Remote Meeting Instructions for the January 20, 2021, Water & Sewer Board Meeting:

In order to comply with all health orders and State guidelines to stop the spread of the COVID-19 Coronavirus, ***no physical location, including the City Council Chambers, will be set up for viewing or participating in this Water & Sewer Board meeting.***

You can view this Meeting by following the instructions below to watch the YouTube live stream. By utilizing this option to view the meeting, you will not be able to provide live input during the meeting. To provide live input, see the "In real time" instructions near the bottom of this page.

- From your laptop or computer, click the following link or enter it manuallyinto your Web Browser: (**https://www.youtube.com/user/CityofGreeley**)
- Clicking the link above will take you to the City of Greeley's YouTube Channel.
- Once there, you will be able to view the meeting!

Citizen input and public comment for items appearing on this agenda as public hearings/quasi-judicial are valuable and welcome!

Anyone interested in participating and sharing public comments have a few of options:

Via email? – Submit to Ettie.arnold@greeleygov.com
All comments submitted this way will be read into the record at the appropriate points during this meeting in real time. Comments can be submitted up to and throughout this meeting.

Via traditional Mail? - Address to the Water & Sewer Department's Office, 1001 11th Avenue, Attn: Shannon Metcalf, Greeley, CO 80631
All written comments must be received no later than the day of the meeting. Again, written comments received by mail will also be read into the record in real time.

In real time? – https://greeleygov.zoom.us/s/89140552829

Clicking the link above will give you access to the live meeting where you will become a virtual audience member and be able to speak under Citizen Input on items not already on the agenda or during a scheduled public hearing.

Please visit the City's website at http://greeleygov.com/government/b-c/boards-and-commissions/water-and-sewer to view and download the contents of the October 21, Water & Sewer Board Meeting. You are also welcome to call the Water & Sewer Department at 970-350-9801 with any special needs or questions that you may have.

WATER & SEWER BOARD AGENDA

Wednesday January 20, 2021
2:00 p.m.

MEETING WILL BE LIVE STREAMED ON YOUTUBE.COM DUE TO CITY CLOSURES RELATED TO COVID-19
Public Comments, please use: https://greeleygov.zoom.us/s/89140552829

1. Roll Call:

_____ Chairman Harold Evans	_____ Vice Chairman Mick Todd
_____ Mr. Bob Ruyle	_____ Mr. Fred Otis
_____ Mr. Joe Murphy	_____ Mr. Tony Miller
_____ Mr. Manuel Sisneros	_____ Mayor John Gates
_____ Mr. Roy Otto	_____ Mr. John Karner

2. Approval of Minutes
3. Approval of and/or Additions to Agenda
4. Public Comments
5. Welcome New Employees
6. Approve Resolution in Appreciation of Reagan Waskom
7. Election of Officers
8. Appoint Water Board Representative Position for Art Commission
9. Adopt Drought Emergency Plan and Recommend Code Revisions to City Council
10. Non-Potable Development Policy Update
11. Recommend to City Council the Johnson Subdivision Local Improvement District
12. Overview of Proposed Consolidation and Revisions to Water Dedication Code
13. Terry Ranch Project Diligence Update
14. Water Court Update
14. Legal Report
15. Director's Report

If, to effectively and fully participate in this meeting, you require an auxiliary aid or other assistance related to a disability, please contact Shannon Metcalf at 970-415-1307.

16. Such Other Business That May Be Brought Before the Board and Added to This Agenda by Motion of the Board

If, to effectively and fully participate in this meeting, you require an auxiliary aid or other assistance related to a disability, please contact Shannon Metcalf at 970-415-1307.

City of Greeley
Water and Sewer Board
Minutes of November 18, 2020
Regular Board Meeting

Chairman Harold Evans called the Water and Sewer Board meeting to order at 2:00 p.m. on Wednesday, December 16, 2020. Due to City Closures related to COVID-19, this meeting was held remotely and was aired via live stream for public viewing at **https://www.youtube.com/user/CityofGreeley.**

1. Roll Call

The Clerk called the roll and those present included:

Board Members:

Chairman Harold Evans, Vice Chairman Mick Todd, Fred Otis, Bob Ruyle, Tony Miller, Mr. Murphy, Mr. Sisneros and John Karner

Water and Sewer Department Staff:

Director Sean Chambers, Deputy Director Water Resources Adam Jokerst, Deputy Director of Operations Nina Cudahy, Utility Finance Manager Erik Dial, Water Resources Manager Jen Petrzelka, Water Resources Asset Coordinator Cole Gustafson, Water Resources Planning Manager Kelen Dowdy, Rates and Budget Analyst Kalen Myers, Special Projects Engineer Mary Gearhart, Civil Engineer III Justin Scholz, and Office Manager Shannon Metcalf

Legal Counsel:

Counsel to Water & Sewer Board Attorney Carolyn Burr, Environmental and Water Resources Attorney Jerrae Swanson, Environmental and Water Resources Attorney Dan Biwer, Environmental and Water Resources Attorney Aaron Goldman

Other Guests:

Justin Scharton, CPRD Superintendent of Natural Train and Trails Division

2. Approval of Minutes

Mr. Miller made motion, seconded by Vice Chairman Todd, to approve the November 18, 2020 Water and Sewer Board meeting minutes. The motion carried 7-0.

3. Approval of and/or Additions to Agenda

There were no changes to the agenda.

4. Public Comments

There were no comments from the Public.

5. Welcome New Employees

Ms. Metcalf noted the addition of Matthew Finch, Instrument and Controls Technician and then welcomed Sharon Dunn, the Communication and Engagement's Department Liaison to the Water & Sewer Department.

6. Get Outdoors Greeley Plan Update

Mr. Scharton provided a presentation on the 5-year Strategic Plan for Natural Areas, Trails & Open Lands.

7. Adopt Resolution Concerning 2021 Water and Sewer Rates, Fees and Charges

Ms. Myers presented information relating to 2021 rates. 2021 will be the fifth year of the water budget rate structure for residential customers. Residential water rates are increasing 5% and residential sewer rates are increasing 9.5% Updated plant investment fees and the new cash-in-lieu price will take effect on March 1, 2021.

Vice Chairman Todd moved, seconded by Mr. Miller, to adopt Resolution concerning 2021 water and sewer rates, fees and charges. The motion carried 7-0.

8. Utility Bill Affordability Update

Mr. Dial explained that at the October Water and Sewer Board meeting, staff presented background material relating to the need for and the potential options for creating a utility bill assistance program. He then covered additional research into how other utilities have created utility assistance programs. He presented a proposal framework that was modeled upon the City's existing Food Tax rebate program. After receiving Board input, Mr. Dial explained that this proposal will be a new budget request for the 2022 budget.

9. Integrated Water Resources Plan Update

Mr. Jokerst explained that the current Greeley Water Supply Master Plan is more than 17 years old. Since the creation of the last master plan in 2003, Greeley's strategies to continue to provide a robust, resilient water supply have evolved and the water market

has transformed. Likewise, widely accepted strategies used to plan for water development have progressed. Consequently, the Water Resources team has started the process of developing a new water master plan, through a process termed Integrated Water Resource Planning (IWRP). The IWRP process includes integration across acquisition, non-potable development, conservation, storage, and land planning while incorporating future risk and uncertainty.

10. Terry Ranch Project Diligence Update

Mr. Jokerst explained that in June 2020, Greeley entered into a Master Agreement for acquisition of groundwater rights and associated storage underlying the Terry Grazing Association Ranch in northwest Weld County. Since that time, staff and consultants have undertaken extensive inspection and diligence activities on the ranch. Such diligence is required per the Master Agreement, and will inform the City whether to close on the project.

11. Johnson Subdivision Proposed Local Improvement District Update

Mr. Scholz explained that the Johnson Subdivision was developed in 1963 and 1969 in Weld County and was annexed as an enclave into Greeley in 2005. A majority of the properties within the subdivision have septic systems with some reaching the point of failure. The law requires that properties within 400 feet of the municipal sewer system are required to connect when the septic system fails. There are currently 21 septic properties located within 400 feet of the municipal sewer system that would be required to connect in the event of a septic system failure. These connections can be very costly if done individually with cost ranges from $51,280 to over $200,000 per property. The Water and Sewer Department would like to facilitate a more cost effective connection strategy by developing a Local Improvement District (LID) on the subdivision to facilitate the construction of a new sewer system for all residents. This strategy would include Engineering staff designing the new sewer system and then Operations staff constructing the sewer system. The residents would be required to pay for the materials that include pipe, bedding, asphalt, etc. through the LID. This strategy allows the City to utilize existing resources to reduce the connection cost to between $23,280 to $33,280 per property. The LID recovery cost would only be required at time of septic system failure and would allow one-time payment or up to a 60 month payment plan as desired by resident. This strategy helps reduce costs to residents, utilize City resources for the most economical construction, helps with public health by eliminating septic systems as they fail.

12. Executive Session

Vice Chairman Todd moved, seconded by Mr. Otis, to hold an executive session to address the following matters, as provided by C.R.S. § 24-6-402(4)(a), (b) and (e) and Greeley Municipal Code § 2.04.020(a) (1), (2) and (5):

1. To receive advice from their attorney and determine positions relative to matters that may be subject to negotiations, developing strategy for negotiations and instructing negotiators on matters related to the water market and the potential, future acquisition of water rights.

The motion carried 7-0.

The Board left the public session and moved into a private, executive session. The live feed of the public session on YouTube stopped recording, but was still accessible to the public. While the Board conducted the executive session, the public was provided with a screenshot of the agenda and a message stating the Board was in Executive Session.

Present during the executive session were:

Chairman Harold Evans, Vice Chairman Mick Todd, Manual Sisneros, Joe Murphy, Tony Miller, Fred Otis, Bob Ruyle, and John Karner, Director Sean Chambers, Deputy Director Water Resources Adam Jokerst, Utility Finance Manager Erik Dial, Water Resources Operations Manager Jennifer Petrzelka, Water Resources Asset Coordinator Cole Gustafson, Outside Legal Counsel Carolyn Burr, Environmental and Water Resources Attorney Jerrae Swanson, Environmental and Water Resources Attorney Dan Biwer, Environmental and Water Resources Attorney Aaron Goldman, and Senior Administrative Specialist Ettie Arnold

This executive session was authorized by Subsections (a),(b) and (e) of Section 24-6-402(4) of the Colorado Revised Statutes, and Subsections (1), (2) and (5) of Section 2.04.020 (a) of the Greeley Municipal Code.

The Executive Session ended at 5:05 p.m. The Board then left the private, executive session and moved back into the open, regular session. At that time, the live feed of the meeting resumed on YouTube.

13. Legal Report

Carolyn Burr of Welborn, Sullivan, Meck & Tooley provided this month's legal report to the Board.

1. **Statements of Opposition:** Based on review of the October, 2020 Water Court Resume, Ms. Burr reported that staff and water counsel recommend that the Board authorize filing statements of opposition in the following case:

   a. Case Number: **20CW3159:** Application of 2534 Master Association for a 9.97 AF water storage right, plan for augmentation and exchange. The claimed source of the water is seepage to the Big Thompson River. Staff and counsel recommend that Greeley file a statement of opposition to ensure that

Applicant's claims do not cause injury to Greeley's Big Thompson River water rights and exchanges.

Mr. Miller made a motion, seconded by Vice-Chairman Todd, that the Board authorize the filing of a statement of opposition in Case No. 20CW3159, for staff and legal counsel to seek resolution of issues raised by these cases consistent with Water and Sewer Board Resolution No. 3 (2015). The motion carried 7-0.

14. Director's Report

Mr. Chambers reported on the following items:

- Tech Enablement Update – Advanced Metering, Asset Management & Utility Billing
- EPA Audit Response

16. Such Other Business That May be Brought before the Board and Added to This Agenda by Motion of the Board

There were no additional items brought before the Board and added to the agenda.

Chairman Evans adjourned the meeting at 5:25 p.m.

****

_____
Harold Evans, Chairman

_____
Shannon Metcalf, Office Manager

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 4

TITLE: PUBLIC COMMENTS

RECOMMENDATION:

ADDITIONAL INFORMATION:

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 5

TITLE: WELCOME NEW EMPLOYEES

RECOMMENDATION: INFORMATION ONLY

ADDITIONAL INFORMATION:

New Employees

- Dena Egenhoff – Water Conservation Manager
- Monique Perez – Services Coordinator
- Tyler Bandt – T &D Maintenance Technician
- Kyle Driver – T &D Maintenance Technician

City of Greeley Colorado

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE __X__ NO ENCLOSURE ____

ITEM NUMBER: 6

TITLE: APPROVE RESOLUTION IN APPRECIATION OF REAGAN WASKOM

RECOMMENDATION: APPROVE RESOLUTION

ADDITIONAL INFORMATION:

This is a resolution of appreciation to make known the sincere and heartfelt appreciation to Dr. Reagan Waskom for his distinguished career and service to the citizens of Colorado, his exceptional leadership, commitment, and service to the State of Colorado, and his friendship over the past years

CITY OF GREELEY, COLORADO
ACTING BY AND THROUGH ITS WATER AND SEWER BOARD

RESOLUTION _____ , 2021

A RESOLUTION IN APPRECIATION OF REAGAN WASKOM

WHEREAS, Dr. Reagan Waskom has devoted his professional career to connecting the research and knowledgebase of the Colorado Water Center at Colorado State University to agricultural, municipal, environmental and industrial water resource managers throughout the West; and

WHEREAS, Dr. Waskom has been associated with Colorado State University since 1986, serving in a variety of capacities and roles including as a faculty member in the Department of Soil and Crop Sciences; and

WHEREAS, while working for Colorado State University, Dr. Waskom also served as President of the Colorado Water Congress, the National Institutes for Water Resources, and the Colorado Watershed Network, and as a board member of Water Education Colorado, the South Platte Forum, among other organizations; and

WHEREAS, Dr. Waskom was appointed as the director of the Colorado Water Institute and CSU Water Center in 2006, becoming the leader of one of 54 Water Resources Research Institutes nationwide created by the Water Resources Act of 1964; and

WHEREAS, as director of the Colorado Water Institute, Dr. Waskom has served with devotion, diligence, and perspicuous vision in a variety of both Coloradoan and interstate roles; and

WHEREAS, Dr. Waskom has provided the organizational, moral, and strategic leadership necessary to address a number of critical water resources challenges, and has fostered solutions that will benefit generations to come; and

WHEREAS, over the years Dr. Waskom has collaborated with and provided advice to the City of Greeley on numerous occasions concerning the future of agriculture in Northern Colorado, water resources management challenges, and the development and application of educational resources for future generations; and

WHEREAS, Dr. Waskom has been a steady, diplomatic leader in the water community, connecting people and groups with differing views on water resource issues confronting Colorado, and advancing collaborative solutions through constructive dialogue; and

WHEREAS, Dr. Waskom has exhibited dedication, principled leadership, honesty, integrity, and professionalism during his professional career in water resources; and

WHEREAS, Reagan Waskom retired as the director of the Colorado Water Center on December 31, 2020, after serving in that capacity for 14 years; and

WHEREAS, Dr. Waskom has always been considered by the Greeley Water and Sewer Board to true friend and respected colleague.

NOW THEREFORE, BE IT RESOLVED BY THE WATER AND SEWER BOARD OF THE CITY OF GREELEY, COLORADO, AS FOLLOWS.

1. The Greeley Water and Sewer Board hereby make known its sincere and heartfelt appreciation to Dr. Reagan Waskom for his distinguished career and service to the citizens of Colorado, his exceptional leadership, commitment, and service to the State of Colorado, and his friendship over the past years.

PASSED AND ADOPTED, SIGNED AND APPROVED THIS ____ DAY OF January 2021.

ATTEST

CITY OF GREELEY
WATER AND SEWER BOARD

_____
Roy Otto
Secretary to the Board

_____
Harold Evans
Chairman, Water and Sewer Board

Recognition of Regan Waskom's Retirement and Contributions to Water Resources

City of Greeley Colorado

Retirement for Colorado State University's Water Institute

- **Recognition and Celebration of a Career of Contribution**
  - Poudre River Forum
  - Agricultural Innovation
  - Public Engagement and Communication
  - Water Education for Community Leaders
    - Water Literate Leaders
  - Contribution *to Confluence, The Story of Greeley Water*

COLORADO WATER CENTER
COLORADO STATE UNIVERSITY

City of Greeley Colorado

Resolution Recognizing Regan's Contributions

Greeley staff recommendation of a Resolution recognizing Regan M. Waskom's many contributions to water in the West and more specifically to Northern Colorado water resources

City of Greeley Colorado

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 7

TITLE: ELECTION OF OFFICERS

RECOMMENDATION: APPROVE 2021 OFFICERS

ADDITIONAL INFORMATION:

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 8

TITLE: APPOINT WATER BOARD REPRESENTATIVE POSITION FOR ART COMMISSION

RECOMMENDATION: APPOINT BOARD MEMBER

ADDITIONAL INFORMATION:

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE __X__ NO ENCLOSURE ____

ITEM NUMBER: 9

TITLE: ADOPT DROUGHT EMERGENCY PLAN AND RECOMMEND CODE REVISIONS TO CITY COUNCIL

RECOMMENDATION: ADOPT PLAN AND RECOMMEND CODE CHANGES TO CITY COUNCIL

ADDITIONAL INFORMATION:

Greeley's current Drought Emergency Plan is more than 15 years old. Since that time a lot has changed including a decline in water use per account, a re-examination of future water needs and system drought performance, and the conversion to a water budget rate structure for single-family residential customers. Therefore, a re-evaluation of the Drought Emergency Plan is necessary to ensure responsible water supply planning. Staff presented recommended revised restrictions to the Drought Emergency Plan at the August 2020 and October Board meetings and responded to feedback. A final plan has been developed. Staff is recommending adoption of the plan and recommendation of associated code changes to Council.

Greeley Drought Emergency Plan

FINAL REPORT

Final Report

January 11, 2021

Greeley Drought Emergency Plan

Prepared for
Greeley Water and Sewer Department

Prepared by
BBC Research & Consulting
1999 Broadway, Suite 2200
Denver, Colorado 80202-9750
303.321.2547 fax 303.399.0448
www.bbcresearch.com

BBC RESEARCH & CONSULTING

Table of Contents

EXECUTIVE SUMMARY

Greeley's water system includes a diversified portfolio of water rights and storage facilities and has a high degree of reliability. However, Greeley is located in a semi-arid climate where severe droughts occasionally occur. No water supply system is completely drought proof, but being able to provide adequate water supplies to Greeley's residents and businesses under any future climatic and hydrologic conditions is critical to the continued growth and prosperity of the City.

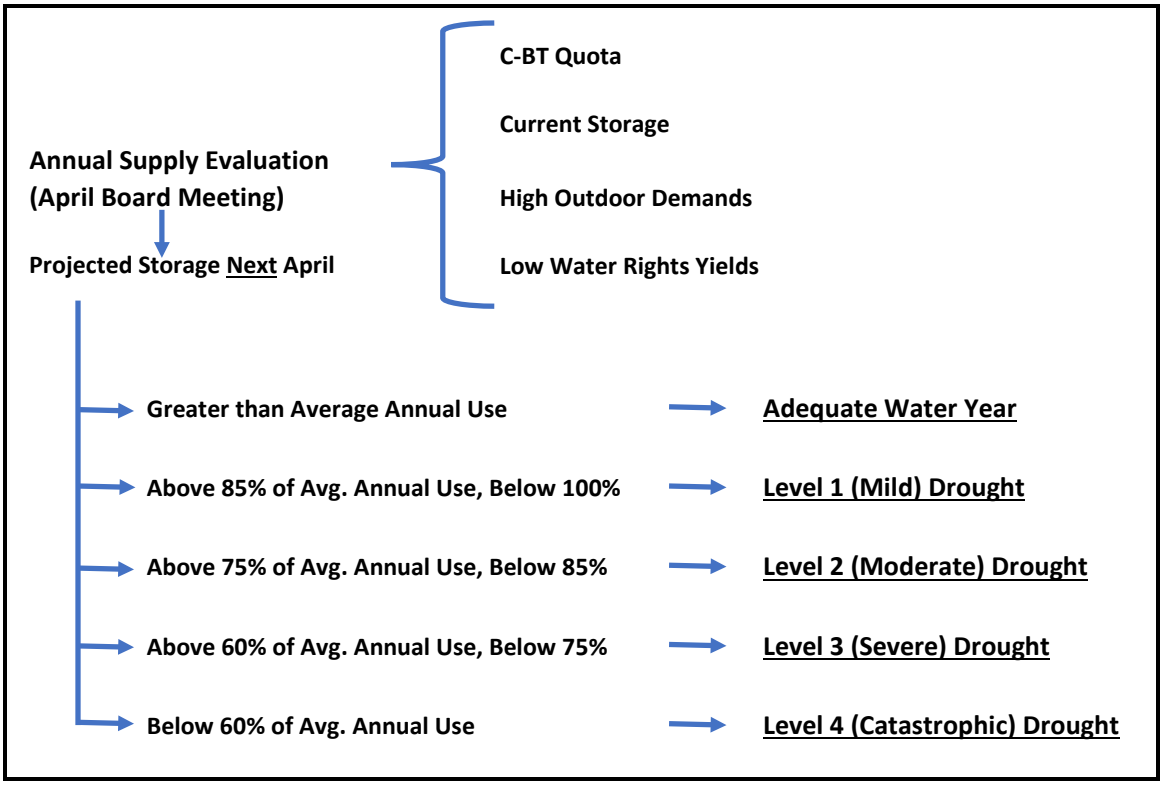
Greeley has successfully navigated previous droughts, including the most severe drought during the past few decades which was experienced in 2001-2003. However, Greeley needs an updated drought emergency plan for several reasons:

- Greeley's current drought emergency plan is more than 15 years old, with portions of the plan described in documents from 2003 and other portions dating back to 1997.
- During the past 15 years, Greeley's total annual water use has remained relatively consistent – despite substantial growth in the number of customers – but water use per account has declined substantially as Greeley's customers have become more efficient.
- Greeley's billing practices and rate structure have also changed, providing new opportunities for managing water use under drought conditions.

Drought Response Trigger and Declaration Process. Each April, shortly after the C-BT quota for the year has been established, Greeley's Water Resources staff will project the storage volume that will be available on April 1st of the following year under "conservative" assumptions of high outdoor irrigation demands from Greeley's customers (as has been typical under hot and dry conditions during years such as 2002 and 2012) and low yields from Greeley's water supplies. Based on that projection, Greeley will declare an adequate water year, or a drought under one of four potential levels. This process is summarized in Figure ES-1, on the following page. Water savings goals for each potential drought level are:

- **Level 1 (Mild) Drought**: reduce outdoor water use by up to 15 % (currently about 1,530 acre-feet) per year
- **Level 2 (Moderate) Drought**: to reduce outdoor water use by up to 25 % (currently about 2,560 acre-feet) per year
- **Level 3 (Severe) Drought**: reduce outdoor water use by up to 50 % (currently about 5,130) per year.
- **Level 4 (Catastrophic) Drought**: reduce outdoor water use by up to 70 % (currently about 7,170 acre-feet) per year.

Figure ES-1. Annual Greeley Water Supply Evaluation and Drought Declaration Process



Greeley may also decide to declare a mild drought and invoke the drought response measures discussed later in this plan if other adverse events that affect Greeley's water supplies (for example if wildfires affect the watersheds that Greeley relies on), or in times when a regional drought response in Northern Colorado is deemed appropriate by the Board.

Important considerations in developing Greeley's drought response strategies.

During the development of Greeley's new drought emergency plan, the Water & Sewer Board and the members of the City's Executive Leadership Team emphasized several objectives for the plan. These important objectives included:

- **Equity among Greeley's customers.** While outdoor water use by single family customers must be a focus for drought emergency water use reductions, other customer classes need to contribute their share to the City's water savings.

