's public information campaign.
Policy recommendations, requirements and penalties	n/a
Enforcement of drought policies	n/a
Explanation of drought surcharge or rate increase	n/a

As drought levels increase, public outreach will need to be intensified. Messaging will have to be delivered to the public in a clear, concise manner and repeated as necessary to insure public involvement. **Table 4.4** shows a list of messages that may be used during a drought to convey information to the public. Some of these are ongoing water conservation messages and some of these may be created during a drought to create a "buzz," such as publicizing efforts of individuals to reduce their water use. Other resources can be utilized, such as local landscaping companies providing landscaping tips during a drought and post-drought landscape revival information.

Table 4.4 – Public Drought Campaign Messages (during drought)

Message
On-going Conservation Messages
Increase advertisement for water conservation incentives, such as rebates for water-efficient fixtures (i.e., toilets and washing machines)
Water conservation savings tips
Instructions for customers to reduce their indoor water use
Ways to clean impervious areas without a hose
Ways to wash cars that minimize water waste
Instructions for customers on how to set up a water use plan for their homes or businesses
Drought Messages
Current drought stage and watering restrictions (i.e., impacts the customer can expect if drought continues or intensifies)
Landscape tips during a drought
Post-drought landscape revival information
Provide customers with a drought report card showing monthly and annual water use pre-drought and during the drought.
Publicize efforts of individuals and/or businesses as examples of how to reduce water use

The Communications and Community Outreach Department and the Water Department, at the direction of the Town Manager, will coordinate how the public drought campaign is communicated to the public. **Table 4.5** shows a list of communication tools that will be used to deliver the message to each targeted audience. More urgent messaging will be used for the short-term response strategies that will be conveyed during a drought. These include bill inserts, media articles, television and radio ads, and social media networking.

Table 4.5 – Public Drought Campaign Communication Tools

Targeted Audience	Short-Term Response Strategy (during drought)	Long-term Mitigation (non-drought)
Town Staff and Town Board	• Email • Meetings	• Email
Media	• Website • Media articles • Social media networking	• Website • Social media networking • Newsletter
All Water Customers	• Bill inserts • Website • Broadly distributed email • Social media networking • Public meetings • Media articles • Booths at special events • Public posters	• Website • Broadly distributed email • Social media networking • Newsletter • Booths at special events
School Children	• School programs • Booths at special events for children	• Water educational material for teachers • Booths at special events for children

SECTION 5 – DROUGHT STAGES, TRIGGER POINTS AND RESPONSE TARGETS

5.1 Drought Stages, Trigger Point and Response Targets

Water providers plan for drought differently depending on the seniority of their water supplies, whether or not they have reservoir storage, and their overall philosophy on acceptable risk tolerance. Some municipalities establish drought triggers based on water supply only, such as when reservoirs reach a certain levels. Others consider both supply and demand when defining drought trigger points. Firestone's water supplies, like many municipalities', vary as water is pre-dedicated by developers before the subdivisions are built. Because of this, Firestone chose to use a water supply index (WSI) that considered the Town's water supply and demand. This index considers how closely water demand encroaches on supply and will be able to adjust for future growth.

$$\boldsymbol{WSI} = \frac{\boldsymbol{Supply}}{\boldsymbol{Demand}} = \frac{\boldsymbol{Carryover(last)} + \ (\boldsymbol{CBT\ Quota} * \boldsymbol{No.of\ CBT\ Units})}{(\boldsymbol{Demand} * \boldsymbol{130\%}) + \boldsymbol{Carryover\ (next)}}$$

The inputs for supply are the CBT carryover from the previous year plus the number of CBT units the Town owns multiplied by the CBT quota. The inputs for demand are the previous year's water use plus 20% for Central Weld plus 10% for growth (130% total) plus the estimated CBT carryover for next year. The 20% loss factor and 10% growth factor is part of the agreement between Firestone and Central Weld. The carryover amount is calculated by the Northern Water District as the lesser of 1) 20% times Firestone's CBT units (converted to acre-feet) or 90% of Firestone's October 31st Quota account.

The following is an example of why Firestone chose to use the WSI. The water supplies for 2003 were much different than in 2012. In 2003, the Town owned 3,696 CBT units with 693 acre-feet of carryover and the quota was at 50%. Central Weld calculated a demand of 1,170 acre-feet (including the 30%). This situation produced a WSI of 133% for the Town due to a much greater supply than demand. This is reflective of the situation the Town was in as it was on forefront of a lot of growth and had plenty of water to lease to others. In 2012, the Town owns 4,823 CBT units with a calculated demand of 2,634 acre-feet from Central Weld, resulting in a WSI of 95%. Based on the drought stages described below, this will put the Town in a "Critical" Drought Stage if the quota is not increased from the current 50% that was set in November 2011. As can be seen, the same quota yielded two completely different pictures due to the pre-dedicated water in 2003 before demand came online. Solely looking at the supply-side as a drought trigger would not work for the Town of Firestone.

The four stages of drought are shown in **Table 5.1**. The first level is a "Sustainable" level, which incorporates the on-going water saving practices by

the Town and water customers. The trigger for this stage is a WSI over 110%. An example of an on-going measure is voluntary watering restrictions between 10 am and 6 pm. There is no targeted water savings with this level, even though water savings is occurring.

Table 5.1 – Drought Stages for the Town of Firestone

Drought Stage	Water Supply Index	Response Targets
Sustainable Level	>110%	None
Warning	101 – 109%	5-10%
Critical	90 – 100%	20-30%
Emergency	< 90%	40-60%

The second stage is a "Warning" level in which the supplies are reduced but still greater than the demand. The trigger for this stage would be a WSI = 101 to 109% with an estimated water savings of 5-10%. During this stage of drought, the Town begins to put into place actions that should be ready to implement should the next stage of drought occur, such as a permit system for new landscaping. Mandatory three-day-a-week watering restrictions will be implemented for HOA's and business customers at this stage.

The third level of drought is a "Critical" level in which supplies have fallen below demand and the trigger is a WSI = 90 to100%. This is a serious stage of drought in which the Town will evaluate leasing additional water from farmers and other entities and potential trades of non-potable supplies for treatable water. Mandatory two-day-a-week watering restrictions will be implemented for all water customers (residential, business, HOA's). Irrigation of new sod and irrigation will be allowed by permit only. Irrigation of Tier 2 Town Parks will be restricted. Car washing will only be allowed at commercial car washes that use recirculation techniques. The Town would consider implementing a drought surcharge or rate increase to further encourage water conservation and cover costs.

The last stage of drought is the "Emergency" level in which the WSI is anything less than 90%. This stage is the most serious, and the Town starts to prohibit outdoor irrigation for all water use customers and allows restricted irrigation of the Town's most important Tier 1 parks (i.e., Sports Complex, Hart Park, Settlers Park, Patterson Park and outdoor school use). The Town actively pursues leasing water from farmers and other entities. If interconnects with others exist, the Town will pursue acquiring water from those sources. All other restrictions from the "Critical" level will continue, such as the new landscape permit.

