



WATER AND SEWER BOARD REGULAR MEETING

January 12, 2022 – 6:30 a.m.

<https://windsorgov.zoom.us/j/81082232163>

The Town of Windsor will make reasonable accommodations for access to Town services, programs, and activities and will make special communication arrangements for persons with disabilities. Please call (970) 674-2400 by noon on the 2nd day prior to the meeting to make arrangements.

AGENDA

A. CALL TO ORDER

1. Roll Call
2. Review of Agenda by the Board and Addition of Items of New Business to the Agenda for Consideration by the Board
3. Public Invited to be Heard
4. Introduction of Water Conservation Technician- Kevin Hartley, Town of Windsor

B. CONSENT CALENDAR

C. BOARD ACTION

1. Approve minutes from the November 10, 2021 meeting
2. Election of Officers – *Chairman Bielawski*
3. Drought Management Plan- Leif Lesoing

E. COMMUNICATIONS

1. Snowpack
2. NISP Update

F. ADJOURN



WATER AND SEWER BOARD REGULAR MEETING

November 10, 2021 – 6:30 a.m.

Meeting via Zoom

301 Walnut St, Windsor, CO 80550

MINUTES

A. CALL TO ORDER

Board Chairperson Bielawski called the meeting to order at 6:31 a.m.

1. Roll Call

Chairperson
Vice-Chairperson
Secretary

Greg Bielawski
Carlos Medina
Janene Willey
Darell Zimbelman
Milt Tokunaga
Milton Geiger
Gale McGaha Miller
Alan MacGregor
Alan Overton

Alternate
Alternate

Town Board Liaison

Ken Bennett

Also present:

Dir. Of Community Development John Thornhill
Water Resources Administrator Leif Lesoing
Utility Billing Admin Specialist Erin Porter

2. Review of Agenda by the Board and Addition of items of New Business to the Agenda for Consideration by the Board
Board Chairman Bielawski asked for

3. Public Invited to be Heard
There was no public comment.

B. CONSENT CALENDAR

There were no items on the consent calendar.

C. BOARD ACTION

1. Minutes of October 13, 2021, Regular Meeting
Board Member McGaha Miller moved to accept the minutes for the October 13, 2021 meeting; Board Member Zimbelman seconded the motion. Motion carried unanimously.

2. Drought Management Plan Review and recommendation

Mr. Lesoing and Mr. Thornhill presented information relating to the 2021 Drought Management Plan. The plan will be discussed in the Town Board work session on December 13, 2021 and there will be a 2 month public comment period following that.

Mr. Lesoing went over where the Town is currently with supply and demand, and various scenarios based on the allotted quote from Northern Water. With the current allocation from Northern, Windsor would be at level one with the current numbers, and Mr. Thornhill asked for feedback on how this information could be disseminated to the public.

The Board discussed several aspects of the plan as it stands and the different potential outcomes based on water availability. They decided to mark up a word document with things Board members thought needed changed with the document.

A work session for Water and Sewer Board was scheduled for November 22, 2021. This will allow for further discussion of the plan.

D. COMMUNICATION

1. December 4th will be the STEM school fair. The WSB will have a booth there

E. ADJOURN

Board Member MaGaha-Miller moved to adjourn the meeting at 7:56AM; Board Vice-Chairman Medina seconded the motion. Motion carried unanimously.

Submitted by:

A handwritten signature in blue ink, appearing to read "Erin Porter", is written over a light blue horizontal line.

Erin Porter, Utility Billing Administrative Specialist



TOWN OF WINDSOR

2021 DROUGHT MANAGEMENT PLAN



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EXECUTIVE SUMMARY

Introduction

This Drought Management Plan serves as a document to guide the Town of Windsor (Town or Windsor) in assessing future drought conditions and preparing a response program to mitigate impacts to the Town's treated water supply in times of drought. Windsor recognizes that drought planning is crucial as the Town continues to grow and new water supplies become more competitive among municipalities.

Windsor is a community of approximately 34,000 residents located in Northern Colorado along the front range of the Rocky Mountains. Windsor's history began 1873 when a small building was constructed to cater to travelers, mail deliveries and stage coaches making the journey between Fort Collins and Greeley on the Overland Trail wagon road. With the development of the Great Salt Lake and Pacific Railroad in 1882, Windsor began growing and was officially incorporated in 1890. The Town is conveniently located 60 miles from downtown Denver and 17 miles from Old Town Fort Collins.

Windsor's treated water supplies consist of Colorado-Big Thompson (C-BT) units, North Poudre Irrigation Company (NPIC) shares and Greeley Loveland System water rights. Windsor's water is treated by three other entities – the Fort Collins-Loveland Water District (FCLWD), the North Weld County Water District (NWCWD) and the City of Greeley. The water service area is approximately 28.9 square miles which largely includes the Town limits (25.3 square miles). The Growth Management Area is about 43.0 square miles. The areas located outside of the Windsor Water Service Boundary are served primarily by either Fort Collins-Loveland Water District (FCLWD) or North Weld County Water District (NWCWD). Windsor residents served by FCLWD are located on the west side of Windsor along the west side of County Road 13. Windsor residents served by NWCWD are generally located in the north part of Windsor, primarily Harmony Ridge. Historically there were a small number of Windsor residents served by the City of Greeley directly off of their water line, but these residents are now served by Windsor. This Drought Management Plan applies only to Town of Windsor water customers (residents that pay bills directly to Windsor) and does not apply to Windsor residents who pay their water bill to FCLWD or NWCWD.

Planning Process

Windsor used a stakeholder review process in its drought planning efforts and established a Drought Planning Committee of Town Staff. The Committee stakeholders represented a wide variety of different disciplines that may be affected by drought. The Committee reviewed the plan throughout the process and provided valuable feedback for plan development. Community members in

Windsor had the opportunity to provide input on the plan during the 60 day public comment period. The Town received XXX public comments which were/were not addressed in this Plan.

The Town staff and Drought Planning Committee developed objectives, water use priorities and operating principles to guide in the overall development of the plan. These were used as a basis for the plan to ensure Windsor's strategic vision and community goals were reflected in the development of the plan. The Drought Management Plan objective was to:

- Outline an approach for Town staff and decision makers to respond to a drought in an organized and focused manner.

The water use priorities establish how the Town will prioritize water uses during drought periods and in mitigation efforts. The water use priority list is as follows:

1. Health and safety
2. Economic impacts
3. Outdoor use

Drought Stages

Every water provider will have differing drought stages, trigger points and response targets based on its water system, water supply, customer demands, and climate and streamflow conditions. The drought stage sets the level of severity of the drought for a specific water provider, such as Windsor. Trigger points indicate when Town Staff should implement specific responses to address each drought stage. The drought stage, trigger points and response targets work create a framework to guide the Town Staff to respond to and mitigate drought impacts.

Windsor's water supplies, like many municipalities', vary as water is pre-dedicated by developers before the subdivisions are built. Because of this, Windsor 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.

$$WSI = \frac{\text{Supply}}{\text{Demand}} = \frac{(CBT \text{ Quota} * \text{No. of CBT Units}) + (\text{Firm Yield of Other Supplies})}{(\text{Demand} * 130\%) + \text{Carryover (next)}}$$

The inputs for supply are the number of C-BT units the Town owns multiplied by the C-BT quota plus the projected yield of Windsor's NPIC and Greeley Loveland System shares. The inputs for demand are the previous year's water use plus 30% for surcharges from FCLWD, NWCWD and City of Greeley and distribution loss plus the estimated C-BT carryover for next year. The carryover amount is calculated as 20% times Windsor's C-BT ownership (converted to AF).

The drought stages have been categorized into four levels. The trigger point for each level and the response targets are provided in **Table ES.1**.

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

Drought Stage	Water Supply Index	Response Targets
Adequate Water Year	>110%	
Level 1	101% - 110%	1% - 15%
Level 2	90% - 100%	15% - 30%
Level 3	<90%	>30%

Staged Drought Response

The Town developed specific response strategies for each stage of drought referred to as the Staged Drought Response Program. Once a trigger point outlined in **Table ES.1** is met, the Town Staff and decision-makers will take actions as described in the following sections based on the drought stage.

Drought mitigation and response strategies are actions Windsor can take to minimize drought impacts. Mitigation measures are long-term actions implemented prior to a drought to prepare the Town for potential drought conditions. On the other hand, response strategies are short-term actions taken during a drought to directly respond to water supply conditions. The types of measures and strategies initiated by the Town will depend on the severity and length of a drought. Some actions may be considered both mitigation and response strategies. The mitigation and response strategies specific to Residential water customers is presented below in **Table ES.2**.

Table ES.2 – Drought Stage Information for Residents

	Adequate Water Year	Level 1	Level 2	Level 3
INDOOR WATER USE:	Encourage each resident to reduce their water consumption			
OUTDOOR IRRIGATION FOR RESIDENTIAL CUSTOMERS:	Voluntary watering restrictions. Per ordinance no lawn watering permitted between 10 am and 6 pm	Mandatory watering restrictions to two days a week. Hand watering of trees and shrubs allowed. No watering between 10 am and 6 pm	Mandatory watering restrictions to one day a week. Hand watering of trees and shrubs allowed. No watering between 10 am and 6 pm	Residential outdoor irrigation is prohibited, except for hand watering of trees and shrubs

Adequate Water Year		Level 1	Level 2	Level 3
IRRIGATION OF NEW SOD/ LANDSCAPING:		September - April installation of new sod and/or landscaping. Follow irrigation watering restrictions	No new sod, seeding, and landscaping installments allowed	No new sod, seeding, and landscaping installments allowed
RESIDENTIAL VEHICLE WASHING	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
RESIDENTIAL WASHING IMPERVIOUS SURFACES (such as sidewalks and driveways):	Power Washing and spraying of impervious surfaces should be minimized	Power washing and spraying of impervious surfaces is prohibited.	Power washing and spraying of impervious surfaces is prohibited.	Power washing and spraying of impervious surfaces is prohibited.
WATER SURCHARGE OR RATE INCREASE ¹ :		Consider water surcharge increase	Implement an increased water surcharge or rate increase	Implement an increased water surcharge or rate increase

NOTES: ¹ Developing a drought reserve or rate stabilization fund can also be done to offset the costs associated with drought

Drought Declaration

Windsor's Engineering Division Staff will calculate a WSI every November when the initial C-BT quota is set by the Northern Water. 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. 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. **Figure ES.1** shows the steps that will be taken to declare a drought.

Implementation and Monitoring Plan

The staged drought program will require action by the following departments with coordination and communication with the Town Manager: Community Development, Administrative Services, Public Services, Finance and Police. Once a drought has been declared, and if needed before then, weekly staff meetings will occur for the

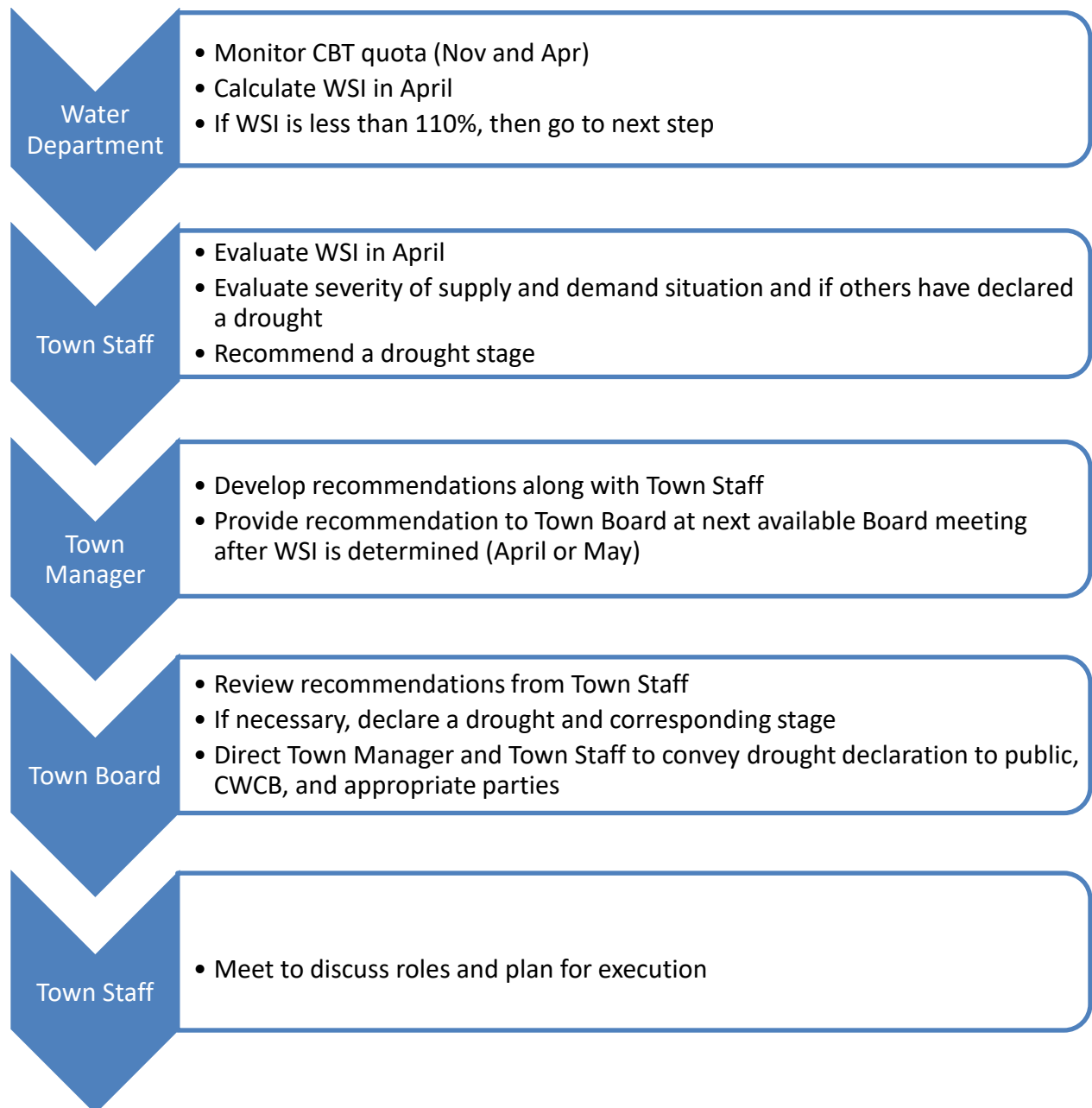
Community Development Staff and other key personnel from other departments to ensure that the drought plan is being implemented.

Engineering Division Staff 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 or as frequently as needed. In addition, Staff will monitor the WSI, drought mitigation measures, administrative data (citations, etc.), lessons learned and public perception. Real-time monitoring of this data will allow the Town to make decisions on the effectiveness of the drought response strategies.

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. As recommended by CWCB, this Drought Management Plan will be updated in 2026 (every five years). Engineering Division Staff will be responsible for initiating the update with the Town Manager and the other departments that have been part of this planning process.

Figure ES.1 – Steps for Drought Declaration



SECTION 1.0 – INTRODUCTION

1.1 Introduction

The Town of Windsor (Windsor or Town) is a community of approximately 34,000 residents located in Northern Colorado along the front range of the Rocky Mountains. Windsor's history began in 1873 when a small building was constructed to cater to travelers, mail deliveries and stage coaches making the journey between Fort Collins and Greeley on the Overland Trail wagon road. With the development of the Great Salt Lake and Pacific Railroad in 1882, Windsor began growing and was officially incorporated in 1890. The production of sugar beets, or "white gold", helped to develop and shape the Town into a local agricultural hub. The Great Western Sugar Company factory operated from 1905 to 1966. After this time, new businesses and industries began to emerge in Windsor, such as the Kodak film processing plant. By the 2000s, green industries began to grow and develop Windsor's economy, with the production of wind mill blades and ethanol.

Windsor is located east of Interstate 25 along Colorado State Highway 392 in both Larimer and Weld County, Colorado. The Town is conveniently located 60 miles from downtown Denver and 17 miles from Old Town Fort Collins, where Colorado State University is located. Windsor's tree-lined Main Street is full of local shops, restaurants and small businesses for its residents and visitors alike to enjoy. Windsor Lake, located near Main Street, has a beautiful walking path and beach area for outdoor recreation. Although Windsor has continued to grow significantly in the past 20 years, it continues to maintain its small town charm.