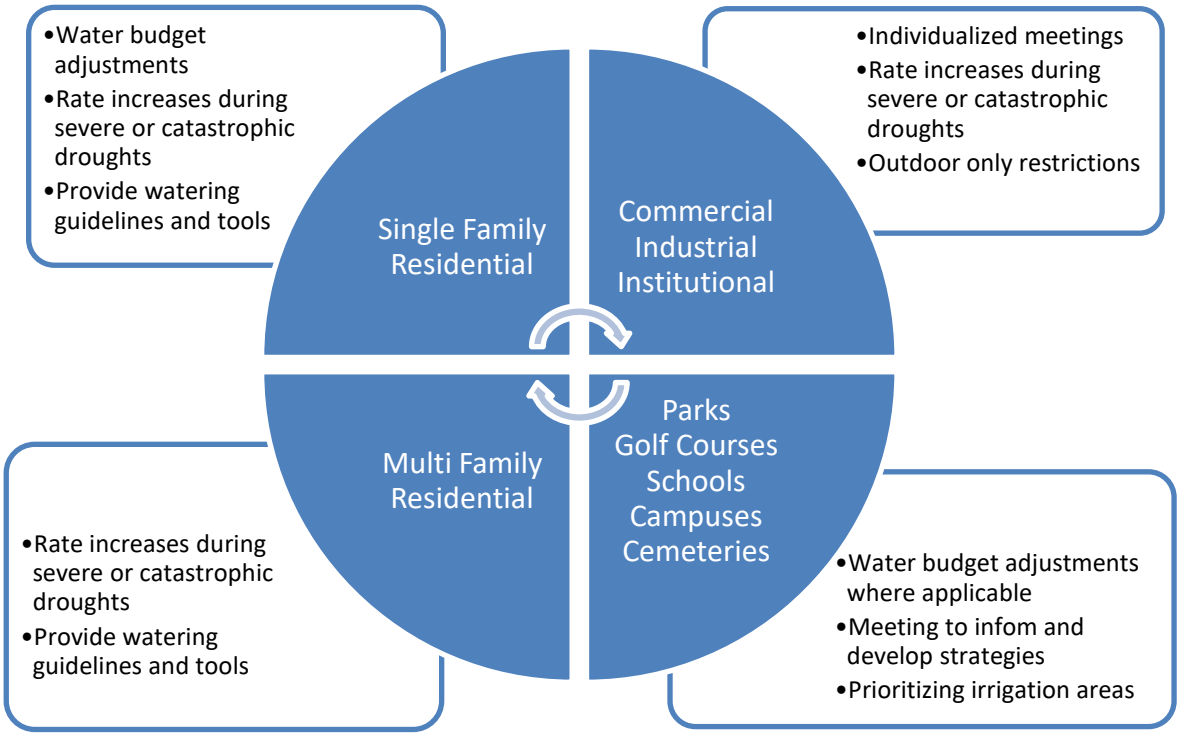
- **Minimize impacts to landscapes.** Although drought-related water use reductions are likely to stress lawns in Greeley, modifications to water budgets and watering restrictions should be designed to avoid long-term damage to trees and other non-turf vegetation as much as possible.

- **Minimize financial impacts to customers and the water utility.** Greeley examined potential financial impacts on different customer classes under drought conditions. In general, if customers meet the water savings goals, they will pay less than normal during drought conditions. If customers do not reduce their use, they will pay more – particularly under Level 3 (Severe) and Level 4 (Catastrophic) drought conditions.

Response Strategy for Each Drought Level. Greeley has identified a set of measures that can be used in response to each different level of drought emergency. As noted at the beginning of this section, every drought is different and the water savings from emergency drought measures can be difficult to predict – so Greeley will maintain the flexibility to modify the measures it puts in place based on evolving drought conditions and the degree of success achieved in reducing water use by its customers. Section III of the report provides detailed drought response measures for each potential drought level.

Public Awareness and Messaging. One of the most important elements of any drought response plan is timely and effective communication with customers to explain the situation and motivate the necessary changes in water use behavior. Improved technology, social media and other recent changes provide additional avenues for reaching and educating customers. Figure ES-2 summarizes key messages for each of Greeley's customer groups. More detailed messaging strategies are discussed in Section III.

Figure ES-2. Summary of overall messaging strategies for Greeley's different customer groups



Monitoring. After a drought has been declared, Greeley's staff will provide regular updates to the Board. Those updates will include:

- Updated information regarding Greeley's water supplies and storage;
- Identification of all drought response measures that have been invoked during the past month;
- Description of steps taken to communicate with Greeley's customers, and a summary of public comments to date;
- Estimated reductions in water use as a result of the drought management effort; and
- Recommendations regarding any change in the drought status based on the preceding information.

Plan review and updates. The study team recommends Greeley review and consider updating this plan at least once in every five years. As indicated in Section III, the next few years are likely to see the implementation of new technology, such as AMI, that will make additional tools available to Greeley and its customers to help manage their water use. Greeley will also have more customers on water-budget based billing as all new dedicated irrigation accounts migrate to that type of rate structure. Opportunities to communicate with customers are also constantly evolving.

Apart from regular reviews and potential updates, the drought emergency plan should be particularly closely scrutinized following any period during which Greeley has to declare a drought emergency. Actual experience with the measures described in this plan will undoubtedly help inform refinements and revisions that can improve the plan's effectiveness.

SECTION I.
Introduction and Background

Greeley Water and Sewer (Greeley or Greeley Water) currently supplies about 21,300 acre-feet (6.9 billion gallons) of water per year to more than 110,000 people, along with many commercial and industrial operations. Greeley continues to grow each year, and its population is projected to more than double by 2065. Under average weather conditions, about one-half of the total annual water use by Greeley's customers is for outdoor irrigation (including non-potable deliveries for irrigating parks, schools and other large outdoor areas). Absent intentional measures to reduce demand, outdoor water use increases to about 55 % of annual use under hot and dry conditions.[1] During the peak irrigation season from June through September, outdoor water use typically makes up about 70% of total use. That percentage increases under hot and dry conditions.

Greeley's water system includes a diversified portfolio of water rights and storage facilities and has a high degree of reliability. However, Greeley is located in a semi-arid climate where severe droughts occasionally occur. No water supply system is completely drought proof. The cost of acquiring water rights and developing water supply facilities that would only be used once in many decades would not be a prudent use of public funds. But, being able to provide adequate water supplies to Greeley's residents and businesses under any future climatic and hydrologic conditions is critical to the continued growth and prosperity of the City.

Need for a New Drought Emergency Plan

Greeley has successfully navigated previous droughts, including the most severe drought during the past few decades which was experienced in 2001-2003. However, Greeley needs an updated drought emergency plan for several reasons:

- Greeley's current drought emergency plan is more than 15 years old, with portions of the plan described in documents from 2003 and other portions dating back to 1997.
- During the past 15 years, Greeley's total annual water use has remained relatively consistent – despite substantial growth in the number of customers – but water use per account has declined substantially as Greeley's customers have become more efficient.
- Greeley's billing practices and rate structure have also changed:
    - Greeley converted from bi-monthly to monthly billing in April 2003, which means that financial signals to Greeley's customers are now more timely than they were during previous droughts.

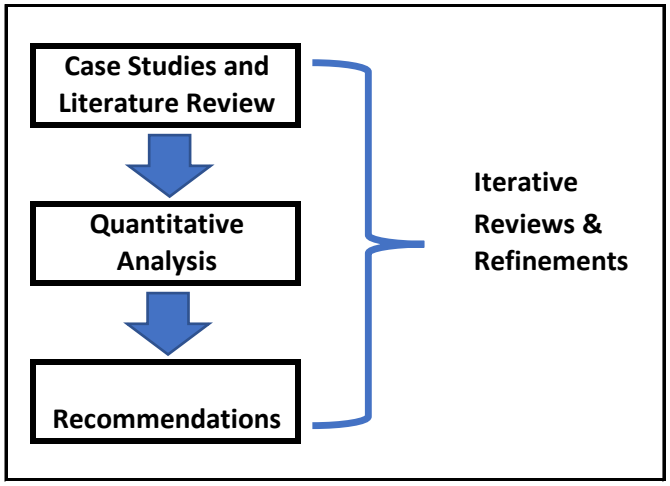
[1] City of Greeley Water Demand and Population Projections. BBC Research & Consulting. 2018.

- Greeley moved its single-family residential customers to water budget-based billing in 2017. Customer-specific water budgets provide Greeley's residential water users with more information regarding optimal water use and financial disincentives for over-consumption.

Process of Developing the New Plan

Greeley's new drought emergency plan was developed during a 12-month period, beginning in the Fall of 2019. The basic process of developing the new plan is illustrated in Figure I-1.

Figure I-1. New Drought Emergency Plan Development



Case studies and literature review. Greeley's recent transition to water budget-based billing for single-family residential customers raised important questions for the development of this updated drought emergency plan. The study team reviewed the current drought plans of 17 water providers using water budget-based rates (13 in California and 4 in Colorado). We also conducted telephone interviews with eight of those providers (5 in California and 3 in Colorado) to gather insight on how water budget-based rates were incorporated into their drought plans and how those plans had performed under actual drought conditions (where applicable). Insights from these case studies are summarized in Section III of this report (Drought Response Strategies) and a more complete report on this research is provided in Appendix A.

The study team also conducted research regarding the potential impacts of drought response measures on the landscaping industry in and around Greeley by contacting and interviewing four landscaping businesses serving Northern Colorado.[2] Results from those interviews are also discussed in Appendix A.

Finally, the study team conducted a literature review of studies concerning the price elasticity of water demand, or the extent to which water use can be expected to decline if prices (e.g. rates) are increased during drought conditions. While that literature review did not uncover any

[2] The Lawn Barber, LLC; Northern Colorado Lawn; The Family Lawn and Highlands Landscaping and Fencing.

studies specific to utilities with water budget-based rates, it did provide information from studies which compared the elasticity of water demand under different types of rate structures, including inclining block rate (sometimes called conservation rate) structures. This information indicates that customers appear to be more responsive to changes in rates under these types of structures, and that heightened responsiveness likely applies to water budget-based rates as well. This research is also summarized in Appendix A.

Quantitative analysis. Potential financial impacts of drought response measures on Greeley's customers, as well as financial impacts on the utility itself, were important considerations in developing the updated drought response plan. The study team examined the potential financial effects from temporary changes to customers' outdoor water budgets under the various drought emergency levels, as well as the potential financial impacts from temporary changes in water rates (or drought surcharges) under drought conditions. We also examined the potential effects on Greeley's revenues when the emergency drought plan is implemented. Key results from these analyses are discussed in Section III.

Iterative reviews and refinements. The study team, including both the consultants and Greeley Water & Sewer Department staff, met in person and virtually (due to the Coronavirus pandemic) on numerous occasions during the 12-month period while the new drought emergency plan was being developed. Preliminary results and recommendations were discussed with the City's Executive Leadership Team in June 2020 and with the Greeley Water & Sewer Board (the Board) during August and October 2020 to receive feedback on the proposed drought plan recommendations.

SECTION II.
Identifying and Classifying Drought

Determining the need to implement emergency drought response measures, and which measures should be implemented, depends on both the projected availability of water supplies for Greeley's customers and the anticipated level of water use by those customers.

Greeley's Water Supplies

As one of the oldest cities in Northern Colorado, Greeley has a relatively robust water supply portfolio and continues to acquire new supplies to meet forecasted growth within its service area. The "firm yield"[3] of Greeley's water supply portfolio is currently estimated to be about 40,000 acre-feet (AF) per year, substantially more than the current annual demand from Greeley's customers which has averaged about 21,300 AF per year since 2010.[4] However, like other water providers, Greeley needs to maintain sufficient water supplies in storage to guard against the potential for severe and prolonged droughts.

The single largest component of Greeley's treatable water supplies is the more than 22,800 units Greeley owns in the Colorado-Big Thompson Project (C-BT units). The amount of water that these units will yield is determined annually by the quota set by the Northern Colorado Water Conservancy District which manages the C-BT project.

Drought Response Trigger and Declaration Process

Each April, shortly after the C-BT quota for the year has been established, Greeley's Water Resources staff will project the storage volume that will be available on April 1st of the following year under "conservative" assumptions of high outdoor irrigation demands from Greeley's customers (as has been typical under hot and dry conditions during years such as 2002 and 2012) and low yields from Greeley's water supplies.

If the storage volume on the following April 1st is projected to be greater than or equal to Greeley's average annual water demands (currently estimated to be 21,300 AF), Greeley's staff will recommend that the Board declare an "adequate water year" and allow water rentals at volumes that continue to maintain a projected target volume at or above 21,300 AF.

If the storage volume on the following April 1st is projected to be less than Greeley's average annual water demands (21,300 AF), staff will recommend that the Board declare a drought and implement the drought emergency plan.

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[3] Firm-yield is an estimate of the maximum amount of annual demand that can be served by the city's water supplies under a repeat of historic drought of record hydrologic conditions. However, long-term historical climate analyses indicate that more severe droughts than the drought of record have occurred in the past and will likely occur again in the future.

[4] Based on annual water use by customer class tables produced by Greeley, excluding wholesale deliveries to Evans, Johnstown, Milliken and Windsor.

Drought Levels and Drought Response Goals

The severity of the drought, and the water savings goals from the drought response measures, will generally be based on the projected volume of water in storage on the following April 1st. For each drought level, the drought response goals will be to 1) avoid the drought condition worsening and Greeley's water supplies falling to a more severe drought level, and 2) strive to recover to adequate water conditions within a two-year period.

Level 1 – Mild Drought

Generally, Greeley will declare a mild drought when the projected volume of water in storage on the following April 1st is ***less than 100%, but greater than 85%*** of average annual water demands.

The goals of the drought response effort will be to **reduce outdoor water use by up to 15 % (currently about 1,530 acre-feet[5]) per year**.

Greeley may also decide to declare a mild drought and invoke the drought response measures discussed later in this plan for other reasons – such as other adverse events that affect Greeley's water supplies (for example if wildfires affect the watersheds that Greeley relies on), or in times when a regional drought response in Northern Colorado is deemed appropriate by the Board.

Level 2 – Moderate Drought

The projected volume of water in storage on the following April 1st is ***between 75% and 85%*** of average annual water demands

The goals of the drought response effort will be to **reduce outdoor water use by up to 25 % (currently about 2,560 acre-feet) per year**.

Level 3 – Severe Drought

The projected volume of water in storage on the following April 1st is ***between 60% and 75%*** of average annual water demands

The goals of the drought response effort will be to **reduce outdoor water use by up to 50 % (currently about 5,130 acre-feet) per year**.

Level 4 – Catastrophic Drought

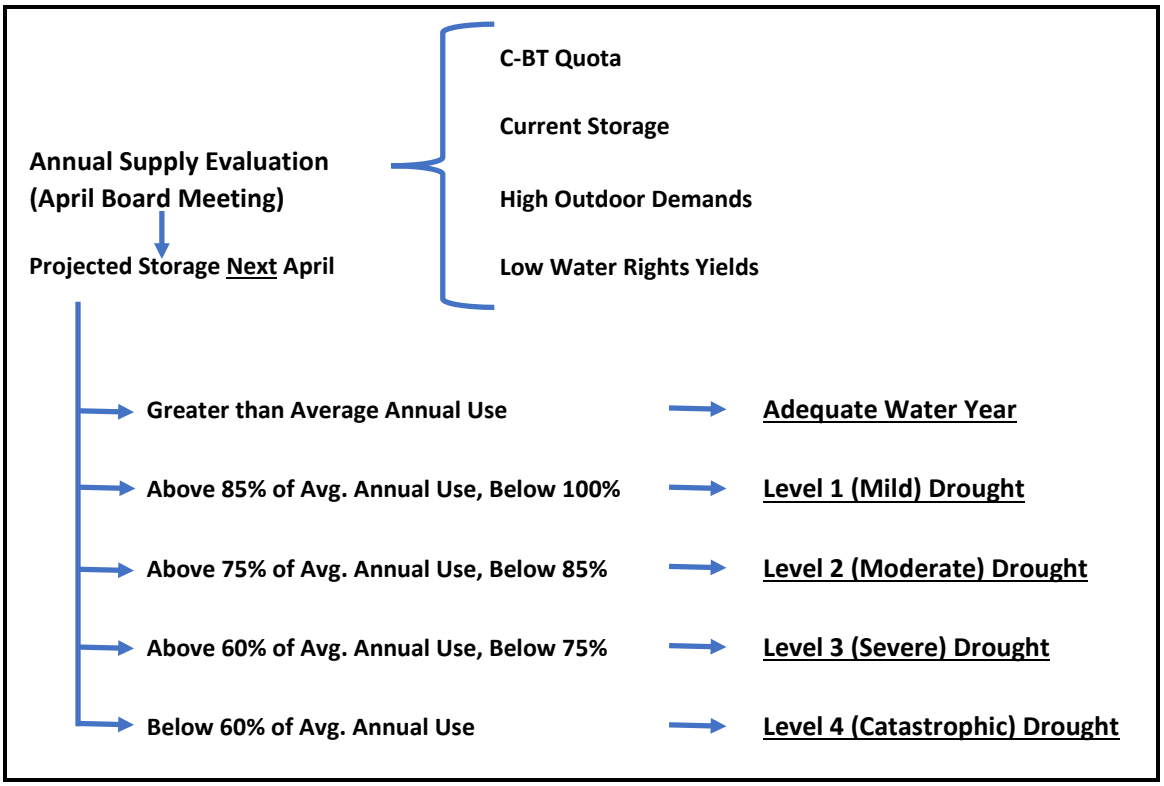
The projected volume of water in storage on the following April 1st is ***less than 60%*** of average annual water demands

[5] All potential savings estimates are based on projected outdoor demands under hot and dry conditions – estimated to be 17 percent greater than outdoor demands under average conditions.

The goals of the drought response effort will be to **reduce outdoor water use by up to 70 % (currently about 7,170 acre-feet) per year**.

The annual water supply evaluation and drought declaration process is summarized in Figure II-1.

Figure II-1. Annual Greeley Water Supply Evaluation and Drought Declaration Process



SECTION III.
Drought Response Strategies

Uncertainty is one of the defining characteristics of drought. When a city enters a drought, it is impossible to accurately predict how long the drought may last, or how severe it may become. It is also difficult to project exactly how much water will be saved by individual drought response measures, such as outreach to customers, voluntary or mandatory restrictions on outdoor irrigation, reductions in water budgets, increases in rates or other policies and practices. Consequently, it is prudent to have an array of measures available for each drought level and flexibility to adapt as conditions change.

Fundamentally, Greeley can respond to drought in two overall ways – by seeking to increase its available water supplies and by encouraging customers to reduce their water usage.

Water Supply-related Measures

Historically, several of the water districts and rural communities within the region that do not have water supply portfolios as robust as Greeley's have leased water from Greeley during periods of water shortage. Greeley also typically leases available water to provide a supplemental supply for local agricultural operations.

Consistent with Greeley's long-standing policies dating back to its 1998 drought plan, leases of water supplies to other entities during a mild or moderate drought will require approval of the Board. No water will be leased to other entities during a severe or catastrophic drought.[6]

Water Demand-related Measures

In order to identify and recommend potential measures for reducing water demand during drought, the study team reviewed Greeley's previous drought experience. We also gathered information from other water suppliers using water budget-based rates similar to those Greeley adopted in 2017. Finally, we considered a number of other priorities important to Greeley and its customers, including:

- Flexibility and adaptability to changing conditions;
- Avoiding or minimizing long-term damage to landscaping;
- Sharing the burden between customer classes;
- Minimizing financial impacts on customers; and
- Minimizing financial impacts on the water utility

[6] City of Greeley Drought Emergency Plan. Tuttle Applegate, Inc. June 1998.

Greeley's previous drought experience. Greeley's most severe extended drought on record occurred during the 1950s. Given the tremendous changes over the past 60 years in Greeley's development, and its water supply portfolio, the more relevant experience for current drought response planning is the 2000-2003 drought. The year 2002, in particular, was the worst year for water supply in Greeley's region during the past 300 years, according to tree ring studies, and included the lowest snowpack ever recorded.[7]

The primary tools that Greeley used to reduce demand during the drought of the early 2000s were an extensive public awareness and education effort, time-of-day and number of days-per-week watering restrictions. Greeley also considered implementing "conservation rates" in 2003 which included a 20 % increase for outdoor use up to normal irrigation volumes and another 20 % increase for usage above normal irrigation volumes[8], but appears to have been able to avoid taking this step – likely due to the major snowstorm in the Spring of 2003.

Figure III-1 provides a summary of the history of watering restrictions in Greeley from 2000 through 2019. As shown in the figure, Greeley began increasing its restrictions in 2002, and then further restricted use during 2003 before beginning to ease restrictions from 2004 forward. It is notable that Greeley has a much longer history of restricting outdoor water use, having invoked a policy limiting watering to every other day that dates back to 1907.

[7] Greeley's 2003 Drought Plan. PowerPoint Presentation.

[8] Ibid.

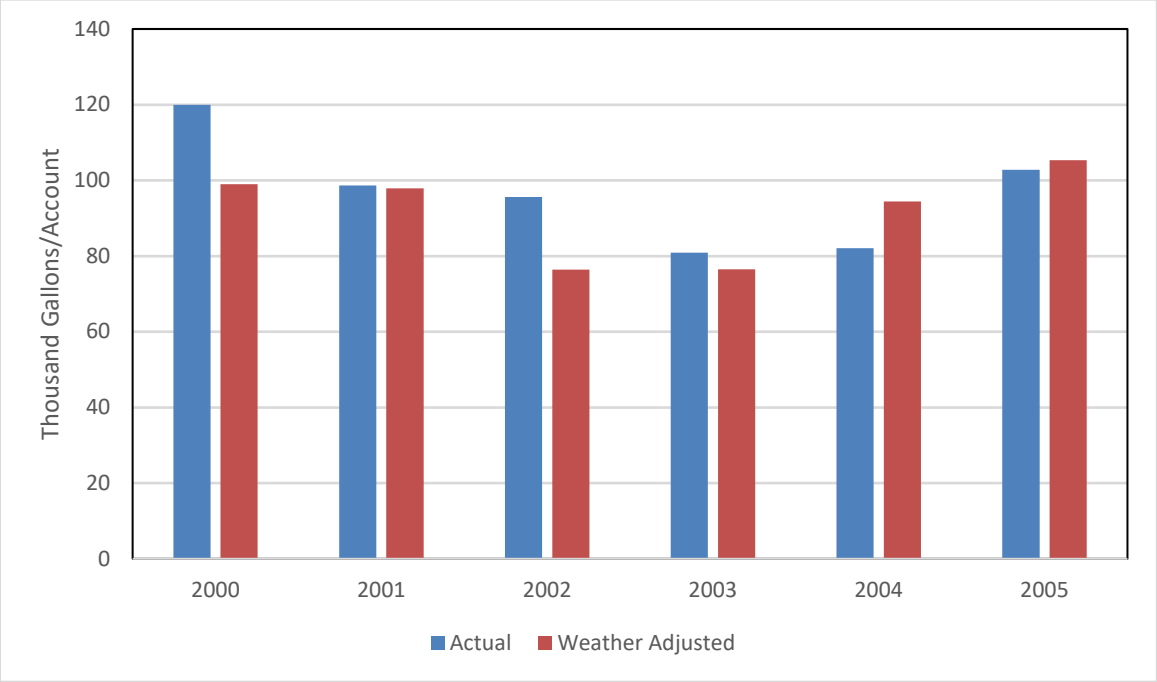
Figure III-1. Summary History of Watering Restrictions in Greeley, 2000-2019

Time Period	Watering Limitations (Changes shown in Bold)
2000-2001	All Customers: Every other day All Customers: No watering 1 PM to 5 PM
2002	**All Customers: Voluntary, once every three days, July 13 to end of season** All Customers: No watering 1 PM to 5 PM
2003	**All Customers: No watering Jan 1. to April 15** **All Customers: 1 day per week April 16 through May 15** **All Customers: 2 days per week May 16 through September 15** **All Customers: 1 day per week September 16 through October 15** **All Customers: No watering after Oct. 15** **All Customers: No watering 10 AM to 6 PM**
2004	All Customers: No watering Jan 1. to April 15 All Customers: 1 day per week April 16 through May 15 All Customers: 2 days per week May 16 through June 14 **All Customers: 3 days per week June 15 to end of season** All Customers: No watering 10 AM to 6 PM
2005-2017	**All Customers: 3 days per week, No watering Noon to 5 PM**
2017-2019	**Single Family Residential: Water Budgets** Other Classes: 3 days per week, No watering Noon to 5 PM
2020	Single Family Residential: Water Budgets Other Classes: 3 days per week **All Customers: No watering 10 AM to 6 PM**

Source: Greeley Water & Sewer Department, 2020.

The combination of outreach, restrictions and rate increases during the early 2000s was effective in reducing water use. As shown in Figure III-2, when adjusted for year-to-year weather variation, outdoor water use by Greeley's single-family residential customers declined from an average of nearly 100,000 gallons per household per year in 2001 to less than 80,000 gallons per year during 2002-2003. After the drought ended and restrictions were eased, Greeley's average outdoor residential water use gradually returned to about 100,000 gallons per year by 2005. (Note that average outdoor use has declined substantially since 2005 due to Greeley's water conservation program and other factors).

Figure III-2. Average Outdoor Annual Single-Family Residential Water Use per Account, 2000-2005



Source: BBC Research & Consulting based on data from 2018 Greeley Water Demand Model files.

While Greeley was able to reduce demand during the early 2000's drought, the region was also fortunate that the drought was substantially mitigated by a large snowstorm in the Spring of 2003 which helped replenish reservoirs and increase stream flows. The earlier 1950s drought-of-record demonstrates that droughts can be much more persistent than the early 2000s experience.