These drought triggers are meant to be guidelines and can be adjusted during times of drought depending on the severity and other outside factors. When drought occurs, many on-the-ground decisions will have to be made when the Town is actually implementing the drought actions steps.

5.2 Drought Declaration and Predictability

Weather in Colorado is extremely variable as it can change quickly. It can present extreme temperatures and precipitation as with the blizzards in 2007 or the drought in 2002. This makes it is almost impossible to predict the beginning or end to drought.

The Town will monitor its WSI on a continual basis. Water Department staff will start in November when the first quota is issued by the Northern Water District and then update it again when the April quota is declared. April will be an important time for the Town to monitor its water supply and demand situation and declare a drought if necessary. If a drought is declared, the Town will begin implementing the appropriate drought response strategies. During a declared drought, the Water Department will calculate the WSI monthly and also monitor the savings from drought response strategies on a monthly basis. Depending on how the year progresses, i.e., the drought improves/worsens or an additional CBT quota is issued, the Town will adjust the drought stages as necessary.

Water Department staff will also monitor monthly, drought conditions on a broader basis such as state-wide drought conditions and the U.S. Drought Monitor. This may be important to know when applying for financial and technical assistance. Additionally, the Water Department staff will monitor monthly trends in precipitation, temperature and snowpack. A Water Department staff member will also attend the annual Northern Water District meetings in November and April to learn the status of the CBT system (snowpack, river flows, and precipitation).

The Town selected to monitor a WSI because it is the quickest measure of its water availability. Firestone will work swiftly to declare a drought at the onset to help reduce the impacts. The WSI is also beneficial because it will be factoring in the effects of multi-year droughts due to the reduction in the CBT carryover from the previous year, thus decreasing the supply and consequently the overall WSI.

Other entities have used the CBT quota as a sole basis for setting their triggers for the drought stages. This is probably what makes sense to most people to use the CBT quota because they are so used to dealing with it. However, it is only addressing half of the equation and leaves out a lot of other factors in the decision making process. Again, decisions will have to be made by Town staff and Board to address the adequacy of the response strategies as the drought progresses and most certainly if multiple-year droughts start occurring.

SECTION 6 – STAGED DROUGHT RESPONSE PROGRAM

This section of the report will describe the specific response measures that are to be taken during each respective stage of drought. This will address both supply and demand side measures for the Town and is summarized in **Table 6.1**.

6.1 Sustainable Drought Stage

Drought Trigger Points: WSI greater than 110%

Drought Stage and Trigger Summary: This drought stage will occur during normal conditions when the WSI is greater than 110%. This stage will include on-going water conservation savings implemented by the Town and water customers such as voluntary watering restrictions. There is no water savings targeted for this stage, even though savings will be realized.

Supply-Side Response Measures:

The following describes the supply-side measures that will be considered by the Town at the onset of this drought stage.

- *Seek technical and financial assistance opportunities* - This may include assistance from the public sector at the federal, state or county level or from private entities. Assistance may include grants, loans, technical assistance, education, etc. Firestone should be aware of the technical and financial opportunities before a drought occurs so that the Town is able to take advantage of those opportunities quickly and efficiently when a drought occurs.

- *Develop management strategies and water supply options* **-** Annually the Town evaluates the amount of CBT to carryover and how much excess can be comfortably leased. Firestone will investigate water supply options for future leases from farmers and other entities. These management strategies for this drought stage include the following:
    - Maximize CBT carryover options and lease excess supplies as available.

Demand-Side Response Measures:

<u>Town</u>

- *Outdoor irrigation for Town property* – Promote standard irrigation practices that result in efficient water use (such as water audits and repairing leaks).

Water Customers

- *Outdoor irrigation for HOA's* – Promote standard irrigation practices that result in efficient water use (such as water audits and repairing leaks).

- *Outdoor irrigation for Business Customers* – Promote standard irrigation practices that result in efficient water use.

- *Outdoor irrigation for Residential Customers* – Promote standard irrigation practices that result in efficient water use.

- *Washing vehicles and impervious surfaces* – Promote minimizing the power washing of impervious surfaces and instead use a broom or mop to sweep sidewalks and/or driveways. Promote using a shut-off nozzle and bucket for washing personal vehicles.

- *Restaurants and lodging establishments* – Promote water conservation and water efficient practices.

Public Campaign:

Distribution of on-going pre-drought information as described in Section 4.4.

Enforcement Procedures:

As described in Section 7.5.