Windsor Lake – Source: Town of Windsor Facebook

1.2 Purpose

This Drought Management Plan serves as a document to guide Windsor in assessing future drought conditions and preparing a response program to mitigate impacts to the Town's treated water supply in times of drought. The Colorado Water Conservation Board's Municipal Drought Management Plan Guidance Document was used to outline the eight steps of drought planning used in this planning effort and summarized in the **Table 1** below.

Table 1 – Overview of Planning Steps

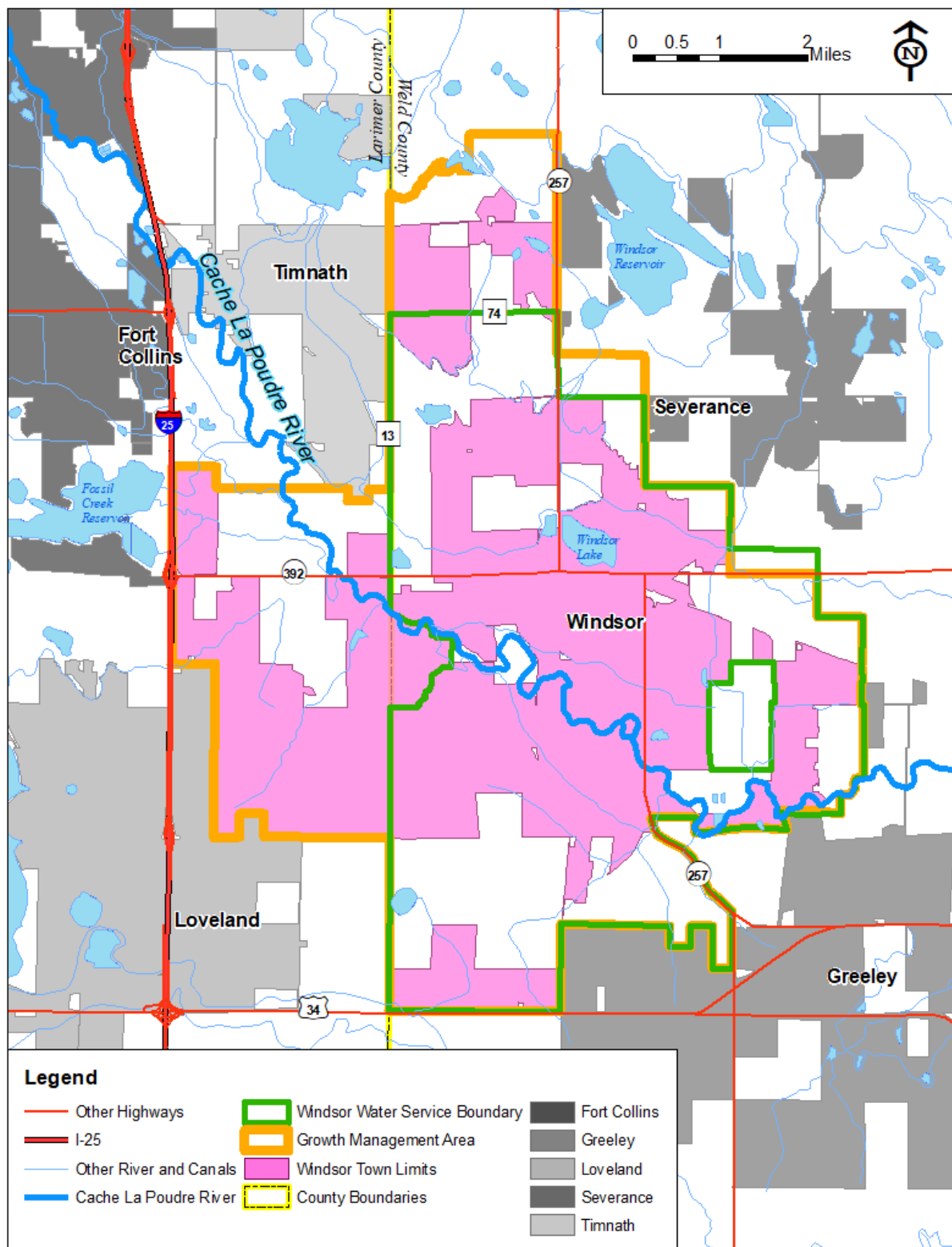
Step	Purpose
Step 1: Planning Process, Plan Objectives and Operating Principles	Get organized to prepare the plan in a collaborative fashion
Step 2: Drought Vulnerability Assessment	Determine how drought has impacted and could impact the jurisdiction in the future
Step 3: Drought Monitoring	Identify how is drought systematically monitored
Step 4: Drought Stages, Trigger Points, and Response Targets	Identification of drought stages and corresponding drought trigger points and response targets
Step 5: Drought Mitigation and Response Strategies	Identification and selection of a combination of mitigation and response strategies
Step 6: Staged Drought Response Program	Lays out a systematic response to varying levels of drought
Step 7: Drought Response Operational and Administrative Framework	Identifies the who, what, when and how of implementing the plan during a drought
Step 8: Plan Approval and Adoption	Establish formal processes to review, approve, and update the Drought Management Plan

1.3 Profile of Service Area, Water Supplies and Customer Use Profiles

Service Area

The Town's water service area is approximately 28.9 square miles which largely includes the Town limit, and a small portion of customers located outside of the limits. The Town limit is approximately 25.3 square miles in size. The Growth Management Area (GMA) is about 43.0 square miles. **Figure 1** shows the Town's service area, Town limits and the Town's GMA. The areas located outside of the Windsor Water Service Boundary are served primarily by either Fort Collins-Loveland Water District (FCLWD) or North Weld County Water District (NWCWD). Windsor residents served by FCLWD are located on the west side of Windsor along the west side of County Road 13. Windsor residents served by NWCWD are generally located in the north part of Windsor, primarily Harmony Ridge. Historically there were a small number of Windsor residents served by the City of Greeley directly off of their water line, but these residents are now served by Windsor. This Drought Management Plan applies only to Town of

Figure 1 – Windsor’s Service Area



Windsor water customers (residents that pay bills directly to Windsor) and does not apply to Windsor residents who pay their water bill to FCLWD or NWCWD.

Existing Water Supplies

Windsor's treated water (or potable water) supplies consist of Colorado-Big Thompson (C-BT) units, North Poudre Irrigation Company (NPIC) shares and Greeley Loveland System shares. Greeley Loveland System shares consists of Greeley-Loveland Irrigation Company shares, Lake Loveland rights, and Seven Lakes shares. Windsor's water is treated by three other entities – FCLWD, NWCWD and the City of Greeley. Windsor is served treated water through a total of five master meters from FCLWD, NWCWD and Greeley. Long-term water treatment contracts with these water providers establish the terms of service including amount, duration, and payment. Windsor owns its water rights for raw water and turns needed water over to the providers each year for treatment and delivery. A surcharge of water is required in addition to the annual projected water use to cover losses from treatment and delivery to Windsor. **Table 2** shows the treated water from each water supplier for the past twenty years from 2000 through 2020.

Table 2 – Treated Water Supply (2000 – 2020)

Year	Treated Water Supply from FCLWD (AF)	Treated Water Supply from NWCWD (AF)	Treated Water Supply from Greeley (AF)	Windsor's Total Treated Water Supply (AF)
2000	337	949	452	1,739
2001	328	1,063	543	1,934
2002	329	1,011	603	1,943
2003	317	824	553	1,694
2004	332	765	575	1,672
2005	335	1,038	521	1,894
2006	341	1,203	552	2,097
2007	339	1,063	723	2,125
2008	337	997	618	1,951
2009	341	889	544	1,774
2010	334	1,026	566	1,927
2011	338	1,005	583	1,926
2012	342	1,279	636	2,257
2013	339	1,034	568	1,941
2014	337	904	636	1,877
2015	340	1,089	604	2,032
2016	330	1,229	651	2,211
2017	338	1,271	623	2,232
2018	321	1,379	645	2,345

Year	Treated Water Supply from FCLWD (AF)	Treated Water Supply from NWCWD (AF)	Treated Water Supply from Greeley (AF)	Windsor's Total Treated Water Supply (AF)
2019	344	1,523	620	2,487
2020	337	1,754	692	2,783

Customer Water Use Profiles

Windsor's customers are divided into categories based on the type of use (residential, business, etc.), location, and system type (single or dual system). Windsor's treated water use is largely residential at 72% of the annual treated water use in 2020. The customer water use by customer type is provided in **Figure 2**. The customer categories and treated water uses in 2020 are provided below.

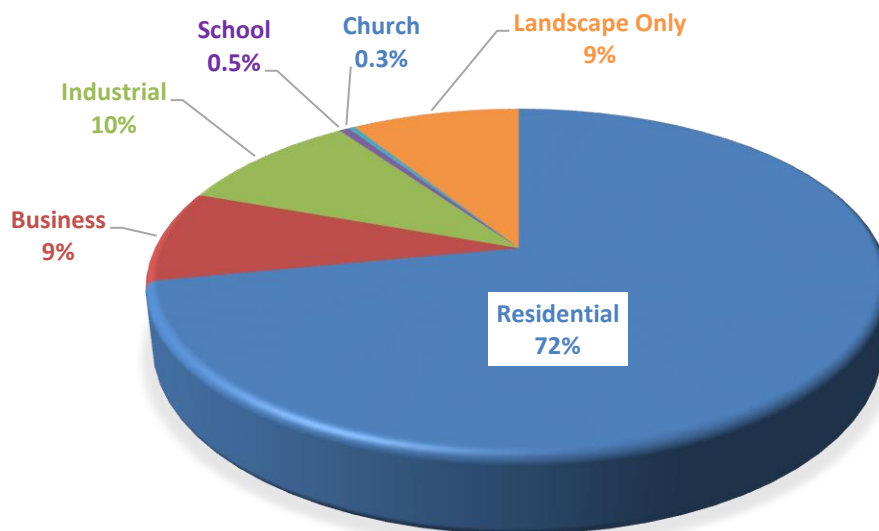
- In-Town Residential – 972 AF
- In-Town Business – 163 AF
- In-Town Industrial – 234 AF
- In-Town School – 12 AF
- In-Town Church – 8 AF
- Out-of-Town Residential – 8 AF
- Out-of-Town Business – 0 AF
- Out-of-Town Church – less than 1 AF
- Residential Dual System – 741 AF
- Business Dual System – 437 AF
- Landscape Only – 212 AF

**Customer categories not listed as dual system are single systems. Single systems use treated water for both indoor and outdoor water uses. Dual systems use treated water for indoor uses and non-potable water for outdoor uses.*

1.4 Drought Mitigation and Response Planning

Droughts can be defined in many different ways but are often considered periods with low precipitation or a shortage of water supplies. In Colorado, droughts can occur when there is less rain than average or when the snowpack east of the Continental Divide is lower than normal. Drought can also include times when there is a lack of surface water supplies, stored reservoir water or a lack of soil moisture. Drought-type conditions can also occur when there is an interruption in water supply or the water supply is insufficient to meet demand. For example, drought conditions could occur if a water treatment facility was inoperable due to wild fire or a spill and treated water couldn't be supplied to customers to meet the full demand. Droughts for the purpose of this report are periods when the available water supplies are less than the normal demand, due either to limited precipitation or some other condition that limits the availability or usability of surface water supplies.

Figure 2 – Water Use by Customer Type in 2020



Impact of Drought on Town's Water Supplies

Windsor is served treated water through a total of five master meters from FCLWD, NWCWD and Greeley. Long-term water treatment contracts with these water providers establish the terms of service including amount, duration, and payment. Windsor owns its water rights for raw water and transfers needed water over to these providers each year for treatment and delivery. The contract with each of these entities requires that Windsor transfers an additional amount of water each year to cover losses that occur during treatment and delivery. **Table 2** shows the treated water from each water supplier for the past twenty years from 2000 through 2020. The water supplied by Northern Colorado Water Conservancy District (Northern Water) is a transbasin supply from the C-BT Project. The C-BT Project captures and stores water that accumulates in the Colorado River Basin west of the Continental Divide. C-BT water, which is managed by Northern Water, is pumped from Lake Granby through the Alva B. Adams Tunnel to the east slope of the Colorado Rocky Mountains near Estes Park. After passing through reservoirs and power generation plants, the water is then distributed to three Front Range reservoirs for subsequent delivery to allotment contract holders for agricultural, municipal and industrial uses.

The C-BT system is considered a robust system that FCLWD, NWCWD and the City of Greeley all rely on in part for their water supplies. The Board of Directors of Northern Water sets an annual quota for the water to be delivered from the C-BT system for the purpose of supplementing the east-slope native water supplies. For the C-BT system to

have a reduction in water yield, there would have to be several consecutive unusually dry years on both the west and east slopes, causing the runoff on the west slope to decline and the demand on the east slope to increase. Recent history has displayed this as a real possibility. During the 2002 drought, C-BT system supplies were extremely low until the late March 2003 snowstorm replenished C-BT's west slope reservoir storage and restored soil moisture levels and reservoir storage on the east slope.

The NPIC's water supply is dependent on streamflow conditions in the Cache la Poudre River Basin and the annual C-BT quota. NPIC owns 40,000 acre-foot (AF) units of C-BT water and has numerous reservoirs with an estimated total storage capacity of 63,000 AF. While the average yield is 3.2 AF per share for both the agricultural and the C-BT components, the dry year yield can be reduced to 1.0 AF per share, which significantly reduces the amount of water that Windsor is able to derive from its ownership of NPIC shares.

Historically, Windsor's water supplies have been sufficient during mild drought periods. During the extremely dry years of 2002 and 2003, Windsor leased C-BT units in order to have sufficient supplies for its customers. Having a drought management plan to reduce customer usage during this period would have been beneficial. Windsor has a wastewater ordinance and a water restriction ordinance which are used seasonally and to mitigate drought impacts.

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 occurs. 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 the drought does develop. These actions will serve to decrease the impacts of the drought. Since Windsor's water supply largely relies on the C-BT system, which has an extensive system of reservoirs, it will likely take several years of below average conditions for the Town to be in a serious drought.

1.5 Drought Planning Efforts

Windsor recognizes that drought planning is crucial as population increases in the Town as well as along the front range of Colorado. This is the Town's first detailed Drought Management Plan. Historically, the Town has used an ad hoc approach to implement watering restrictions and to lease additional water supplies to mitigate short-term drought impacts. This Drought Management Plan will help the Town to adequately plan

and proactively prepare for future droughts. It is important for Windsor to complete periodic reviews of this Drought Management Plan and continue updating drought planning efforts.

1.6 Drought Planning and Municipal Water Efficiency Plans

Drought Management Plans and Municipal Water Efficiency Plans (or Water Conservation Plans) are both important plans to reduce water demands. Water efficiency planning efforts are used to reduce long-term water demands to conserve supplies or to use saved water for new purposes, such as population growth. A Drought Management Plan provides high impact, short-term mitigation during drought conditions. **Table 3** lists the Town's implemented water efficiency activities.

Table 3 – Existing and Ongoing Water Efficiency Activities

Water Efficiency Activities
<i>Foundational Activities</i>
Meter Testing and Replacement
Meter Upgrades
Frequency of Meter Reading
Tracking Water Use by Customer Type
Volumetric Billing
Water Rate Adjustments
Frequency of Billing
Inclining/Tiered Rates
System Wide Water Audits
Leak Detection and Repair
Water Line Replacement Program
Integrated Water Resources Plans
Master Plans/Water Supply Plans
Capital Improvement Plans
Parks and Open Space Meters
<i>Targeted Technical Assistance and Incentives</i>
Indoor Audits
Xeriscape
Parks and Open Space Rain and ET Sensors
Give-aways
Residential Toilet Rebate Program
Residential Washer Rebates
Garden In A Box

Water Efficiency Activities
<i>Ordinances and Regulations</i>
Water Waste Ordinance
Time of Day Watering Restriction
<i>Education Activities</i>
Combined Educational Activities (Bill Stuffers, Newsletters, Newspaper Articles, Mass Mailings, Website, Social Networking)
Mayor's Water Conservation Challenge
K-12 Teacher and Classroom Education Programs
Windsor Water Wagon
Interactive Websites
Citizen Advisory Boards
Xeriscape Demonstration Garden

SECTION 2.0 – STAKEHOLDERS, OBJECTIVES AND PRINCIPLES

2.1 Drought Planning Committee

Windsor used a stakeholder review process in its drought planning efforts and established a Drought Planning Committee of Town staff from various departments. The stakeholders on the Committee represented a wide variety of different disciplines that may be affected by drought. The Committee reviewed the plan throughout the process and provided valuable feedback for plan development. Community members in Windsor will have an opportunity to provide input on the plan during the public comment period. **Table 4** is a list of the stakeholders who participated in the Drought Planning Committee and the development of this plan.