Other water providers with water budget-based rates. As noted in Section I, the study team collected and analyzed drought plans from other utilities with water-budget rate structures. The objective of the review was to examine how the drought plans of other municipal utilities use their water-budget rate structures, along with other measures, to reduce water use during times of drought.

In total, drought plans for 17 utilities with water budget-based rates were reviewed including four utilities in Colorado and 13 utilities in California (Figure III-3). More in-depth interviews were conducted with eight utilities to explore drought management topics in further detail.

Figure III-3. Utilities with Drought Plans and Water-Budget Rate Structures

Utility	Drought Plan Reviewed	Interview Conducted
Colorado Utilities		
City of Boulder	Yes	Yes
Castle Pines N. Metro District	Yes	
Town of Castle Rock	Yes	Yes
Centennial WSD	Yes	Yes
California Utilities		
Western Municipal WD	Yes	Yes
Santa Margarita WD	Yes	
City of Santa Cruz	Yes	
Rancho WD	Yes	Yes
Palmdale WD	Yes	
Moulton Niguel WD	Yes	
Las Virgenes WD	Yes	
Irvine Ranch WD	Yes	
Elsinore Valley MWD	Yes	Yes
El Toro WD	Yes	
Eastern Municipal WD	Yes	Yes
City of Corona	Yes	
Coachella Valley WD	Yes	Yes

The California utilities we interviewed have experienced drought since adopting their water-budget rate structures. They consistently cited reductions in their customers' water budgets as important factors in reducing their overall water use during drought conditions.

While most utilities decrease the water budgets of their customers during droughts, our interviews also indicated that the selection of water use reduction measures are influenced by a number of other considerations. In particular, utilities emphasized the importance of including a variety of water use reduction measures in each drought stage to provide water managers with the flexibility they need to achieve pre-defined water use reduction targets.

During droughts, utilities need to achieve rapid reductions in municipal water use. This creates a trade-off between the effectiveness and timeliness of measures. Measures like offering rebates for the installation of efficient fixtures or drought-tolerant landscaping are effective at reducing water use over the medium and long terms, but are less effective at reducing water use in the short term, which is why utilities do not use these types of measures in their drought plans.

Many utilities consider public awareness to be the most timely and effective measure to reduce water use. Changes to water budgets – and the corresponding water rates – are also considered to be effective in reducing water use. Initially, reductions in the water budgets can reinforce the utility's public awareness effort by communicating the specific reduction in water use needed from each individual single-family household. The financial signal from changes in water budgets is less timely since there is generally a lag of at least a month between the time the water budget is reduced and the time when the customer sees the impact in an increased water bill. As a

result, many utilities use a combination of public awareness and changes to water budgets to reduce the lag.

When utilities reduce water budgets, they typically begin by reducing the outdoor portion in an effort to limit impacts on their customers. Like Greeley, outdoor water use is generally the largest and most discretionary component of municipal water use for the other utilities we examined. Outdoor irrigation is the easiest water use to curtail without having large impacts on customers lifestyles and their perceptions of utility performance. Generally, utilities will fully curtail outdoor use before reducing indoor water budgets.

In addition to reducing customers' water budgets, many utilities also use non water-budget measures to reduce water use during droughts. Figure III-4 shows a sample of the water use reducing measures we noted from the drought plans of other utilities under increasingly severe drought stages. Notably, the severity of the measures increases with the severity of the drought stage. As noted above, preserving flexibility by including multiple measures at each drought stage was important to each of the utilities we contacted.

Figure III-4. Examples of Non-Water-Budget Measures to Reduce Water Use During Drought

Stage 1	Stage 2	Stage 3	Stage 4-5
Public information campaign	Public information campaign	Public information campaign	Public information campaign
Charges, fees, and fines for violating water use code	Charges, fees, and fines for violating water use code	Charges, fees, and fines for violating water use code	Charges, fees, and fines for violating water use code
Outdoor conservation efforts	Drought surcharges on rates	Drought surcharges on rates	Drought surcharges on rates
Leak audits	Voluntary restriction of certain outdoor uses	Mandatory restrictions of certain outdoor uses	No new potable water connections
Outdoor watering time restrictions	Irrigation audits	Eliminate municipal uses like street cleaning	No new landscape
Postpone landscape changes	No proactive water service by restaurants	No personal car washing	No irrigation for municipal facilities

Source: Drought plans and interviews with other providers using water budget-based rates.

Important considerations in developing Greeley's drought response strategies.

During the development of Greeley's new drought emergency plan, the Board and the members of the City's Executive Leadership Team emphasized several objectives for the plan. These important objectives included:

- **Focus on education, particularly during level one and level two drought emergencies.** Greeley believes that its customers will respond appropriately to drought emergencies if they are provided with the information to understand the situation and how they can contribute to the solution. As discussed later in this report, that type of response was demonstrated during the drought of the early 2000s..

- **Equity among Greeley's customers.** While outdoor water use by single family customers must be a focus for drought emergency water use reductions, other customer classes need to contribute their share to the City's water savings.

- **Minimize impacts to landscapes.** Although drought-related water use reductions are likely to stress lawns in Greeley, modifications to water budgets and watering restrictions should be designed to avoid long-term damage to trees and other non-turf vegetation as much as possible.

- **Minimize financial impacts to customers and the water utility.** Potential financial impacts are discussed further at the end of this section.

Response Strategy for Each Drought Level

Greeley has identified a set of measures that can be used in response to each different level of drought emergency. As noted at the beginning of this section, every drought is different and the water savings from emergency drought measures can be difficult to predict – so Greeley will maintain the flexibility to modify the measures it puts in place based on evolving drought conditions and the degree of success achieved in reducing water use by its customers.

At present, only single-family residential customers, and newer dedicated irrigation accounts, are on water-budget based billing. Those customers will be notified of specific changes to their individual outdoor water budgets, and provided with recommendations about how to reduce their outdoor water use to remain within their budget. Examples include changes in the number of days per week and/or changes in the duration of irrigation for lawns, trees and other landscape.

Eventually, Greeley may extend customer-specific water budget-based billing to its other customer classes. Until that occurs, Greeley will rely on the same types of restrictions on outdoor irrigation and other outdoor water uses that it has successfully used in the past for these other customer groups.

Figures III-5, on the following page, identifies Greeley's recommended response measures for water budgets and landscape irrigation restrictions for each of the potential drought levels. Greeley's philosophy in developing these response measures was to build on what has worked in the past (including the use of watering restrictions similar to those implemented during the drought of the early 2000s), while taking advantage of the new opportunities presented by its water budget-based billing for single family residential customers. The objectives described previously also helped define the selection of appropriate measures.

Figure III-5. Greeley Drought Response Measures – Water Budgets and Landscape Restrictions

GREELEY DROUGHT RESPONSE PROGRAM 2020					
With a two year recovery period	**Adequate Yr**	**Mild**	**Moderate**	**Severe**	**Catastrophic**
LEVEL OF RESPONSE	no drought	1	2	3	4
Target Storage	100%	85% to 99%	75% to 84%	60% to 74%	Less than 60%
Target Reduction (outdoor)	0%	15%	25%	50%	70%
Target Storage (in AF)	21,300	18,100	16,000	12,800	10,700
Annual Outdoor Reduction Goal	normal conservation	1,530	2,560	5,130	7,170
MEASURES					
Water Budget and Restrictions					
Single Family Residential on Water Budget		15%	25%	50%	70%
Proposed Water Budget Reduction	0%	15%	25%	50%	70%
Recommended Schedule Suggested Days		max 3 days/week	2 days/week	1 day/week	
Multi Family & HOA Not on Water Budget	mand. 3/wk	max 3 days/week	2 days/week	1 day/week	no watering
Reductions in Use	0%	15%	25%	50%	70%
Commercial Industrial Institutional (ICI)	mand. 3/wk	3 days/week	2 days/week	1 day/week	no watering
Reduction on Landscape Water Same as SFR	Normal conservation	15%	25%	50%	70%
Restrictions Landscape (Non Water Budget)					
Lawns/Turf	set day /week 3 days/week	no irrigation until May1 or after Sept. 30	irrigation May-Oct; 1"/week	no watering in July; let go dormant	no watering June 15-Aug 15
Non-watering Hours	10am-6pm	10am-6pm	10am-6pm	8am-8pm	8am-8pm
Installing New Lawns & Watering Permits	yes w/soil prep	yes w/soil prep	not June-Aug	not June-Aug	none
Multi Family	3 days/week	3 days/week	2 days/week	1 day/week	no watering
Large Properties with > 4 acres of Turf Need to Submit a Water Budget to Get a Watering Variance	3 days/week	1.5"/week WB	1.0"/week WB	only enough to keep it alive	not allowed
Trees and Shrubs		on days or drip or by hand			
Vegetable Gardens		on days or drip or by hand			
Flower Gardens		on days or drip or by hand			
Non Potable Ditch Water (city system)		follow restrictions or restrictions due to delivery			
Non Potable Ditch Water (private)		cannot regulate			
Well Water		cannot regulate			

Figure III-6, on the following page, highlights Greeley's recommended response measures for other outdoor uses.

Figure III-6. Greeley Drought Response Measures – Other Outdoor Water Uses

GREELEY DROUGHT RESPONSE PROGRAM 2020					
With a Two Year Recovery Period	**Adequate Yr**	**Mild**	**Moderate**	**Severe**	**Catastrophic**
LEVEL OF RESPONSE	No drought	1	2	3	4
Other outdoor Uses (hosing and washing)					
Home Car Washing	with BMPs and no runoff	bucket & shut off	bucket & shut off	commercial car wash	commercial car wash
Frequency		1x/week	1x/month	not allowed	not allowed
Washing Sidewalks, Driveways, Garages or Other Pavement		prohibited except for health or safety			not allowed
Siding on Houses, Patios, Decks		only in prep. for painting/staining 1 x per year with power washer			not allowed
Fleet Washing at Auto Dealerships/Mobile		1x/week	1x/month	not allowed	not allowed
Car Washes -Fundraising		prohibited except at commmercial carwashes			
Commercial/restaurant/fast food					
Drive Thru/Sidewalk		prohibited except for health or safety			only with a bucket & broom
Parking Lot		prohibited			
Fountains/Ponds/Pools/Spas					
Water Fountains (w/o fish)		unrestricted	no topping off	no water	no water
Public		unrestricted	no topping off	no water	no water
Private		unrestricted	unrestricted	no topping off	no topping off
Ponds with Fish or Plants		unrestricted	unrestricted	unrestricted	topping only to preserve fish
Swimming Pools and Spa's Private		unrestricted	Unrestricted	not allowed	not allowed
Semi-Private Neighborhoods		unrestricted	Unrestricted	not allowed	not allowed
City Pools		unrestricted	Unrestricted	no topping off	no topping off
City Uses					
City Parks /Athletic Fields		water budget	water budget cut	prioritize athletic fields only	
Golf Courses		10-20% cut back	10-20% cut back no watering roughs	max 1"/wk for tees and greens only	max 1"/wk for tees and greens only
City Facilities & Around Buildings		3 days/wk	2 days/week	1 day/week	no watering
Street Cleaning/Parking Lots with Trucks		unrestricted	unrestricted	restricted to essential situations	
Hydrant Flushing & Testing		unrestricted	limited to critical situations		
Washing Fleet Vehicles & Mobile Washers		1 x /week	every other week	1 x /month	none

Financial Impact Analysis

Apart from concerns about maintaining adequate water supplies, reducing water use during drought conditions can also adversely affect the financial condition of municipal water providers. Absent modifications to water rates or drought surcharges, utility revenues typically decline much more during drought emergencies than is offset by any reductions in operating costs from providing less water.

Temporary increases in water rates or drought surcharges can serve two purposes. These measures help reduce the water provider's financial vulnerability during droughts. They also can send important financial signals to customers that reinforce the need to conserve water. A recent study of the drought experience of California and Texas water providers recommended: "Adopt surcharges early. Increasing rates is often the most effective tool for achieving water savings."[9]

As noted earlier, Greeley's leadership is concerned about the financial impacts of droughts on the water system, but also is concerned about the financial impacts on Greeley's customers. In order to balance these concerns, Greeley plans to only increase water rates during severe or catastrophic droughts (Levels 3 and 4). Under Level 3 drought conditions, Greeley may increase its rates for the outdoor irrigation water budgets of its single-family customers by 25%, as well

[9] Use and Effectiveness of Municipal Irrigation Restrictions During Drought. Alliance for Water Efficiency. January 2020.

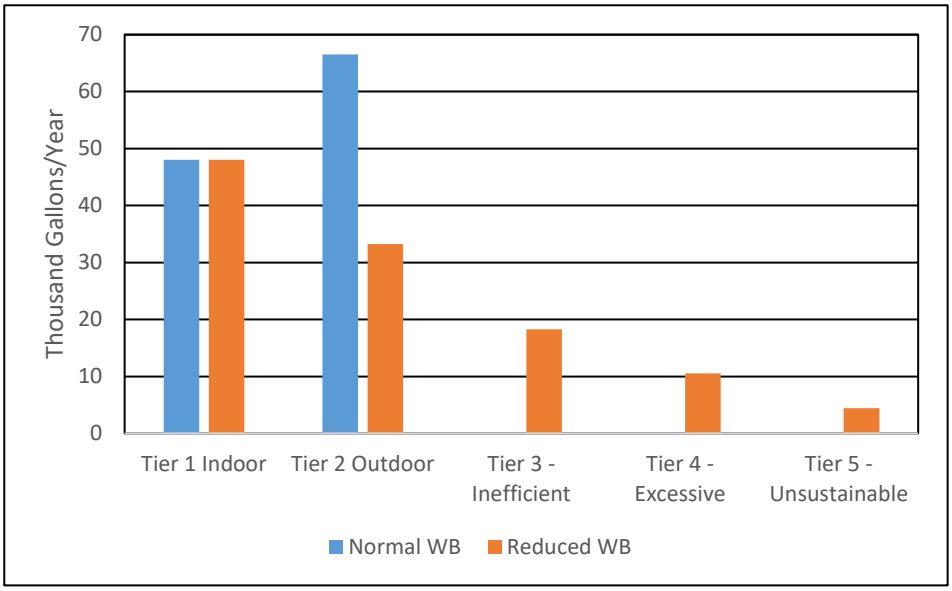
as the rates for its other customer classes. Under Level 4 drought conditions, Greeley may increase its rates for both customer groups by 35%.

Financial effects on Greeley's customers. Due to differences in Greeley's rate structure, and differences in the proportion of water that is used outdoors by different customer classes, drought response measures would have different degrees of financial impact on different types of customers. In general, however, under the new drought emergency plan all customers would pay less than normal if they reduce their outdoor use to meet the water savings objectives described previously. Under the more severe drought levels (Level 3 and Level 4) customers would pay considerably more than normal if they do not reduce their water use.

Single-family residential customers. The combination of reducing single-family residential outdoor water budgets and increasing rates for outdoor use during drought conditions can send a particularly strong financial signal to the single-family residential customers who make up the majority of Greeley's outdoor water use. Because of the water budget-based rate structure, single-family customers will have the strongest financial incentives to meet the target reductions in outdoor water use.

Figure III-7 depicts the potential effects of a Level 3, 50% reduction in the outdoor water use budget for a typical single-family customer in Greeley if that customer does not reduce their water use. With the reduced water budget, half of the customer's water use that would have normally been billed under Tier 2 (Normal outdoor use) would now be billed under Tiers 3, 4 and 5 which have substantially higher rates. (Note that this analysis is based on the five-tier water budget structure that Greeley plans to implement once its new Customer Information System is in place, rather than the four-tier system that was in place as of 2020.)

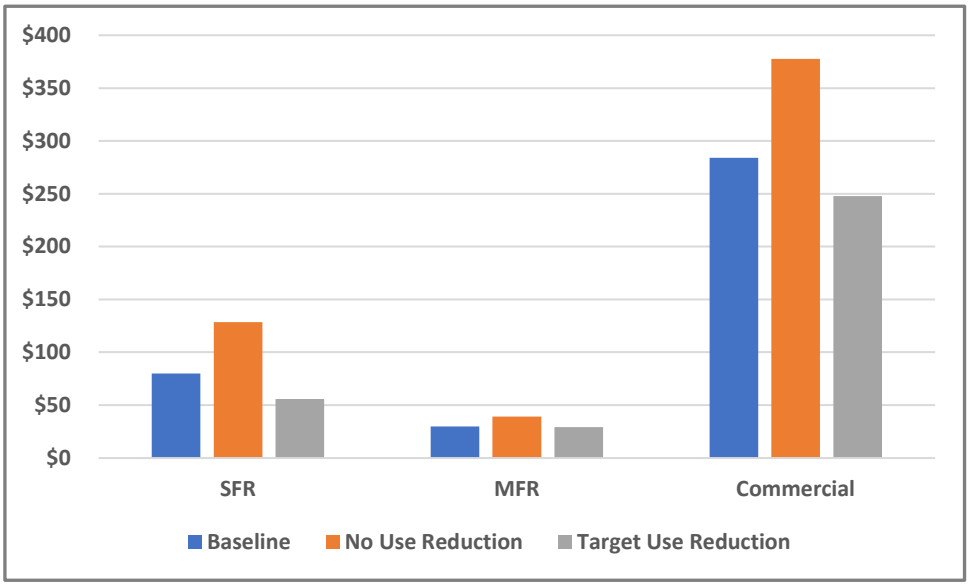
Figure III-7. Illustration of Effects of Level 3 Reduction in Water Budget if the Customer Does Not Reduce Their Water Use



Other customers. Greeley's other customer classes do not have separate rates for indoor and outdoor use. Consequently, the potential rate increases under Level 3 (Severe) drought conditions and Level 4 (Catastrophic) drought conditions would not send as strong a financial signal for these customers. However, like the single-family residential customers, commercial and multi-family residential customers would generally pay less than normal if they reduce their water use to meet the drought savings objectives, and would pay more than normal under Level 3 and Level 4 droughts if they do not. The potential rate increases for these customers under the more adverse drought levels would also help offset some of the loss in revenue that Greeley Water could experience under these drought conditions.

Figure III-8 depicts the potential effects on average monthly water bills during the irrigation season for different types of customers under a Level 4 drought. As shown previously, under this catastrophic drought condition, single-family residential outdoor water budgets would be reduced by 70 % and the rates for outdoor water use (by single-family customers) and all water use (for other customer classes) would be increased by 35 %.

Figure III-8. Average Monthly Bill During Irrigation Season Under Level 4 Drought for Different Types of Customers – With and Without Reduction in Outdoor Water Use



If customers do not reduce their water use under Level 4 (Catastrophic) conditions, the prototypical single-family customer would see a 60% increase ($48) in their monthly bill during the irrigation season. If they do reduce their water use to meet the drought response goals, they would see a 30% decrease (-$24) relative to their normal bill during the irrigation season.

The average irrigation season monthly bill per multi-family residence would increase by about 30% ($9) if they did not reduce their water use, but would decrease slightly (-$1) if they do reduce their use to meet the drought response objectives. The financial signals are a little stronger for commercial customers – a 33% increase ($94) per month if they do not reduce their use compared to a 13% reduction (-$36) if they do reduce their use to meet the drought response goals.

Financial Effects on Greeley Water. Meeting the water use reduction objectives in Greeley's drought emergency plan will reduce Greeley Water's revenues, even with the anticipated rate increases under Level 3 or Level 4 drought conditions. Overall:

- Greeley Water's revenues are projected to be reduced by between $240,000 and $630,000 per month during the irrigation season under the varied levels of drought conditions
- Annual revenues are projected to be reduced by $1.6 to $3.0 million per year (4 to 8 % of normal revenue) during drought response
- Greeley plans to implement and gradually accrue a drought reserve fund for future use in mitigating reductions in revenues due to decreased water sales during drought emergencies

The anticipated rate increases under Level 3 or Level 4 droughts substantially reduce the potential financial impacts on Greeley Water. Absent those rate increases, annual revenues could decline by as much as 21 % under a Level 4 drought. Although Greeley Water would experience some reduction in variable costs (such as electricity and chemical costs) due to providing less water, those financial savings would be very small compared to the projected reductions in revenues.

Public Awareness and Messaging

One of the most important elements of any drought response plan is timely and effective communication with customers to explain the situation and motivate the necessary changes in water use behavior. Improved technology, social media and other recent changes provide additional avenues for reaching and educating customers.

Communication during the 2002 drought. During Greeley's last significant drought, Greeley Water successfully used a number of techniques to reach its customers, including:

- Bill stuffers to educate customers and provide updates
- Direct mail to every household
- Regular updates to the Greeley Water website
- Media outreach including the local newspaper, radio spots and Greeley TV
- Photos to tell the story of the drought
- Public meetings, and
- Participation in existing community events

New opportunities. Greeley now has, or soon will have, a number of additional tools and means to educate customers and encourage water savings during droughts. These include:

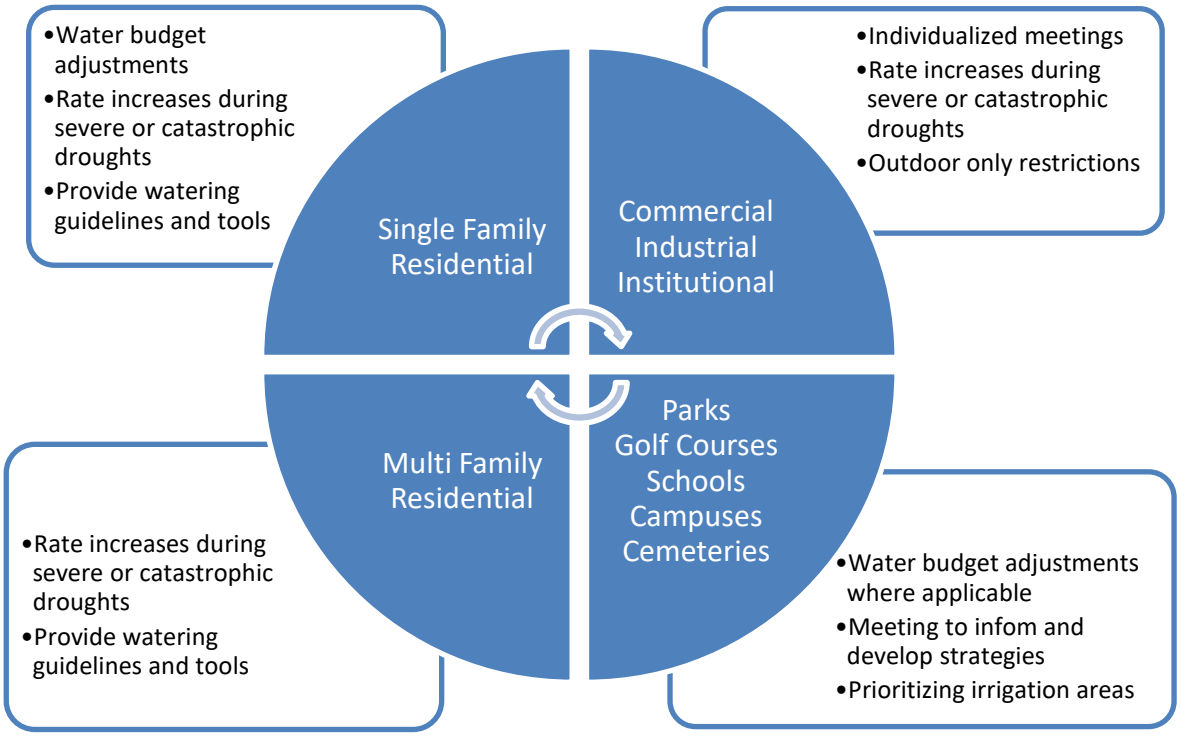
- A new and improved billing system
- Single-family residential water budget-based billing which will provide more specific and frequent updates on progress in reducing water use
- Advanced Metering Infrastructure (AMI) which will make real time water use information available to Greeley's customers
- Greeley's WaterSmart customer portal
- Social media presence on outlets such as Facebook, Twitter and NextDoor
- An improved website with E Newsletters and blogs
- A simplified and accessible executive summary of Greeley's new drought emergency plan

Messaging. Tailored messaging to different types of customers is at least as important as the vehicles for communication. All customers will receive:

- Clear and timely communication
- Updates as situation progresses or doesn't
- Watering restrictions and/or guidelines
- Rebates on water efficient products
- Audits-indoor and out
- Leak Detection
- AMI metering information

The following graphic summarizes the messaging strategies for different customer groups.