Table 6.1 - Staged Drought Response Program

Water Supply Index	>110%	101%-110%	90%-100%	<90%
Levels	Sustainable	Warning	Critical	Emergency
Water Savings Goal		5-10%	20-30%	40-60%
SUPPLY-SIDE STRATEGIES:				
TECHNICAL & FINANCIAL ASSISTANCE:		Seek technical and financial assistance opportunities		
CBT OPTIONS:	Max Carryover, lease excess	Max Carryover, consider leasing excess	Max Carryover, no leasing	Max Carryover, no leasing
PURCHASE RAW WATER[1]:		Evaluate leasing water from farmers or purchasing raw water from other water providers	Evaluate leasing water from farmers or purchasing raw water from other water providers	Lease water from farmers or purchase raw water from other water providers
PURCHASE TREATED WATER:		Evaluate purchasing water through interconnects	Evaluate purchasing water through interconnects	Purchase treated water through interconnects
OTHER SOURCES:			Exchange nonpotable water for treatable (i.e. CBT)	Consider trucking in water or bring in bottled water
CONTRACT NEGIOTATIONS:		Discuss with water provider a temporary reduction in raw water transfer requirements		
OPERATIONAL PRACTICES:			Consider reducing distribution service pressure	Reduce distribution service pressure as needed
DEMAND-SIDE STRATEGIES:				
OUTDOOR IRRIGATION FOR TOWN PROPERTY:	Allow standard irrigation practices and promote efficienct water use	Allow standard irrigation practices and promote efficienct water use	Restrict irrigation on Tier 2 Town Parks *(est. 5% savings*)*	Eliminate irrigation on Tier 2 Town Parks and Restrict on Tier 1 Parks (est. 9% savings*)
TOWN FOUNTAINS:			Ornamental fountains in Town Park are turned off	Ornamental fountains in Town Park are turned off
TOWN VEHICLE WASHING:		Considering limit washing of Town fleet vehicles to once every other week	Limit washing of Town fleet vehicles to once every other week	Town fleet vehicles may only be washed at a commercial car wash
TOWN STREET CLEANING:		Limit street and sidewalk cleaning	Street and sidewalk cleaning prohibited	Street and sidewalk cleaning prohibited
HYDRANT USE:			Reduce frequency of hydrant flushing	Hydrant flushing is prohibited unless necessary for public safety
			Limit use of water for fire training	Encourage further reductions in water use for fire training
OUTDOOR IRRIGATION FOR HOA'S (Irrigation-only taps):	Voluntary watering restrictions	Mandatory watering restrictions to three days a week *(est. 3% savings*)*	Mandatory watering restrictions to two days a week *(est. 4% savings*)*	HOA outdoor irrigation is prohibited, except for hand watering of trees and shrubs *(est. 6% savings*)*
OUTDOOR IRRIGATION FOR BUSINESS (Commercial & Industrial taps):	Voluntary watering restrictions	Mandatory watering restrictions to three days a week *(est. 3% savings*)*	Mandatory watering restrictions to two days a week *(est. 4% savings*)*	Business outdoor irrigation is prohibited, except for hand watering of trees and shrubs *(est. 5% savings*)*
OUTDOOR IRRIGATION FOR RESIDENTIAL CUSTOMERS:	Voluntary watering restrictions	Voluntary watering restrictions	Mandatory watering restrictions to two days a week *(est. 21% savings*)*	Residential outdoor irrigation is prohibited, except for hand watering of trees and shrubs *(est. 42% savings*)*
IRRIGATION OF NEW SOD/ LANDSCAPING:			Irrigation of new sod, seeding, and landscaping by permit only	Irrigation of new sod, seeding, and landscaping by permit only
WASHING VEHICLES AND IMPERVIOUS SURFACES (such as sidewalks and driveways):	Power Washing and spraying of impervious surfaces should be minimized	Limit power washing and spraying of impervious surfaces	Power washing and spraying of impervious surfaces is prohibited.	Power washing and spraying of impervious surfaces is prohibited.
	Promote washing of personal vehicles with a shut-off nozzle and bucket	Promote washing of personal vehicles with a shut-off nozzle and bucket	Personal vehicles may only be washed at a commercial car wash	Personal vehicles may only be washed at a commercial car wash
INDOOR WATER USE:			Encourage each resident to reduce their water consumption	Encourage each resident to reduce their water consumption
CONSTRUCTION WATER:		Conserve and prevent wasting of constuction water		Limit use of construction water
RESTAURANTS AND LODGING ESTABLISHMENTS:	Restaurants are encouraged to promote conservation	Restaurants are encouraged to only serve water when requested by customer	All restaurants are required not to serve water unless customer specifically asked	All restaurants are required not to serve water unless customer specifically asked
	Lodging establishments are encouraged to promote conservation	Lodging establishments are encouraged to promote conservation and only change linens and towels when specifically requested	Lodging establishments are required to promote conservation and only change linens and towels when specifically requested	Lodging establishments are required to promote conservation and only change linens and towels when specifically requested
DROUGHT SURCHARGE OR RATE INCREASE[2]:			Consider drought surcharge or rate increase	Implement drought surcharge or rate increase as needed

NOTES: [1] Purchase raw water supplies that are treatable by Central Weld or future water suppliers

[2] Developing a drought reserve or rate stabilization fund can also be done to offset the costs associated with drought

*Estimated water savings is based on total annual water use for the Town.

6.2 Warning Drought Stage

Drought Trigger Points: WSI between 101 to 110%

Drought Stage and Trigger Summary: This drought stage will occur when supplies are still greater than demand and the WSI is between 101 to 110%. This stage will include the first level of mandatory watering restrictions. The water savings target will be 5-10%.

Supply-Side Response Measures:

The following describes the supply-side measures that will be considered by the Town at the onset of this drought stage.

- *Seek technical and financial assistance opportunities* - This may include assistance from the public sector at the federal, state or county level or from private entities. Assistance may include grants, loans, technical assistance, education, etc. Firestone should be aware of the technical and financial opportunities before a drought occurs so that the Town is able to take advantage of those opportunities quickly and efficiently when a drought occurs.

- *Develop management strategies and water supply options* **-** Annually the Town evaluates the amount of CBT to carryover and how much excess can be comfortably leased. Firestone will investigate water supply options for future leases from farmers and other entities. These management strategies for this drought stage include the following:
    - Maximize CBT carryover options and consider how much water to lease, if any.
    - Discuss with water provider a temporary reduction in raw water transfer requirements.

Demand-Side Response Measures:

<u>Town</u>

- *Outdoor irrigation for Town property* – Promote standard irrigation practices that result in efficient water use (such as water audits and repairing leaks).

- *Vehicle washing* – Limit washing of Town vehicles to once every other week.

- *Street cleaning* – Limit street and sidewalk cleaning and encourage water efficient practices.

Water Customers

- *Outdoor irrigation for HOA's* – Mandatory watering restrictions to three-days-a-week.

- *Outdoor irrigation for Business Customers* – Mandatory watering restrictions to three days per week.

Table 6.2 – Three-Day-Per-Week Irrigation – Irrigation Only and Business Customers

Customer Category	Mandatory Watering Restriction (3 days per week)
Irrigation Only taps (HOA)	Mon, Wed and Fri
Business	Mon, Wed and Fri

- *Outdoor irrigation for Residential Customers* – Promote standard irrigation practices that require efficient water use (such as water audits and repairing leaks).

- *Washing vehicles and impervious surfaces* – Promote minimizing the power washing of impervious surfaces and instead use a broom or mop to sweep sidewalks and/or driveways. Promote using a shut-off nozzle and bucket for washing personal vehicles.

- *Restaurants and lodging establishments* – Restaurants are encouraged to only serve water when requested by customer and lodging establishments are encouraged to promote conservation and limit frequency of linen washing.

- *Construction water* – Appropriate measures should be taken to reduce the use of hydrant water for construction (i.e. following best management practices).

Public Campaign:

Distribution of drought information as described in Section 4.4.

Enforcement Procedures:

As described in Section 7.5.

6.3 Critical Drought Stage

Drought Trigger Points: WSI between 90 to 100%

Drought Stage and Trigger Summary: This drought stage will occur when supplies are less than or at current demand and the WSI is between 90 to 100%. This stage will include the mandatory two-day-a-week watering restrictions for all water customers. The water savings targeted will be approximately 20-30%.

Supply-Side Response Measures:

The following describes the supply-side measures that will be considered by the Town at the onset of this drought stage.

- *Seek technical and financial assistance opportunities* - This may include assistance from the public sector at the federal, state or county level or from private entities. Assistance may include grants, loans, technical assistance, education, etc. Firestone should be aware of the technical and financial opportunities before a drought occurs so that the Town is able to take advantage of those opportunities quickly and efficiently when a drought occurs.