Table 4 – Drought Planning Committee List

Name	Job Description
Leif Lesoing	Water Resource Administrator
Eric Lucas	Director of Public Services
John Thornhill	Director of Community Development
Wade Willis	Manager - Open Space and Trails

The Town held the following meetings with the Drought Planning Committee, the Windsor Water and Sewer Board and Town Board. The staff also held the following Public Review period to solicit feedback from community members.

Project Kick-off Meeting – Windsor staff attended the meeting and discussed the differences between drought planning and water efficiency planning. The staff reviewed the stakeholder process and determined a list of potential stakeholder members to sit on the Drought Planning Committee.

Drought Planning Committee Meeting #1 – The Drought Planning Committee met to review the Drought Management Plan objectives, water use priorities and operating principals for use in the plan. The staff also gathered information for Step 2 (Historical Drought) and Step 3 (Drought Vulnerability) in the plan.

Drought Planning Committee Meeting #2 – The Drought Planning Committee developed the staged drought response program and discussed potential mitigation actions.

Drought Planning Committee Meeting #3 – The Drought Planning Committee reviewed the staged drought response program, determined a drought

information campaign and discuss the steps for drought declaration and mitigation actions.

Water and Sewer Board Meeting #1 – A draft of the plan was provided to the Drought Planning Committee and Water and Sewer Board and changes were discussed with group. The draft was delivered to the Board at their regular meeting on November 10th.

Town Board Meeting #1 – The final draft of the plan was provided to the Town Board for approval before a copy was made available to the general public for review.

Public-Review Period – The staff made a draft of the Drought Management Plan available for citizens and local businesses to review. An electronic version of the plan was available on the Town's website. A notification of the plan location and how to provide comments was published in the local paper and on the Town's website. The Town staff collected comments from the public for a 60-day period.

Town Board Meeting #2 – The final draft of the plan was provided to the Town Board for approval before a copy was submitted to the Colorado Water Conservation Board for final approval.

2.2 Objectives of the Drought Management Plan

Town staff and the Drought Planning Committee developed objectives, water use priorities and operating principles to guide in the overall development of the plan. These were used as a basis for the plan to ensure Windsor's strategic vision and community goals were reflected in the development of the plan.

The Drought Management Plan objective was to:

- Outline an approach for Town staff and decision makers to respond to a drought in an organized and focused manner.

A list of water use priorities was also developed during the first Drought Planning Committee meeting to provide guidance in the decision-making process. The following water use priorities were established:

1. Health and safety
2. Economic impacts
3. Outdoor use

The operating principles establish how the Town will organize its drought planning efforts and implement the Plan to be consistent with the intentions of the Drought Planning Committee. The operating principles are as follows:

- Drought response actions should be implemented in a manner that reflects the priorities that have been determined by the Town with the highest priority being health and safety;

- Effective coordination among Town staff is vital to the success of this Plan and any necessary exceptions to the Plan must be communicated clearly to all staff;
- Economic development is important to the Town and providing adequate drought protection for current residents is important to providing a healthy sustainable community;
- When possible, efforts should be taken to preserve the environmental and recreational value of the community.

SECTION 3.0 – HISTORICAL DROUGHT AND IMPACT ASSESSMENT

3.1 Historical Assessment of Drought, Available Supplies and Demands

Historical Assessment of Drought and Available Supplies

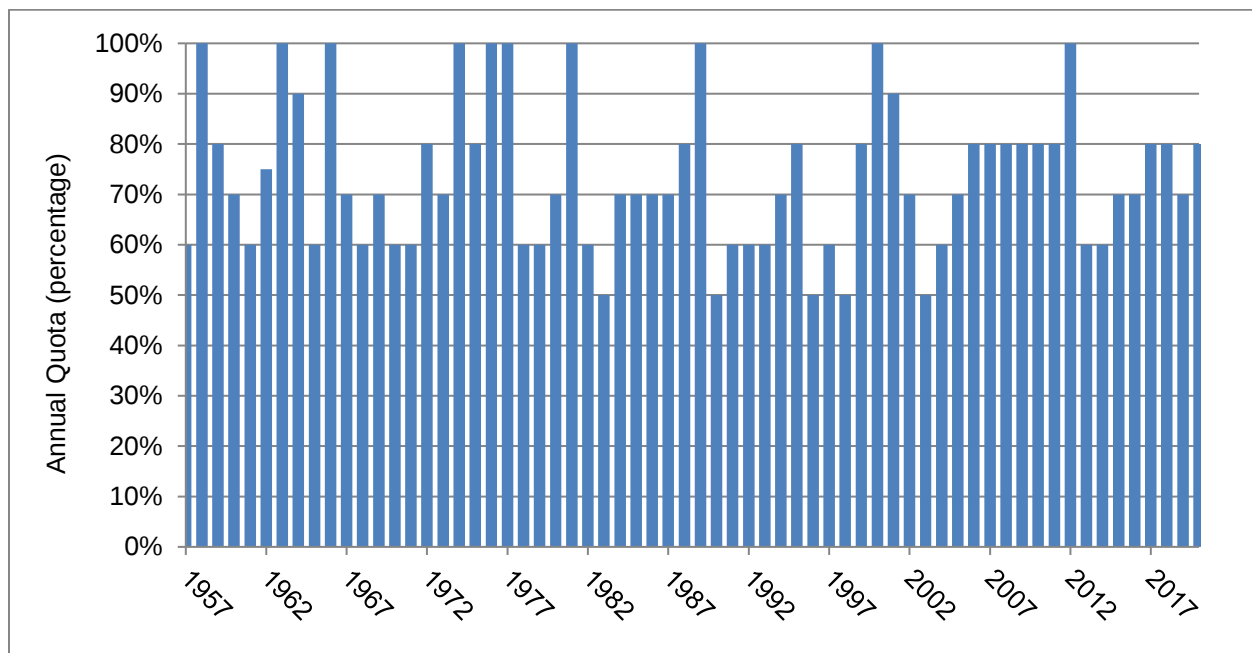
Windsor's primary water source, its C-BT units, are considered a reliable water supply even during drought periods. The C-BT system diverts and delivers water from the Colorado River on the west side of the Continental Divide to the Big Thompson River east of the Continental Divide. The C-BT Project supplies on average over 212,000 AF of water to C-BT allottees located within Northern Water District boundaries along the Front Range in Northern Colorado. Northern Water manages the system, which is comprised of 12 reservoirs, 35 miles of tunnels, 95 miles of canals, six hydroelectric power plants, and 700 miles of transmission lines. Most of the water supply is snowmelt from Colorado's high elevation Rocky Mountains, which is captured in storage reservoirs on the west side of the Continental Divide and subsequently pumped through the Adams Tunnel under the Continental Divide to provide a supplemental supply to farmers, municipalities and industries on the east side of the Continental Divide. The system has approximately 740,000 AF of gross storage and consists of 310,000 units. All units are assigned to water users located within Northern Water's boundaries through an allotment contract. Administration and granting of allotment contracts is under the preview and approval of Northern Water's Board of Directors. C-BT was designed to deliver up to 310,000 AF in any particular year. Northern Water's Board sets an annual allocation of water to supplement the water supplies provided by watersheds on the east slope. A 100% quota, annual allocation, provides for the annual delivery of 310,000 AF. Given that C-BT has approximately 2.3 times the storage needed to deliver a 100% quota means that the C-BT is able to allocate sufficient water to protect against multi-year droughts. Since the C-BT became fully operational in 1955, the project has been able to consistently deliver enough water to preclude a devastating drought in Northeastern Colorado. All this makes the C-BT system a robust water supply system.

Northern Water's Board sets an initial quote for the following water year, November 1 through October 31. A supplement quota is usually set in April. C-BT units are designated as "Fixed Quota" or "Variable Quota". Fixed Quota means the units are issued a 70% quota each water year whereas Variable Quota means the units are issued a quota based on the need for supplemental water as defined by snow depths in the watersheds, forecasted streamflow and reservoir storage. The benefit of Fixed Quota is that the firm yield is a predetermined 0.7 AF per unit. The benefit of Variable Quota is that the yield may be up to 1.0 AF per unit in dry years when the need is the greatest and 0.5

AF per unit in wet years when the need is the lowest. An allottee can apply to the Northern Water Board to participate in the Fixed Quota program. Once an allottee opts to participate in the Fixed Quota program, it is committed to remain in the program for a minimum of ten years. If Windsor elects not to continue participating in the Fixed Quota program after the initial ten-year period, the units may be switched back to Variable Quota. Windsor has a combination of Fixed Quota and Variable Quota C-BT units. For Windsor, like most municipalities, the Variable Quota firm yield is considered 0.5 AF per unit.

The average C-BT Variable Quotas during the period 1957 through 2020 is 74%, which equates to a yield of 0.74 AF per unit. During the dry periods of 2000 through 2003, 2012 through 2014 and 2018, the average quota was 76%, or a yield of 0.76 AF per unit. While the lowest yield per-unit during these years was 0.5 AF, half the years had yields of 0.80 AF or above. **Figure 3** shows the variation in C-BT Variable Quota each year since the C-BT project became fully operational.

Figure 3 – Historical C-BT Quota (1957-2020)



The NPIC is a mutual ditch company delivering water to its stockholders, which serves over 250,000 people and 23,000 acres of agricultural lands. The system includes 19 reservoirs and approximately 200 miles of canals. Municipal ownership in the NPIC has increased over the years and as of 2015, is at approximately 75% with the remaining 25% in agricultural uses. The NPIC receives water from two main sources: natural

streamflow originating in the Cache la Poudre River and from ownership of 40,000 C-BT units; therefore, the NPIC shares include a native agricultural portion¹ and a C-BT portion. The Livermore diversion is used to divert the NPIC's North Fork water rights into the system and the Munroe Canal is used to divert its Cache la Poudre River water rights including C-BT water. Because the annual yield of NPIC shares is dependent on streamflow originating from snowmelt, the yield is dependent on snowpack and climate conditions similar to the C-BT units. The ability to store water in reservoirs firms the water supply. The yield of one share has been as low as 1.0 AF during drought, although it typically yields over 3.0 AF.

Historical Demand

The Town's treated water use has increased with residential and commercial growth. Residential water use is the largest in Town at approximately 72% of the total treated water used in 2020. **Figure 4** is a graphical display of the water use per capita for residential customers during the period 2010 through 2020. Northern Colorado experienced severe drought conditions from 2000 through 2003, 2012 through 2014 and 2018. The historical customer demands are shown in **Table 5** for the past twenty-one years (2000 through 2020). The orange highlighted rows indicate the drought periods. There was a spike in water use during the dry year of 2012.

The per capita water use for Town residents has decreased in the last ten years (2010 through 2020). This means that the Town's residents are aware of the need for conserving water. The 2010 and 2020 residential per capita water uses are 62 gallons per capita per day (GPCD) and 47 GPCD, respectively. This indicates Windsor's commitment to water efficiency is improving the Town's use of treated water.

¹ The native agricultural portion is natural streamflow occurring in the Cache la Poudre River Basin

Figure 4 – Historical Water Use Per Capita (2010 - 2020)

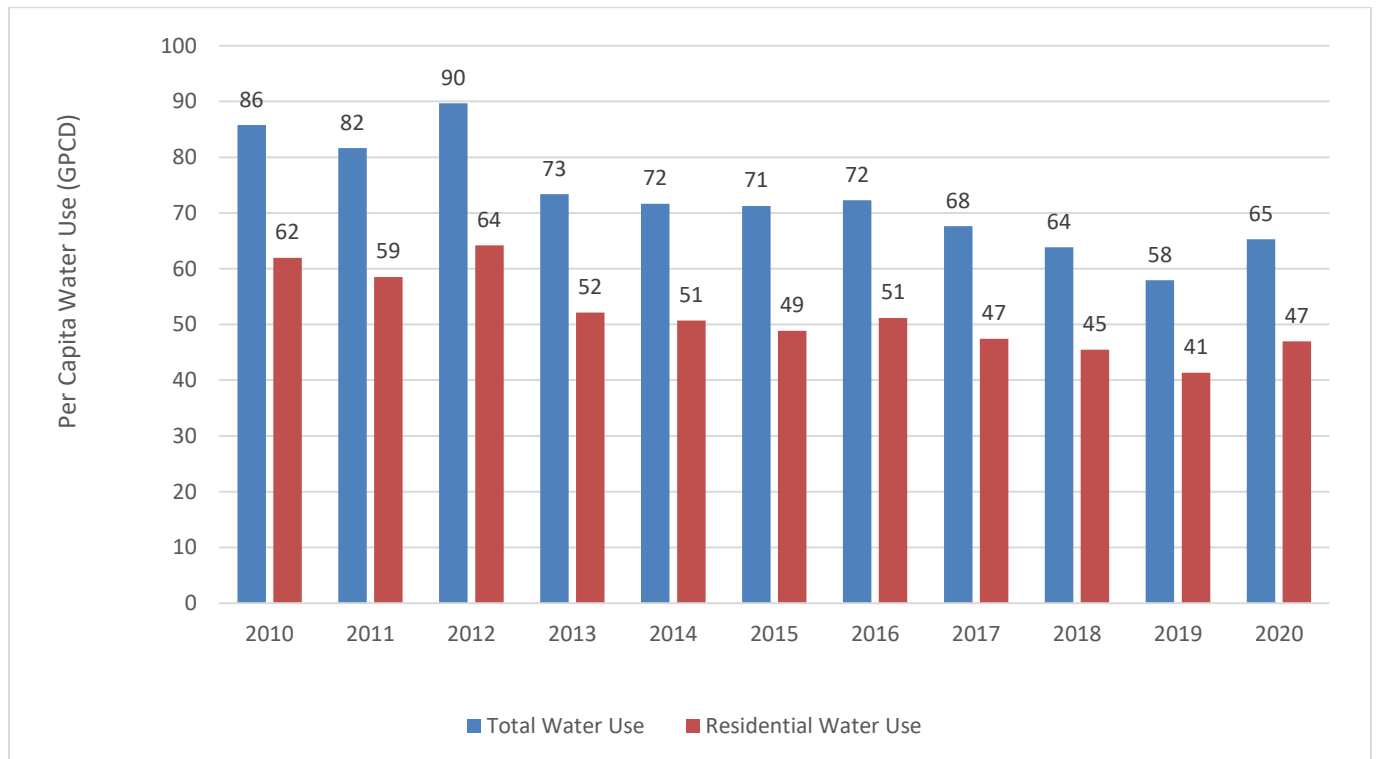


Table 5 – Historical Water Use by Customer Category (2000 - 2020)

Values in AF

Year	In-Town Customers					Out-of-Town Customers			Dual System		Landscape	Total
	Residential	Business	Industrial	School	Church	Residential	Business	Church	Residential Dual System	Business Dual System		
2000	730	114	159	13	5	3	0	0	319	18	118	1,479
2001	812	127	176	15	5	3	0	0	355	20	131	1,644
2002	815	127	177	15	5	3	0	0	357	20	132	1,651
2003	767	120	167	14	5	3	0	0	336	19	124	1,555
2004	920	125	142	19	6	2	1	0	202	4	91	1,512
2005	1,023	130	165	21	9	2	1	0	234	6	115	1,706
2006	1,127	132	193	22	9	4	1	0	240	13	152	1,893
2007	1,056	144	204	28	8	3	1	0	275	12	178	1,909
2008	961	133	221	21	7	3	2	0	276	11	114	1,749
2009	844	126	195	19	7	2	1	0	285	12	117	1,608
2010	1,005	125	204	18	7	2	1	0	306	13	137	1,818
2011	952	127	194	18	7	2	0	0	318	14	142	1,774
2012	1,087	152	211	17	7	3	0	0	365	16	175	2,033
2013	886	143	204	17	5	3	0	0	369	20	124	1,771
2014	901	154	200	19	6	3	0	0	387	21	134	1,825
2015	887	150	210	50	6	4	0	0	402	23	153	1,885
2016	959	144	192	18	7	3	1	0	450	28	192	1,994
2017	902	139	207	19	7	4	5	0	509	36	189	2,017
2018	923	142	209	16	8	5	0	0	546	36	186	2,071
2019	884	150	217	15	8	7	0	0	583	37	163	2,064
2020	972	163	234	12	8	8	0	0	741	43	212	2,393
Average	924	137	194	19	7	3	1	0	374	20	147	1,826

Note: highlighted rows show drought periods.