Figure III-9. Summary of overall messaging strategies for Greeley's different customer groups



Specific messaging to Single Family Residential Customers. Greeley's key messages for single family water users will include:

- Water budgets will be used as a tool by giving each customer a consumption target to aim for:
  - Indoor budget will not be affected
  - Reduced outdoor water use will save the customer money if they stay within their outdoor budget
- Guidance regarding the number of days per week/hours per day to water and stay within the outdoor water budget
  - These will be similar to the recommendations for non-water budget customers
- Explanation of effects on outdoor landscaping that can be expected

- Other tools to achieve reduction goals:
    - Adjusting sprinkler controllers
    - Alternative landscaping
    - Audits/rebates

Messaging to Multi-family Residential and Commercial Customers. Key messages for these customers will include:

- Days of the week watering restrictions
- Solutions to help businesses cut back on water use where possible
- Availability of audits and leak detection programs
- Potential rate increases only under level 3 and level 4 droughts to incentivize savings
- Future commercial customers will receive an outdoor tap and a water budget

Communication with Large Industrial Customers. Greeley will work with its large industrial customers, including:

- Scheduling meetings to understand water use processes and find ways to conserve use
- Providing incentives
- Offering audits, and
- Outdoor watering restrictions, if applicable

Communication with Parks, Golf Courses, Schools and Campuses. Greeley will also communicate with these large outdoor water users, including:

- Providing reduced water budgets for parks and golf courses
- Describing potable and non-potable watering restrictions for each of these customer groups
- Messaging that watering restrictions will become progressively more restrictive for more severe drought levels
- Holding meetings to develop solutions for adjusting watering practices, such as prioritizing irrigation areas

SECTION IV.
Implementation, Monitoring, Plan Review and Updates

Greeley's new drought emergency plan will be implemented when necessary based on current and anticipated water supply conditions. When droughts occur, ongoing monitoring of water supply and demand conditions will be critical for managing Greeley's drought response.

Implementation. Greeley has traditionally evaluated its water supply each April by making a forward-looking assessment of future water storage volumes for the following April. This assessment is based on conservative assumptions of low yields from its water supply portfolio and high demands associated with potential hot and dry conditions during the oncoming irrigation season. This process of declaring an "adequate water year" if future supplies appear sufficient – as indicated by a projected storage volume greater than average annual water use – will continue under this new drought plan. However, if future water supplies do not appear to be sufficient based on the projected future storage criteria, Greeley will declare a drought emergency and identify the appropriate drought level as described in Section II.

Monitoring. During a drought emergency, Greeley's staff will provide monthly updates to the Executive Leadership Team and the Board. Those updates will include:

- Updated information regarding Greeley's water supplies and storage;
- Identification of all drought response measures that have been invoked during the past month;
- Description of steps taken to communicate with Greeley's customers, and a summary of public comments to date;
- Estimated reductions in water use as a result of the drought management effort; and
- Recommendations regarding any change in the drought status based on the preceding information.

Quantifying reductions in water use during drought can be challenging. Often, as during the 2002 drought, low snowpack and streamflow due to dry winter conditions are followed by hot and dry weather conditions during the following irrigation season. Absent drought management efforts such as those described in this drought plan, those weather conditions would typically result in larger than normal outdoor water use.

The effects of the drought emergency plan should be measured against baseline water use estimates that account for increased outdoor demand under hot and dry conditions. Because Greeley already calculates weather-specific daily irrigation water requirements to modify its single-family residential customers' outdoor water budgets based on weather conditions, it has the tools necessary to estimate what outdoor water use would have been had the drought management measures not been in place.

Plan review and updates. Historically, Greeley has not updated its drought emergency plan on a regular basis because it has not needed to do so. Although Greeley has experienced hot and dry years, such as 2012, since the previous drought plan was developed, there has not been a significant drought since the early 2000s.

The study team recommends Greeley review and consider updating this plan more frequently, at least once in every five years. As indicated in the Section III, the next few years are likely to see the implementation of new technology, such as AMI, that will make additional tools available to Greeley and its customers to help manage their water use. Greeley will also have more customers on water-budget based billing as all new dedicated irrigation accounts migrate to that type of rate structure. Opportunities to communicate with customers are also constantly evolving.

Apart from regular reviews and potential updates, the drought emergency plan should be particularly closely scrutinized following any period during which Greeley has to declare a drought emergency. Actual experience with the measures described in this plan will undoubtedly help inform refinements and revisions that can improve the plan's effectiveness.

Appendix A.

Supplemental Research

BBC RESEARCH & CONSULTING
1999 Broadway
Suite 2200
Denver, Colorado 80202-9750
303.321.2547 fax 303.399.0448
www.bbcresearch.com
bbc@bbcresearch.com

MEMORANDUM

To: City of Greeley Water and Sewer Board

From: BBC Research & Consulting

Re: Review of Municipal Drought Plans Under Water-Budget Rate Structures

Date: May 1, 2020

Background

As part of BBC's work for Greeley to develop an updated drought plan, we collected and analyzed drought plans from other utilities with water-budget rate structures (Figure 1). The objective of the review was to examine how the drought plans of other municipal utilities use their water-budget rate structures, along with other measures, to reduce water use during times of drought.

Figure 1. Utilities with Drought Plans and Water-Budget Rate Structures

Utility	Drought Plan Reviewed	Interview Conducted
Colorado Utilities		
City of Boulder	Yes	Yes
Castle Pines N. Metro District	Yes	
Town of Castle Rock	Yes	Yes
Centennial WSD	Yes	Yes
California Utilities		
Western Municipal WD	Yes	Yes
Santa Margarita WD	Yes	
City of Santa Cruz	Yes	
Rancho WD	Yes	Yes
Palmdale WD	Yes	
Moulton Niguel WD	Yes	
Las Virgenes WD	Yes	
Irvine Ranch WD	Yes	
Elsinore Valley MWD	Yes	Yes
El Toro WD	Yes	
Eastern Municipal WD	Yes	Yes
City of Corona	Yes	
Coachella Valley WD	Yes	Yes

In total, BBC reviewed drought plans for 17 utilities, including four utilities in Colorado and 13 utilities in California (Figure 1). In addition to reviewing the drought plans for each utility, BBC developed a structured questionnaire and conducted interviews with eight utilities to explore some topics in more detail.

Many of the utilities we interviewed have experienced droughts since adopting water-budget rate structures and cite reductions in their customers' water budgets as important factors for reducing their overall water use during these times.

For example, the Coachella Valley Water District in California experienced a drought in 2014 and had to reduce water use by 36 percent by mandate. The district increased water rates in its inefficient tiers (Tier 3 and higher) and introduced a $25 drought penalty in its fifth tier to reduce water use. Both measures were successful according to the utility. The Elsinore Valley Municipal Water District also experienced a drought in 2014 and had to achieve the same 36 percent mandated reduction. The district adjusted its customers' water budgets – but kept water rates the same - and believed the adjustments were responsible for about 90 percent of the utility's reduction in water use.

During our review of the drought plans several other pertinent themes emerged that are relevant to Greeley's efforts:

- Baseline water budgets;
- Short vs. long run effects;
- Indoor vs. outdoor water use reduction;
- Equity of using water budgets to reduce water use;
- Revenue considerations;
- Non water-budget water use reduction measures; and
- Elasticity of water demand and relationship to water budgets.

The remainder of this memorandum summarizes our review and discusses our findings for each of the above topics as they relate to the development of Greeley's Drought Plan.

Overview of Utility Drought Plans and Measures

Most utilities with water-budget rate structures are found in California, but there are at least four other utilities in Colorado that also utilize water-budget rate structures (Figure 1). By law, all water utilities in California are required to develop plans to reduce water use during times of drought. Colorado has no such law, though the Colorado Water Conservation Board provides drought management planning grants to assist water providers in developing drought management plans. Three of the four Colorado utilities we examined have developed drought plans to incorporate their water-budget rate structures.

While most utilities decrease the water budgets of their customers during droughts, our interviews with several utilities also indicated that the selection of water use reduction measures are influenced by a number of other considerations. In particular, utilities expressed how important it is to include a variety of water use reduction measures in each drought stage to provide water managers with the flexibility they need to achieve pre-defined water use reduction targets. These primary considerations are discussed in more detail below.

Baseline Water Budgets. The outdoor water budgets of Greeley's residential customers are calculated using real-time climate variables. This means during droughts – when it is typically hot and dry – Greeley's outdoor water budgets will be higher than they would be under average conditions. If water use reductions are calculated from water budgets under drought conditions, overall water use may still be higher than it would be under average conditions.

We spoke to several utilities to understand how they handle this potential complication. Like Greeley, most utilities use real-time E/T to calculate outdoor water budgets. The utilities we spoke to indicated that their water use reduction targets are therefore calculated from water budgets under drought conditions. The City of Boulder is the only exception. The City calculates outdoor water budgets using a 10-year moving average E/T and calculates water use reductions during drought based on the long-run average.

Short Run vs. Long Run Water Use Response. During droughts, utilities need to achieve rapid reductions in municipal water use. This creates a trade-off between the effectiveness and timeliness of measures. Measures like offering rebates for the installation of efficient fixtures or drought-tolerant landscaping are effective at reducing water use over the medium and long runs, but are less effective at reducing water use in the short run, which is why utilities do not use these types of measures in their drought plans.

Many utilities consider public awareness to be the most timely and effective measure to reduce water use. Changes to water budgets – and the corresponding water rates – are considered to be effective for reducing water use. Initially, reductions in the water budgets can reinforce the utility's public awareness effort communicating the specific reduction in water use need from each individual single-family household. The financial signal from changes in water budgets is less timely since there is generally a lag of at least a month between the time the water budget is reduced and when the customer sees the impact in an increased water bill. As a result, many utilities use a combination of public awareness and changes to water budgets to reduce the lag.

Indoor vs. Outdoor Reductions. When utilities reduce water budgets, they typically begin by reducing the outdoor portion in an effort to reduce impacts on their customers. Like Greeley, outdoor water use is generally the largest and most discretionary component of municipal water use for the utilities we spoke to. As a result, it is the easiest water use to curtail without having large impacts on customers lifestyles and perceptions of utility performance. Generally, utilities will fully curtail outdoor use before reducing indoor water budgets.

Equity Considerations. Most utilities recognized the potential equity concerns arising from reducing the water budgets for single-family residential users without seeking comparable

water use reductions from other customer classes, but they generally prioritized economic health over seeking water use reductions from each customer class in equal proportions. In other words, most utilities preferred to reduce the water budgets of residential customers to greater and greater degrees before curtailing the use of commercial and industrial customers. The City of Boulder and Coachella Valley Water District - which both reduce the water budgets of all of their customers classes equally - were the only exceptions we noted.

Impacts on Landscaping Industry. We are aware the City of Greeley is sensitive to the impact that water use reductions can have on local businesses in general, and landscaping businesses in particular. BBC contacted four landscaping businesses in Northern Colorado to investigate their views on how reductions in outdoor water use would impact their business. The businesses we spoke with all believed their financial performance would be supported by population growth and rising incomes in the future and were not particularly concerned about potential impacts from reductions in outdoor water use during drought conditions. These businesses said outdoor watering restrictions only impact their businesses when droughts become severe (i.e. watering is limited to only one to two times per week).

Water Budgets for Non-Residential Customer Classes. Some of the utilities we researched applied water budget rate structures to all of their customer classes. The City of Boulder has a five-tier water budget rate structure that it applies to all of its customer classes. As noted above, the City's drought plan calls for reducing the water budgets of all of its customers equally during times of drought. The Coachella Valley Water District also uses a five-tier water budget rate structure that it applies to all of its customer classes, including commercial and irrigation customers. The District calculates indoor use for commercial customers by estimating each commercial customer's water use in terms of equivalent dwelling units. Irrigation customers do not have an indoor water budget due to the nature of their water use.

Non-Water-Budget Water Use Reduction Measures. In addition to reducing customer's water budgets, many utilities use non water-budget measures to reduce water use during droughts. Figure 2 shows a sample of the water use reducing measures we noted from the drought plans of other utilities under increasingly severe drought stages. Notably, the severity of the measures increases with the severity of the drought stage. As noted above, preserving flexibility by including multiple measures at each drought stage was important to each of the utilities we contacted.

Figure 2. Examples of Non-water-budget Measures to Reduce Water Use During Drought

Stage 1	Stage 2	Stage 3	Stage 4-5
Public information campaign	Public information campaign	Public information campaign	Public information campaign
Charges, fees, and fines for violating water use code	Charges, fees, and fines for violating water use code	Charges, fees, and fines for violating water use code	Charges, fees, and fines for violating water use code
Outdoor conservation efforts	Drought surcharges on rates	Drought surcharges on rates	Drought surcharges on rates
Leak audits	Voluntary restriction of certain outdoor uses	Mandatory restrictions of certain outdoor uses	No new potable water connections
Outdoor watering time restrictions	Irrigation audits	Eliminate municipal uses like street cleaning	No new landscape
Postpone landscape changes	No proactive water service by restaurants	No personal car washing	No irrigation for municipal facilities

Revenue Considerations. Other utilities were concerned about the revenue impacts from reducing water budgets during droughts, but to different degrees. Many of the utilities we spoke with set aside a portion of their revenues during normal years to offset future revenue shortfalls during periods of drought. Many utilities we spoke with also use rate increases, special surcharges, and/or drought penalties to help preserve revenues and maintain financial reserves.

For example, the Town of Castle Rock and Centennial Water District both maintain reserve funds to compensate for reduced revenue during droughts. The City of Boulder has considered using a base fee to stabilize revenue during droughts. In California, utilities use drought penalty charges to offset reductions in revenue where possible, but this can be difficult in California because of strict legal interpretations in that state concerning the required nexus between operational costs and water rates.

Elasticity of Water Demand. During BBC's previous work to develop the new water demand model for Greeley, we found that Greeley's residential water customers had historically reduced their water use by 0.3 percent for every 1 percent increase in the average price of water. This means that to achieve a 20 percent reduction in overall use, prices would have to be increased by more than 50 percent. However, this elasticity estimate was derived under the City's previous uniform volumetric charges for both indoor and outdoor use. Other studies have found that customers are more sensitive to changes in the price of water used for outdoor uses than indoor uses, and that more complex rate structures such as increasing block rates or water budgets can increase the price elasticity of demand for water.

BBC reviewed the economic literature on price elasticities for outdoor water use of residential customers under increasing block rate structures – the closest approximation to water-budget rate structures – and found that the price elasticities varied from a low of -0.74 to a high of -1.18. This means the average response of residential customers to a 1 percent increase in price is to reduce outdoor water use by between 0.74 percent and 1.18 percent. Based on these elasticity estimates, a 33 percent increase in the average price of residential water would decrease water use by between 24 and 39 percent.

CITY OF GREELEY, COLORADO

ORDINANCE ___, 2021

AN ORDINANCE AMENDING SECTIONS 14.08.090 AND 14.08.160 OF THE GREELEY MUNICIPAL CODE (CONCERNING WATER USE RESTRICTIONS AND DROUGHT RESPONSE)

WHEREAS, the City of Greeley ("City") is a Colorado home rule municipality empowered pursuant to Sections 1 and 6 of Article XX of the Colorado Constitution to, *inter alia*, construct, purchase, acquire, lease, add to, maintain, conduct, and operate water works and everything required therefor, within or without its territorial limits, for use of the City; and

WHEREAS, Section 17-1 of the Greeley City Charter authorizes the Greeley Water and Sewer Board to qualify the Water and Sewer functions and operations as an "enterprise" as that term is contained in Article X, Section 20 of the Colorado Constitution, and to provide for every function and operation of an enterprise, including but not limited to, bond issuance and all other necessary and ordinary functions of the Water and Sewer operations; and

WHEREAS, Section 17-4(c) of the Greeley City Charter and Section 14.04.110 of the Greeley Municipal Code authorize the Greeley Water and Sewer Board to acquire, develop, convey, lease and protect the water and sewer assets, supplies and facilities needed to fully use the water supplies decreed, adjudicated or contracted for the City; and

WHEREAS, Sections 14.08.090 and 14.08.160 of the Greeley Municipal Code prescribe the particular means by which City residents may irrigate their property and make other uses of City water during periods of adequate water supply and during periods of drought; and

WHEREAS, the Water and Sewer Board at its January 20, 2021 regular meeting adopted an updated Drought Emergency Plan to guide the City's identification of potential drought conditions and subsequent response measures; and

WHEREAS, in conjunction with its adoption of the updated Drought Emergency Plan, the Water and Sewer Board at its January 20, 2021 regular meeting also recommended a variety of associated revisions to the Greeley Municipal Code regarding water conservation and use restrictions; and

WHEREAS, the imposition of watering restrictions that are responsive to the adequacy of available water supply and potential drought conditions continues to be in the best interests of the citizens of the City of Greeley, for the preservation and protection of their health, property, water resources, and safety.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GREELEY, COLORADO:

Section 1. Sections 14.08.090 and 14.08.160 of the Greeley Municipal Code shall be repealed and replaced in their respective entireties as shown on Exhibit A, attached hereto and incorporated herein.

Section 2. Except as explicitly modified on Exhibit A, all other provisions of Chapter 14.08 in the Greeley Municipal Code shall remain in full force and effect.

Section 3. This Ordinance shall take effect on the fifth day following its final publication, as provided by Section 3-16 of the Greeley City Charter.

PASSED AND ADOPTED, SIGNED AND APPROVED ON THIS _____ DAY OF _____ 2021.

ATTEST

_____
City Clerk

CITY OF GREELEY, COLORADO

_____
Mayor

EXHIBIT A
ORDINANCE AMENDING SECTIONS 14.08.090 AND 14.08.160
GREELEY MUNICIPAL CODE

Chapter 14.08
Water Rates and Regulation

***

14.08.090 - Wasting water unlawful.

~~(a) It is unlawful for any person using City water to use said water to allow or permit water to run to waste upon his or her premises, buildings, houses or lots, in, through or out of any water closet lavatory, urinal, bathtub, hose, hydrant, faucet or other fixtures, appliances or apparatus whatsoever, or in any manner through neglect or by reason of faulty or imperfect plumbing or fixtures.~~

~~(b) It is unlawful for any person, partnership, company or corporation or other entity using City water, at any time during a declared drought, to use water to clean any hard surface upon or adjacent to the premises, building, house or lot. For purposes of this Section, *hard surface* includes but is not limited to driveways, sidewalks and streets and street gutters. Use of water in cleaning property such as roof gutters, eaves, windows or in preparation for painting is allowed as long as waste does not occur.~~

~~(c) It is unlawful for any person, partnership, company or corporation or other entity using City water to allow, either manually or automatically, the sprinkling or watering of hard surface; to allow excessive runoff of water from the premises, building, house or lot; and/or to allow the excessive pooling of water upon or adjacent to the premises, houses or lots. Runoff that is more than five (5) gallons per minute is considered excessive.~~

~~(d) Penalties.~~

~~(1) Any person who violates any of the provisions of this Section is guilty of violation of this Section and shall be punished by a fine of one hundred dollars ($100.00) for the first conviction during the calendar year, two hundred fifty dollars ($250.00) for the second conviction during the calendar year, five hundred dollars ($500.00) for the third conviction during the calendar year and five hundred dollars ($500.00) and a flow restrictor to limit water to indoor use only of water service for the fourth conviction during the same calendar year may be required.~~

~~(2) Each day of violation shall constitute a separate offense as provided in Section 1.32.020 of this Code.~~

~~(e) Intent. The violations described in this Section are strict liability offenses, as defined in Chapter 10 of this Code.~~

(a) It is unlawful for any person or entity to cause or knowingly allow the application of City water to waste upon property under their ownership or control.

(b) It is unlawful for any person or entity to cause or knowingly allow the leakage of City water in, through, or out of any water closet, lavatory, toilet, urinal, bathtub, hose, hydrant, faucet, appliance, fixture, or apparatus of any kind, including, without limitation, by reason of a defective component of the leakage source, upon property under their ownership or control.

(c) It is unlawful for any person or entity to cause or knowingly allow the excessive runoff or pooling of City water from, upon, or adjacent to property under their ownership or control.

(d) Violations and penalties.

(1) A person or entity who violates any of the provisions of this Section on a residential property shall be punished by a fine of one hundred dollars ($100.00) for the first violation, two hundred and fifty dollars ($250.00) for the second violation within a calendar year, and five hundred dollars ($500.00) for the third and all subsequent violations within a calendar year. In addition to the applicable fine, a person or entity who violates any of the provisions of this Section on a residential property for the fourth time in a calendar year shall be required to install a flow restriction device at their own expense to limit City water use on the property for indoor purposes only.

(2) A person or entity who violates any of the provisions of this Section on a non-residential property shall be punished by a fine of two hundred dollars ($200.00) for the first violation, five hundred dollars ($500.00) for the second violation within a calendar year, and one thousand dollars ($1,000.00) for the third and all subsequent violations within a calendar year. In addition to the applicable fine, a person or entity who violates any of the provisions of this Section on a non-residential property for the fourth time in a calendar year shall be required to install a flow restriction device at their own expense to limit City water use on the property for indoor purposes only.

(3) Each and every day on which a violation occurs shall constitute a separate infraction, as provided in Section 1.33.020 of this Code.

(4) Verbal warnings shall not be issued in advance of notices of violation at any time the City's water supply is declared subject to a Moderate Drought, Severe Drought, or Catastrophic Drought.

***

~~**14.08.160 - Sprinkling restrictions; drought levels; penalty.**~~

~~(a) The following provisions shall apply at all times unless modified by subsequent Sections of the ordinance codified herein:~~

~~(1) Waste of water is prohibited at any time.~~

~~(2) Sprinkler irrigation shall not occur between 10:00 a.m. and 6:00 p.m. from May through August even when water supplies are adequate.~~

~~(3) Drip irrigation, low-volume spray or bubbling sprinklers, hose-end sprinklers and weeping-type soaker hoses are allowed to water trees, shrubs or flower beds at any time.~~

~~(4) Hand-watering of vegetables and flower gardens, trees and shrubs and individual brown spots in a lawn is allowed at any time, so long as water waste does not occur. Hand-watering means holding in the hand a hose with attached positive shutoff nozzle and does not include operating a hose with a sprinkler or manually operating an irrigation controller.~~

(5) Except during time of adequate water supply, hand watering to clean hard surfaces such as driveways and parking lots is prohibited. Hand watering to clean property, such as roof gutters, eaves, windows or in preparation for painting, is allowed as long as water waste does not occur.

(6) Public organizations: The use of water for sprinkling lawns, gardens and trees on the grounds of public organizations, public parks and public golf courses served by the City water system will be permitted at any time with written variance from the Director of Water and Sewer. The public organizations to which this paragraph refers include, but are not limited to: Weld County facilities, the University of Northern Colorado campus, School District #6 grounds, and City of Greeley grounds, including parks, golf courses and Linn Grove cemetery.

(7) New lawn variance: The use of water for sprinkling newly seeded or sodded lawns less than one (1) month old will be allowed during times determined by the Director of Water and Sewer pursuant to a permit for the same. Issuance of such a permit is contingent upon proof of proper soil preparation before installation of turf. Proper soil amendment is considered to be the equivalent of adding compost at a rate of four (4) cubic yards per one thousand (1,000) square feet of planted area, incorporated to a depth of six (6) inches. Permits shall be posted on the property.

(8) Large user variance: The use of water for sprinkling large areas with multiple addresses, such as homeowners' associations, or other special circumstances, may be allowed during the times and days of the week as determined by the Director of Water and Sewer and defined by a permit for the same. Such written permits shall be posted on the property.

(9) Except during a time of declared "adequate" water supplies, there shall be no lawn watering between January 1 and April 14. Charging and testing of sprinkler systems is allowed. Sprinkling may be allowed by written variance.

(10) Unusual circumstances: The Director of Water and Sewer may issue variance permits to address any other circumstances that, in the Director's sole discretion, are deemed appropriate.

(b) Definitions:

(1) *Even-odd schedule:*

a. Even-numbered addresses may sprinkle on even days of the month.

b. Odd-numbered addresses may sprinkle on odd days of the month.

c. On May 31, July 31 and August 31, odd addresses may sprinkle in the morning and even addresses may sprinkle in the evening.

(2) *One-day-per-week* watering: All properties may use water for sprinkling only one (1) day per week.

a. Single-family residences and duplexes with addresses ending in an even number may sprinkle on Sundays.

b. Single-family residences and duplexes with addresses ending in an odd number may sprinkle on Saturdays.

c. All other customers, commercial, industrial, multi-family and homeowners' associations may sprinkle on Fridays.

(3) *Two-days-per-week* watering:

a. Single-family residences and duplexes with addresses ending in an even number may sprinkle on Sundays and Thursdays.

b. Single-family residences and duplexes with addresses ending in an odd number may sprinkle on Wednesdays and Saturdays.

c. All other customers, commercial, industrial, multi-family and homeowners' associations may sprinkle on Tuesdays and Fridays.

d. There shall be no watering on Mondays except by written variance.

(4) *Three-days-per-week* watering:

a. Single-family residences and duplexes with addresses ending in an even number may sprinkle on Sundays, Tuesdays and Thursdays.

b. Single-family residences and duplexes with addresses ending in an odd number may sprinkle on Mondays, Wednesdays and Saturdays.

c. All other customers, commercial, industrial, multi-family and homeowners' associations may sprinkle on Sundays, Tuesdays and Fridays.