- *Develop management strategies and water supply options* **-** Annually the Town evaluates the amount of CBT to carryover and how much excess can be comfortably leased. Firestone will investigate water supply options for future leases from farmers and other entities. These management strategies for this drought stage include the following:
    - Maximize CBT carryover options and no leasing of excess CBT supplies.
    - Evaluate leasing raw water from farmers and other entities for treatment by Central Weld.
    - Evaluate leasing treated water from other entities that could be delivered through future interconnects with the Town.
    - In the future, consider exchanging non-potable supplies for treatable supplies like CBT water.
    - Discuss with water provider a temporary reduction in raw water transfer requirements.

- *Operational Practices* **–** Consider reducing distribution service pressure for water customers.

Demand-Side Response Measures:

<u>Town</u>

- *Outdoor irrigation for Town property* – Restrict irrigation on Tier 2 parks, limit to three days per week (Mon, Wed and Fri)

- *Ornamental fountains* – Fountains owned by the Town will be turned off.

- *Vehicle washing* – Limit the washing of Town vehicles to once every other week.

- *Street cleaning* – Prohibit street and sidewalk cleaning.

- *Hydrant use* – Reduce the frequency of hydrant flushing and limit the use of water for fire training.

- *Drought surcharge* – Consider developing a drought surcharge or water rate increase to implement to further reduce water use and help cover costs for the reduced sale of water and cost of implementing drought measures. Surcharge will apply to all customers.

Water Customers

- *Outdoor irrigation for HOA's* – Mandatory watering restrictions reduce irrigation to two days per week.

- *Outdoor irrigation for Business Customers* – Mandatory watering restrictions reduce irrigation to two days per week.

- *Outdoor irrigation for Residential Customers* – Mandatory watering restrictions reduce irrigation to two days per week.

Table 6.3 – Two-Days-Per-Week Irrigation – Residential, HOA and Business Customers

Customer Category	Mandatory Watering Restrictions (2 days a week)
Residential Address ending in 0-3	Mon and Thu
Residential Address ending in 4-6	Tues and Fri
Residential Address ending in 7-9	Wed and Sat
HOA and Business	Mon and Fri

- *Irrigation of new sod and landscape* – Allowed by permit only.

- *Washing vehicles and impervious surfaces* – Power washing and spraying of impervious surfaces is prohibited. Personal vehicles may only be washed at commercial car washes. No personal washing of cars will be allowed.

- *Restaurants and lodging establishments* – Restaurants do not serve water and lodging establishments do not change linens unless specifically asked by customer. They are required to promote water conservation to their customers by encouraging actions such as shorter showers.

- *Indoor water use* – Residents are encouraged to reduce their water use by 5%. Information on how to reduce water use is found on the Town website.

- *Construction water* – Appropriate measures should be taken to reduce the use of hydrant water for construction.

Public Campaign:

Distribution of drought information as described in Section 4.4.

Enforcement Procedures:

As described in Section 7.5.

6.4 Emergency Drought Stage

Drought Trigger Points: WSI less than 90%

Drought Stage and Trigger Summary: This drought stage will occur when supplies are less than demand as the WSI is less than 90%. This stage will prohibit irrigation for all water customers except for hand watering. The water savings targeted will be approximately 40-60%.

Supply-Side Response Measures:

The following describes the supply-side measures that will be considered by the Town at the onset of this drought stage.

- *Seek technical and financial assistance opportunities* - This may include assistance from the public sector at the federal, state or county level or from private entities. Assistance may include grants, loans, technical assistance, education, etc. Firestone should be aware of the technical and financial opportunities before a drought occurs so that the Town is able to take advantage of those opportunities quickly and efficiently when a drought occurs.

- *Develop management strategies and water supply options* **-** Annually the Town evaluates the amount of CBT to carryover and how much excess can be comfortably leased. Firestone will investigate water supply options for future leases from farmers and other entities. These management strategies for this drought stage include the following:
    - Maximize CBT carryover options and no leasing of excess CBT supplies.
    - Lease raw water from farmers and other entities for treatment by Central Weld.
    - Lease treated water from other entities that could be delivered through future interconnects with the Town.

- In the future, consider exchanging non-potable supplies for treatable supplies like CBT water.
- Discuss with water provider a temporary reduction in raw water transfer requirements.

- *Operational Practices* **–** Reduce distribution service pressure for water customers as needed.

Demand-Side Response Measures:

Town

- *Drought surcharge* – Implement a drought surcharge and/or water rate increase as needed. Surcharge will apply to all customers.

- *Outdoor irrigation for Town property* – Eliminate irrigation of Tier 2 parks and reduce irrigation at Tier 1 parks (Sports Complex, Hart Park, Settlers Park and Patterson Park).

- *Ornamental fountains* – Fountains owned by the Town will be turned off.

- *Vehicle washing* – Washing of Town vehicles is only allowed at commercial car washes.

- *Street cleaning* – Prohibit street and sidewalk cleaning.

- *Hydrant use* – Water use for hydrant flushing and fire training will be prohibited unless essential for public safety.

Water Customers

- *Outdoor irrigation for HOA's* - All outdoor irrigation is prohibited with exception to watering of trees with a hand-held hose.

- *Outdoor irrigation for Business Customers* – All outdoor irrigation is prohibited with exception to watering of trees with a hand-held hose.

- *Outdoor irrigation for Residential Customers* – All outdoor irrigation is prohibited with exception to watering of trees with a hand-held hose.

- *Irrigation of new sod and landscape* – Allowed by permit only.

- *Washing vehicles and impervious surfaces* – Power washing and spraying of impervious surfaces is prohibited. Personal vehicles may only be washed at commercial car washes. No personal washing of cars will be allowed.

- *Restaurants and lodging establishments* – Restaurants do not serve water and lodging establishments do not change linens unless specifically asked by customer. They are required to promote water conservation to their customers by encouraging actions such as shorter showers.

- *Indoor water use* – Residents are encouraged to reduce their water use by 10%. Information on how to reduce water use is found on the Town website.

- *Construction water* – Limit use of hydrant water for construction.

Public Campaign:

Distribution of drought information as described in Section 4.4.

Enforcement Procedures:

As described in Section 7.5.

SECTION 7 – IMPLEMENTATION AND MONITORING

7.1 Mitigation Action Plan

The Town developed a mitigation action plan which includes implementing the drought mitigation measures described in this plan as well as water conservation measures listed on Table I.1. **Table 7.1** lists the mitigation steps and highlights deadlines for their completion although some of them are on-going actions taken by the Town.