3.2 Historical Drought Impact, Mitigation and Response Assessment

Historically, Windsor's water supplies have been sufficient during drought. During the early 2000's when all of northern Colorado area suffered from severe droughts, Windsor had to lease additional C-BT supplies to meet customer demands. Windsor has a wastewater ordinance and a water restriction ordinance, which were used seasonally and to mitigate drought impacts. These two ordinances were established in 2003 in response to the drought. During the 2012 through 2014 dry period, Windsor exceeded its base allotment from the City of Greeley, one of the sources of Windsor's treated water supply. In retrospect, programs to target demand side reductions could have helped reduce the water supply gap. The current Drought Management Plan includes steps to reduce demand as one way to assist Windsor in dealing with the inevitable occurrences of droughts.

It is also beneficial to develop a plan to identify historical drought impacts. The Drought Planning Committee identified and listed the impact that past droughts have had on Windsor, see **Table 6**.

Table 6 – Historical Drought Impacts

Historical Impact	Severity
Increased costs and staff time	Significant
Public landscaping stressed or killed	Significant
Safety of public sporting fields	Moderate
Costs to lease/develop new water supplies	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

SECTION 4.0 – DROUGHT VULNERABILITY ASSESSMENT

4.1 Water Supply Reliability and Drought Management Planning

The ability of the water supply to meet customer water demands during times of stress such as droughts is known as water supply reliability. The water supply reliability can be assessed by looking at the firm yield of the Town's water supply. In this case, the firm yield is defined as the lowest historical volume of water per water right unit or share, multiplied by the number of units/shares owned by the Town. Currently, the Town's firm yield exceeds customer demands; however, a multi-year drought can still have an impact on the Town. Multi-year droughts draw down the storage supplies, lessening the firm yield over time. In addition, the projected population increases for Windsor and more generally along the Front Range makes the acquisition of additional water supplies more costly and scarce, especially during drought periods when the competition to lease water increases. The price per C-BT unit has skyrocketed since the early 2000s and is now valued at approximately \$60,000 per unit based on Northern Water's records (2020). The average long-term yield is 0.7 AF per unit which equates to over \$85,000 per AF. The 2020 price per unit of C-BT water has more than doubled since 2018. **Table 7** provides a summary of Windsor's treated water supplies and the estimated firm yield for the Town.

Table 7 – Windsor's Treated Water Supply Firm Yield

Source	Units/Shares	Firm Yield Per Unit/Share (AF)	Total Firm Yield (AF)
C-BT: Fixed Quota	2,101	0.7	1,471
C-BT: Variable Quota	1,389.8	0.5	695
NPIC: C-BT and Ag Components	515.75	1.0	515.75
Greeley Loveland System	1*	11.7*	400*
Total			3,081.75

** Figures shown are estimates. The decree that determines the yield of the Greeley Loveland System water rights has not been entered in Water Court as the case is still pending.*

The goal of this Plan is to focus on drought monitoring, mitigation actions and responses 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.

Summary of Water Planning Documents

The Town has several planning documents it uses to guide its water management decisions. Windsor's 2019 Potable Water Master Plan provides the Town's decision makers with the information needed to make sound decisions

associated with its potable water portfolio to best position the Town for its future. This plan evaluates projected demands through build-out and identifies new sources of water to meet those demands. The demands included in the plan were developed consistent with the Land Use plan outlined in the Town's 2006 Comprehensive Plan. The Potable Water Master Plan acknowledged that being reliant on water acquisition alone wouldn't be sufficient and encouraged the Town to also seek water savings through conservation measures and programs.

Windsor's 2010 Non-Potable Water Master Plan analyzes projected future water demands through full build-out of Town parks and open spaces and identifies new sources of water to meet the supply gap. The goal of the plan was to guide the Town through its non-potable needs, including water acquisition, water storage, and Kern system improvements needed for irrigation and augmentation. Foresight into the Town's needs of "how much" and "what kind" of water supply will help position Windsor with sufficient non-potable water long term in this highly competitive water market. Fourteen key findings and recommendations were concluded in the plan.

Windsor developed its 2015 Municipal Water Efficiency Plan Update in accordance with the Water Conservation Act of 2004 and to meet the provisions of Colorado Revised Statute section 37-60-126. The plan establishes a water savings goal of reducing per capita water use by 10% over a ten-year planning period. The plan documents the Town's water system, past and future water uses, and its implemented water efficiency activities since the late 1970s. To reach the 10% water savings goal, the Town selected 23 water efficiency activities for future implementation in the plan. Various water efficiency activities have already been implemented by the Town including meter testing, watering restrictions, and a xeriscape demonstration garden. Windsor has seen a downward trend in the per capita water use since 1998. The success of the implemented activities can be measured through the monitoring of customer billing data and metered Town uses. Water saved from efficiency activities can meet future water demands in the Town, lessening the need for Windsor to acquire new sources to meet growth.

The Town's 2016 Comprehensive Plan provides a future vision for the Town and establishes a framework for growth. The plan's purpose is to guide growth and development over the next 15 to 20 years while maintaining Windsor's small town charm. The plan identifies future land use areas of residential, commercial, and industrial/manufacturing with the Town's GMA. The build-out land use area within Windsor's GMA totals 26,869 acres, of which 18,698 acres is within Windsor's water service area.

Other Factors that Potentially Impact Water Supply

Any situation impacting or interrupting the Town's treated water supply can have an impact similar to a drought. For example, an explosion at a water treatment facility, a natural disaster impacting storage or transmission lines, or water quality contamination could all create drought-like conditions. This would occur if the water supplies were reduced and couldn't meet customer demand as a whole or during certain time periods, such as times of peak demand. Both the C-BT units and NPIC shares consist of transmountain water supplies from the West Slope of Colorado. There is a tremendous amount of beetle kill to trees surrounding Lake Granby, Grand Lake and Shadow Mountain. This beetle kill poses an increased risk of fire which would degrade the water quality significantly. The wildfires in Colorado in 2020 created significant damages to some of these areas which created water quality issues during spring runoff.

Looking into the future water supply and customer demands in Windsor, one factor impacting the Town's future supply is a change in the Town's raw water dedication policy. Historically, land developers were required to dedicate raw water to the Town to meet 100% of the demands of new residential or commercial developments. In approximately 2009, the Town shifted to a 50% water, 50% cash-in-lieu policy to help generate revenue to pay for its participation in the NISP project. In 2020, the Town changed its policy to require 100% cash-in-lieu for water dedication. The cash-in-lieu will be used to fund Windsor's participation in NISP, as well as other water acquisition. NISP is a planned water supply project that will divert and store water from the Cache la Poudre and South Platte Rivers in two proposed new reservoirs. The project is a partnership between 15 water providers in Northern Colorado and will be managed by Northern Water. A series of new pipelines and improved ditches and canals will be used to deliver water to communities along the Front Range for growth and development. NISP will also create public recreational opportunities for residents in Northern Colorado. The project is anticipated to deliver water beginning in 2028.

Once NISP is developed, Town Staff believe the yield will be sufficient to meet the growing demands of the Town; however, there will be a gap between the time new developments are constructed and the time NISP is completed. This may create a short-term stress or shortage on water supplies if a drought occurs during this gap period. If drought conditions were to occur, the Town may need to lease water depending on the severity and length of the drought. This is another reason the Town is proactively assessing its supplies, developing water efficiency activities and planning drought mitigation and responses.

4.2 Drought Impact Assessment

Droughts have various and far-reaching impacts throughout the Town. The severity of these impacts is related to the magnitude and duration of the drought. At the first Stakeholder Group meeting held by the Drought Planning Committee, the Committee evaluated potential future drought impacts using the Colorado Water Conservation

Board's (CWCB) *Worksheet A*. The Committee identified the impacts posing the greatest risk for Windsor.

Table 8 lists potential future drought impacts and the anticipated severity for each as determined by the Committee. One goal of this Plan is to lessen the severity of these impacts using effective drought response efforts.

Table 8 – Potential Future Drought Impacts

Future Impact	Severity
Damage to Landscaping and Lawns	Significant
Damage to Town of Windsor Landscaping and Turf	Significant
Damage to Sports Fields Creating Safety Issues	Significant
Loss of Revenue from Parks and Recreation Activities	Significant
Loss of Revenue from Reduction in Water Sales	Moderate
Costs to acquire/develop new water supplies/water rights transfers	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 5.0 – DROUGHT MITIGATION AND RESPONSE STRATEGIES

5.1 Overview

Drought mitigation and response strategies are actions Windsor can take to minimize drought impacts. Mitigation measures are long-term actions implemented prior to a drought to prepare the Town for potential drought conditions. On the other hand, response strategies are short-term actions taken during a drought to directly respond to water supply conditions. The types of measures and strategies initiated by the Town will depend on the severity and length of a drought. Some actions may be considered both mitigation and response strategies. For example, the Town may monitor drought indicators, such as snowpack and streamflow, which would be done consistently as a mitigation measure but more often during a drought as a response strategy.

Drought mitigation and response strategies were developed for the Town using the CWCB's Drought Management Guidance Document worksheets. The Drought Planning Committee screened potential mitigation measures and response strategies during the second Stakeholder Group meeting. Potential drought mitigation measures were screened by the Committee using the following criteria:

- Do the response measures and enforcement appropriately reflect the Drought Management Plan's objectives and principles developed in Step 1?
- Will the selected mitigation or response strategy provide an adequate amount of water savings?
- How does the selected mitigation or response strategy compare to neighboring towns, cities and other water providers?
- How will the public accept the selected mitigation or response strategy?
- Is the measure worth the cost/effort of enforcing it? Can it be enforced effectively?
- Town Board, Water and Sewer Board and Staff Acceptance?
- Environmental sensitivity and extraneous other impacts?

The staged drought response plan is based on the best available information to date and future adjustments may be necessary prior to or during drought periods to sufficiently address water shortages.

5.2 Supply-Side Mitigation and Response Strategies

Supply-side mitigation and response strategies target the management of overall water system and treated water supplies. These types of strategies consist of actions that can be taken by the water provider such as developing a drought management plan, implementing water efficiency activities or actively managing the Town's water rights portfolio.

Supply-side strategies for Windsor were selected by the Drought Planning Committee using the same criteria outlined in Section 5.1. The Committee screened potential strategies from the CWCB's *Worksheet B* at the second Stakeholder Group meeting. A copy of *Worksheet B* can be found in **Appendix A**. The selected strategies are provided in **Table 9** and reflect the Town's water use priorities and operating principles.

Table 9 – Supply-Side Response Strategies

Category	Response Strategy
Develop management strategies and water supply options	• Establish drought reserves and acquire additional storage and draw from reserves as needed. • Evaluate purchasing or leasing raw water from farmers or other water providers. • Evaluate leasing treated water from other entities that could be delivered through future interconnects with the Town. • Consider filing substitute water supply plan to temporarily use agricultural water rights if water is available. • Discuss with raw water provider a temporary reduction in raw water transfer requirements • Maximize C-BT carryover options and evaluate leasing excess C-BT supplies.
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.
Operational practices	• Consider reducing service distribution pressures.

5.3 Demand-Side Mitigation and Response Strategies

Demand-side mitigation and response strategies target reductions in customer demands. These types of strategies consist of actions taken by the water provider or utility to encourage customers (and the utility itself) to conserve water supplies. During a drought, this is typically the simplest and fastest way to address shortages in water

supply. It's advisable for the Town to participate in demand-side response strategies itself before or in conjunction with customers to reduce demands. Some strategies may be voluntary while others may be mandatory, which can depend on the severity of the drought and recommended actions determined by the Town Board, Water and Sewer Board and Staff.

The Committee screened potential strategies using the CWCB's *Worksheet C* at the second Stakeholder Group meeting. A copy of *Worksheet C* can be found in **Appendix A**. Similar to the supply-side strategies, the demand-side strategies were screened and selected using the criteria in Section 5.1 and consider the Town's water use priorities and operating principles. Windsor's demand-side strategies selected by the Drought Planning Committee are provided in **Table 10**.

Table 10 – Demand-Side Response Strategies

Category	Response Strategy
Town Operations <i>(actions taken by Town Staff to conserve water)</i>	• Promote efficient water use on Town properties. • Restrict/eliminate irrigation on Town parks and landscaping • Turn off ornamental fountains and recreational water amenities and prohibit pool refills • Limit/prohibit washing of Town vehicles • Limit/prohibit street and sidewalk cleaning • Limit hydrant flushing • Limit/prohibit 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 • Turn off ornamental fountains and recreational water amenities and prohibit pool refills • Limit watering of trees and shrubs to hand-held hose or low-volume spray device • Minimize or prohibit power washing and spraying of impervious surfaces • Restrict the issuance of new water taps • Limit or prohibit installation of new sod and landscape. • Limit/prohibit personal vehicle washing except at commercial car washes • Limit car dealership vehicle washing • Promote reduction of indoor water use

Category	Response Strategy
Water Customers (cont.)	• Limit use of construction water • Eliminate sales or water from the Public Works water tank • Promote or require indoor and outdoor water audits for large water users • Promote/enforce service of water in restaurants only upon request • Promote/enforce reduction of frequency of linen and towel washing in hotels

5.4 Drought Public Information Campaign

A public drought education campaign is used to raise awareness of drought conditions and encourage customers to conserve water. Campaigns inform customers of the severity of the drought and what a water shortage means to the community, which can often shift customer perceptions and behaviors during a drought. Campaigns also create streamlined communication so customers receive the same messaging from all Town Staff. These campaigns are also used to educate the public on the Town's demand-side mitigation and response strategies. The public drought campaign will be coordinated by the Town's Administrative Services Department. The objectives for the campaign 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 Administrative Services Department and the Engineering Division 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 11 is a list of public information messaging that should occur for drought preparedness as well as during a drought. Conservation messages will continue throughout all drought stages. Messaging includes basic information about the drought 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.

Table 11 – Public Drought Messages

Ongoing Conservation Messages	• Increase advertisement for water conservation incentives, such as rebates for water-efficient fixtures (i.e., toilets, clothes washers and irrigation controllers) • Promote Slow the Flow irrigation audits and indoor residential audits • Water conservation savings tips • Instructions for customers to reduce indoor and outdoor 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 • Promote existing xeriscape gardens and Garden in a Box program
Drought Preparedness Messages	• Status of current drought conditions and drought stages* • Long-term sustainability of water system • Location where Drought Management Plan may be accessed • Measures and/or impacts that customers can expect if drought continues or intensifies • Factors that could influence water supply services and cost of services • Water provider's actions to save water and/or acquire new water • Policy recommendations, requirements and penalties • Enforcement of drought policies • Explanation of drought surcharge or rate increase*
Messages During Drought	• Current drought stage and watering restrictions (i.e., impacts the customer can expect if drought continues or intensifies)* • Publicize a drought hotline to report restriction violations • Landscape tips during 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 • Restrictions on use of athletic field to minimize turf impacts • Publicize efforts of individual and businesses as examples of how to reduce water use

**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.*

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. Other resources can be utilized, such as local landscaping companies providing landscaping tips during a drought and post-drought landscape revival information.

The Administrative Services Department and the Community Development Department, at the direction of the Town Manager, will coordinate how the public drought campaign is communicated to the public. **Table 12** 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, website notices, electronic message center signage, and social media networking.