(5) *Hand-watering* means holding in the hand a hose with attached positive shutoff nozzle. *Hand-watering* does not include operating a hose with a sprinkler or manually operating an irrigation controller.

(c) Drought levels: On the determination by the Greeley Water and Sewer Board, after an analysis including but not limited to the Colorado-Big Thompson quota, the level of storage in Greeley reservoirs, snow pack and yield thereof, and the long-range weather forecast, that Greeley's water supply situation is "Adequate" or in a "Mild Drought," "Moderate Drought" or "Severe Drought," the City Council may, by resolution, declare one (1) of the following four (4) sets of watering restrictions to be in effect:

(1) When the City's water supply is Adequate: The use of City water for sprinkling of private residences, commercial and industrial property, church or other nonprofit or governmental organization lawns, gardens and trees by customers not subject to the water budget rate structure will be permitted three (3) days per week between April 15 and the end of the irrigation season. The use of City water for sprinkling of private residences by single-family residential customers subject to the water budget rate structure will be permitted on any day of the week between April 15 and the end of the irrigation season.

(2) When the City's water supply is in a Mild Drought: The use of City water for sprinkling of private residences, commercial and industrial property, church or other nonprofit or governmental organization lawns, gardens and trees will be permitted:

a. One (1) day per week between April 15 and May 14.

b. Two (2) days per week between May 15 and June 14.

c. Three (3) days per week between June 15 and August 31.

d. One (1) day per week between September 1 and the end of the irrigation season.

e. Sprinkler irrigation shall not occur between 10:00 a.m. and 6:00 p.m. daily.

(3) When the City's water supply is in a Moderate Drought: The use of City water for sprinkling of private residences, commercial and industrial property, church or other nonprofit or governmental organization lawns, gardens and trees will be permitted:

a. One (1) day per week between April 15 and May 14.

b. Two (2) days per week between May 15 and August 31.

c. One (1) day per week between September 1 and the end of the irrigation season.

d. New sod or seed variances are not allowed between May 15 and August 31.

e. Sprinkler irrigation shall not occur between 10:00 a.m. and 6:00 p.m. daily.

(4) When the City's water supply is in a Severe Drought: The use of City water for sprinkling of private residences, commercial and industrial property, church or other nonprofit or governmental organization lawns, gardens and trees will be permitted:

a. One (1) day per week between April 15 and May 14.

b. Two (2) days per week between May 15 and June 14.

c. No sprinkler irrigation between June 15 and August 1 will be permitted, except for trees and shrubs.

d. Two (2) days per week between August 1 and August 31.

e. One (1) day per week between September 1 and the end of the irrigation season.

f. No new sod or seed variances are allowed.

g. Sprinkler irrigation shall not occur between 10:00 a.m. and 6:00 p.m. daily.

(5) When the City Council declares which set of water restriction are in place, the City Council may define City policy regarding the use of warnings prior to notices of violation being issued.

(d) Penalties:

(1) Any person who violates any of the provisions of this Section during a calendar year shall be punished by a fine of one hundred dollars ($100.00) for the first violation, two hundred fifty dollars ($250.00) for the second violation, five hundred dollars ($500.00) for the third violation, and five hundred dollars ($500.00) and the cost of installing a flow restrictor to limit water use to indoor use only for the fourth and subsequent violations.

(2) Violations on property other than residential property shall be punished by fines which are double those described in Subsection (d)(1) above.

(3) Each day of violation shall constitute a separate offense as provided in Section 1.32.020 of this Code and shall be a strict liability offence.

(4) During a declared Severe Drought, all fines are doubled or up to one thousand dollars ($1,000.00), whichever is less.

14.08.160 – Water conservation and use restrictions; drought response.

(a) Definitions.

(1) *Hand-watering* means the attended application of City water without waste by an individual using a hose equipped with a nozzle that must be manually held open to permit the flow of water.

(2) *One Day per Week Watering Schedule* means that customers may use City water for sprinkling only one (1) day per week. Single-family and duplex residential properties with addresses ending in an even number may sprinkle on Sundays. Single-family and duplex residential properties with addresses ending in an odd number may sprinkle on Saturdays. All other multi-family residential, non-residential, and owners' association customers may sprinkle on Fridays.

(3) *Sprinkle* or *Sprinkling* means the application of City water to any lawn, grass, turf, or other landscaped area by any means other than hand-watering.

(4) *Two Days per Week Watering Schedule* means that customers may use City water for sprinkling only two (2) days per week. Single-family and duplex residential properties with addresses ending in an even number may sprinkle on Sundays and Thursdays. Single-family and duplex residential properties with addresses ending in an odd number may sprinkle on Wednesdays and Saturdays. All other multi-family residential, non-residential, and owners' association customers may sprinkle on Tuesdays and Fridays. There shall be no watering on Mondays except by written variance from the Director of Water and Sewer.

(5) *Three Days per Week Watering Schedule* means that customers may use City water for sprinkling only three (3) days per week. Single-family and duplex residential properties with addresses ending in an even number may sprinkle on Sundays, Tuesdays and Thursdays. Single-family and duplex residential properties with addresses ending in an odd number may sprinkle on Mondays, Wednesdays and Saturdays. All other multi-family residential, non-residential, and owners' association customers may sprinkle on Sundays, Tuesdays and Fridays.

(b) The Water and Sewer Board shall analyze the adequacy of the City municipal water supply and identify the potential for and existence of drought conditions no less often than annually, and determine whether the water supply is Adequate, or otherwise subject to a Mild Drought, Moderate Drought, Severe Drought, or Catastrophic Drought.

(c) The use of City water is further restricted as follows, in accordance with the declaration of water supply adequacy or level of drought made by the Water and Sewer Board. Upon such declaration by the Water and Sewer Board, the City Council shall adopt the applicable set of watering restrictions by resolution.

(1) Upon declaration that the City's water supply is Adequate:

a. Sprinkling is prohibited before April 15 and after October 15.
b. Sprinkling is prohibited between 10:00 a.m. and 6:00 p.m.
c. Customers subject to the water budget rate structure may sprinkle on any day of the week from April 15 through October 15.
d. Multi-family residential, non-residential, and owners' association customers not subject to the water budget rate structure, and large property customers with more than four (4) acres of irrigable area shall follow the Three Days per Week Watering Schedule from April 15 through October 15.

(2) Upon declaration that the City's water supply is subject to a Mild Drought:

a. Sprinkling is prohibited before May 1 and after September 30.
b. Sprinkling is prohibited between 10:00 a.m. and 6:00 p.m.
c. Customers subject to the water budget rate structure shall follow the Three Days per Week Watering Schedule from May 1 through September 30 and have their water budgets reduced by fifteen (15) percent.
d. Multi-family residential, non-residential, and owners' association customers not subject to the water budget rate structure shall follow the Three Days per Week Watering Schedule from May 1 through September 30.
e. The use of City water to wash personal vehicles by hand-watering is permitted once per week.
f. The use of City water to wash parking lots is prohibited.
g. The use of City water to wash other impervious surfaces such as driveways, sidewalks, and other pavement is permitted by hand-watering only as necessary for public health or safety.
h. The use of City water to wash structure siding, windows, patios, and decks is permitted by hand-watering once per calendar year, and only in preparation for painting or staining.
i. The use of City water to wash commercial vehicle fleets is permitted once per week.

(3) Upon declaration that the City's water supply is subject to a Moderate Drought:

a. Sprinkling is prohibited before May 1 and after September 30.
b. Sprinkling is prohibited between 10:00 a.m. and 6:00 p.m.
c. Customers subject to the water budget rate structure shall follow the Two Days per Week Watering Schedule from May 1 through September 30 and have their water budgets reduced by twenty-five (25) percent.
d. Multi-family residential, non-residential, and owners' association customers not subject to the water budget rate structure shall follow the Two Days per Week Watering Schedule from May 1 through September 30.
e. The use of City water to wash personal vehicles by hand-watering is permitted once per calendar month.
f. The use of City water to wash parking lots is prohibited.
g. The use of City water to wash other impervious surfaces such as driveways, sidewalks, and other pavement is permitted by hand-watering only as necessary for public health or safety.
h. The use of City water to wash structure siding, windows, patios, and decks is permitted by hand-watering once per calendar year, and only in preparation for painting or staining.
i. The use of City water to wash commercial vehicle fleets is permitted once per calendar month.
j. New lawn permits shall not be issued between June 1 and August 31.

(4) Upon declaration that the City's water supply is subject to a Severe Drought:

a. Sprinkling is prohibited before May 1, during the month of July, and after September 30.
b. Sprinkling is prohibited between 8:00 a.m. and 8:00 p.m.
c. Customers subject to the water budget rate structure shall follow the One Day per Week Watering Schedule from May 1 through June 30 and August 1 through September 30, and have their water budgets reduced by fifty (50) percent.
d. Multi-family residential, non-residential, and owners' association customers not subject to the water budget rate structure shall follow the One Day per Week Watering Schedule from May 1 through June 30 and August 1 through September 30.
e. The use of City water to wash personal vehicles by hand-watering is prohibited.
f. The use of City water to wash parking lots is prohibited.

g. The use of City water to wash other impervious surfaces such as driveways, sidewalks, and other pavement is permitted by hand-watering only as necessary for public health or safety.
h. The use of City water to wash structure siding, windows, patios, and decks is permitted by hand-watering once per calendar year, and only in preparation for painting or staining.
i. The use of City water to wash commercial vehicle fleets is prohibited.
j. The use of City water to fill decorative water fountains, swimming pools, and jacuzzis is prohibited.
k. New lawn permits shall not be issued between June 1 and August 31.

(5) Upon declaration that the City's water supply is subject to a Catastrophic Drought:

a. Sprinkling is prohibited.
b. Water budgets for customers subject to the water budget rate structure shall be reduced by seventy (70) percent.
c. The use of City water to wash personal vehicles by hand-watering is prohibited.
d. The use of City water to wash parking lots is prohibited.
e. The use of City water to wash other impervious surfaces such as driveways, sidewalks, and other pavement is prohibited.
f. The use of City water to wash structure siding, windows, patios, and decks is prohibited.
g. The use of City water to wash commercial vehicle fleets is prohibited.
h. The use of City water to fill decorative water fountains, swimming pools, and jacuzzis is prohibited.
i. New lawn permits shall not be issued.

(d) General provisions.

(1) Charging and testing of sprinkler systems is permitted at any time the City's water supply is declared Adequate, or subject to a Mild Drought, Moderate Drought, or Severe Drought.

(2) Hand-watering and drip irrigation of trees, shrubs, vegetable gardens, and flower gardens is permitted at any time.

(3) Large user variance permits. Customers with large properties that contain four (4) acres or more of lawn, grass, turf, or other landscaped area shall obtain a permit from the Director of Water and Sewer for the sprinkling of such irrigable area. Issuance of the permit and use of City water for this purpose are subject to such terms and conditions as are deemed appropriate by the Director of Water and Sewer, including, without limitation, a water budget for the property. Large user variance permits shall be displayed on the property.

(4) New lawn variance permits. Customers shall obtain a permit from the Director of Water and Sewer prior to the application of City water to newly seeded or sodded lawn, turf, or other landscaped areas less than one (1) month old. Issuance of the permit and use of City water for this purpose are subject to such terms and conditions as are deemed appropriate by the Director of Water and Sewer, including, without limitation, proof of proper soil preparation. New lawn permits shall be displayed on the newly seeded or sodded property.

(5) Variance permits generally. The Director of Water and Sewer may issue such other temporary water use variance permits that are appropriate, in the Director's sole discretion, to address unusual or extraordinary circumstances.

(e) Violations and penalties.

(1) A person or entity who violates any of the provisions of this Section on a residential property shall be punished by a fine of one hundred dollars ($100.00) for the first violation, two hundred and fifty dollars ($250.00) for the second violation within a calendar year, and five hundred dollars ($500.00) for the third and all subsequent violations within a calendar year. In addition to the applicable fine, a person or entity who violates any of the provisions of this Section on a residential property for the fourth time in a calendar year shall be required to install a flow restriction device at their own expense to limit City water use on the property for indoor purposes only.

(2) A person or entity who violates any of the provisions of this Section on a non-residential property shall be punished by a fine of two hundred dollars ($200.00) for the first violation, five hundred dollars ($500.00) for the second violation within a calendar year, and one thousand dollars ($1,000.00) for the third and all subsequent violations within a calendar year. In addition to the applicable fine, a person or entity who violates any of the provisions of this Section on a non-residential property for the fourth time in a calendar year shall be required to install a flow restriction device at their own expense to limit City water use on the property for indoor purposes only.

(3) Each and every day on which a violation occurs shall constitute a separate infraction, as provided in Section 1.33.020 of this Code. Violation of any of the provisions of this Section shall be considered a strict liability infraction.

(4) Verbal warnings shall not be issued in advance of notices of violation at any time the City's water supply is declared subject to a Moderate Drought, Severe Drought, or Catastrophic Drought.

Drought Emergency Plan

Water and Sewer Board

January 20, 2021

City of Greeley Colorado

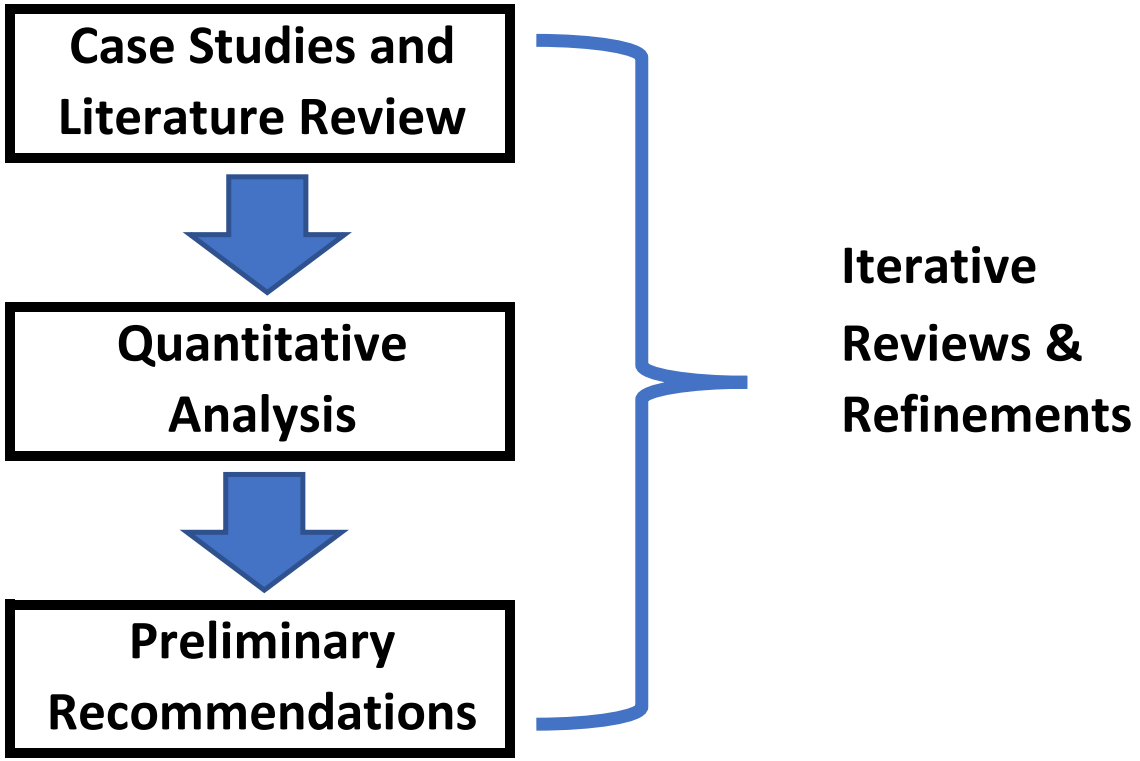
Need for an Updated Drought Plan

- Greeley's current drought plan is more than 15 years old
- Since that time, a lot has changed:
  - Water use per account has declined substantially
  - Greeley has re-examined its future water needs, and system drought performance, as part of the Milton Seaman Revised Alternative Screening Process
  - Greeley converted to water budget-based rates for single family residential customers in 2017

Timeline

- In mid-2019, staff began to evaluate a revised drought plan
- Hired BBC to assist with analysis and development of plan
- Presented initial plan at August 2020 W&S Board meeting
- Addressed feedback at October 2020 W&S Board meeting
- Today we're asking for approval of the plan and associated code changes

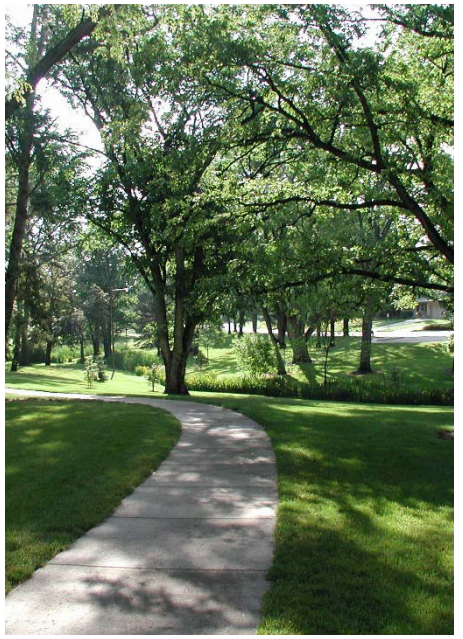
Process for Developing a New Drought Plan



City of Greeley Colorado

Important considerations

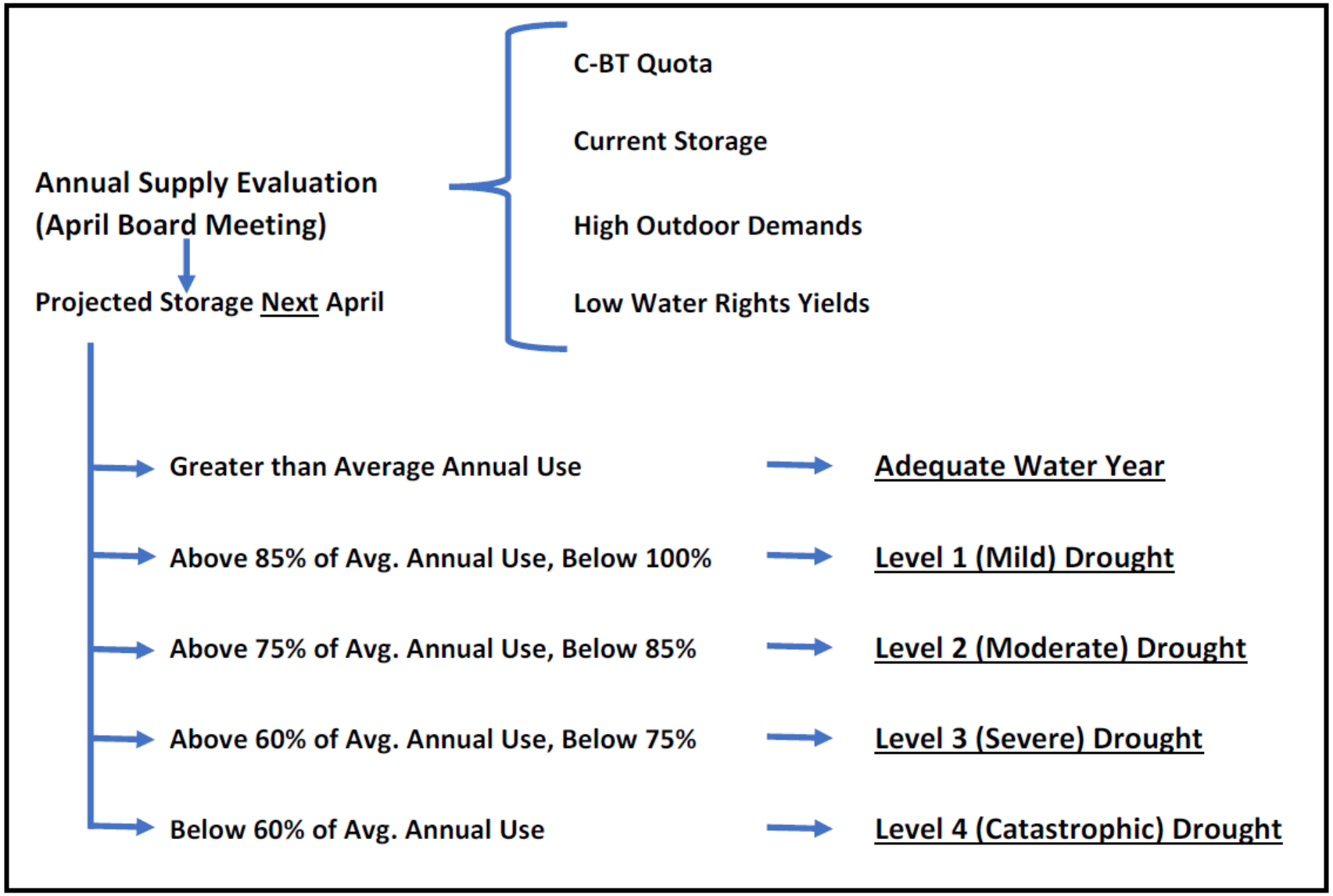
Equity among Greeley's customers: while outdoor water use by single family customers must be a focus, other customer classes need to contribute their share to water savings.



Minimize impacts to landscapes: modifications to water budgets and watering restrictions should be designed to avoid long-term damage to trees and other non-turf vegetation as much as possible.

Minimize financial impacts to customers and the water utility: In general, if customers meet the water savings goals, they will pay less than normal during drought conditions. If customers do not reduce their use, they will pay more.

Drought Response Trigger and Declaration Process



Drought Response Trigger and Declaration Process

- Current Target Storage is 21,300 AF
  - Will be re-evaluated regularly
- Reductions and restrictions are for *outdoor irrigation only*
- Using Water Budget as one of *many* tools for Single-family residential customers
  - Savings assumes single family customers are using 100% of their water budgets
- Recommending a 2 year recovery period
- Equitable: same %reductions for single family residential, multi-family, commercial and industrial

Drought Response Strategies

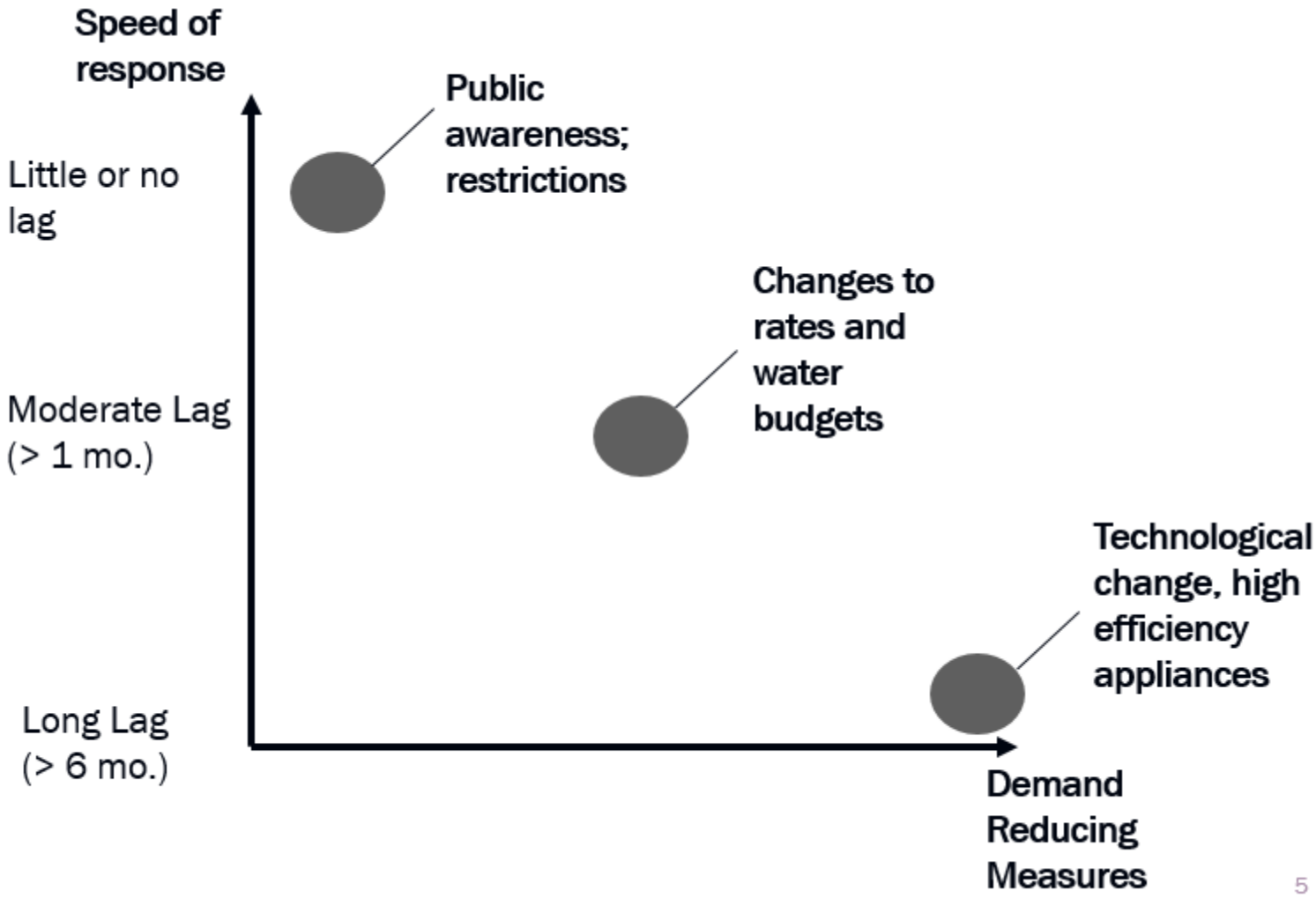
Droughts are uncertain

- Hard to project how long they will last or how severe they will be.
- Also, difficult to predict how customers will respond and thus, how much water will be saved by different drought measures.