Table 7.1 – Mitigation Action Plan

Mitigation	Implementation Activity	Steps for Implementation	Milestone Deadline	Administration
Drought Management Planning	Complete Stakeholder process	Complete activity by milestone deadline	Oct 2011	Town Staff
	Complete Public-Review Process		May-Jul 2012	
	Plan approved by Town Board		Aug 2012	
	Town Board approved drought-related ordinances		Aug 2012	
Management Supply Strategies and Water Supply options	Continue participation in the CBT carryover program	Town budgets funds to do this annually	On-going	Water Dept.
	Communicate with lessees about future lease back options in times of severe drought	Contact lessees prior to April 1st	Prior to start of each irrigation season	Water Dept.
	Develop plan for future interconnects	Left Hand Water District has existing interconnections with Central Weld's system	Existing	Engineering Dept.
Audits of water distribution system	Conducted annually	See Water Conservation Plan for more detail	On-going	Public Works Dept.
Repair of leaks	As-needed			
Monitoring and replacement of inaccurate meters	Conducted annually			
Conservation Programs	Implemented via Water Conservation Plan	See Water Conservation Plan for more detail	On-going	Water Dept.

Table 7.1 – Mitigation Action Plan (continued)

Mitigation	Implementation Activity	Steps for Implementation	Milestone Deadline	Administration
Irrigation Audits on Town Parks	Inspection of sprinkler heads	Parks Dept. staff will inspect and replace broken sprinkler heads daily during the irrigation season	On-going	Parks Dept.
	Convert areas to xeriscape	Parks staff will evaluate on an annual basis the areas that may be converted to Xeriscape		
Northern Integrated Supply Project (NISP)	Obtain funding	Town has changed dedication policy to require new development to dedicate 75% water and 25% cash (to be used toward NISP)	On-going	Water Dept.
Regional Water Treatment Plant	Research possible joint water treatment	A consultant has been hired to explore a possible water treatment plant located in the Cache la Poudre Basin	On-going	Water Dept.

7.2 Monitoring of Drought Indicators

The Water Department will calculate a WSI every November when the initial CBT quota is set by the Northern Water District and Central Weld sends a letter with water transfer requirements for Firestone. The WSI will be evaluated again in April, when a supplemental quota is potentially issued. At this point, the Town will want to declare the appropriate drought stage and take the proper measures.

During a declared drought, the Water Department will calculate the WSI monthly and also monitor the savings from drought response strategies on a monthly basis. Additionally, the Town will carefully monitor its water use as the irrigation year progresses. The Town can adjust the frequency of monitoring its water use and WSI depending on whether the drought eases or intensifies. If the severity of the drought weakens, Town may choose to adjust measures accordingly. Conversely, if water supplies are further depleted, the Town may choose to take more extreme measures. In addition, precipitation, temperature and snowpack data will be monitored by the Water Department, on a monthly basis. Health of landscaping will also be monitored by Town staff to determine the impacts of watering restrictions.

7.3 Drought Declarations

Town staff will review the drought triggers discussed previously and then will use their knowledge of the system and history with the Town to make a recommendation in a timely manner. The Town Manager will be ultimately responsible for providing the final recommendation on the drought declaration and corresponding drought stage to the Town Board. The timing of the declaration will be early enough to provide adequate protection to the Town's water supplies.

The following protocol will be used to officially declare a drought:

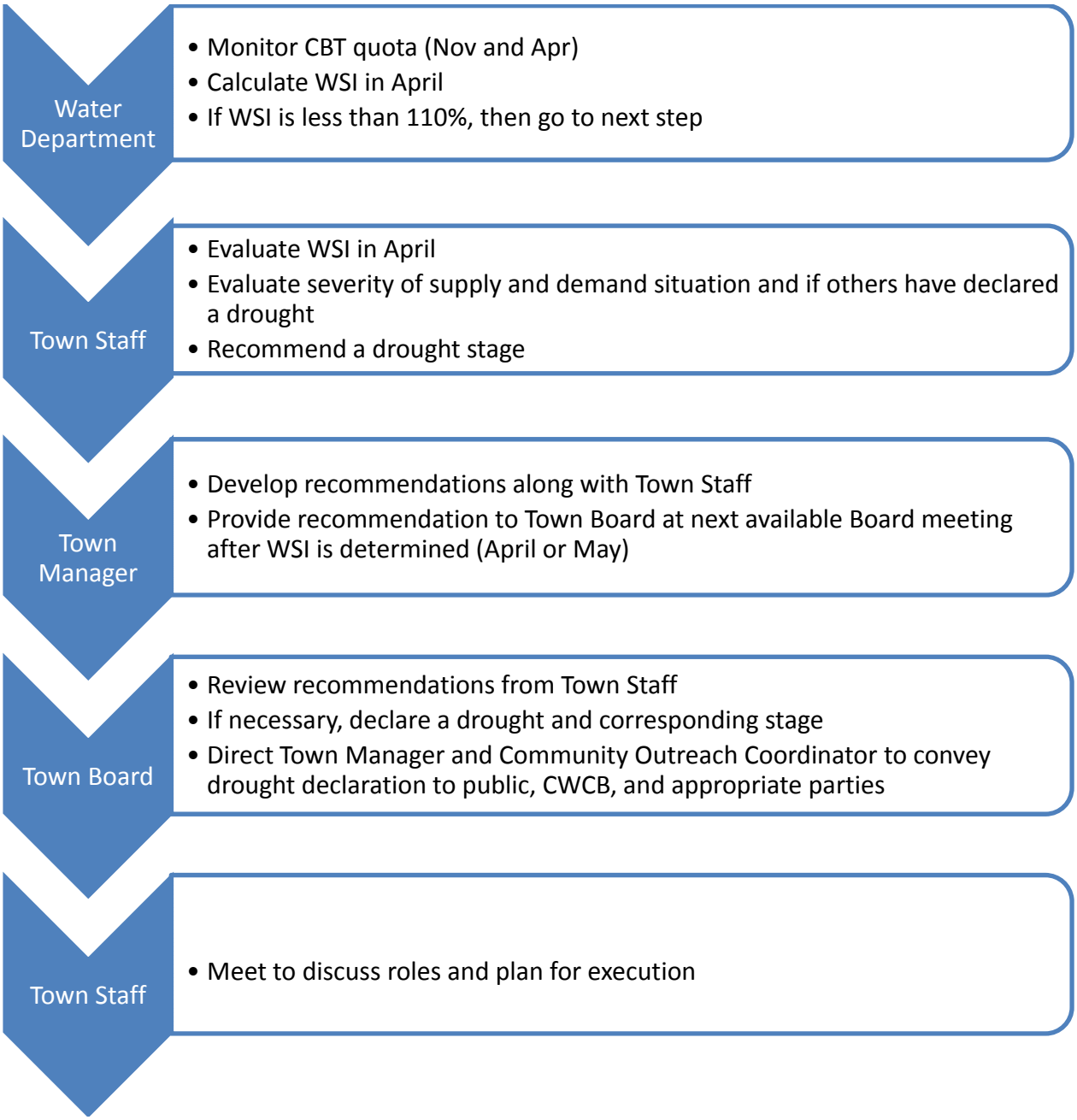
- The Water Department will calculate the WSI in April and monitor drought and precipitation data. The Water Department will also attend the Northern Water District meetings in November and April.