Table 12 – Public Drought Campaign Communication Tools

Targeted Audience	Short-Term Response Strategy (during drought)	Long-term Mitigation (non-drought)
Town Staff, Water and Sewer Board and Town Board	• Email • Meetings	• Email
Media	• Website • Windsor News Center • Windsor Alert Center • Media articles • Social media networking	• Website • Windsor News Center • Social media networking • Newsletter
All Water Customers	• Bill inserts • Website • Windsor News Center • Windsor Alert Center • Broadly distributed email • WindsorTV • Social media networking • Notify Me! • Public meetings • Media articles • Booths at special events • Public posters • Electronic message center signage	• Website • Broadly distributed email • Social media networking • Newsletter • Booths at special events

SECTION 6.0 – DROUGHT STAGES, TRIGGER POINTS AND RESPONSE TARGETS

6.1 Drought Stages, Trigger Point and Response Targets

Every water provider will have differing drought stages, trigger points and response targets based on its water system, water supply, customer demands, and climate and streamflow conditions. The drought stage sets the level of severity of the drought for a specific water provider, such as Windsor. Trigger points indicate when Town Staff should implement specific responses to address each drought stage. The drought stage, trigger points and response targets work to create a framework to guide Town Staff to respond to and mitigate drought impacts.

Windsor's water supplies, like many municipalities', vary as water is dedicated by developers before the demands are fully online. Because of this, Windsor chose to use a Water Supply Index (WSI) that considers 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.

$$WSI = \frac{\text{Supply}}{\text{Demand}} = \frac{(\text{CBT Quota} * \text{No. of CBT Units}) + (\text{Firm Yield of Other Supplies})}{(\text{Demand} * 130\%) + \text{Carryover (next)}}$$

The inputs for supply are the number of C-BT units the Town owns multiplied by the C-BT quota plus the projected yield of Windsor's NPIC and Greeley Loveland System shares. The inputs for demand are the previous year's water use plus 30% for surcharges from FCLWD, NWCWD and City of Greeley and distribution loss plus the estimated C-BT carryover for next year. The carryover amount is calculated as 20% times Windsor's C-BT ownership (converted to AF).

The drought stages have been categorized into four levels. The trigger point for each level and the response targets are provided in **Table 13**.

Table 13 – Drought Stages for the Town of Windsor

Drought Stage	Water Supply Index	Response Targets
Adequate Water Year	>110%	
Level 1	101% - 110%	1% - 15%
Level 2	90% - 100%	15% - 30%
Level 3	<90%	>30%

The first stage is a baseline level (Level 0 - Adequate Water Year), 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.

The next stage, Level 1, occurs when supplies are reduced but still greater than the demand. The trigger for this stage would be a WSI = 101 to 110% with an estimated water savings of 1-15%. During this stage of drought, the Town begins to restrict irrigation at certain parks, implements mandatory two-day-a-week watering restrictions and begins to consider water surcharge increases.

The next drought stage, Level 2, indicates that demand has risen above supply 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 farmers and other entities and potential trades of non-potable supplies for treatable water. Mandatory one-day-a-week watering restrictions will be implemented for all water customers. Irrigation of Tier 2 Town Parks will be restricted and Tier 3 park irrigation would be eliminated except for hand watering of trees and shrubs. The Town would implement an increase in the water surcharge and/or increase water rates to further encourage water conservation and cover costs.

The last stage of drought, Level 3, occurs when the WSI is anything less than 90%. This stage is the most serious, and the Town starts to prohibit outdoor irrigation (except for trees and shrubs) for all water use customers and allows restricted irrigation of the Town's most important Tier 1 parks.

These drought triggers are meant to be guidelines and can be adjusted during times of drought depending on the severity and other outside factors.

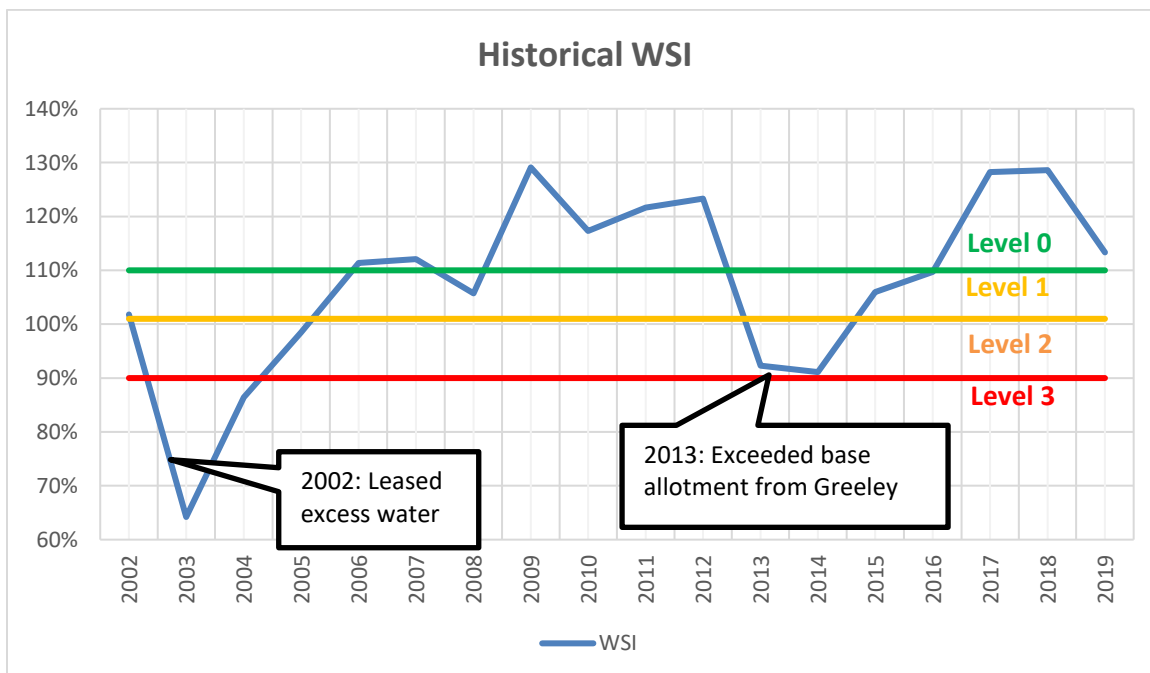
6.2 Water Supply Index Assessment

The Town selected to monitor a WSI because it is a quick and comprehensive measure of its water availability. **Table 14** and **Figure 5** below show the WSI results and corresponding drought stage for the last 18 years. The highlighted rows indicate drought periods. The historical WSI was calculated based on the C-BT quota that was declared in November plus any supplemental quotas in April and June of that year, and the assumption that all C-BT units are variable units. The historical WSI tracks fairly well with historical drought periods when water supplies were supplemented or exceeded. As this Plan is put into practice, Windsor will make adjustments to the WSI calculations as needed.

Table 14 – Historical WSI

Year	WSI	Level
2002	102%	Level 1
2003	64%	Level 3
2004	86%	Level 3
2005	98%	Level 2
2006	111%	Level 0
2007	112%	Level 0
2008	106%	Level 1
2009	129%	Level 0
2010	117%	Level 0
2011	122%	Level 0
2012	123%	Level 0
2013	92%	Level 2
2014	91%	Level 2
2015	106%	Level 1
2016	110%	Level 1
2017	128%	Level 0
2018	129%	Level 0
2019	113%	Level 0

Figure 5 – Historical WSI



6.3 Drought Declaration and Predictability

Weather in Colorado is extremely variable and 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 almost impossible to predict the beginning or end to drought.

The Town will monitor its WSI on a continual basis. Engineering Division Staff will start in November when the first quota is issued by Northern Water 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 Engineering Division will calculate the WSI monthly and also monitor the savings from drought response strategies on a monthly basis. The WSI and savings may also be monitored on a weekly basis if the drought stage is progressing. Depending on how the year progresses, i.e., the drought improves/worsens or a supplemental C-BT quota is issued, the Town will adjust the drought stages as necessary.

Engineering Division 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, Engineering Division Staff will monitor monthly trends in precipitation, temperature and snowpack. Staff may also attend the Northern Water meetings in November and April to learn the status of the C-BT system (snowpack, river flows, and precipitation).

SECTION 7.0 – STAGED DROUGHT RESPONSE PROGRAM

The Town developed specific response strategies for each stage of drought referred to as the Staged Drought Response Program. Once a trigger point outlined in **Table 15** is met, the Town Staff and decision-makers will take actions as described in the following sections based on the drought stage.

7.1 Level 0 – Adequate Water Year

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. Windsor 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* - Management strategies for this drought stage include the following:
 - Establish drought reserves and acquire additional storage
 - Maximize C-BT carryover options and lease excess supplies as available.

Demand-Side Response Measures:

Town

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

Table 15 - Staged Drought Response Program (Treated and Non-Potable Water Supplies)

Water Supply Index	>110%	101%-110%	90%-100%	<90%
Levels	Adequate Water Year - Level 0	Level 1	Level 2	Level 3
Water Savings Goal		1-15%	15-30%	>30%
SUPPLY-SIDE STRATEGIES:				
WATER SUPPLY AUGMENTATION:	Establish drought reserves and acquire additional storage	Draw from drought reserves as needed		
PURCHASE RAW WATER:		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:		Consider filing substitute water supply plan to temporarily use agricultural water rights if water is available		
CONTRACT NEGOTIATIONS:		Discuss with water provider a temporary reduction in raw water transfer requirements		
CBT OPTIONS:	Max Carryover, lease excess	Max Carryover, consider leasing excess	Max Carryover, no leasing	Max Carryover, no leasing
TECHNICAL & FINANCIAL ASSISTANCE:	Seek technical and financial assistance opportunities			
DEMAND-SIDE STRATEGIES:				
OUTDOOR IRRIGATION FOR TOWN PROPERTY ³ :	Allow standard irrigation practices and promote efficient water use	Restrict irrigation on Tier 3 Town Parks and Open Space	Eliminate irrigation on Tier 3 Parks and Open Space except for hand watering of trees and shrubs. Restrict irrigation on Tier 2 Town Parks and Open Space	Eliminate irrigation on Tier 3 and Tier 2 Town Parks except for hand watering of trees and shrubs, and Restrict on Tier 1 Parks and Open Space
TOWN VEHICLE WASHING:	As needed	Once per week (except as necessary for health and safety)	Once per week (except as necessary for health and safety)	Not allowed (except as necessary for health and safety)
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	Limit use of water for fire training	Prohibit water use for fire training
OUTDOOR POOLS, FOUNTAINS AND RECREATIONAL AMENITIES:			Ornamental fountains and recreational water amenities are turned off; Pools are not refilled	Ornamental fountains and recreational water amenities are turned off; Pools are not refilled
OUTDOOR IRRIGATION FOR RESIDENTIAL CUSTOMERS:	Voluntary watering restrictions. Per ordinance no lawn watering permitted between 10 am and 6 pm	Mandatory watering restrictions to two days a week. Hand watering of trees and shrubs allowed. No watering between 10 am and 6 pm (est. 10% savings*)	Mandatory watering restrictions to one day a week. Hand watering of trees and shrubs allowed. No watering between 10 am and 6 pm (est. 16% savings*)	Residential outdoor irrigation is prohibited, except for hand watering of trees and shrubs (est. 18% savings*)
OUTDOOR IRRIGATION FOR BUSINESS, INDUSTRIAL, SCHOOL AND CHURCH CUSTOMERS:	Voluntary watering restrictions. Per ordinance no lawn watering permitted between 10 am and 6 pm	Mandatory watering restrictions to two days a week. No watering between 10 am and 6 pm (est. 2% savings*)	Mandatory watering restrictions to one day a week. No watering between 10 am and 6 pm (est. 2% savings*)	Business outdoor irrigation is prohibited, except for hand watering of trees and shrubs (est. 3% savings*)
OUTDOOR IRRIGATION FOR IRRIGATION-ONLY CUSTOMERS:	Voluntary watering restrictions. Per ordinance no lawn watering permitted between 10 am and 6 pm	Mandatory watering restrictions to two days a week. No watering between 10 am and 6 pm (est. 5% savings*)	Mandatory watering restrictions to one day a week. No watering between 10 am and 6 pm (est. 6% savings*)	Outdoor irrigation is prohibited, except for hand watering of trees and shrubs (est. 7% savings*)
NEW WATER TAPS:			Restrict the issuance of new taps	Restrict the issuance of news taps
IRRIGATION OF NEW SOD/ LANDSCAPING:		September - April installation of new sod and/or landscaping. Follow irrigation watering restrictions	No new sod, seeding, and landscaping installments allowed	No new sod, seeding, and landscaping installments allowed
BUSINESS ¹ AND RESIDENTIAL WASHING IMPERVIOUS SURFACES (such as sidewalks and driveways):	Power Washing and spraying of impervious surfaces should be minimized	Power washing and spraying of impervious surfaces is prohibited.	Power washing and spraying of impervious surfaces is prohibited.	Power washing and spraying of impervious surfaces is prohibited.
BUSINESS ¹ AND RESIDENTIAL VEHICLE WASHING	Promote washing of personal/company vehicles with a shut-off nozzle and bucket	Promote washing of personal/company vehicles with a shut-off nozzle and bucket	Personal/company vehicles may only be washed at a commercial car wash	Personal/company vehicles may only be washed at a commercial car wash
COMMERCIAL CAR WASH ² WASHING VEHICLES				Town may limit or restrict washing vehicles at commercial car washes
DEALERSHIP VEHICLES WASHING	As needed	Once per week	Upon Sale	Upon Sale
INDOOR WATER USE:	Encourage each resident to reduce their water consumption			
CONSTRUCTION WATER:		Conserve and prevent wasting of construction water		Limit use of construction water
PUBLIC WORKS WATER TANK SALES:	No Restrictions	No sales from Water Tank	No sales from Water Tank	No sales from Water Tank
LARGE WATER USERS:	Promote indoor and outdoor water audits	Promote indoor and outdoor water audits	Promote indoor and outdoor water audits	Require indoor and outdoor water audits
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 request	All restaurants are required not to serve water unless customer request
	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
WATER SURCHARGE OR RATE INCREASE ⁴ :		Consider water surcharge increase	Implement an increased water surcharge or rate increase	Implement an increased water surcharge or rate increase

NOTES: *Estimated water savings is based on total annual water use for the Town. Based on 2019 outdoor water usage.
¹ Business is considered businesses washing their own vehicles. Commercial car washes not included under this item (see Commercial Car Wash specific line item).
² Commercial Car Wash refers to a company which operates its primary business as washing cars for revenue.
³ Refer to Appendix B of the report for a listing of Tier 1, Tier 2 and Tier 3 parks and open spaces.
⁴ Developing a drought reserve or rate stabilization fund can also be done to offset the costs associated with drought.

Water Customers

- *Active and inactive turf areas* - Promote standard irrigation practices that result in efficient water use (such as water audits and repairing leaks).
- *Outdoor irrigation for Residential, Business, Industrial, School, Church and Irrigation-Only Customers* – Voluntary watering restrictions including no lawn watering permitted between 10 am and 6 pm. Additionally the Town will generally 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.
- *Large water users* – Promote indoor and outdoor water audits.
- *Restaurants and lodging establishments* – Promote water conservation and water efficient practices.

Public Campaign:

Distribution of on-going pre-drought information as described in Section 5.4.

Enforcement Procedures:

As described in Section 8.5.

7.2 Level 1 Drought Stage

Drought Trigger Points: WSI between 101% and 110%

Drought Stage and Trigger Summary: This drought stage will occur when supplies are still greater than demand and the WSI is between 101% and 110%. This stage includes the first level of mandatory watering restrictions. The water savings target is 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. Windsor 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* - Management strategies for this drought stage include the following:
 - Draw from drought reserves and acquire additional storage.
 - Evaluate leasing water from farmers or purchasing raw water from other providers.
 - Evaluate purchasing water through interconnects.
 - Consider filing substitute water supply plan to temporarily use agricultural water rights.
 - Discuss with raw water providers a temporary reduction in raw water transfer requirements.
 - Maximize C-BT carryover options and lease excess supplies as available.

Demand-Side Response Measures:

Town

- *Outdoor irrigation for Town property* – Restrict irrigation on Tier 3 Town Parks and open space. A complete list of Town Parks and their Tier designation can be found in **Appendix B**.
- *Vehicle washing* – Limit washing of Town vehicles to once per week or as necessary for health and safety.
- *Hydrant Use* – Limit use of water for fire training.
- *Street cleaning* – Limit street and sidewalk cleaning and encourage water efficient practices.