Important to have a variety of tools for customers to use

Need flexibility in the drought plan to adapt to changing circumstances

Short run vs. long run response



Drought Response Strategies

GREELEY DROUGHT RESPONSE PROGRAM 2020					
With a two year recovery period	**Adequate Yr**	**Mild**	**Moderate**	**Severe**	**Catastrophic**
LEVEL OF RESPONSE	no drought	1	2	3	4
Target Storage	100%	85% to 99%	75% to 84%	60% to 74%	Less than 60%
Target Reduction (outdoor)	0%	15%	25%	50%	70%
Target Storage (in AF)	21,300	18,100	16,000	12,800	10,700
Annual Outdoor Reduction Goal	normal conservation	1,530	2,560	5,130	7,170
MEASURES					
Water Budget and Restrictions					
Single Family Residential on Water Budget		15%	25%	50%	70%
Proposed Water Budget Reduction	0%	15%	25%	50%	70%
Recommended Schedule Suggested Days		max 3 days/week	2 days/week	1 day/week	
Multi Family & HOA Not on Water Budget	mand. 3/wk	max 3 days/week	2 days/week	1 day/week	no watering
Reductions in Use	0%	15%	25%	50%	70%
Commercial Industrial Institutional (ICI)	mand. 3/wk	3 days/week	2 days/week	1 day/week	no watering
Reduction on Landscape Water Same as SFR	Normal conservation	15%	25%	50%	70%
Restrictions Landscape (Non Water Budget)					
Lawns/Turf	set day /week 3 days/week	no irrigation until May1 or after Sept. 30	irrigation May-Oct; 1"/week	no watering in July; let go dormant	no watering June 15-Aug 15
Non-watering Hours	10am-6pm	10am-6pm	10am-6pm	8am-8pm	8am-8pm
Installing New Lawns & Watering Permits	yes w/soil prep	yes w/soil prep	not June-Aug	not June-Aug	none
Multi Family	3 days/week	3 days/week	2 days/week	1 day/week	no watering
Large Properties with > 4 acres of Turf Need to Submit a Water Budget to Get a Watering Variance	3 days/week	1.5"/week WB	1.0"/week WB	only enough to keep it alive	not allowed
Trees and Shrubs		on days or drip or by hand			
Vegetable Gardens		on days or drip or by hand			
Flower Gardens		on days or drip or by hand			
Non Potable Ditch Water (city system)		follow restrictions or restrictions due to delivery			
Non Potable Ditch Water (private)		cannot regulate			
Well Water		cannot regulate			

Drought Response Strategies

GREELEY DROUGHT RESPONSE PROGRAM 2020					
With a Two Year Recovery Period	**Adequate Yr**	**Mild**	**Moderate**	**Severe**	**Catastrophic**
LEVEL OF RESPONSE	No drought	1	2	3	4
Other outdoor Uses (hosing and washing)					
Home Car Washing	with BMPs and no runoff	bucket & shut off	bucket & shut off	commercial car wash	commercial car wash
Frequency		1x/week	1x/month	not allowed	not allowed
Washing Sidewalks, Driveways, Garages or Other Pavement		prohibited except for health or safety			not allowed
Siding on Houses, Patios, Decks		only in prep. for painting/staining 1 x per year with power washer			not allowed
Fleet Washing at Auto Dealerships/Mobile		1x/week	1x/month	not allowed	not allowed
Car Washes -Fundraising		prohibited except at commmercial carwashes			
Commercial/restaurant/fast food					
Drive Thru/Sidewalk		prohibited except for health or safety			only with a bucket & broom
Parking Lot		prohibited			
Fountains/Ponds/Pools/Spas					
Water Fountains (w/o fish)		unrestricted	no topping off	no water	no water
Public		unrestricted	no topping off	no water	no water
Private		unrestricted	unrestricted	no topping off	no topping off
Ponds with Fish or Plants		unrestricted	unrestricted	unrestricted	topping only to preserve fish
Swimming Pools and Spa's Private		unrestricted	Unrestricted	not allowed	not allowed
Semi-Private Neighborhoods		unrestricted	Unrestricted	not allowed	not allowed
City Pools		unrestricted	Unrestricted	no topping off	no topping off
City Uses					
City Parks /Athletic Fields		water budget	water budget cut	prioritize athletic fields only	
Golf Courses		10-20% cut back	10-20% cut back no watering roughs	max 1"/wk for tees and greens only	max 1"/wk for tees and greens only
City Facilities & Around Buildings		3 days/wk	2 days/week	1 day/week	no watering
Street Cleaning/Parking Lots with Trucks		unrestricted	unrestricted	restricted to essential situations	
Hydrant Flushing & Testing		unrestricted	limited to critical situations		
Washing Fleet Vehicles & Mobile Washers		1 x /week	every other week	1 x /month	none

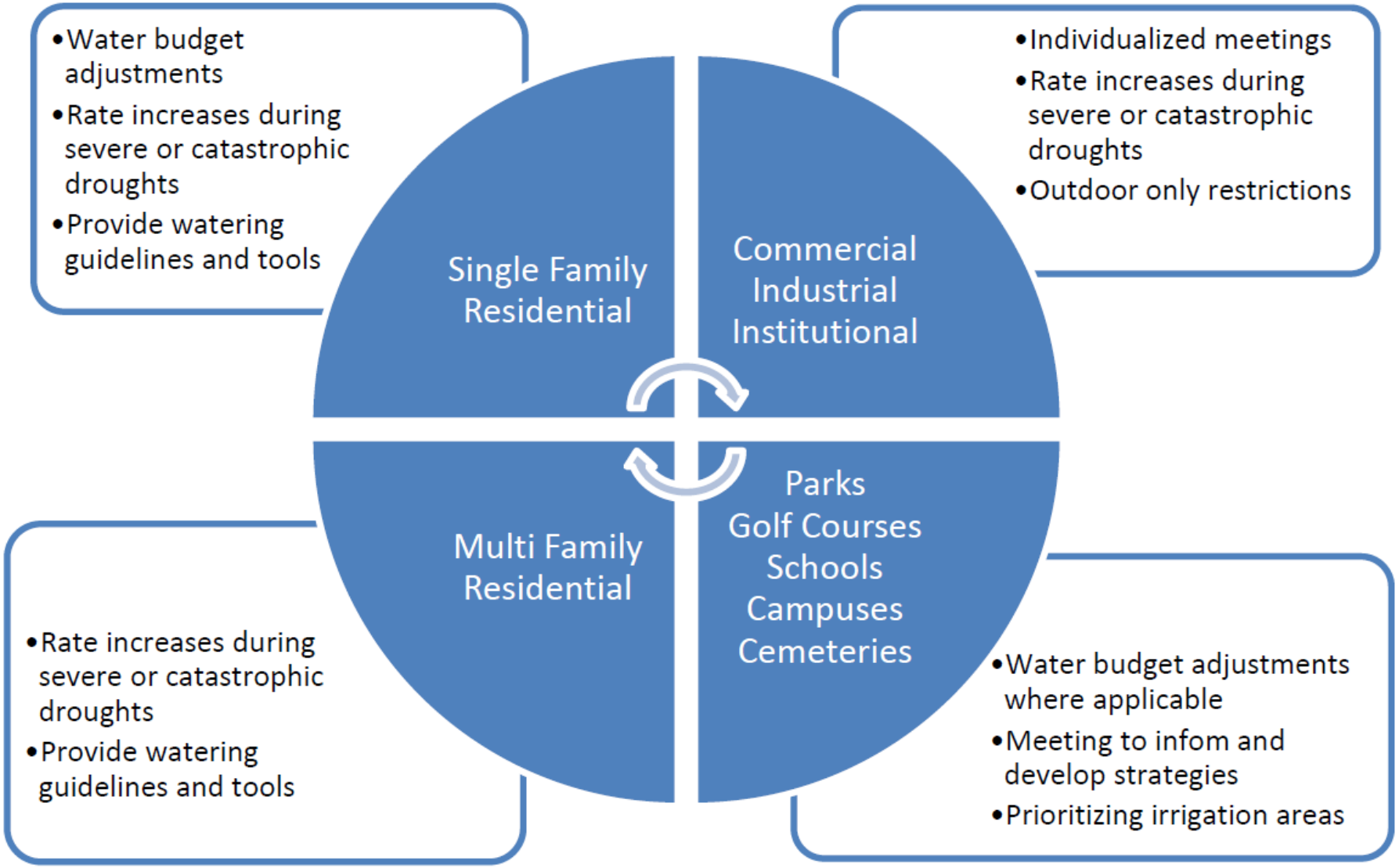
Drought Response Strategies

Rate Increases

- Level 3 = 25% increase
- Level 4 = 35% increase

- Helps reduce Greeley Water's financial vulnerability during droughts
  - Absent rate increases, annual revenues could decline by as much as 21% under a Level 4 drought
- Sends financial signals to customers to reinforce need to conserve water

Messaging Strategy



Reserve Fund

- Annual revenues are projected to be reduced by $1.6 to $3.0 million per year (4 to 8 %of normal revenue) during drought response
- Greeley plans to implement and gradually accrue a drought reserve fund for future use in mitigating reductions in revenues due to decreased water sales during drought emergencies

Code changes

- Code changes required in Sections 14.08.090 and 14.08.160
  - Prescribes the means by which City residents may irrigate their property and make other uses of City water during periods of adequate water supply and drought
- Once Board recommends to Council, Council will require one reading, and 2nd meeting for approval

Recommendations

- Staff feels this plan meets the goals of:
  - Reducing water use and building savings during drought
  - Equity among customers
  - Minimal financial impacts
  - Flexibility to adapt
- Timing is critical as we face increasing drought conditions
- Recommend adoption of plan and recommendation to Council for necessary code changes

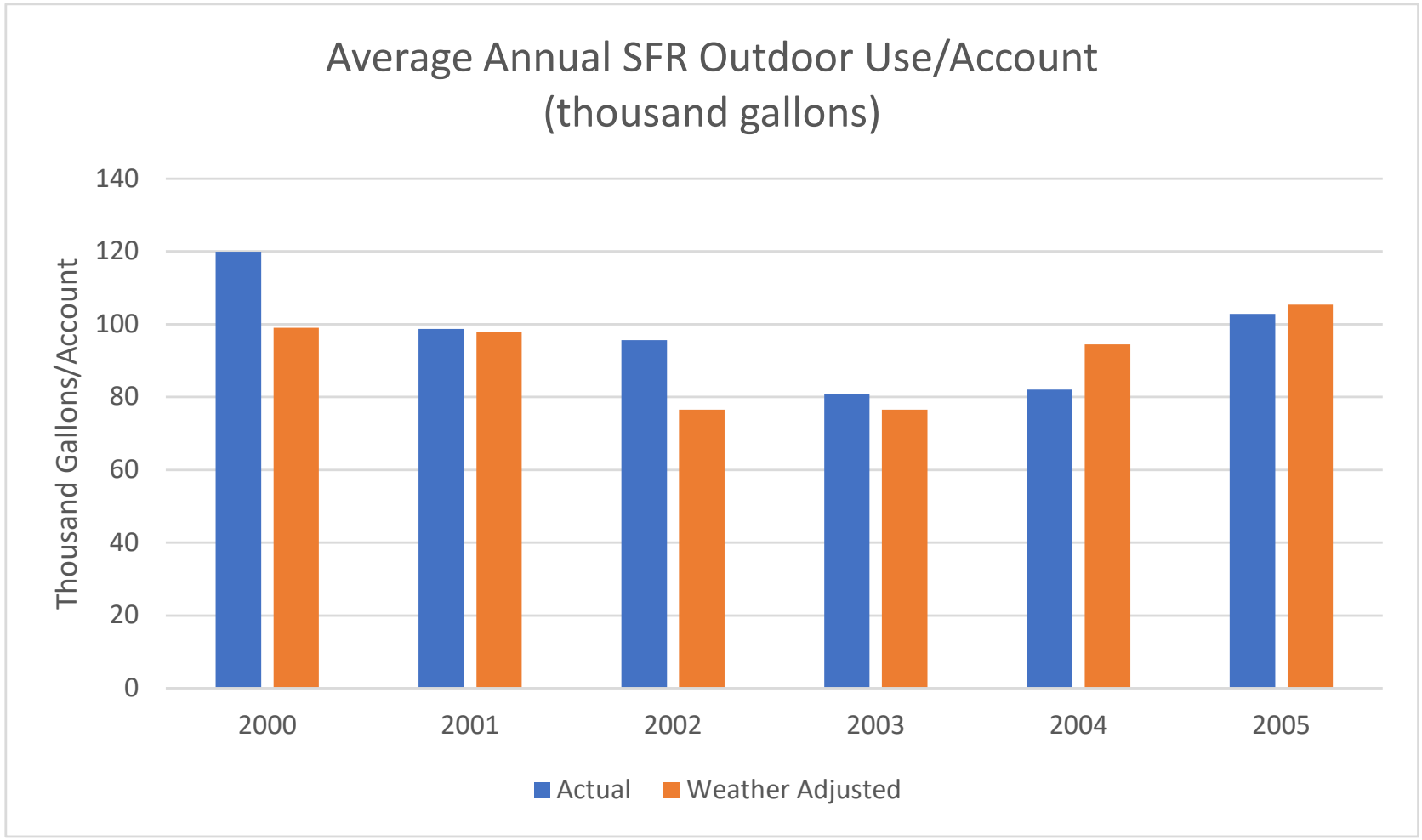
GREELEY DROUGHT PLAN UPDATE

SUPPLEMENTAL SLIDES

Past 20 Years of Watering Limitations in Greeley

Time Period	Watering Limitations (Changes shown in Bold)
2000-2001	All Customers: Every other day All Customers: No watering 1 PM to 5 PM
2002	**All Customers: Voluntary, once every three days, July 13 to end of season** All Customers: No watering 1 PM to 5 PM
2003	**All Customers: No watering Jan 1. to April 15** **All Customers: 1 day per week April 16 through May 15** **All Customers: 2 days per week May 16 through September 15** **All Customers: 1 day per week September 16 through October 15** **All Customers: No watering after Oct. 15** **All Customers: No watering 10 AM to 6 PM**
2004	All Customers: No watering Jan 1. to April 15 All Customers: 1 day per week April 16 through May 15 All Customers: 2 days per week May 16 through June 14 **All Customers: 3 days per week June 15 to end of season** All Customers: No watering 10 AM to 6 PM
2005-2017	**All Customers: 3 days per week, No watering Noon to 5 PM**
2017-2019	**Single Family Residential: Water Budgets** Other Classes: 3 days per week, No watering Noon to 5 PM

Historically, Greeley's Customers Have Responded When Needed



Source: Previous analyses for demand model development. Based on Greeley billing records; Monthly ET and precipitation at Greeley West reported by Northern Water.

Case Studies and Literature Reviews

Other Utilities with Water Budget Rates

Utility	Drought Plan Reviewed	Interview Conducted
Colorado Utilities		
City of Boulder	Yes	Yes
Castle Pines N. Metro District	Yes	
Town of Castle Rock	Yes	Yes
Centennial WSD	Yes	Yes
California Utilities		
Western Municipal WD	Yes	Yes
Santa Margarita WD	Yes	
City of Santa Cruz	Yes	
Rancho WD	Yes	Yes
Palmdale WD	Yes	
Moulton Niguel WD	Yes	
Las Virgenes WD	Yes	
Irvine Ranch WD	Yes	
Elsinore Valley MWD	Yes	Yes
El Toro WD	Yes	
Eastern Municipal WD	Yes	Yes
City of Corona	Yes	
Coachella Valley WD	Yes	Yes

Literature Reviews

- Price Elasticity of Demand
- Financial Resilience Strategies
- Impacts on Landscaping Industry

Case Study Findings*

- California utilities cited WB rates as key component of response to recent (2014) drought
- Utilities used a mix of strategies:
  - Reducing WBs
  - Increasing rates for “inefficient” tiers and/or penalty surcharges
  - Mix of other measures (public information campaigns, watering restrictions, limitations/elimination of some uses, leak and irrigation audits, etc.)
- Most focused primarily on single family residential outdoor use
- Utilities noted concerns over equity, economic impact and revenue impacts

*More detailed technical memorandum available.

Drought Triggers, Levels and Target Reductions

Single-Family Residential Customers on Water Budget

Drought Level	Recommended Watering Restrictions*	Rate Increase	Affect to lawn
Normal Year	none	none	none
Level 1: Mild	Public awareness and recommend no irrigation before May 1 or after September 30	none	Little to no effect.
Level 2: Moderate	Irrigation April through October @ 1" per week	none	Lawns will look stressed during hottest parts of the season
Level 3: Severe	Early and late irrigation with no watering for July OR once a week watering to promote deeper soaking	25% for all tiers	Lawns will be stressed much of the season with trees and shrubs competing for water resoures. Watering early allows turf to remain helthy through a dry period and watering in the fall will help recovery moving into winterlate helps maintain the health going into the
Level 4: Catastrophic	No irrigaiton June 15- August 15	35% for all tiers	Lawns will remained stress most of the seaon and those will shallow root systems will likely die

Commercial/Industrial Customers*

Drought Level	Recommended Watering Restrictions*	Rate Increase	Affect to lawn
Normal Year	none	none	none
Level 1: Mild	Public awareness and recommend no irrigation before May 1 or after September 30	none	Little to no effect.
Level 2: Moderate	Irrigation April through October @ 1" per week	none	Lawns will look stressed during hottest parts of the season
Level 3: Severe	Early and late irrigation with no watering for July OR once a week watering to promote deeper soaking	25% for all tiers	Lawns will be stressed much of the season with trees and shrubs competing for water resoures. Watering early allows turf to remain helthy through a dry period and watering in the fall will help recovery moving into winterlate helps maintain the health going into the
Level 4: Catastrophic	No irrigaiton June 15- August 15	35% for all tiers	Lawns will remained stress most of the seaon and those will shallow root systems will likely die

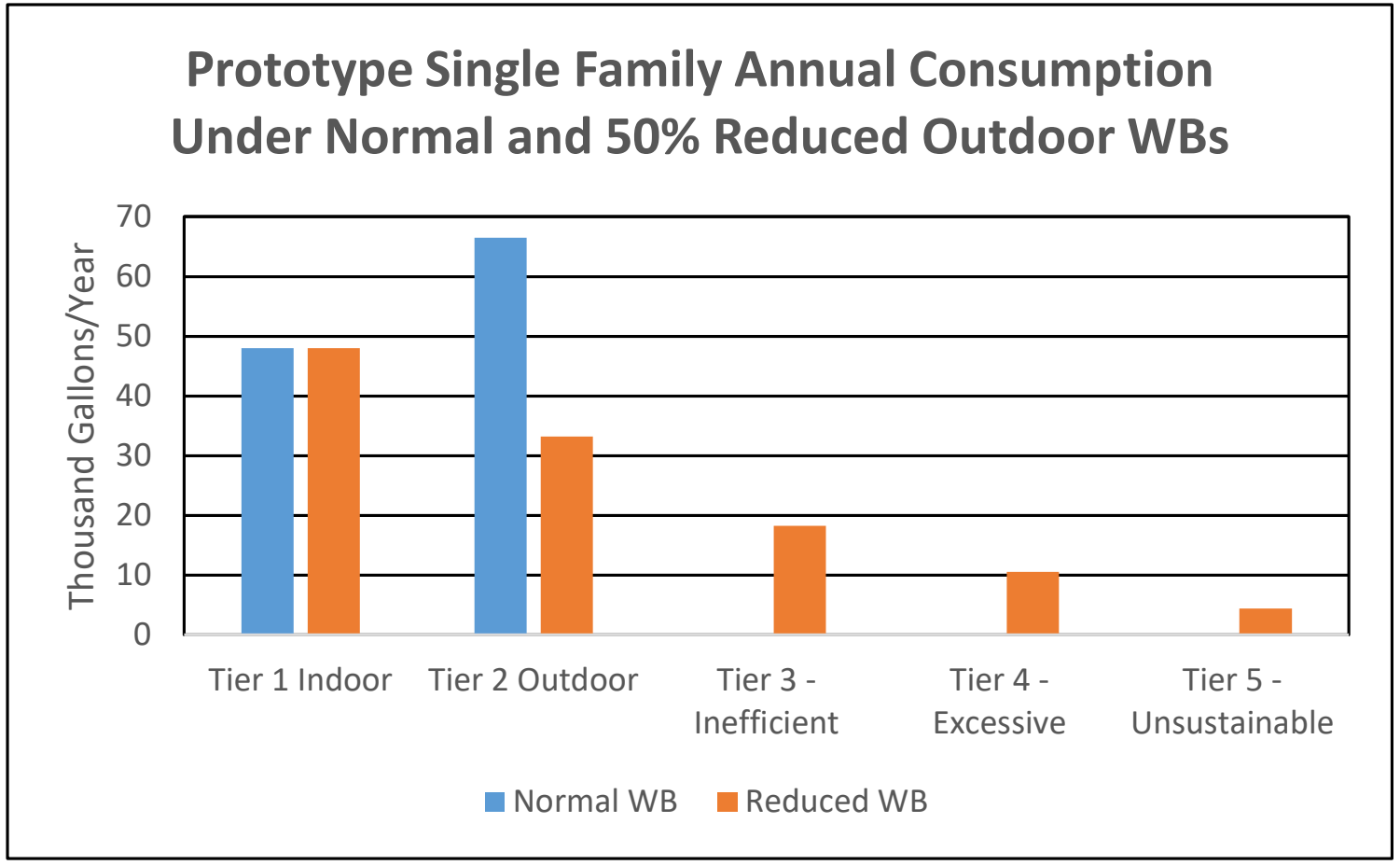
*these do not apply to our large industrial users

Drought Triggers, Levels and Target Reductions

- Equitable among all customer classes
  - Managing perception with outreach and education will be important
  - If single family residents stay within the budget they will pay less than a normal year
  - Staff recommends meeting with large industrial customers to determine solutions for water savings
- This approach provides customers a suite of tools to achieve reductions
- Ability to communicate the affects on lawns
- Provides a target to aim for but acknowledge *flexibility* is important because customers response is unpredictable

Customer Financial Impacts: Reducing WBs

If Water Budgets are reduced – Customers will pay more to use the same amount of water as part of their usage moves into higher tiers



Customer Financial Impacts: Rate Increase + Reduced WBs (if Customers Do Not Reduce Outdoor Water Use)

Metrics		Baseline	Drought Stages Level 2*	Level 3**	Level 4***	Change from Baseline Level 2	Level 3	Level 4
Average Monthly Bill -- Irrigation Season								
Single Family	(per household)	$80	$83	$105	$128	$3	$26	$49
Muti-Family	(per household)	$30	$30	$36	$39	$0	$7	$10
Commercial	(per account)	$284	$284	$351	$378	$0	$67	$94
Average Annual Bill								
Single Family	(per household)	$709	$730	$889	$1,050	$22	$180	$341
Muti-Family	(per household)	$304	$304	$373	$401	$0	$69	$97
Commercial		$2,774	$2,774	$3,416	$3,673	$0	$643	$900

*25% reduction in SFR outdoor water budgets. No other rate changes.
**50% reduction in SFR outdoor water budgets and 25% rate increase for all three customer classes.
***70% reduction in SFR outdoor water budgets and 35% rate increase for all three customer classes.

Bills under drought stages reflect baseline consumption levels assuming no reductions in use in response to drought measures.