- Town Manager and staff will review the information and develop a recommendation for the Town Board at the next available Board meeting after the WSI is calculated (April or May). Town staff will know if any drought declarations have occurred locally or within the CBT system.

- Town Board will review the information and decide if a drought is to be declared and the corresponding drought stage.

- Once the Town Board declares a drought, direction is given to the Town Manager and the Community Outreach coordinator to convey the drought declaration to the Weld County Office of Emergency Management, CWCB, the Colorado Division of Emergency Management, and the public.

Figure 7.1 – Steps for Drought Declaration



If the drought lessens and the drought stage needs to be changed to a less restrictive one, the same protocol mentioned previously shall apply. If the drought stage needs to be changed to more severe in a short timeframe, the Town Manager has the authority to request an emergency Town Board meeting to discuss the need to declare a more severe drought stage.

7.4 Implementation of Staged Drought Response Program

The staged drought program will require action by the following departments with coordination and communication with the Town Manager: Water, Engineering, Communications and Community Outreach, Public Works, Finance, and Police/Code Enforcement. Their roles and responsibilities are generally described as follows:

- *Water Department* – Administer and monitor the staged drought response program.

- *Engineering Department* – Assist in implementation of the staged drought response program. Provide advice on drought declaration and drought stages that should be implemented.

- *Communications and Community Outreach Department* – Convey the drought declaration and stage to the public, implement the public drought campaign, communicate with appropriate state and federal agencies.

- *Public Works Department* – Evaluate service distribution pressures during watering restrictions to insure adequate service. Coordinate with other departments as needed. Monitor outdoor irrigation and Town parks and stresses to landscape and sod.

- *Finance Department* – Closely monitor revenue and coordinate with Water and Engineering Departments to develop a drought surcharge or water rate increase as necessary.

- *Police/Code Enforcement Department* – Patrol service areas as needed and issue citations to violators.

Once a drought has been declared, and if needed before then, weekly staff meetings will occur for the Water Department and other key personnel from other departments to insure that the drought plan is being implemented. Initial meetings will focus on putting into action the staged drought response program and the public drought campaign and will include:

- Review budget and funds available for implementation.
- Determine action items for implementation of the staged drought plan to achieve appropriate response target.
- Develop actions items for the public drought campaign including specific drought messaging to convey to the public.
- Determine actions necessary for enforcement.
- Review roles and responsibilities for all staff.

7.5 Enforcement of Staged Drought Response Program

The staged drought program will be enforced by the Town and customized to each level of drought. Over the next several years, the Town will be installing real-time remote read meters. These meters will allow the Water Department to track instantaneous water usage for each customer. These meters will allow the Water Department to track time of day and day of week restrictions.

The Sustainable Drought Stage, which is an on-going, voluntary level, will require no enforcement. The other drought stages will require enforcement which may increase with severity of the drought stage. Enforcement will consist of a call-in service where customers have an opportunity to report infractions and code enforcement to the Water Department, and the Town's police and community service officers may patrol neighborhoods and business districts to identify customers that are in violation of the mandatory requirements. The Water Department can also monitor potential infractions through the new metering system. If the Water Department receives notice of a potential violation, it will contact either a police officer or community service officer to investigate to determine if a citation should be issued.

The Town will adopt an ordinance that references this Drought Management Plan and sets forth the procedure by which the Board of Trustees shall declare a drought stage, establish appropriate drought watering restrictions, and impose fines for infractions of any applicable watering restrictions. Citations into the Firestone Municipal Court will be issued by a police officer or community service officer as appropriate. The Town may provide the option for the violator to pay a fine instead of appearing in court.

The Water Department will be responsible for administering the staged drought response program and insuring the appropriate messages are getting out to the public via the Communications and Community Outreach Department. Roles and responsibilities for each department are as follows:

- *Water Department* - Handles the inflow of calls concerning possible infractions, will dispatch community service or police officers to patrol service area and issue citations as necessary.

- *Finance Department* - Keeps track of the number of citations and fines for all water customers and revenue for such fines.

- *Communications and Community Outreach Department* – Conveys accurate, consistent information on enforcement to the public throughout the public drought campaign.

7.6 Revenue Implications and Financial Budgeting Plan

Financial implications during a drought can lead to revenue reductions for the Town. First, the cost of implementing the drought plan will result in a reduced budget further

exacerbated by a reduction in water sales. The Town has an operating reserve that is set aside to deal with emergencies and can be used specifically as a drought reserve.

Additionally, the Town will consider implementing a drought surcharge or water rate increase in the Critical and Emergency stages of drought outlined in this plan. The immediate objective for doing this is to encourage reduced water use. However, it will also help collect additional funds to deal with the cost of implementing drought response measures. An intensive public outreach campaign will be conducted to explain to the public why the water rates are being increased or a surcharge is being issued. Municipalities always have to deal with the public feeling like they are being punished for saving water by having their rates raised.

The Town will also seek financial drought-related assistance as a drought is declared and if conditions worsen with a corresponding increase in cost. The following resources for financial assistance can be found on the CWCB website: http://cwcb.state.co.us/technical-resources/drought-planning-toolbox/Pages/FinancialAssistance.aspx

The following state funding resources could be pursued:

- Agricultural Emergency Drought Response Fund
- Colorado Rural Water Association (CRWA)
- Colorado Water Resources and Power Development Authority (CWRPDA)
- Community Development Block Grant
- CWCB Construction Fund and Severance Tax Trust Fund
- CWCB Water Conservation and Drought Mitigation Planning Grant
- CWCB Water Efficiency Grant Program
- CWCB Water Project Loan Program
- Drinking Water Revolving Fund (DWRF)
- Energy and Mineral Impact Assistance Fund
- Non-point Source Pollution (NPS) Grants

The following federal funding resources could be pursued:

- General Matching Grants Program
- Hydrologic Research Grants
- National Research Initiative Standard Research (Part T): Watershed process and Water resources
- NRCS Emergency Watershed Protection Program
- Rural Development (USDA)
- U.S. Economic Development Administration Grant (EDA)
- USDA Rural Development 502 Direct Housing Loan Program
- Water Conservation Field Services Program
- Water2025 Challenge Grant Program for Western States
- Watershed Process and Water Resources

7.7 Monitoring Plan Effectiveness

The Town tracks its water use on a routine basis. The frequency of this tracking will have to increase during a drought to insure a proper amount of water savings is being obtained. The Water Department will track water use monthly from November through March of each year. Beginning in April, water use will continue to be tracked monthly unless a drought is declared. If a drought is declared, water use tracking will be monitored weekly.