Water Customers

- *Inactive turf areas with four acres or more* – Limit watering to a maximum of 1" or 0.62 gallons per square foot (sq. ft.) per week. Water is also limited to three days per week with no watering between the hours of 10 am and 6 pm.
- *Active turf areas and community athletic/playing fields* - Limit watering to a maximum of 1.25" or 0.78 gallons per square foot (sq. ft.) per week. Water is also limited to three days per week with no watering between the hours of 10 am and 6 pm.

- *Outdoor irrigation for Residential Customers* – Mandatory watering restrictions to two days a week. Hand watering of trees and shrubs allowed. No watering between 10 am and 6 pm.
- *Outdoor irrigation for Business, Industrial, School, Church and Irrigation-Only Customers* – Mandatory watering restrictions to two days a week. No watering between 10 am and 6 pm.
- *Irrigation of New Sod/Landscaping* – Installation of new sod or landscaping is limited to September through April. Irrigation watering restrictions must be followed.
- *Washing impervious surfaces* – Power washing and spraying of impervious surfaces is prohibited.

Business and Residential vehicle washing – Promote washing of personal/company vehicles with a shut-off nozzle and bucket

- *Dealership Vehicle Washing* – Limit washing of dealership vehicle to one time per week.
- *Construction water* – Appropriate measures should be taken to reduce the use of water for construction (i.e. following best management practices).
- *Public Works water tank sales* – Prohibit sales from water tank.
- *Large water users* – Promote indoor and outdoor water audits.
- *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.
- *Water surcharge or rate increase* – The Town will consider an increase in the water surcharge.

Public Campaign:

Distribution of on-going pre-drought information as described in Section 5.4.

Enforcement Procedures:

As described in Section 8.5.

7.3 Level 2 Drought Stage

Drought Trigger Points: WSI between 90% and 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% and 100%. This stage will include the mandatory two-day-a-week watering restrictions for all water customers. The water savings targeted will be approximately 15-30%.

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. Windsor 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* - Management strategies for this drought stage include the following:
 - Draw from drought reserves and acquire additional storage.
 - Evaluate leasing water from farmers or purchasing raw water from other providers.
 - Evaluate purchasing water through interconnects.
 - Consider filing substitute water supply plan to temporarily use agricultural water rights.
 - Discuss with raw water providers a temporary reduction in raw water transfer requirements.
 - Maximize C-BT carryover options with no leasing of excess supplies.

Demand-Side Response Measures:

Town

- *Outdoor irrigation for Town property* – Eliminate irrigation on Tier 3 Town Parks and open space except for hand watering of trees and shrubs. Restrict irrigation on Tier 2 Town Parks and open space. A complete list of Town Parks and their Tier designation can be found in **Appendix B**.
- *Outdoor Pools, fountains and recreational amenities* - Ornamental fountains and recreational water amenities are turned off; Pools are not refilled.

- *Vehicle washing* – Limit washing of Town vehicles to once per week or as necessary for health and safety.
- *Street cleaning* –Street and sidewalk cleaning is prohibited.
- *Hydrant Use* – Limit use of water for fire training and reduce frequency of hydrant flushing.

Water Customers

- *Inactive turf areas with four acres or more* – Limit watering to a maximum of 1” or 0.62 gallons per square foot (sq. ft.) per week. Water is also limited to three days per week with no watering between the hours of 10 am and 6 pm.
- *Active turf areas and community athletic/playing fields* - Limit watering to a maximum of 1” or 0.62 gallons per square foot (sq. ft.) per week. Water is also limited to three days per week with no watering between the hours of 10 am and 6 pm.
- *Outdoor Pools, fountains and recreational amenities* - Ornamental fountains and recreational water amenities are turned off; Pools are not refilled
- *Outdoor irrigation for Residential Customers* – Mandatory watering restrictions to one day a week. Hand watering of trees and shrubs allowed. No watering between 10 am and 6 pm.
- *Outdoor irrigation for Business, Industrial, School, Church and Irrigation-Only Customers* – Mandatory watering restrictions to one day a week. No watering between 10 am and 6 pm.
- *New Water Taps* – Restrict the issuance of new water taps
- *Irrigation of New Sod/Landscaping* – Installation of new sod or landscaping is prohibited.
- *Washing impervious surfaces* – Power washing and spraying of impervious surfaces is prohibited.
- *Business and Residential vehicle Washing* – Personal/company vehicles may only be washed at a commercial car wash.
- *Dealership Vehicle Washing* – Allow washing of dealership vehicle only upon sale.

- *Construction water* – Appropriate measures should be taken to reduce the use of water for construction (i.e. following best management practices).
- *Public Works water tank sales* – Prohibit sales from water tank.
- *Large water users* – Promote indoor and outdoor water audits.
- *Restaurants and lodging establishments* – Restaurants are required to only serve water when requested by customer and lodging establishments are required to promote conservation and limit frequency of linen washing.
- *Water surcharge or rate increase* – The Town will implement an increased water surcharge and a water rate increase.

Public Campaign:

Distribution of on-going pre-drought information as described in Section 5.4.

Enforcement Procedures:

As described in Section 8.5.

7.4 Level 3 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 and the WSI is less than 90%. This stage will prohibit irrigation for all water customers except for hand watering of trees and shrubs. The water savings targeted will be approximately 30% or more.

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. Windsor 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* - Management strategies for this drought stage include the following:
 - Draw from drought reserves and acquire additional storage.
 - Lease water from farmers or purchase raw water from other providers.
 - Purchase treated water through interconnects.
 - Consider filing substitute water supply plan to temporarily use agricultural water rights.
 - Discuss with raw water providers a temporary reduction in raw water transfer requirements.
 - Maximize C-BT carryover options with no leasing of excess supplies.

Demand-Side Response Measures:

Town

- *Outdoor irrigation for Town property* – Eliminate irrigation on Tier 3 and Tier 2 Town Parks and open space except for hand watering of trees and shrubs. Restrict irrigation on Tier 1 Town Parks and open space. A complete list of Town Parks and their Tier designation can be found in **Appendix B**.
- *Outdoor Pools, fountains and recreational amenities* - Ornamental fountains and recreational water amenities are turned off; Pools are not refilled.
- *Vehicle washing* – Not allowed except as necessary for health and safety.
- *Street cleaning* – Street and sidewalk cleaning is prohibited.
- *Hydrant Use* – Hydrant flushing is prohibited unless necessary for public safety. Prohibit water use for fire training.

Water Customers

- *Inactive turf areas and active turf areas and community athletic/playing fields* – Irrigation is prohibited, except for hand watering of trees and shrubs.
- *Outdoor Pools, fountains and recreational amenities* - Ornamental fountains and recreational water amenities are turned off; Pools are not refilled
- *Outdoor irrigation for Residential Customers* – Residential outdoor irrigation is prohibited, except for hand watering of trees and shrubs.
- *Outdoor irrigation for Business, Industrial, School, Church and Irrigation-Only Customers* – Business outdoor irrigation is prohibited, except for hand watering of trees and shrubs.

- *New Water Taps* – Restrict the issuance of new water taps
- *Irrigation of New Sod/Landscaping* – Installation of new sod or landscaping is prohibited.
- *Washing impervious surfaces* – Power washing and spraying of impervious surfaces is prohibited.
- Commercial car wash washing of vehicles – Town may limit or restrict washing vehicles at commercial car washes.
- *Business and Residential vehicle Washing* – Personal/company vehicles may only be washed at a commercial car wash.
- *Dealership Vehicle Washing* – Allow washing of dealership vehicle only upon sale.
- *Construction water* – Limit use of construction water.
- *Public Works water tank sales* – Prohibit sales from water tank.
- *Large water users* – Require indoor and outdoor water audits.
- *Restaurants and lodging establishments* – Restaurants are required to only serve water when requested by customer and lodging establishments are required to promote conservation and limit frequency of linen washing.
- *Water surcharge or rate increase* – The Town will implement an increased water surcharge and a water rate increase.

Public Campaign:

Distribution of on-going pre-drought information as described in Section 5.4.

Enforcement Procedures:

As described in Section 8.5.

SECTION 8.0 – IMPLEMENTATION AND MONITORING

8.1 Mitigation Action Plan

Windsor developed a mitigation action plan with deadlines to implement the selected mitigation strategies in Section 5.0. It is recommended the Town prioritize its mitigation action plan to proactively prepare for a drought as droughts are unpredictable and can last multiple years. The Town's mitigation action plan provides steps to implement each mitigation strategy and outlines the Town Staff responsible for each step or strategy.

Table 16 – Mitigation Action Plan

Mitigation	Implementation Activity	Steps for Implementation	Milestone Deadline	Administration
Drought Management Planning	Complete Stakeholder process	Complete activity by milestone deadline	Sept 2021	Community Development
	Complete Public-Review Process		Dec 2021	
	Plan approved by Town Board		Dec 2021	
	Town Board approved drought-related ordinances		Apr 2021	
Management Supply Strategies and Water Supply options	Continue participation in the C-BT carryover program	Town budgets funds to do this annually	On-going	Community Development - Engineering
	Develop drought reserves and additional storage	Water Resources staff will evaluate as opportunities arise	On-going	
Audits of water distribution system	Conducted annually	See Water Efficiency Plan for more detail	On-going	Public Works
Repair of leaks	As-needed			
Monitoring and replacement of inaccurate meters	Conducted annually			

Mitigation	Implementation Activity	Steps for Implementation	Milestone Deadline	Administration
Conservation Programs	Implemented via Municipal Water Efficiency Plan	See Water Efficiency Plan for more detail	On-going	Community Development
Planning and Land-Use Policies and Regulations	Evaluate planning and land-use policies and regulations and implement water saving policies and regulations	Community Development Staff will evaluate, on an annual basis, water saving policies and regulations	On-going	Community Development - Planning

8.2 Monitoring of Drought Indicators

Windsor's Engineering Division Staff will calculate a WSI every November when the initial C-BT quota is set by Northern Water. 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 Engineering Division 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 season 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, the 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 Engineering Division, on a monthly basis. Health of landscaping will also be monitored by Town Staff to determine the impacts of watering restrictions.

8.3 Drought Declarations

Town Staff and Water and Sewer Board members will review the drought triggers discussed previously and then will use their knowledge of the system and history with the Town to make a drought stage 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:

- Community Development Staff, specifically the Engineering Division, will calculate the WSI in November and April and monitor drought and precipitation data. Engineering Division Staff may also attend the Northern Water meetings in November and April.
- Town Manager, Water and Sewer Board 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 C-BT 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 Town Staff to convey the drought declaration to the Weld County Office of Emergency Management, the Larimer County Office of Emergency Management, CWCB, the Colorado Division of Emergency Management, and the public.

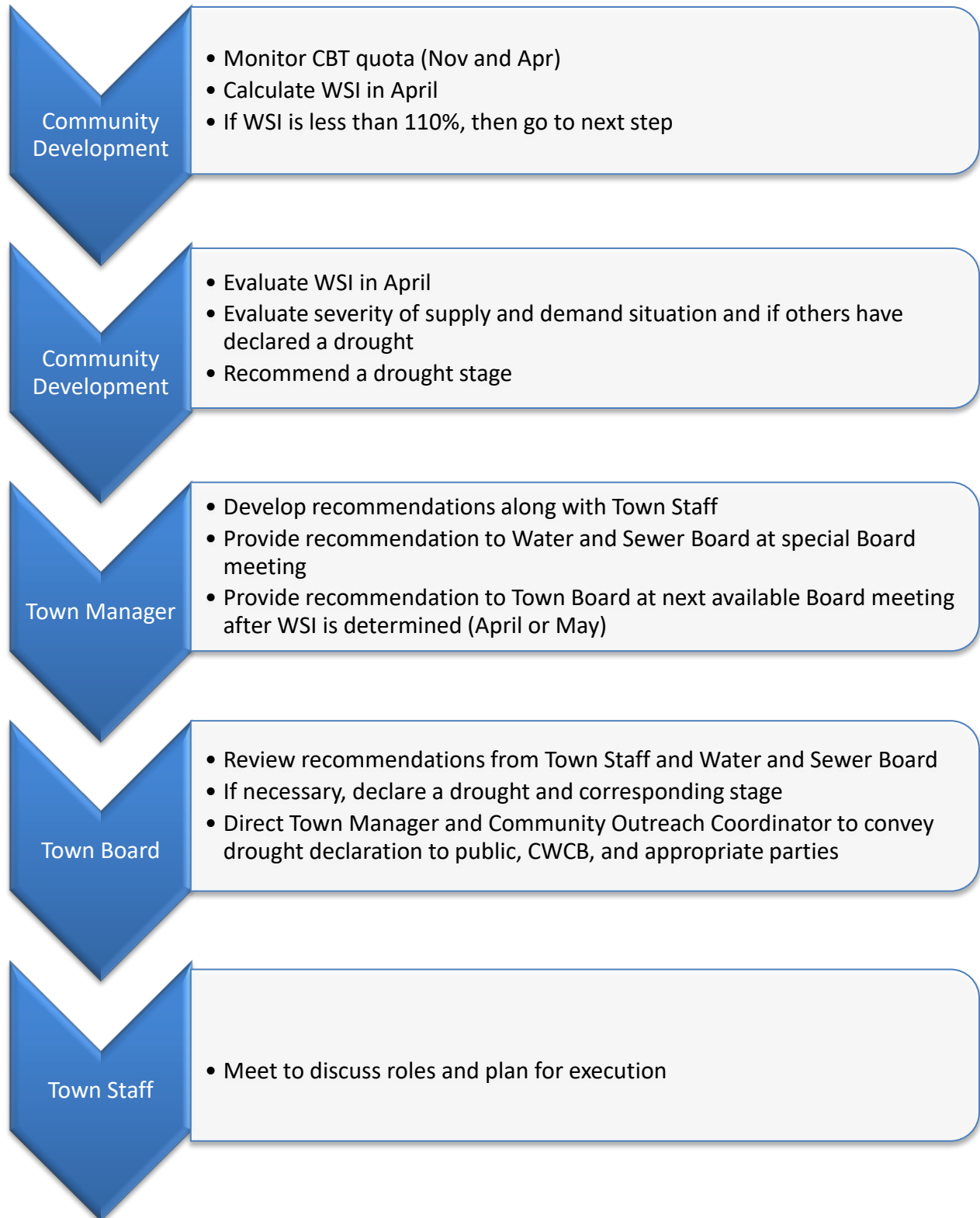
If the drought lessens and the drought stage needs to be changed to a less restrictive one, the same protocol mentioned previously shall apply. If the drought stage needs to be changed to more severe in a short timeframe, the Town Manager has the authority to request an emergency Town Board meeting to discuss the need to declare a more severe drought stage. **Figure 6** on the following page shows the steps for drought declaration.

8.4 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: Community Development, Administrative Services, Public Services, Finance and Police. Their roles and responsibilities are generally described as follows:

- *Community Development Department, Engineering Division* – Administer and monitor the staged drought response program. Provide advice on drought declaration and drought stages that should be implemented.
- *Administrative Services Department* – Convey the drought declaration and stage to the public, implement the public drought campaign and communicate with appropriate state and federal agencies.

Figure 6 – Steps for Drought Declaration



- *Public Services Department* – Monitor outdoor irrigation and Town parks and stresses to landscape and sod. Evaluate service distribution pressures during watering restrictions to insure adequate service. Coordinate with other departments as needed.
- *Finance Department* – Closely monitor revenue and coordinate with Community Development Department to develop a drought surcharge or water rate increase as necessary.
- *Police 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 Community Development Staff 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 action 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

8.5 Enforcement of Staged Drought Response Program

The staged drought program will be enforced by the Town and customized to each level of drought. The Level 1 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 (drought hotline) where customers have an opportunity to report infractions to Community Development Staff and the Town's Police Officers may patrol neighborhoods and business districts to identify customers that are in violation of the mandatory requirements. Community Development Staff can also monitor potential infractions through the metering system. If Community Development receives notice of a potential violation, it will contact a Police Officer to investigate to determine if a citation should be issued. The Town may provide the option for the violator to pay a fine instead of appearing in court.