Customer Financial Impacts: If Target Reductions Achieved

Metrics		Baseline	Drought Stages Level 2*	Level 3**	Level 4***	Change from Baseline Level 2	Level 3	Level 4
Average Monthly Bill -- Irrigation Season								
Single Family	(per household)	$80	$67	$65	$56	($12)	($15)	($24)
Muti-Family	(per household)	$30	$27	$30	$29	($3)	$0	($0)
Commercial	(per account)	$284	$250	$265	$248	($34)	($19)	($36)
Average Annual Bill								
Single Family	(per household)	$709	$622	$625	$568	($87)	($83)	($141)
Muti-Family	(per household)	$304	$285	$325	$330	($19)	$21	$26
Commercial		$2,774	$2,533	$2,753	$2,697	($241)	($21)	($76)

*25% reduction in SFR outdoor water budgets. No other rate changes.
**50% reduction in SFR outdoor water budgets and 25% rate increase for all three customer classes.
***70% reduction in SFR outdoor water budgets and 35% rate increase for all three customer classes.

Assumes customers reduce outdoor use to meet targets under Level 3 and Level 4 drought response plan.

Financial Impacts on Greeley Water & Sewer (Assuming outdoor use reduced to targets)

Dollars in Millions

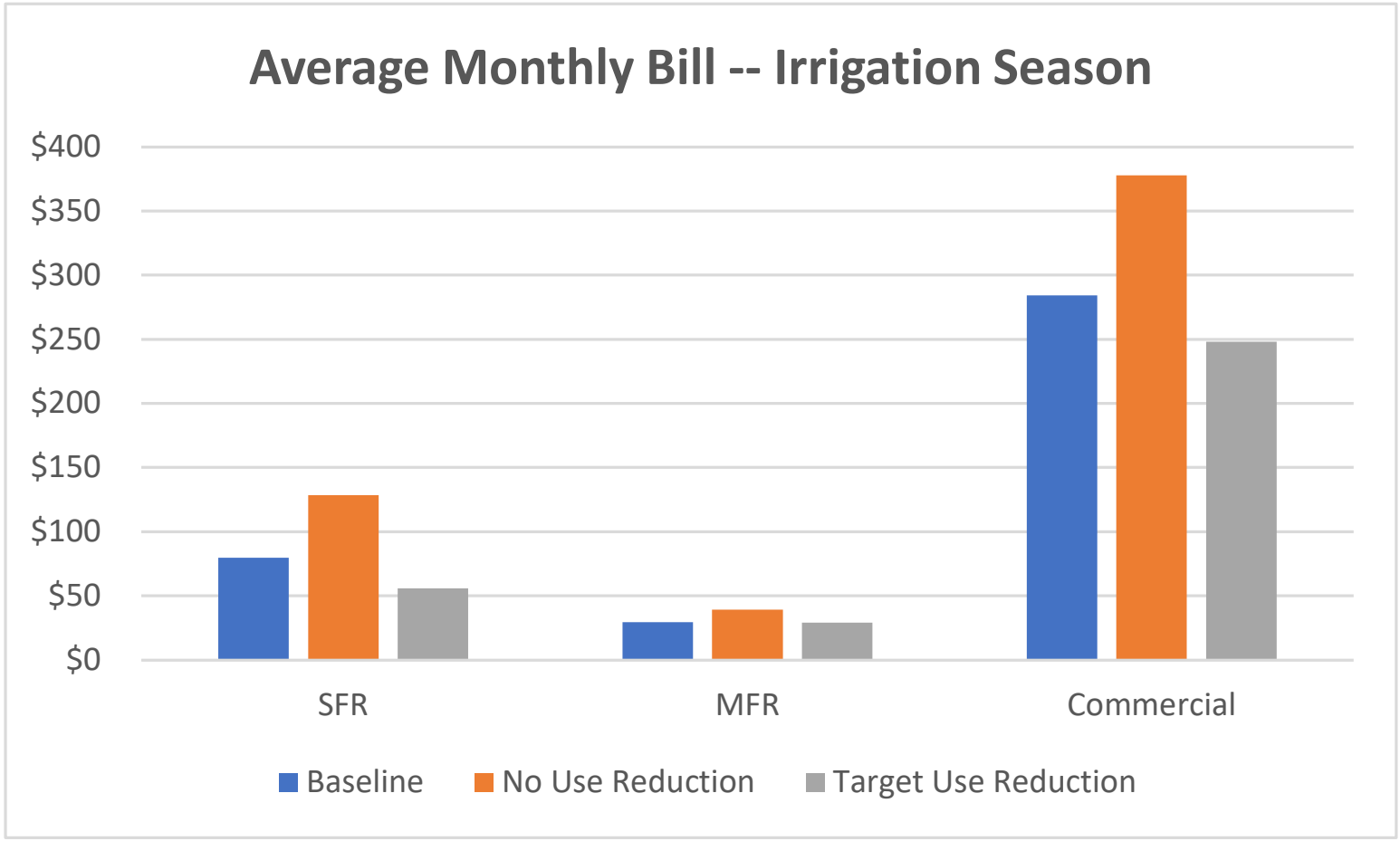
Metric/Customer Class	Baseline	Drought Stage Financial Impact			
		Level 1	Level 2	Level 3*	Level 4**
Irrigation Season Monthly Revenue					
Single Family	$1.84	($0.17)	($0.29)	($0.34)	($0.56)
Multifamily	$0.47	($0.03)	($0.04)	$0.00	($0.01)
Commercial	$0.53	($0.04)	($0.06)	($0.04)	($0.07)
Total	$2.84	($0.24)	($0.39)	($0.37)	($0.63)
Average Annual Revenue					
Single Family	$16.34	($1.20)	($2.00)	($1.92)	($3.25)
Multifamily	$4.87	($0.18)	($0.29)	$0.34	$0.41
Commercial	$5.16	($0.27)	($0.45)	($0.04)	($0.14)
Total	$26.36	($1.65)	($2.74)	($1.62)	($2.99)

Notes:

*Level 3 assumes 25% rate increase for SFR outdoor budget, MFR and commercial.

**Level 4 assumes 35% rate increase for SFR outdoor budget, MFR and commercial.

Illustration of Drought Response Plan Effects on Irrigation Season Bills by Customer Class – Stage 4 Catastrophic Drought



Messaging to Single Family Residential

- Water Budget will be used as tool by giving a target to aim for
  - Will save customer money if within budget
  - Indoor water budget won't be affected
- Provide guidelines for number of days/hours per week to meet reductions
  - Same as non-water budget customers
- Explain the effect to the lawn that can be expected
- Other tools to achieve reduction goals

Messaging for Non-Single Family customers

- Days of the week watering restrictions
- Provide solutions to help businesses cut back on water usage where possible
- Audits
- Leak detections
- Rates in levels 3 and 4 to incentivize savings
- Moving forward, commercial customers will be given an outdoor tap and water budget

City of Greeley Colorado

Large Industrial Customers

- Schedule meetings to understand processes and find ways to conserve water use
- Provide incentives
- Offer audits
- Outdoor restrictions if applicable

Parks, Golf Courses, Schools, Campuses

- Progressively restrictive for more severe drought levels
- Meetings to develop solutions for adjusting watering practices
  - For example, prioritizing areas
- Reductions to water budgets (Parks and Golf courses)
- Potable and non-potable watering restrictions

Outreach plan: what worked in 2002?

- Watering restrictions addressing all water uses
- Bill stuffers: Education and updates
- Website updates
- Media: Newspaper, radio, GTV
- Photos to tell the story
- Public meetings
- Existing events, opportunities and outlets

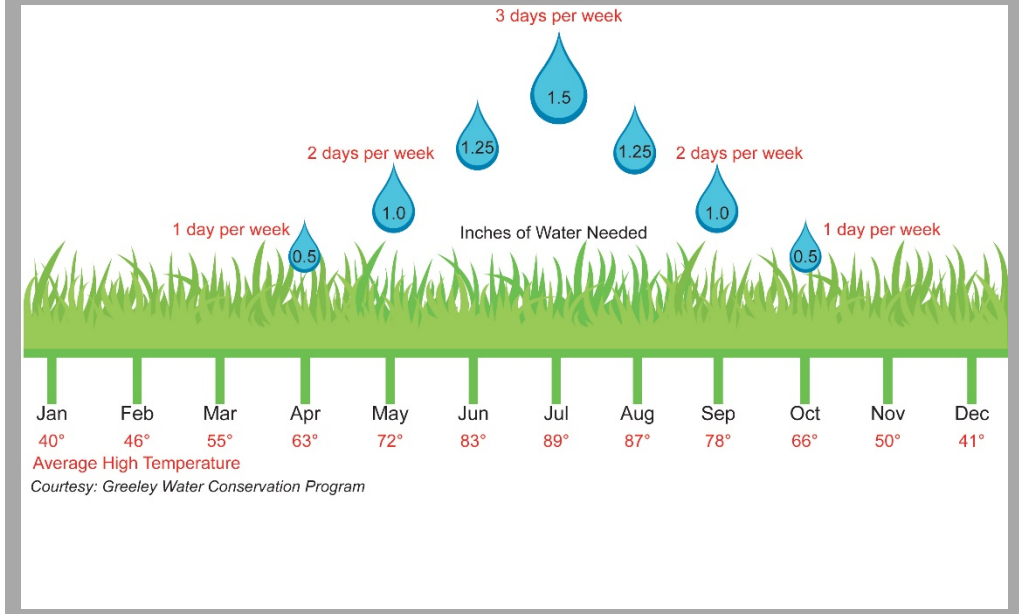
Outreach plan today

Tools we have now (or soon) that we didn't have in 2002

- Social media: Facebook, Twitter, NextDoor
  - 80% customers respond here to City news
- Customer friendly summary of plan
- Water Budget
  - More frequent and consistent education and outreach
- Better data and ability to monitor use
- WaterSmart customer portal
- AMI
- New billing (CIS) system
- Website, E newsletters, blogs

Key points to educate

- These should be applied now and during the drought
- Understanding Water Budget
  - What is IWR (how much water do lawns need)?
- Understanding weather
  - Differences between July and August
  - Adjusting sprinklers for shoulder months or rain events
- How can customers use WB to help inform and prioritize their water use?
- Importance of reacting sooner than later to drought
- Storage is essential



City of Greeley Colorado

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE __X__ NO ENCLOSURE ____

ITEM NUMBER: 10

TITLE: NON-POTABLE DEVELOPMENT POLICY

RECOMMENDATION: INFORMATION ONLY

ADDITIONAL INFORMATION:

Greeley has a long history of utilizing non-potable water to irrigate turfed areas using the extensive ditch systems within the City. Meeting Greeley's long-term water resource needs will require further expansion of non-potable use. Greeley has significant capital investment planned to build out its non-potable system, however, the city needs non-potable to be utilized in new development at a much greater rate than it has been in the past. Staff has developed a proposal to accelerate the use of non-potable water in new development by making non-potable expansion a cost benefit or cost neutral to the development community. Board input is needed before code revisions are developed to revise Greeley's non-potable development policy.

Non-Potable Water Supply

Program Policies

November, 2020

Non-Potable Supply Required

Developments shall have non-potable irrigation unless all of the following conditions are met:

- The cost of installing non-potable irrigation is greater than 100% of potable service. The cost comparisons should include all necessary infrastructure, raw water dedication, plant investment fees, and any other costs or credits deemed relevant. Any costs borne by the City under the cost sharing protocols outlined below will not be included in these calculations.

For residential developments only, the development shall use non-potable water for irrigation of:

- Common spaces unless the residential development has less than 3 acres of irrigated common space
- Individual lots unless the average lot size of the residential development is less than 0.5 acres

For commercial or industrial developments only, the development shall use non-potable water for irrigation unless the commercial or industrial development has less than 3 acres of common space irrigation

For developments that are not feasible to immediately connect to the City's non-potable system, but that the City has identified as being feasible for non-potable service with 5 years, land will be identified and set aside for the installation of non-potable infrastructure when the City deems it feasible.

Special consideration may be made for development projects where engineering limitations make including infrastructure for non-potable water infeasible. The evaluation and all calculations must be provided to the City of Greeley for approval in order to waive the requirement.

Cash-In-Lieu (CIL)

Non-potable CIL is equal to potable CIL.

- New single-family residential non-potable requirements are calculated on the pervious area of the lot and the lot size minus the footprint of the house and other impervious areas. The development HOA or Metro District will be served by master meters as determined by the City of Greeley.

Credit for Irrigation Company Shares

Non-potable credits for dedicated shares on land that has been historically irrigated are:

- Greeley Loveland Irrigation Company: 12 AF/share
- Loveland and Greeley Reservoir Company: 40 AF/share
- Seven Lakes Reservoir Company: 20 AF/share
- Greeley Irrigation Company: 10.3 AF/share (With Dry up Covenant/Agreement)

Cost of Connection & Cost Sharing

The cost of developing non-potable infrastructure shall be borne by the developer.
However, the City, at the discretion of the Water and Sewer Director, may cost-share non-potable system development. This would apply in cases when the cost borne by the developer of installing non-potable irrigation is greater than 100% of potable service.

- Furthermore, the City, at the discretion of the Water and Sewer Director, shall pay to upsize non-potable facilities in cases when the non-potable system can be used to serve more areas than a single development.

Water Budget

All newly installed non-potable accounts shall be assigned a Water Budget.

Drought Restrictions

During times of drought declaration, non-potable developments will be subject to the same watering restrictions and surcharges as potable, Water Budget accounts.

Public Ownership of Non-Potable Systems

No private ownership of non-potable systems in new development is allowed south of the Poudre River.

Private non-potable systems north of the Poudre River will be allowed if the City chooses not to be the non-potable provider, however the non-potable system shall be constructed according to City of Greeley construction standards. The City, at the discretion of the Water and Sewer Director, shall become the owner and operator of the non-potable system when financially prudent and desirable to do so.

Plant Investment Fees (PIFs)

No Plant Investment Fees are charged for non-potable taps.

Shoulder Season Taps

The City shall furnish, without raw water fees or PIFs, potable water taps to supply the non-potable irrigation system during times when the non-potable supply is unavailable (i.e., early spring and late fall shoulder seasons). Shoulder taps will be removed or retired from service if the non-potable system is expanded to serve shoulder seasons. Shoulder season taps are generally provided for parks, large HOAs, and large commercial customers. It is not intended for residential use.

- If potable water is used during periods when non-potable supplies are available, the potable supplies will be subject to the potable raw water surcharge.

Water Rates

Each non-potable system is provided a tiered annual water budget. (Implemented when new utility billing software is live.)

- Water tier volumes for non-potable systems will be the same as the potable water budget program.
  - Water Budget tier = up to 100% of water budget
  - Inefficient Use tier = 101%-130% of water budget
  - Excessive Use tier = 131%-150% of water budget
  - Unsustainable Use tier = >150% of water budget

- Tiered rates for use of non-potable water supplies will be 70% of the residential water budget rates, which are determined annually by the Water & Sewer Board.

Raw Water Dedication

Type of Water Use*	Vegetation Type
High Water Use	Bluegrass, Turf, Annuals, Willow Trees, etc.
Medium Water Use	Drip Irrigation, Fruit Trees, Common Ornamentals, etc.
Low Water Use	Native Plants, Succulents, Drought Tolerant Plants, etc.
*Refer to water use information for plant watering needs from "Greeley WaterWise Landscaping Criteria"	

Type of Water Use	Dedication Requirement
High Water Use	3.0 acre feet/acre
Medium Water Use	2.3 acre feet/acre
Low Water Use	1.6 acre feet/acre

- A service commitment will be recorded with the Weld County Clerk and Recorder that specifies the volume of raw water dedicated (or paid through cash-in-lieu) for the non-potable water use.
  - Because the establishment of landscaping may require extra watering, exceeding the service commitment during the first full calendar year of water service for the new non-potable customer will not be considered as an overage and no raw water surcharge payment will be due.
- If water use for a new non-potable customer exceeds its service commitment in any calendar year, the owner will be required to pay a raw water surcharge for the volume of water exceeding the service commitment.
- If water use in a new non-potable customer exceeds its service commitment in any two consecutive years, the owner will be required to purchase additional water through a Cash-in-Lieu payment.
  - The Cash-in-Lieu payment will be for the two-year average volume of water used above the service commitment.
  - Service commitment pricing is based on the current Cash-in-Lieu of water prices for Greeley.

Non-Potable Development Policy

Water & Sewer Board | January 20, 2020

City of Greeley Colorado

Non-Potable Development Policy Goal

- Facilitate the expansion of the non-potable system as development occurs
  - Non-potable water rights cheaper than potable
  - Allows use of sources currently impracticable to treat for potable use (e.g lower Poudre rights, wastewater effluent)
  - Installing non-potable infrastructure during development cheaper and more effective than retrofitting
  - Increased non-potable use ***essential to meeting future demands***

Non-Potable Development Proposal

- Make non-potable system expansion **mandatory** for new development if non-potable is cost neutral or positive for developers
  - Irrigated area criteria
- This will require financial analysis during the development review process
- Staff will develop an Excel template to compare potable versus non-potable costs

Non-Potable Development Proposal

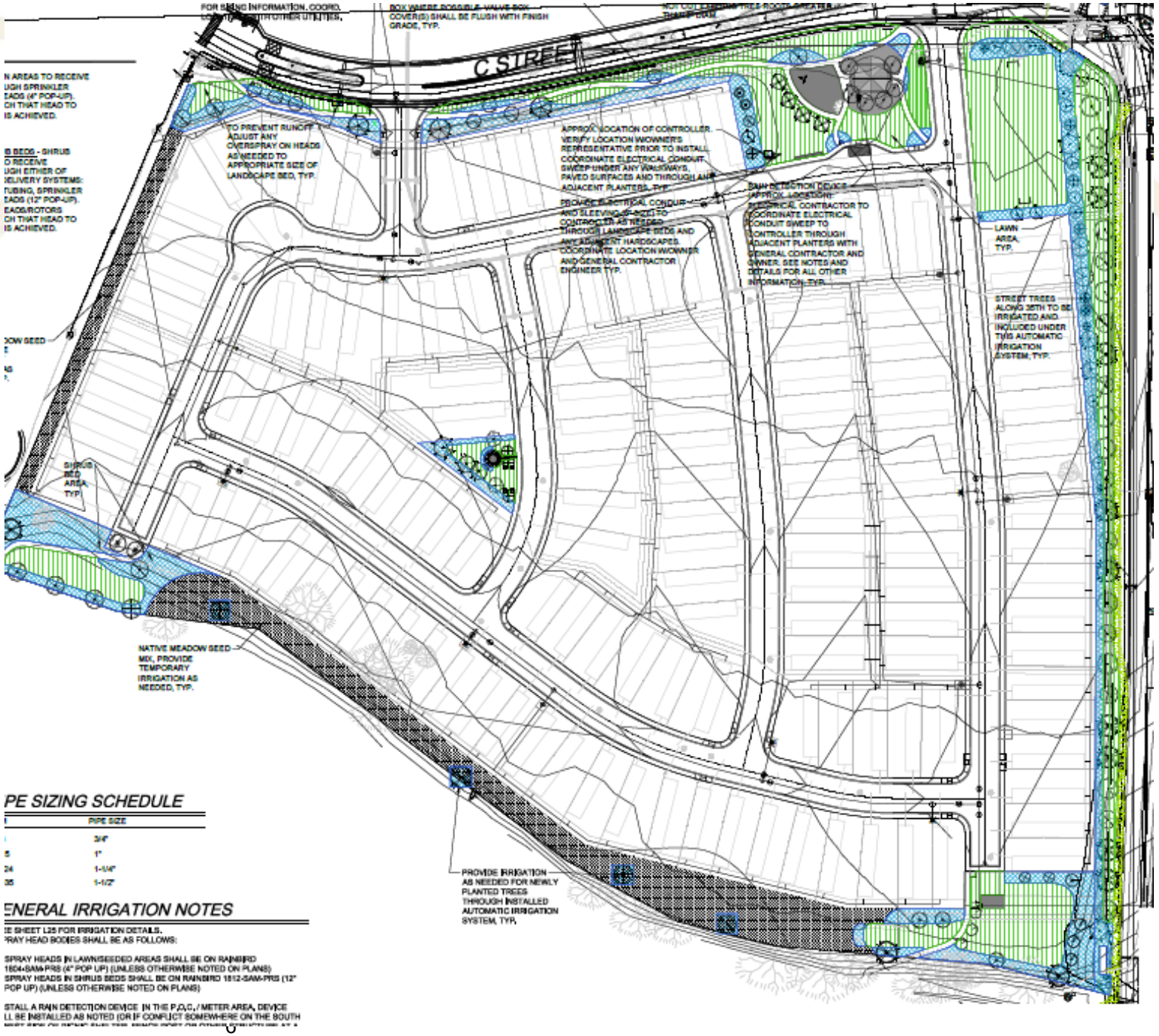
- Likely *additional* costs for developers
  - Pump station
  - On-site water storage
  - Possible additional piping

Non-Potable Development Proposal

- Cost *incentives* for developers
  - No Plant Investment Fee
  - Increased yield for dedicating certain water shares
  - Greeley Irrigation Company shares can only be dedicated for non-potable
  - Acceptance of other water sources historically used to irrigate developed area
  - City contribution for infrastructure if the total cost of installing non-potable exceeds the cost for installing potable
    - **This provision is the key; and likely the most difficult provision to manage**

Stoneybrook Example

- Current development review
- 4 acres of landscaping
  - Under proposed policy would be required to install non-potable
- After initial agreement, developer now refuses to install non-potable
- Under current policies, City cannot force non-potable installation



Other Policy Provisions

- All new non-potable accounts will be on a water budget tiered rate structure
  - Current non-potable rates are 70% of residential water budget rates
    - Non-potable cost of service will be analyzed for 2022 rates
  - Cannot implement water budget until the new utility billing software goes live
- Graduated raw water requirements for lower water use landscaping
  - Consistent with potable raw water requirements
- Drought restrictions would apply
- Public ownership

Path Forward

- Seeking Board feedback
- Revise city code
- Spring/Early Summer adoption?

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _X__ NO ENCLOSURE ____

ITEM NUMBER: 11

TITLE: RECOMMEND TO COUNCIL APPROVAL OF AN ORDINANCE ESTABLISHING LOCAL IMPROVEMENT DISTRICT NO. 43840 (JOHNSON SUBDIVISION) FOR THE CONSTRUCTION OF SANITARY SEWER INFRASTRUCTURE

RECOMMENDATION: RECOMMEND COUNCIL APPROVAL

ADDITIONAL INFORMATION:

The Johnson Subdivision was developed in 1963 and 1969 in Weld County and was annexed as an enclave into Greeley in 2005. A majority of the properties within the subdivision have septic systems (36 septic, 4 City sewer, and 3 undeveloped), with some that could be reaching the point of failure. Transitioning a failing septic to municipal wastewater collection and treatment provider is a best practice for the protection of public health and safety. The Greeley Municipal Code requires properties within 400 feet of the municipal sanitary sewer system to connect within ninety (90) days of receiving official notice to do so. There are currently 20 properties within the Johnson subdivision that are located within 400 feet of the municipal sewer system, a majority of the subdivision. Those properties will be required to connect to the municipal sanitary sewer system at the time of septic system failure. These connections are generally very costly, and there is a significant cost efficiency to constructing the backbone collection system all at once. Therefore, W&S Department proposes to facilitate a more proactive and cost-effective connection strategy by developing a Local Improvement District (LID) to facilitate the construction of a new sewer collections system for all residents. This strategy will include W&S engineering staff designing the new sewer system and then W&S operations staff constructing the sewer system. The residents within the LID will be required to pay, at the time of their connection, for their proportionate cost of the materials (pipe, bedding, asphalt, etc.) through the LID. This strategy allows the City to utilize its field construction crews and existing resources to reduce the connection cost. The LID recovery cost will be required at time of septic system failure, and staff recommends allowing two payment options; 1. A one-time payment the properties proportionate cost of LID expenses; or 2. A city payment plan that would allow

for payments over time, up to a 60–month term. This strategy helps reduce costs to residents, facilitates compliance with the code, and leverages City resources for the most economical construction. Further, this work to make municipal sewer service available will protect public health by eliminating private septic systems as they fail. Staff have communicated with residents by letter and shared information with the citizens at a virtual open house on Wednesday, January 6, 2021.