The following monitoring data will be collected and presented by the Water Department on at least an annual basis (some of the data may not be applicable if a drought has not occurred):

- *WSI* – the Town will calculate the WSI (in November and April) based on the CBT quota and Central Weld water transfer requirements. Any special conditions of the CBT system will be noted. For example, if Horsetooth Reservoir is not going to be operational due to repairs.

- *Demands* – A report containing monthly water usage by customer types, total per capita water usage, residential per capital water usage, and the Parks Department water usage. The report will also include any new development such as housing, commercial and parks under construction. If a drought has occurred, information will be presented on how the water savings tracked with implementation of the drought response strategies.

- *Drought Mitigation Measures* – Status of mitigation related activities to date and other relevant factors (i.e., budget and staff time).

- *Administrative Data* – This will include the number of citations, number of responses from customer, number of hotline calls received, etc.

- *Lessons learned* – Any issues that arose during implementation of the staged drought response program, drought monitoring, mitigation activities and public drought campaign should be noted for future reference. For example, if it really did not work to send emails to business customers to notify them of mandatory watering restrictions.

- *Public perceptions to the drought* – Public comments will be tracked at public meetings, Town Board meetings and any other correspondence received via email or through the website.

Real-time monitoring of some of this data will allow the Town to make decisions on the effectiveness of the drought response strategies. On-going monitoring of this data will tell the Town if the measures are working properly and whether or not something should be adjusted. Some of the strategies will need to be monitored and adjusted to see what works the best.

SECTION 8 – FORMAL PLAN APPROVAL AND UPDATES

8.1 Public-Review Process

The Town conducted a 60-day public comment period from May 23, 2012 to July 22, 2012 in order to get feedback from the public. This allowed the public sufficient time to provide their comments to the Water Department. Notice was published in the Farmers and Miners and the Longmont Times Call newspapers (Appendix A). A hard copy was available at Town Hall and on the Town website. The public comment period should help alleviate some questions that might arise on how the Town will deal with drought situations. Public comments are included in Appendix B.

8.2 Adoption of Ordinances and Official Agreements

The Town officially adopted Ordinance 810 (Appendix C), which address the following:

- *Drought Declaration* – Outlines the process in which a drought declaration is to be officially declared. More detail is provided in Section 7.3.

- *Authorization for Implementation and Enforcement of the Staged Drought Response Plan* – Gives the Town Manager the authority to conduct the actions necessary to enforce the measures specified in the staged drought response program and the flexibility to make the changes as necessary.

The Town does not have any official agreements in place with other entities related to drought. However, these agreements will be an important component of drought planning in the future.

8.3 Drought Management Plan Approval

The Town's Drought Management Plan was approved by the Town Board on September 26, 2012 (Appendix D). Each Board member had an opportunity to review and comment on the plan before the plan was finalized and formally approved.

8.4 Periodic Review and Update

Drought planning is an on-going process where many lessons can be learned during implementation. These lessons can be used to improve the process in the future. This Drought Management Plan will be updated in 2017 (every five years). The Water Department will be responsible for initiating the update with the Town Manager and the other departments that have been part of this

planning process. The update will follow the same general process as outlined in this Drought Management Plan. The goal will be to find key changes necessary to improve the overall effectiveness of the plan. Collecting the monitoring data outlined in Section 7.7 will be important information for future plan revisions and confirmation that certain measures are working well.

APPENDIX A

Public Review Process

The Town of Firestone has completed its 60-day public review period for the Drought Management Plan (DMP) that began on May 23, 2012 through July 22, 2012. Notification was posted in the Daily Times-Call and the Farmer & Miner. A complete copy of the DMP was available at Firestone Town Hall and on the Town's website.

PROOF OF PUBLICATION
CARBON VALLEY FARMER AND MINER
STATE OF COLORADO
COUNTY OF WELD SS.

I, Allen Messick, do solemnly swear that I am the Publisher of the **Carbon Valley Farmer and Miner** that the same is a weekly newspaper printed and published in the County of Weld, State of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said county of Weld for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or 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 weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado. That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspaper for the **period of ONE consecutive insertion(s);** and that the first publication of said notice was in the issue of newspaper, dated **23rd day of MAY 2012**, and the last on the **23rd day of MAY 2012**

Publisher, Subscribed and sworn before me, this **23rd day of MAY 2012**

Bobi Lopez

Notary Public.

BOBI LOPEZ NOTARY PUBLIC STATE OF COLORADO My Commission Expires

02/02/2014

TOWN OF FIRESTONE, COLORADO
NOTICE OF DROUGHT MANAGEMENT PLAN

The Town of Firestone has completed a draft Drought Management Plan. The goal for this plan is to outline procedures for the Town to monitor and communicate strategies efficiently to reduce water usage during times of water shortage. The plan details four drought stages: Sustainable, Warning, Critical, and Emergency. Associated with these four drought stages are measures that will be implemented that would affect water consumers at varying levels.

Prior to finalization of the Drought Management Plan, the Town welcomes input from its residents. The Town shall have a 60-day public review period beginning the date of this notice through July 22, 2012. A complete copy is on file and available for public inspection in the office of the Town Clerk, 151 Grant Avenue, Firestone, CO 80520, during regular business hours. The Town will also post the plan on its website at www.ci.firestone.co.us.

All written comments are due to Julie Pasillas, Utility Technician, prior to July 22, 2012 at P.O. Box 100, Firestone, CO 80520 or may be dropped off at Town Hall located at 151 Grant Avenue, Firestone, CO 80520.

Dated the 17th day of May, 2012.

TOWN OF FIRESTONE,
COLORADO
Rebecca Toberman
Acting Town Clerk

Published May 23, 2012 in the Daily Times-Call and in the Farmer & Miner.

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 **May 23, 2012**.

Sue Sadar
Agent

Subscribed and sworn to before me this **23rd** day of **May, 2012** in the County of Boulder, State of Colorado.

Kimberly D Scruggs
Notary Public

KIMBERLY D. SCRUGGS
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires 07-02-2016

FEE $20.59

Account # 221841
Ad # 5551105

TOWN OF FIRESTONE, COLORADO
NOTICE OF DROUGHT MANAGEMENT PLAN

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Dated the 17th day of May, 2012.

TOWN OF FIRESTONE, COLORADO
Rebecca Toberman
Acting Town Clerk

Published in the Longmont Times-Call on May 23, 2012
Ad #5551105

APPENDIX B

Public Comments and Response

The Town of Firestone has completed its 60-day public review period for the Drought Management Plan (DMP) that began on May 23, 2012 through July 22, 2012. Notification was posted in the Daily Times-Call and the Farmer & Miner. A complete copy of the DMP was available at Firestone Town Hall and on the Town's website. During the public-review period, the Town received four comments on the Drought Management Plan, all from Mr. David Claypool.