Following approval of this Drought Management Plan, the Municipal Code concerning drought declarations, notification, violations and penalties was amended to reflect the

Plan. A copy of Municipal Code XX-XX-XXX is available in **Appendix C**. The Code outlines how the Town Board will declare by ordinance a drought stage. The ordinance will also establish restrictions, curtailments and prohibitions on water used and may impose drought surcharges and fines for violations. **Because a drought ordinance is event specific, the ordinance is automatically repealed after one year (if not repealed sooner).** Town Staff will develop a drought ordinance template to use for future drought declarations.

Town Staff will communicate any drought declarations and restrictions with FCLWD, NWCWD and City of Greeley. Windsor will work with the City and these Districts to convey a consistent regional drought message.

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

- *Community Development Department, Engineering Division* – Handles the inflow of calls concerning possible infractions, will dispatch police officers to patrol service area and issue citations as necessary and will track citations issued.
- *Finance Department* - Keeps track of the fines for all water customers and revenue for such fines.
- *Administrative Services Department* – Conveys accurate, consistent information on enforcement to the public throughout the public drought campaign.

8.6 Revenue Implications and Financial Budgeting Plan

The reduction in customer water use during a drought can lead to revenue reductions for the Town. Additionally, the cost of implementing the Drought Management Plan can result in a reduced budget. The Town will consider an increase in water surcharges throughout a Level 2 drought stage and will implement a surcharge or rate increase in the Level 3 stage. An increased surcharge or rate increase may be added during the Level 4 drought stage. 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.

The Town has an operating reserve that is set aside to deal with emergencies and can be used specifically as a drought reserve. The Town will also seek financial drought-related assistance as a drought is declared and if conditions worsen with a corresponding increase in cost. **Appendix D** contains an extensive list of resources for financial assistance available.

The following state funding resources could be pursued:

- Agricultural Emergency Drought Response Fund
- CWCB Flood and Drought Response Fund
- Colorado Department of Agriculture Stimulus Funding (available July 1, 2021)
- Colorado Department of Public Health and Environment (CDPHE) Water Pollution Control Revolving Fund
- CDPHE Drinking Water State Revolving Fund
- CDPHE Water Quality Improvement Fund
- CWCB Water Efficiency & Drought Planning Grant Program
- CWCB Water Project Loan Program

The following federal funding resources could be pursued:

- USDA Farm Service Agency Disaster Assistance Programs
- USDA Rural Development: Emergency Community Water Assistance Grants
- USDA Regional Conservation Partnership Program (RCPP)
- WaterSMART Water and Energy Efficiency Grant Program
- Department of Local Affairs (DOLA) Community Development Block Grant
- U.S. Bureau of Reclamation's Drought Response Program

8.7 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 ensure a proper amount of water savings is being obtained. Engineering Division Staff 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 or as frequently as needed.

The following monitoring data will be collected and presented by the Engineering Division 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, when Northern Water sets its C-BT quota. Any special conditions of the C-BT system will be noted, e.g., 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 park 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.
- *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 9.0 – FORMAL PLAN APPROVAL AND UPDATES

9.1 Public Review Process

The Town conducted a 60-day public comment period from [date] to [date] in order to get feedback from the public. This allowed the public to provide their comments to the XXXXXXXX. Notice was published in the local newspaper as shown in the notification in Appendix E. A hard copy of this Drought Management Plan was available at Town Hall and an electronic version was available 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. The Town received [number] sets of public comments. Public comments [were/were not] addressed in the Plan. Public comments are included in Appendix E.

9.2 Adoption of Ordinances and Official Agreements

The Town officially adopted Ordinance/Municipal Code XXXXXXXX (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 8.3.
- *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.
- *Notification* – 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.
- *Violations and penalties* – Outlines that violators of any drought ordinance may be punished by a fine (to be determined by Municipal Court) and in addition to a fine, the Town may discontinue water service or install a flow restriction device (after advanced notice is given).

In an agreement with the City of Greeley, 300 AF of supplemental water is available to the Town when the C-BT quota is 65% or less. The Town will continue to pursue other agreements related to drought as opportunities become available.

9.3 Drought Management Plan Approval

The Town's Drought Management Plan was approved by the Town Board on [date] (**Appendix F**). Each Board member had an opportunity to review and comment on the plan before the plan was finalized and formally approved.

9.4 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. Collecting the monitoring data outlined in Section 8.7 will be important information for future plan revisions and confirmation that certain measures are working well. As recommended by CWCB, this Drought Management Plan will be updated in 2026 (every five years). The Engineering Division 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.

APPENDIX A

Definition of Terms & Terminology

DEFINITION OF TERMS & TERMINOLOGY

This section provides an overview of many acronyms, terms, and terminology that are commonly used in water efficiency and water planning. Some additional terms are included that are common in this geographical area. Please note that this is not a comprehensive list of all terms and definitions. Other important terminology is reserved for discussion within the document. Not all of the following terms are used within the main body of this document.

<i>AF:</i>	Acre-foot: The amount of water it would take to cover one acre of land to a depth of one foot; approximately 325,851 gallons.
<i>BMP:</i>	Best Management Practice
<i>Build-out:</i>	Theoretical maximum development of town, district, or service area.
<i>C-BT:</i>	Colorado Big Thompson Project. Trans-mountain diversion project managed by Northern Water.
<i>C-BT Quota:</i>	The percentage set by the Northern Board of Directors each water year which determines the amount of ac-ft per unit of C-BT, i.e. 70% quota equals 0.7 ac-ft per C-BT unit.
<i>CWCB:</i>	Colorado Water Conservation Board
<i>Demand-side:</i>	The distribution and consumption of treated water supplies for domestic purposes or the delivery and use of reclaimed water or untreated raw (i.e. ditch water, groundwater) for non-potable purposes such as irrigation or industrial processes.
<i>Drought:</i>	In the most general sense, drought is a deficiency of precipitation over an extended period time, resulting in a water shortage for some activity, group, or need. Drought may be classified as meteorological, agricultural, socioeconomic, hydrological or flash drought (aka single season drought).
<i>Drought Management Planning:</i>	Planning for the conditions under which a drought-induced water supply shortage occurs and specifies the actions that should be taken in response. May include the development of mitigation actions to lessen drought impacts.

<i>Drought Mitigation:</i>	Refers to actions taken in advance of a drought that reduce potential drought-related impacts.
<i>Drought Response:</i>	Refers to actions taken during a drought that reduce impacts.
<i>FCLWD:</i>	Fort Collins – Loveland Water District
<i>Municipal Water Efficiency Plans (WEP):</i>	The Water Conservation Act of 2004 (HB04-1365) requires all covered entities (i.e., retail water providers that sell 2,000 acre-feet or more on an annual basis) to have a state-approved water efficiency plan that contains certain required minimum plan elements
<i>Northern Water:</i>	Northern Colorado Water Conservancy District – manages the C-BT Project.
<i>NPIC:</i>	North Poudre Irrigation Company
<i>NWCWD:</i>	North Weld County Water District
<i>Safe yield or firm yield:</i>	The maximum volume of water that can be delivered by an entire system over a realistic hydrologic period that includes the drought records.
<i>Water Conservation:</i>	Water conservation is the minimization of water loss or waste. The goal of water conservation is to use only the amount of water necessary to complete a task or meet a need. Water conservation can be achieved through policies, programs, and practices designed to encourage less water use.
<i>Water Efficiency:</i>	Water efficiency refers to strategies or technologies that facilitate using less water to accomplish an activity. Low flow toilets and showerheads are examples of technologies that increase water efficiency. Water efficiency improvements are typically accomplished via a combination of programs, policies and engineered products or solutions.
<i>Water Shortage:</i>	When supply is reduced to a level that cannot support existing demands. Natural forces, system component failure or interruption, or regulatory action may cause these water shortages.
<i>Water Supply Reliability:</i>	The ability of a water supply system to meet the needs of its customers during times of stress. The reliability of a provider's water supply system depends on a multitude of factors such as specific water source(s), seniority of water rights, storage capacities and amounts, and rate of customer demand growth.

Supply-Side Mitigation and Response Strategies

WORKSHEET B - SUPPLY-SIDE MITIGATION AND RESPONSE STRATEGIES

Supply-Side Mitigation and Response Strategies	Long-term Mitigation Actions	Short-term Response Strategy	Post-Screening Selection of Mitigation and Response Strategies [7]	Comments
Water Supply Augmentation				
Establish drought reserves	X		Yes	Existing Strategy - 9% reserve as outlined in Master Plan
Draw from drought reserves		X	Yes	
Treat water normally used for non-potable irrigation for potable purposes	X	X	No	
Reactivate abandoned wells		X	No	
Flush existing wells to develop maximum flow rates	X	X	No	
Blend primary supply with water of lesser quality to increase supplies		X	No	
Rehabilitate operating wells	X	X	No	
Utilize ditch water or treated effluent for irrigating landscaping/parks	X	X	Yes	Existing Strategy
Build new facilities to enhance diversion or divert new supplies	X		Yes	Existing Strategy
Acquire additional storage	X		Yes	Existing Strategy
Water Supply Portfolio and Cooperative Agreements				
Purchase/lease water from other entities (e.g., neighboring cities)		X	Yes	Existing Strategy - Gap water lease from City of Greeley
Consider filing SWSP to temporarily use agricultural water rights if water is available		X	Yes	
Lease irrigation rights from farmers		X	Yes	May consider for Town Parks
Capitalize on new regional water supply opportunities that may result as a result of drought	X	X	Yes	Example - May be able to tap into projects like Terry Ranch
Lease private wells		X	No	
Cancel municipal leases of water to farmers		X	Yes	No CBT leases provided as soon as the water supply is needed
Renegotiate contractually controlled supplies	X	X	Yes	Existing Strategy
Develop water transfers with other entities	X	X	Yes	Existing Strategy
Develop water bank to facilitate water transfers in times of drought	X		Yes	Existing Strategy
Develop interconnects with other entities	X	X	Yes	Existing Strategy
Trade water supplies with other entities to increase yield		X	No	

Supply-Side Mitigation and Response Strategies

Supply-Side Mitigation and Response Strategies	Long-term Mitigation Actions	Short-term Response Strategy	Post-Screening Selection of Mitigation and Response Strategies [7]	Comments
Improve Water Distribution Efficiency				
Conduct distribution system water audit	X	X	Yes	Included in Water Efficiency Plan
Repair leaks in distribution system	X	X	Yes	Included in Water Efficiency Plan
Reduce distribution system pressure		X	No	
Replace inaccurate meters	X		Yes	Included in Water Efficiency Plan
Install meters at key distribution points to isolate areas of overuse and probable leakage	X		Yes	Included in Water Efficiency Plan
Change operations to optimize efficiency and distribution of supplies	X	X	Yes	Existing Strategy
Change pattern of water storage and release operations to optimize efficiency	X	X	Yes	Existing Strategy
Reduce reservoir seepage (e.g., reduce storage in reservoirs with high seepage rates)	X	X	No	Out of Town's control (i.e. seepage from CBT system, etc.)
Emergency Response				
Declare a drought/water shortage and appropriate stage		X	Yes	
Establish water hauling programs	X	X	No	
Restrict/prohibit new taps		X	Yes	May consider
Identify state and federal assistance	X	X	Yes	And any local assistance available
Public Education and Relations				
Establish a public advisory committee	X	X	Yes	Included in Water Efficiency Plan
Implement Drought Public Education Campaign with long- and short-term strategies. (See Worksheet D)	X	X	Yes	
Extend boat ramps and docks for recreational use when reservoirs are low	X	X	No	

Demand-Side Mitigation and Response Strategies

WORKSHEET C - DEMAND-SIDE MITIGATION AND RESPONSE STRATEGIES

Mitigation and Demand-Side Response Strategies	Type of Strategy		Post-Screening Selection of Mitigation and Response Strategies	Comments
	Long-term Mitigation Actions	Short-term Response Strategy		
Provider/Municipality				
Develop drought public education campaign with long-term and short-term demand management strategies	X	X	Yes	
Identify high water use customers and develop water saving targets	X	X	Yes	Include with audits
Implement conservation measures that also provide water saving benefits during drought periods (e.g., water fixture rebates)	X		Yes	Included in Water Efficiency Plan
Restrict the issuance of new taps		X	Yes	
Implement drought surcharges		X	Yes	Combine
Implement a modified rate structure for drought periods	X	X	Yes	
Conduct irrigation audits on provider/municipal parks and open spaces	X	X	Yes	
Educate provider/municipal staff on how to save water	X	X	No	
Provide instructional resources to business on developing an office/business specific drought mitigation and response plan	X	X	No	Not feasible at this time
Eliminate/reduce irrigation on provider/muncpal owned parks and landscaping	X	X	Yes	
Limit outdoor watering to specific times of the day	X	X	Yes	Included in Water Efficiency Plan
Limit number of watering days per week	X	X	Yes	
Set time limit for watering	X	X	Yes	
Enforce a shortened irrigation season (June-Sept)		X	Yes	
Convert sprinklers to low volume irrigation where appropriate	X		Yes	Include as part of irrigation audits
Restrict outdoor misting devices		X	No	
Reduce street cleaning, sidewalk, and driveway washing		X	Yes	
Limit/prevent washing of provider/municipal fleet vehicles		X	Yes	
Limit hydrant washing and flushing		X	No	This needs to be done for health and safety reasons
Limit use of water for fire training		X	Yes	
Eliminate all fire hydrant uses except those required for public safety		X	Yes	
Turn off ornamental fountains in buildings and parks		X	Yes	
Limit use of water for splash parks		X	Yes	
Install water saving fixtures, toilets, and/or appliances in provider/municipal-owned buildings	X		Yes	Included in Water Efficiency Plan
Limit or eliminate water sales from Public Works water tank		X	Yes	

Demand-Side Mitigation and Response Strategies

Mitigation and Demand-Side Response Strategies	Type of Strategy		Post-Screening Selection of Mitigation and Response Strategies	Comments
	Long-term Mitigation Actions	Short-term Response Strategy		
Residential				
Enforce landscape watering restrictions	X	X	Yes	
Limit outdoor watering to specific times of the day	X	X	Yes	Included in Water Efficiency Plan
Limit number of watering days per week	X	X	Yes	
Set time limit for watering	X	X	Yes	
Enforce a shortened irrigation season (June-Sept)		X	Yes	
Limit watering to hand-held hose or no-volume nonspray device		X	Yes	
Promote outdoor water audits	X	X	Yes	Included in Water Efficiency Plan
Convert sprinklers to low volume irrigation where appropriate	X	X	Yes	
Limit/restrict outdoor misting devices	X	X	No	
Limit/prohibit installation of new sod, seeding, and/or other landscaping		X	Yes	Possibly allow only in shoulder months. Varies by level.
Enforce policy guidelines/limitations for installation of new sod and/or other landscaping	X	X	No	Staff limitations
Enforce restrictions on spraying of impervious surfaces		X	Yes	
Prohibit/limit vehicle washing		X	Yes	
Prohibit/limit nonrecirculating fountains		X	Yes	All fountains may be curtailed
Prohibit/limit filling and use of swimming pools		X	Yes	
Enforce indoor water restrictions		X	No	
Promote indoor water audits	X	X	Yes	Included in Water Efficiency Plan
Promote/require installation of water efficient appliances (e.g., dishwaters, clothes washer)	X	X	Yes	Included in Water Efficiency Plan
Promote/require graywater use	X	X	No	No ordinance
Provide acoustical meters to assist customers in identifying leaks	X	X	No	Re-evaluate in future planning efforts
Provide historical monthly water usage on water bills	X	X	No	
Promote/enforce reduction of water-cooled air conditioning		X	No	

Demand-Side Mitigation and Response Strategies

Mitigation and Demand-Side Response Strategies	Type of Strategy		Post-Screening Selection of Mitigation and Response Strategies	Comments
	Long-term Mitigation Actions	Short-term Response Strategy		
Commercial and/or Industrial				
Prohibit/limit use of construction water		X	Yes	In extreme drought conditions
Enforce policy guidelines/limitations for installation of new sod and/or other landscaping	X	X	No	Staff limitations
Enforce outdoor landscape watering restrictions	X	X	Yes	
Promote/require indoor and outdoor water audits where applicable (large water users)	X	X	Yes	
Turn off indoor and outdoor ornamental fountains		X	Yes	
Prohibit/limit filling and use of swimming pools		X	Yes	
Promote/enforce installation of water efficient fixtures and appliances	X	X	Yes	Included in Water Efficiency Plan
Turn off public drinking fountains		X	No	
Prohibit/limit dealership washing of vehicles		X	Yes	In extreme drought conditions
Enforce water use restrictions on commercial car washes			Yes	In extreme drought conditions
Promote commercial car washes to install water recycling technology and/or other BMPs	X	X	No	
Promote service of water in restaurants only upon request	X	X	No	Staff Limitations
Promote reduction in frequency of linen and towel washing in hotels	X	X	No	Staff Limitations
Provide instructional resources on developing a business/office specific conservation plan	X	X	No	Staff Limitations
Promote/require conversion of cooling towers and other industrial water using processes	X		No	

Appendix B - Town of Windsor Park Tier Designations

Park or Open Space	Tier
Boardwalk Park	1
Diamond Valley Park	1
Eastman Park	1
Folkstone Tree Nursery	1
Windsor Cemetary	1
Windsor Lake Park	1
Aberdour Park	2
Brunner Farm	2
Founders Green Park	2
Main Park	2
Poudre Heights Park	2
Poudre Pooch Park	2
Tacincala Community Park	2
Windsor Highlands Park	2
Windsor Lake Dog Park	2
Belmont Ridge Open Space	3
Chimney Park	3
Covenant Park	3
Eastman Park Natural Area	3
Northern Lights Park	3
Oxbow Natural Area	3
Poudre Natural Area	3
Riverbend Natural Area	3
Town Board Grove	3
Wayne Miller Park	3
Westwood Park	3
Windsor Village Park	3
Windsor West Park	3



APPENDIX D

*Municipal Code XX.XXXX – Drought Declaration and Authorization for Implementation
and Enforcement of the Staged Drought Response Program*

APPENDIX E
Financial Assistance Resources

2021 Drought-Related Financial Assistance

A summary of state and federal grants to support drought relief, recovery, and adaptation.

Last Updated: July 30, 2021

CWCB Agricultural Emergency Drought Response Program

Uses: Immediate aid for emergency augmentation water during drought years in the form of loans or grants. Limited to reimbursement to water organizations serving as a supplier to agriculture in areas where a drought disaster emergency has been proclaimed.

Funds Available: \$1 million fund available on rolling basis

Contact: alexander.funk@state.co.us (CO Water Conservation Board)

CWCB Flood and Drought Response Fund

Uses: Immediate aid for flood and drought preparedness and response, or recovery studies, project design, education and communication following flood or drought events and disasters.

Funds Available: \$500,000 annual fund available on a rolling basis.

Contact: megan.holcomb@state.co.us (CO Water Conservation Board)

CWCB Water Project Loan Program

Uses: Immediate aid or long-range assistance for large raw water projects (e.g., dams, pipelines, ditches, wells, new projects or rehabilitation).

Funds Available: Loans typically range from \$100,000 to \$10,000,000

Contact: kirk.russell@state.co.us (CO Water Conservation Board)

NEW 2021 CDA Stimulus Funding

While these new stimulus funds are available as of July 1, 2021, the application process through CDA is still under development. Please contact les.owen@state.co.us (CO Dept of Agriculture) for more information on how to apply.

- **[SB 21-203 Funding for Colorado Proud](#)**
\$2.5 million to expand market opportunities for Colorado Producers through the Colorado Proud program.
- **[SB 21-234 General Fund Transfer Agriculture Drought Resiliency](#)**
\$1.875 million to engage in activities that promote the State's ability to anticipate, prepare for, mitigate, adapt to or respond to drought. There is also \$15,000 per Conservation District (\$1.125 million total).
- **[SB 21-235 Stimulus Funding Department of Agriculture Efficiency Programs](#)**
\$5 million to expand agricultural efficiency and soil health initiatives, including \$3 million to the ACRE3 program of which at least \$150,000 towards agrivoltaics and \$2 million for Soil Health activities of which at least \$1 million will go through Conservation Districts.
- **[SB 21-248 Loan Program for Colorado Agriculture](#)**
\$30 million to create an agricultural revolving loan and grant program, \$5-10 million is for agricultural processing loans or grants and \$10-20 million in loans to farmers and ranchers.

USDA Farm Service Agency [Disaster Assistance Programs](#) (see [2017 funding pamphlet](#))

Uses: Immediate aid for counties (or adjacent counties) under disaster designation by USDA

- [Emergency Conservation Program](#): for emergency water conservation measures during severe drought
- [Emergency Forest Restoration Program](#): emergency measures to restore forest health
- [Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program](#): help compensate for losses due to disease or wildfire (Only for water transportation assistance under drought emergency)
- [Emergency Loan Program](#): loans to support recovery from production and physical losses (max \$500k)
- [Livestock Forage Disaster Program](#): grazing losses must be due to a qualifying drought condition or fire on federally managed land during the normal grazing period for the county (max \$125k)
- [Noninsured Crop Disaster Assistance Program](#): for noninsurable crop losses due to drought, flood, fire

- [Tree Assistance Program](#): for replanting or rehabilitating eligible trees, bushes and vines lost by disaster
- [Emergency Watershed Protection](#): mitigate hazards to life or property (75% of emergency construction costs)

Funds Available: Differs by program. See program link.

Contact: [Your County's USDA Service Center](#)

USDA Rural Development: [Emergency Community Water Assistance Grants](#)

Uses: This program helps eligible communities prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water. Eligible emergencies include drought or flood, earthquake, tornado or hurricane, disease outbreak, chemical spill, leak or seepage, and other disasters. A federal disaster declaration is not required to access this funding.

Funds Available: Up to \$150,000 for water distribution line maintenance and up to \$1,000,000 to construct a source, intake or treatment facility. Applications for this program are accepted year round, online.

Contact: [Your local Rural Development Office](#)

USDA [Regional Conservation Partnership Program](#) (RCPP)

Uses: Long-range assistance for innovative solutions to conservation challenges and partnerships on a regional or watershed scale. Examples include natural climate solutions, on-farm and off-farm water conservation and efficiency infrastructure improvements, soil health, and forest management.

Funds Available: Up to \$360 million for projects from all 50 states

Contact: James Sperry (james.sperry@usda.gov), RCPP Program Manager, or [NRCS Office](#)

USBR [WaterSMART Water and Energy Efficiency Grants](#)

Uses: Long-range assistance for projects that result in quantifiable water savings and support broader water reliability benefits. These projects conserve and use water more efficiently; increase the production of hydropower; mitigate conflict risk in areas at a high risk of future water conflict; and accomplish other benefits that contribute to water supply reliability in the western United States 50/50 cost share.

Contact: [grants.gov](https://www.grants.gov) FOA

CDPHE [Colorado Water Pollution Control Revolving Fund](#) (see [2013 funding pamphlet](#))

Uses: Long-range assistance for fire-related nonpoint source projects can be given priority status. Otherwise low-interest loans for public wastewater treatment system needs and watershed nonpoint source control projects.

Funds Available: Direct loans up to \$3,000,000 available with Board approval; \$10,000 planning grants available for disadvantaged communities (includes nonpoint source fire-related). Design and Engineering grants up to \$300,000 for disadvantaged communities may also be available. Application deadlines are Jan.15, Feb. 15, April 15, June 15, Aug. 15, Oct. 15, Nov. 15. Loans greater than \$3,000,000 available but are municipal bond loans.

Contacts: [Your regional project manager](#) and mark.henderson@state.co.us (CDPHE, DOLA, Water & Power Authority)

CDPHE [Drinking Water State Revolving Fund](#)

Uses: Long-range assistance for government agencies and private nonprofit public water systems for the construction of water projects intended to improve public and environmental health, aid compliance with the federal Safe Drinking Water Act and invest in Colorado's water infrastructure.

Funds Available: Direct loans up to \$3,000,000 available with Board approval; \$10,000 planning grants available for disadvantaged communities. Design and Engineering grants up to \$300,000 for disadvantaged communities may also be available. Application deadlines are Jan.15, Feb. 15, April 15, June 15, Aug. 15, Oct. 15, Nov. 15. Loans greater than \$3,000,000 available but are municipal bond loans (leveraged loans).

Contact: [Your regional project manager](#) and mark.henderson@state.co.us (CDPHE, DOLA, Water & Power Authority)

NRCS Environmental Quality Incentives Program (EQIP)

Uses: Long-range assistance for agricultural producers to deliver environmental benefits through eligible practices such as conservation planning, on-farm water efficiency and soil health improvements, off-farm irrigation delivery infrastructure improvements, and energy efficiency/renewable energy projects.

Funds Available: Maximum \$450k per participant with up to 75% match by NRCS. Applications accepted continuously. Next anticipated application batching period is forecasted for Oct-Dec 2021.

Contact: [Colorado NRCS Office](#)

NRCS Conservation Incentive Contract (EQIP-CIC)— 2021 Pilot Project

Uses: Conservation Incentive Contracts are an option that blend EQIP and the Conservation Stewardship Program (CSP) by providing financial assistance to adopt conservation activities on working landscapes. A fact sheet for the program can be [found here](#).

Funds Available: Maximum \$200k per participant. Applications accepted continuously. Last application period ended July 21, 2021.

Contact: Kindra Brandner (kindra.brandner@usda.gov), CO EQIP Manager, or your [local USDA Field Office](#)

NRCS Conservation Stewardship Program

Uses: Long-range assistance for farmers and ranchers to actively manage and maintain existing or additional conservation system activities on land in agricultural production. Examples include soil health management, energy efficiency, on-farm irrigation efficiency, and grazing management.

Funds Available: RFA closed on Jan. 8, 2021. Applications accepted continuously. Next anticipated application batching period is forecasted for Oct-Dec 2021.

Contact: Amber Freouf (amber.freouf@usda.gov), CSP Program Manager, or your [local USDA Field Office](#)

NRCS Conservation Innovation Grants

Uses: This program aims to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection. Under CIG, [EQIP](#) funds are used to award competitive grants to non-federal governmental or nongovernmental organizations, Tribes, or individuals.

Funds Available: NEW program. Contact NRCS.

Contact: [Colorado NRCS Office](#) (elizabeth.with@co.usda.gov)

NRCS Conservation Planning Technical Assistance

Uses: Conservation Plans are free technical documents that NRCS helps a landowner/producer to create once a full inventory of their operation's natural resources. The plans are a first step in moving forward with other NRCS financial assistance such as EQIP and CSP.

Funds Available: Applications accepted continuously. Last application period ended July 21, 2021.

Contact: [Your local Rural Development Office](#) or complete the online [Conservation Plan Request](#)

CWCB Water Efficiency & Drought Planning Grants

Uses: Long-range assistance for water conservation and drought or water storage plans, the implementation of plans, or related public education.

Funds Available: Grants typically range from \$20,000 to \$60,000; Limited to funds available on rolling basis.

Contact: ben.wade@state.co.us (CO Water Conservation Board)

USDA: [Farmers to Families Food Box](#)

Uses: As part of the Coronavirus Food Assistance Program Secretary Perdue announced on April 17, USDA is exercising authority under the Families First Coronavirus Response Act to purchase and distribute agricultural products to those in need. The second round will aim to purchase up to \$1.47 billion July 1 through August 31, 2020. AMS may elect to extend the period of performance of the contracts, via option periods, dependent upon program success and available remaining funds, up to \$3 billion.

Contact: [Colorado NRCS Office](#)

US Fish & Wildlife: [Partners for Fish and Wildlife](#)

Uses: Through voluntary Agreements, financial and technical assistance is available to private landowners to restore fish and wildlife habitat, while also supporting rural communities and viable agriculture. Projects are designed to benefit multiple wildlife species, while also creating win-win solutions for private lands management. Certain projects that help with longer-term drought mitigation, such as water tanks, are qualified.

Contact: dominic_barrett@fws.gov (U.S. Fish and Wildlife Service, State Coordinator)

CPW [Habitat Partnership Program](#)

Uses: The program aims to reduce wildlife conflicts, particularly those associated with forage and fences, and to assist Colorado Parks and Wildlife (CPW) in meeting game management objectives. HPP efforts are primarily aimed at agricultural operators, and focus on problems and objectives for deer, elk, pronghorn and moose. HPP has wide flexibility in what can be funded; match required.

Contact: [HPP Committee Representative](#)

CDPHE [Small communities water and wastewater grants](#)

Uses: For the planning, design and construction of public water systems or domestic wastewater treatment works that serve a population of not more than 5,000 people, and are necessary for the protection of public health and water quality.

Funds Available: RFA was open Feb. 12, 2021 - March 12, 2021. Next application period TBD.

Contact: cdphe_grantsandloans@state.co.us (CO Dept. of Public Health & Environment)

CDPHE [Nonpoint Source Pollution Grants](#)

Uses: For projects that help restore and protect water bodies from nonpoint source (NPS) pollution impacts. NPS funding opportunities include watershed planning, best management practice (BMP) implementation, and education/outreach grants. Typical awards range from \$35K-\$100K for watershed planning, \$200K-\$500K for BMP implementation, and are up to \$5K for education/outreach grants. Requires non-federal match of 40% of total cost.

Funds Available: Education/outreach grants are available on a rolling basis. The RFA for implementation projects was open Oct. 9, 2020 to Jan. 4, 2021. Next application period TBD.

Contact: cdphe_wqcd_nonpointsource+managers@state.co.us (CO Dept. of Public Health & Environment)

CDPHE [Water Quality Improvement Fund](#)

Uses: Provides money for water quality improvement projects using civil penalties from water quality violations. This includes stormwater management training and best practices training to prevent or reduce the pollution of state waters. Small and economically challenged communities are given priority for the funds. Entities that pay a Colorado Water Quality Control Act civil penalty are prohibited from receiving a grant from the WQIF for a period of 5 years from the date of the payment of the penalty.

Funds Available: RFA will be announced end of 2021 or beginning of 2022.

Contact: cdphe_grantsandloans@state.co.us (CO Dept. of Public Health & Environment)

DOLA Community Development Block Grant

Uses: For non-entitlement municipalities and counties to carry out community development activities for acquisition, design/engineering, construction, reconstruction, rehabilitation or installation of public improvements or public facilities.

Funds Available: RFA was open Nov. 2020 to Feb. 2021. Next application period TBD.

Contact: [Your DOLA regional manager](#) (Dept. of Local Affairs)

DOLA Energy and Mineral Impact Assistance Fund

Uses: For political subdivisions impacted socially and/or economically by the development, processing, or energy conversion of minerals and mineral fuels. DOLA's intent in administering this grant program is to do as outlined in statute and promote sustainable community development, increase livability and resilience of communities through strategic investments in asset-building activities. The most successful applications into this program are those that demonstrate urgency and local commitment to get the project done, show a high priority for the proposed application, are prepared to start work, and can demonstrate a relationship to energy and mineral impact in rural Colorado.

Funds Available: Available funding includes: Tier 1 grants of up to \$200K, Tier 2 grants of up to \$1M, and administrative grants of up to \$25K. Emergency Funding may be available.

Contact: [Your DOLA regional manager](#) (Dept. of Local Affairs)

CAPACITY SUPPORT & RESOURCES

[The State of Colorado Drought Plan](#) was developed to provide an effective and systematic means for the State of Colorado to reduce the impacts of water shortages over the short and long term.

The [US Bureau of Reclamation's "Drought Response Program"](#) supports a proactive approach to drought by providing assistance to water managers to: (1) develop and update comprehensive drought plans; (2) implement projects that will build long-term resiliency to drought; and (3) undertake emergency response actions to minimize losses and damages.

- (1) [Drought Contingency Planning](#) – Bureau of Reclamation will provide financial assistance on a competitive basis for applicants to develop a drought contingency plan or to update an existing plan to meet the required elements described in the Drought Response Framework.
- (2) [Drought Resiliency Projects](#) - Reclamation will fund drought resiliency projects that will help communities prepare for and respond to drought. Typically, these types of projects are referred to as "mitigation actions" in a drought contingency plan.
- (3) [Emergency Response Actions](#) - Reclamation will continue to undertake emergency response actions under the Drought Response Program to minimize losses and damages resulting from drought, relying on the authorities in Title I of the Drought Act.

The [US Environmental Protection Agency](#) has an interactive [Drought Recovery and Response Guide](#) that includes worksheets, best practices, videos and key resources for responding to drought emergencies and building long-term resilience. There is also a [case studies map with videos](#) that shows how nine utilities across the U.S. have responded to and recovered from drought.