Comment 1 (Critical Level): Irrigation of new sod and new landscape will be allowed by permit only.

Response: *This is already stated in the DMP.*

Comment 2 (Critical Level): No new water service connections will be permitted for new single-family residential units or new commercial units, unless:

> The landscape design incorporates minimally 70% xeriscaping or all grass types utilized are comprised of native species (e.g. buffalo grass, blue grama, tall and/or fine fescues, and reveille bluegrass, etc.).

Response: *This would seem to be an extreme measure for a temporary condition. This measure would either lock new homeowners into a less desirable landscape concept or put an added cost on the new home knowing that the landscaping would need to be changed to a more desirable plan in the future. This measure would likely have an adverse impact on the Town's economic development goals.*

Comment 3 (Emergency Level): Irrigation of new sod and new landscape will not be allowed.

Response: *This may not be warranted and the permit process identified in the DMP gives the Town discretion to react to conditions.*

Comment 4 (Emergency Level): No new water service connections will be permitted for new single-family residential units or new commercial units.

Response: *This seems too extreme and would certainly have an adverse long-term impact on the Town's economic development goals.*

APPENDIX C

Ordinance 810 – Drought Declaration and Authorization for Implementation and Enforcement of the Staged Drought Response Program

ORDINANCE NO. 810

AN ORDINANCE AMENDING CHAPTER 13.04 OF THE FIRESTONE MUNICIPAL CODE CONCERNING DROUGHT DECLARATIONS AND TO AUTHORIZE THE TOWN MANAGER TO IMPOSE EMERGENCY WATER RESTRICTIONS

WHEREAS, the Board of Trustees has adopted the Town of Firestone 2012 Drought Management Plan to address drought management planning, drought mitigation, and response planning steps; and

WHEREAS, the Board of Trustees desires to amend Chapter 13.04 of the Firestone Municipal Code to set forth the procedures by which the Board of Trustees may declare a drought stage; and

WHEREAS, the Board of Trustees previously adopted Section 13.04.085 of the Firestone Municipal Code authorizing the Board of Trustees to establish water service restrictions in the event of water shortage, scarcity or emergency; and

WHEREAS, the Board of Trustees desires to extend the authority set forth in Section 13.04.085 to the Town Manager in situations requiring immediate action;

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. Chapter 13.04 of the Firestone Municipal Code is amended by the addition of a new Section 13.04.110 to read as follows:

13.04.110 Drought declaration.

A. *Declaration of insufficient supplies.* The Town shall from time to time determine the amount of available water supply for use in the Town water system and shall determine the expected demands for water by all the customers of the Town water system for any given period of time. In the event that the Town shall determine at any given time that there are insufficient water supplies to meet all of the present and anticipated projected needs, the Board of Trustees shall declare by ordinance a drought stage as identified in the Town of Firestone Drought Management Plan, as may be amended from time to time. Said ordinance shall establish restrictions, curtailments, and prohibitions on water use, including without limitation those measures set forth in the Drought Management Plan, as appropriate to address the drought stage declared by the Board of Trustees and may impose drought surcharges and fines for violations of any drought watering restrictions established by the Board of Trustees.

B. *Notification.* In the case of a declared drought stage, the Town will provide information on the severity of the drought and the actions or measures the Town is taking in response to the drought. The Town will provide, by a means

determined to be appropriate by the Town Manager or his or her designee, information on any drought watering restrictions in place. However, it shall not be a defense to a violation of any drought ordinance adopted by the Board that the violator did not receive notice of such ordinance.

C. *Violations; penalties.* Any person violating any provision of any drought ordinance adopted by the Board of Trustees shall be guilty of a municipal offense and shall be punished by a fine but not imprisonment. The amount of such fine shall be determined by the Firestone Municipal Court. Upon a third and each subsequent conviction for such an offense, and in addition to such fine, the Town may discontinue water service to the property served, or the Town may install a flow restriction device, at the expense of the customer, upon the service line to the property served to limit water service to that necessary for health and sanitary purposes only. No such discontinuance of or restriction upon water service shall extend for more than ten days for each conviction. At least ten days' notice and an opportunity to be heard before the Town Manager shall be given prior to each discontinuance or restriction of water service pursuant to this Subsection C.

D. *Customer, owner, occupant responsible.* Each customer, owner, and occupant of any property served by the Town's water system shall be responsible for complying with the drought watering restrictions established by the Board of Trustees.

Section 2. Section 13.04.085 of the Firestone Municipal Code is hereby amended to read as follows (words to be added are underlined; words to be deleted are ~~stricken through~~):

13.04.085. Water service restrictions.

A. In case of water shortage, scarcity or emergency, the Board of Trustees shall have the power to establish by ~~resolution~~ ordinance any restrictions deemed necessary upon the use of water for nondomestic purposes, including but not limited to irrigation.

B. In case of an emergency water shortage or scarcity requiring immediate action as determined by Town Manager, the Town Manager shall have the power to establish by executive order any restrictions deemed necessary upon the use of water for nondomestic purposes, including but not limited to irrigation. No such order shall be continued or renewed for a period in excess of fourteen days except by ordinance adopted by the Board of Trustees.

Section 3. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

INTRODUCED, READ, ADOPTED, APPROVED, AND ORDERED PUBLISHED IN FULL this 26th day of September, 2012.

TOWN OF FIRESTONE, COLORADO

Chad Auer, Mayor

ATTEST:

Rebecca Toberman, Town Clerk

APPENDIX D

Town Board Approval

RESOLUTION NO. 12-26

A RESOLUTION ADOPTING THE TOWN OF FIRESTONE 2012 DROUGHT MANAGEMENT PLAN

WHEREAS, the Board of Trustees recognizes that the wise use of the Town's water resources is in the best interest of the public health, safety, and welfare; and

WHEREAS, the Town's water supply can be impacted by factors, such as weather conditions and snow pack, that are outside the control of the Town; and

WHEREAS, the Board of Trustees desires to provide for the health, safety, and welfare of the Town's water customers in times of drought conditions; and

WHEREAS to such end, the Board of Trustees has provided for the preparation of a Drought Management Plan by Clear Water Solutions, Inc.; and

WHEREAS, the proposed Drought Management Planhas been developed in accordance with the Colorado Water Conservation Board's ("CWCB") Drought Management Plan Development Guidance Document;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF FIRESTONE, COLORADO:

Section 1. The proposed Town of Firestone 2012 Drought Management Plan is herebyapproved and accepted in essentially the same form as the copy of such plan accompanying this Resolution.

PASSED AND ADOPTED THIS 26th DAY OF September, 2012.

TOWN OF FIRESTONE, COLORADO

FIRESTONE TOWN SEAL WELD COUNTY, COLORADO

Chad Auer, Mayor

ATTEST:

Rebecca Toberman, Town Clerk