CITY OF GREELEY, COLORADO
ORDINANCE ___, 2021

AN ORDINANCE ESTABLISHING LOCAL IMPROVEMENT DISTRICT NO. 43840 FOR THE CONSTRUCTION OF SANITARY SEWER INFRASTRUCTURE LOCATED IN THE CITY OF GREELEY, COUNTY OF WELD, COLORADO; DETERMINATION OF LOTS AND LANDS TO BE INCLUDED WITHIN LOCAL IMPROVEMENT DISTRICT NO. 43840; SETTING FORTH THE MAXIMUM COSTS OF CONSTRUCTION; AND SETTING FORTH THE PROPERTY TO BE INCLUDED AND NAMES OF THE APPARENT OWNERS OF PROPERTY TO BE INCLUDED (JOHNSON SUBDIVISION SANITARY SEWER INFRASTRUCTURE)

WHEREAS, the City of Greeley, Colorado ("City") is a home rule municipality empowered pursuant to Sections 1 and 6 of Article XX, and Section 7 of Article X of the Colorado Constitution to, *inter alia,* levy assessments against real property within the City for municipal purposes, including, without limitation, for local improvements; and

WHEREAS, the Charter for the City of Greeley, Colorado and Article 25 (Public Improvements) of Title 31 (Government – Municipal) of the Colorado Revised Statutes further empower the City to establish local improvement districts, for the purpose of, *inter alia,* constructing local improvements and assessing the costs thereof upon the property especially benefitted by such improvements; and

WHEREAS, Chapter 13.44 (Local Improvement Districts) of the Greeley Municipal Code sets forth the particular authority and procedures by which the City may establish such local improvement districts; and

WHEREAS, the Johnson Subdivision is a neighborhood within the City of Greeley, located north of 4th Street and west of 35th Avenue, in which the vast majority of residential lots dispose of generated sewage via aging private septic systems; and

WHEREAS, the City Council desires, on its own initiative, to establish a local improvement district for the construction of municipal sanitary sewer infrastructure for the benefit of properties in the area of the Johnson Subdivision, in order to avoid any potential public health and safety issues associated with the aging private septic systems;

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GREELEY, COLORADO:

Section 1. Establishment of Local Improvement District No. 43840. Pursuant to the authority set forth in Section 13.44.010(d) of the Greeley Municipal Code, the City Council hereby orders the creation of a local improvement district for the construction of sanitary sewer infrastructure in the area of the Johnson Subdivision in Greeley, Colorado ("Johnson Subdivision Sanitary Sewer Infrastructure"). The local improvement district shall be assigned number 43840 and contain the lots and lands set forth in Section 4 below. The anticipated location of the sanitary

sewer infrastructure, and the lots and lands to be included in Local Improvement District No. 43840, are shown on the map attached hereto as Exhibit A.

Section 2. Estimation and Description of Maximum Costs. The maximum cost of construction and incidental expenses for the Johnson Subdivision Sanitary Sewer Infrastructure is estimated at this time to be $480,000.00. Incidental expenses may include those expenses associated with inspection, and other similar expenses attributable to the construction of the Johnson Subdivision Sanitary Sewer Infrastructure and the establishment of Local Improvement District No. 43840. The final determination of assessments to be made against the lots and lands included in Local Improvement District No. 43840 shall be established by an ordinance adopted after completion of the improvements described herein, and such assessments shall be based upon the costs of construction and incidental expenses. Assessments shall be set as a fixed amount by the assessing ordinance, and shall not accrue interest. Each of the lots described in Section 4 below will be benefitted equally by construction of the Johnson Subdivision Sanitary Sewer Infrastructure; therefore, the total of such construction costs and incidental expenses shall be divided among and assessed equally against all of the lots described in Section 4 below, in accordance with Sections 13.44.030 and 13.44.050 of the Greeley Municipal Code. Assessments shall be due and payable by the property owner at the time sanitary sewer service is requested or otherwise required by the Greeley Municipal Code.

Section 3. City of Greeley staff shall perform construction of the Johnson Subdivision Sanitary Sewer Infrastructure, or authorize it to be done, within a reasonable time after passage of this ordinance.

Section 4. Lots and Lands to be Included in Local Improvement District No. 43840; Owners. The lots and lands that shall be included within Local Improvement District No. 43840, the street addresses of such lots and lands, and the current record owners of such lots and lands, according to the real property records of the Weld County Assessor, are as follows.

1.	Owner(s):	Thomas E. Kissleman
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	321 40th Avenue Greeley, Colorado 80634-1107
	Legal Description of Property within LID:	Lot 1, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
2.	Owner(s):	Paul Guajardo, Jr. and Jessie A. Guajardo
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	307 40th Avenue Greeley, Colorado 80634-1107
	Legal Description of Property within LID:	Lot 2, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
3.	Owner(s):	Mark E. Ulrich
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	219 40th Avenue

		Greeley, Colorado 80634-1107
	Legal Description of Property within LID:	Lot 3, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
4.	Owner(s):	Connie J. Cannone
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	209 40th Avenue Greeley, Colorado 80634-1107
	Legal Description of Property within LID:	Lot 4, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
5.	Owner(s):	Cole Fox and Michele Fox
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	117 40th Avenue Greeley, Colorado 80634-1111
	Legal Description of Property within LID:	Lot 5, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
6.	Owner(s):	Shawn Stratford and Erin Stratford
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	320 40th Avenue Greeley, Colorado 80634-1108
	Legal Description of Property within LID:	Lot 43, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
7.	Owner(s):	Travis D. McPhee and Danyell McPhee
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	306 40th Avenue Greeley, Colorado 80634-1108
	Legal Description of Property within LID:	Lot 42, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
8.	Owner(s):	Sandra Phelps Living Trust
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	228 40th Avenue Greeley, Colorado 80634-1108
	Legal Description of Property within LID:	Lot 41, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
9.	Owner(s):	Ronald G. Johnson and Gloria J. Johnson
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	222 40th Avenue Greeley, Colorado 80634-1108
	Legal Description of Property within LID:	Lot 40, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado

10.	Owner(s):	Russell G. Archibeque
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	210 40th Avenue Greeley, Colorado 80634-1108
	Legal Description of Property within LID:	Lot 39, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
11.	Owner(s):	Steven Clyde Nale and Sheree L. Nale
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	118 40th Avenue Greeley, Colorado 80634-1108
	Legal Description of Property within LID:	Lot 38, Johnson Subdivision, City of Greeley, County of Weld, State of Colorado
12.	Owner(s):	Ronald E. Redfern and Jodie R. Redfern
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	111 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 36, Johnson Subdivision First Addition, County of Weld, State of Colorado
13.	Owner(s):	Norrene L. Halldorson
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	209 38th Avenue Greeley, Colorado 80634-1117
	Legal Description of Property within LID:	Lot 35, Johnson Subdivision First Addition, a subdivision of part of NE¼ of Section 2, Township 5 North, Range 66 West of the 6th P.M., Weld County, Colorado
14.	Owner(s):	Matthew J. Knutson
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	201 38th Avenue Greeley, Colorado 80634-1117
	Legal Description of Property within LID:	Lot 34, Johnson Subdivision First Addition, in the City of Greeley, County of Weld, State of Colorado
15.	Owner(s):	David H. Grauberger and Patricia A. Grauberger
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	221 38th Avenue Greeley, Colorado 80634-1117

	Legal Description of Property within LID:	Lot Thirty-Three (33), Johnson Subdivision First Addition, in the County of Weld, State of Colorado
16.	Owner(s):	Bonnie J. Egan
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	315 38th Avenue Greeley, Colorado 80634-1117
	Legal Description of Property within LID:	Lot Thirty-Two (32), Johnson Subdivision, First Addition, in the County of Weld, State of Colorado, according to the recorded map or plat thereof
17.	Owner(s):	Gerald L. Suppes and Phala G. Suppes
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	302 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot Thirty (30), Johnson Subdivision First Addition, in the City of Greeley, County of Weld, State of Colorado, as per map recorded December 26, 1969 in Book 619 under Reception No. 1540736, Weld County Records
18.	Owner(s):	Gerald A. Lewis and Pamela Ann Lewis
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	218 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 29, Johnson Subdivision First Addition, Weld County, Colorado
19.	Owner(s):	Stanley W. Greenwood and Mary L. Greenwood
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	210 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 28, Johnson Subdivision First Addition, County of Weld, State of Colorado
20.	Owner(s):	Theresa M. Sartz Trust
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	114 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 27, Johnson Subdivision First Filing, a subdivision of Weld County, Colorado

21.	Owner(s):	Lawrence R. Mackey and Sidnia Mackey
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	108 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot Twenty-Six (26), Johnson Subdivision First Addition, a subdivision of a part of the Northeast Quarter (NE¼) of Section Two (2), Township Five (5) North, Range Sixty-Six (66) West of the 6th P.M., County of Weld, State of Colorado
22.	Owner(s):	Skye M. Sterling and Donald R. Sterling, Jr. and Donald R. Sterling
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	104 38th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 25, Johnson Subdivision, First Addition, County of Weld, State of Colorado
23.	Owner(s):	Raymond F. Larson
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	120 40th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 23, Johnson Subdivision, County of Weld, State of Colorado
24.	Owner(s):	Raymond F. Larson
	Mailing Address of Owner(s):	120 40th Avenue
	Address of Properties within LID:	N/A (Vacant Land) Greeley, Colorado 80634
	Legal Description of Properties within LID:	Lot 22, Johnson Subdivision, First Addition, County of Weld, State of Colorado
25.	Owner(s):	Raymond F. Larson
	Mailing Address of Owner(s):	120 40th Avenue
	Address of Properties within LID:	N/A (Vacant Land) Greeley, Colorado 80634
	Legal Description of Properties within LID:	Lot 21, Johnson Subdivision, First Addition, County of Weld, State of Colorado
26.	Owner(s):	Raymond F. Larson
	Mailing Address of Owner(s):	120 40th Avenue
	Address of Properties within LID:	N/A (Vacant Land) Greeley, Colorado 80634
	Legal Description of Properties within LID:	Lot 20, Johnson Subdivision, First Addition, County of Weld, State of Colorado

27.	Owner(s):	John A. Baumgartner and Beth Ann Baumgartner
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	208 N. 40th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 19, Johnson Subdivision, County of Weld, State of Colorado
28.	Owner(s):	Douglas D. Smith and Margaret Ellen McGurk
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	222 N. 40th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 18, Johnson Subdivision, County of Weld, State of Colorado
29.	Owner(s):	The Holman Living Trust
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	3924 B Street Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 17, Johnson Subdivision First Addition, County of Weld, State of Colorado
30.	Owner(s):	Tracy Sue Trentlage
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	3914 B Street Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 16, Johnson Subdivision 1st Addition, County of Weld, State of Colorado, together with that portion of vacated B Street which was vacated by instrument recorded December 14, 2004, under Reception No. 3243860
31.	Owner(s):	Daniel A. Delventhal and Rachel L. Delventhal
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	3915 B Street Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 2, Best Way Park Minor Subdivision, First Replat
32.	Owner(s):	Laira L. Ziegler
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	3995 B Street

		Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 14, Johnson Subdivision First Addition, County of Weld, State of Colorado
33.	Owner(s):	Kim S. Martin
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	4001 B Street Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 13, Johnson Subdivision First Addition, County of Weld, State of Colorado
34.	Owner(s):	Kirk Cosson
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	4007 B Street Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 12, Johnson Subdivision First Addition, County of Weld, State of Colorado
35.	Owner(s):	Kurt Weaver and Neleda Jean Lang
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	225 N. 40th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 11, Johnson Subdivision, a subdivision of a part of the Northeast ¼ of Section 2, Township 5 North, Range 66 West of the 6th P.M., according to the recorded map or plat thereof, County of Weld State of Colorado
36.	Owner(s):	Bart A. Petersen
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	217 N. 40th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 10, Johnson Subdivision, Weld County, Colorado
37.	Owner(s):	Jack L. Hough and Shirley L. Hough
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	203 N. 40th Avenue Greeley, Colorado 80634
	Legal Description of Property within LID:	Lot 9, Johnson Subdivision, Weld County, Colorado
38.	Owner(s):	Jeffrey G. Cozad and Molly J. Cozad
	Mailing Address of Owner(s):	Same as Address of Property within LID
	Address of Property within LID:	115 N. 40th Avenue Greeley, Colorado 80634

Legal Description of Property within LID: Lot 8, Johnson Subdivision, Weld County, Colorado

Section 5. Assessments shall be collected only on sanitary sewer taps that connect directly to, or upstream of, the Johnson Subdivision Sanitary Sewer Infrastructure associated with Local Improvement District No. 43840, and against the properties described in Section 4 above.

Section 6. Properties within the boundaries of Local Improvement District No. 43840 remain subject to all requirements of the Greeley Municipal Code regarding City sanitary sewer service, including, without limitation, the requirement to construct additional sanitary sewer line extensions if necessary in order to facilitate connection to the Johnson Subdivision Sanitary Sewer Infrastructure, and the requirement to pay sanitary sewer plant investment fees.

Section 7. A public hearing on this ordinance and the establishment of Local Improvement District No. 43840 is hereby scheduled for February 2, 2021 during the regular meeting of the City Council. Additional notice of the public hearing shall be given by the City Clerk to the property owners listed in this ordinance, in accordance with Section 13.44.100 of the Greeley Municipal Code.

Section 8. This ordinance shall take effect on the fifth (5^{th}) day following its final publication, as set forth in Section 3-16 of the Greeley City Charter.

PASSED AND ADOPTED, SIGNED AND APPROVED ON THIS _____ DAY OF JANUARY 2021.

ATTEST

_____

City Clerk

CITY OF GREELEY, COLORADO

_____

Mayor

JOHNSON SUBDIVISION
Local Improvement District
No.43840

Water & Sewer Board

January 20, 2021

City of Greeley Colorado

Johnson Subdivision
Local Improvement District (LID)

W&S Staff provided update to W&S Board In December

Summary of Project Goals

- Address failing septic systems required to connect to City Sewer
- Cost effectively construct sewer main for the entire subdivision
  - W&S Estimated Project Cost - $480,000
  - Estimated Hired Contractor Project Cost - $720,000
- Reduce resident cost and risk at time of failed Septic
  - Current Estimated Resident Costs $51,280 up to $200,000+
  - Proposed Estimated Cost $23,590 to $33,590
- Allow cost to be reimbursed to W&S through a LID
- Provide financing alternatives for reimbursement

City of Greeley Colorado

Project Status and Schedule

- W&S Staff held a Community Webinar with the residents on January 6th
- Ordinance scheduled for 2nd Reading with City Council February 2nd
- Phase 1 Improvements planned end of February
- Phase 2 Improvements planned for April – May (Requires Appropriation)
- 2nd Ordinance to Council upon project completion to establish cost

City of Greeley Colorado

LID Ordinance Structure

Staff requesting W&S Board recommendation to Council for approval of Ordinance No. 43840

- Estimated Total LID Cost of $480,000
- 38 Parcels included ($12,631.60 per property)
- Reimbursement only due at time of connection to sewer
- Reimbursement Alternatives (2nd Ordinance)
  - One time payment of all Fees
  - 60 month payment plan (Lien placed on property)
- No interest will accrue on LID assessments

City of Greeley Colorado

Johnson Subdivision
Local Improvement District
NO. 43480

Questions?

City of Greeley Colorado

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE __X__ NO ENCLOSURE ____

ITEM NUMBER: 12

TITLE: OVERVIEW OF PROPOSED CONSOLIDATION AND REVISIONS TO WATER DEDICATION CODE

RECOMMENDATION: INFORMATION ONLY

ADDITIONAL INFORMATION:

Greeley requires that developers dedicate certain water rights or make cash payments to the city in order to receive water service ("Raw Water Dedication"). Policies governing Raw Water Dedication are primarily located in the City of Greeley Municipal Code, but are also contained in several resolutions of the Greeley Water & Sewer Board. The Water & Sewer Department desires to consolidate all policies into Municipal Code to provide developers a single point of reference and to assist staff in administering Raw Water Dedication policies.

In addition, revisions to and consolidation of Raw Water Dedication policies are required by the Master Agreement for the Terry Ranch Project. The Terry Ranch Master Agreement created Raw Water Credits ("Credits") redeemable to meet Greeley's Raw Water Dedication requirements. A code revision is required to allow dedication of Credits and is a condition of closing on Terry Ranch water and storage rights. Furthermore, the Master Agreement prescribes certain defaults for changes to Raw Water Dedication policies that, among other reasons, restrict redemption of Credits or specifically disadvantage Credits relative to other sources of dedication. Consolidating Raw Water Dedication policies in Municipal Code allows Greeley staff and Credit-holders to ensure future changes conform to the Master Agreement.

In addition to consolidating policies, two revisions are proposed to the Raw Water Dedication code. The first codifies graduated raw water requirements for landscaping associated with commercial and multi-family development. Graduated water requirements for landscaping were included in the 2019 policy updates for non-residential and multi-family, but were not ultimately placed in Code. The second clarifies Raw Water Dedication for large parcel, single family developments. Currently, any single family lot that is one acre or larger and has a ¾" tap is required to dedicate 3 acre-feet per acre, regardless of the number of

acres that lot may be. The proposed revision aligns the Raw Water Dedication requirement for large parcel, single family developments with their projected water use by taking into consideration just the developed portion of the lot.

EXHIBIT A
ORDINANCE AMENDING CHAPTER 6, TITLE 14
GREELEY MUNICIPAL CODE

Chapter 14.06
Water Service

***

14.06.040 - Taps required; service line extensions prohibited.

***

(b) A separate and additional landscape irrigation tap **AND SERVICE LINE** shall be required for all non-residential buildings and multi-family residential buildings with more than four (4) units **WITHIN THE CITY LIMITS, INCLUDING, WITHOUT LIMITATION, COMMERCIAL, INDUSTRIAL, AND GROUP HOUSING (APARTMENT BUILDINGS, CONDOMINIUMS, NURSING HOMES, HOTELS, AND MOTELS)**. The Director of Water and Sewer has the authority to grant a variance to the landscape irrigation tap requirement in this Section upon a written finding that the subject property can be served by a single tap due to minimal landscaping irrigation demand.

***

14.06.050 - Water rights dedication; amounts and criteria.

(a) All applicants for water service within the City limits shall **(i)** dedicate to the City~~, as a prerequisite to and as part of the consideration for City water service to the subject property,~~ water rights**, IF ANY,** that the City, in its sole discretion, can use in its **POTABLE** water **SUPPLY** system **OR NON-POTABLE IRRIGATION SYSTEM AND (ii) IF THE APPLICANT CANNOT SATISFY THE RAW WATER DEDICATION REQUIREMENTS THROUGH THE DEDICATION OF WATER RIGHTS, SHALL FURNISH TO THE CITY A CASH-IN-LIEU FEE (OR SATISFY THE SAME PURSUANT TO SECTION 14.06.050(e)) TO FULFILL ALL OR THE REMAINDER OF THE DEDICATION REQUIREMENT ASSOCIATED WITH A REQUEST FOR WATER SERVICE AS A PREREQUISITE TO AND AS PART OF THE CONSIDERATION FOR CITY WATER SERVICE TO THE SUBJECT PROPERTY**. **ALL WATER RIGHTS APPROVED FOR DEDICATION SHALL BE CONVEYED TO THE CITY ON OR BEFORE THE DATE THE FINAL PLAT FOR THE DEVELOPMENT IS APPROVED. ALL CASH-IN-LIEU FEES SHALL BE DUE AND PAYABLE TO THE CITY NO LATER THAN THE DATE ON WHICH THE BUILDING PERMIT IS ISSUED.**

(b) **THE CITY HAS DETERMINED (i) THAT THE WATER RIGHTS REPRESENTED BY SHARES OF STOCK IN THE GREELEY & LOVELAND IRRIGATION COMPANY AND THE SEVEN LAKES RESERVOIR COMPANY, AND RIGHTS IN THE LOVELAND AND GREELEY RESERVOIR COMPANY (LAKE LOVELAND) CAN BE USED WITHIN ITS POTABLE WATER SUPPLY SYSTEM AND NON-POTABLE IRRIGATION SYSTEM AND (ii) THAT THE WATER RIGHTS REPRESENTED BY UNITS OF COLORADO-BIG THOMPSON PROJECT WATER**

Commented [JS1]: See W&S Bd. Res. 1, 2019 (GLIC Yields)

CAN BE USED WITHIN ITS POTABLE WATER SUPPLY SYSTEM. THE WATER RIGHTS REPRESENTED BY SHARES OF STOCK IN THE GREELEY IRRIGATION COMPANY CAN ONLY BE USED WITHIN NON-POTABLE IRRIGATION SYSTEMS. THEREFORE, THE CITY WILL ACCEPT SUCH WATER RIGHTS ONLY IN SATISFACTION OF THE RAW WATER DEDICATION REQUIREMENTS ASSOCIATED WITH NON-POTABLE WATER SERVICE ON PROPERTY HISTORICALLY IRRIGATED BY THE SUBJECT WATER RIGHTS. THE CITY SHALL USE THE FOLLOWING YIELD VALUES TO DETERMINE THE AMOUNT OF RAW WATER TRANSFERRED BY AN APPLICANT TOWARD THE SATISFACTION OF ANY RAW WATER DEDICATION REQUIREMENT:

COMPANY	**YIELD/SHARE**
THE GREELEY & LOVELAND IRRIGATION COMPANY	**8 ACRE FEET/SHARE**
THE SEVEN LAKES RESERVOIR COMPANY	**8 ACRE FEET/SHARE**
THE LOVELAND AND GREELEY RESERVOIR COMPANY (LAKE LOVELAND)	**20 ACRE FEET/RIGHT**
COLORADO-BIG THOMPSON PROJECT WATER (C-BT)	**0.75 ACRE FEET/UNIT**
GREELEY IRRIGATION COMPANY (GREELEY NO, 3 CANAL)	**10.3 ACRE FEET/SHARE**

(c) ~~All dedications of water rights proposed to satisfy the requirements of this Section are subject to approval by the Director of Water and Sewer. Water rights approved for dedication shall~~ **EXCEPT FOR WATER RIGHTS REPRESENTED BY UNITS OF COLORADO-BIG THOMSON PROJECT WATER, THE CITY WILL NOT ACCEPT THE DEDICATION OF ANY WATER RIGHTS UNDER SECTION 14.06.050(b) FOR USE WITHIN ITS POTABLE WATER SUPPLY SYSTEM OR NON-POTABLE IRRIGATION SYSTEM UNLESS THE DIRECTOR OF WATER AND SEWER DETERMINES THAT THE SUBJECT WATER RIGHTS** meet the requisite criteria under Colorado law for conversion of the water to municipal use by the City, including, without limitation, ~~**sustained historical consumptive use. Such water rights shall also meet the criteria for dedication of water rights to the City set forth by resolution of the Water and Sewer Board. The transfer of water rights approved for dedication to the City shall be made by the applicant for water service no later than the date on which a final plat for the development is approved**~~. **THAT**: **(i) THE WATER RIGHTS HAVE A HISTORY OF USE ON THE PROPERTY BEING DEVELOPED; (ii) THE PROPERTY BEING DEVELOPED WAS HISTORICALLY AND CONSISTENTLY IRRIGATED UNDER THE DITCH SYSTEM FROM WHICH SUCH WATER RIGHTS ARE BEING DEDICATED; (iii) THE OWNER AND ALL LIENHOLDERS OF THE PROPERTY BEING DEVELOPED EXECUTE A RESTRICTIVE**

Commented [JS2]: See W&S Bd. Res. No. --, 2020 (GIC Yields and Dedication Requirements)

Commented [JS3]: See W&S Bd. Res. 1, 2019 (GLIC/CBT Yields) and See W&S Bd. Res. No. --, 2020 (GIC Yields and Dedication Requirements)

Commented [JS4]: See W&S Bd. Res. 14, 2014 (Dedication Requirements)

COVENANT IN A FORM ACCEPTABLE TO THE CITY REQUIRING THE CESSATION OF IRRIGATION ON THE HISTORICALLY IRRIGATED PROPERTY WITH THE SUBJECT WATER RIGHTS EXCEPT UNDER CONDITIONS AUTHORIZED BY THE CITY; AND (iv) THE APPLICANT PROVIDES ANY DOCUMENTS AND MATERIALS REASONABLY REQUIRED BY THE CITY TO ENSURE CONSISTENCY WITH ANY PRIOR DECREES, INCLUDING BUT NOT LIMITED TO, DECREES ADJUDICATING CHANGES OF THE GREELEY & LOVELAND IRRIGATION COMPANY, THE SEVEN LAKES RESERVOIR COMPANY, THE LOVELAND AND GREELEY RESERVOIR (LAKE LOVELAND), AND THE GREELEY IRRIGATION COMPANY WATER RIGHTS.

(d) **AN APPLICANT FOR WATER SERVICE MAY REQUEST THAT THE CITY ACCEPT OR PERMIT THE USE OF (i) WATER RIGHTS OTHER THAN THE WATER RIGHTS IDENTIFIED IN SECTION 14.06.050(b) OR (ii) WATER RIGHTS THAT DO NOT SATISFY THE REQUIREMENTS OF SECTION 14.06.050(c) IN PARTIAL SATISFACTION OR REDUCTION OF THE APPLICANT'S RAW WATER DEDICATION REQUIREMENT. THE CITY, IN ITS SOLE DISCRETION, MAY ACCEPT OR PERMIT THE USE OF SUCH WATER RIGHTS BASED ON CERTAIN TERMS AND CONDITIONS SET BY THE DIRECTOR OF WATER AND SEWER BUT ONLY IN PARTIAL SATISFACTION OR REDUCTION OF THE RAW WATER DEDICATION REQUIREMENT ASSOCIATED WITH NON-POTABLE WATER SERVICE ON PROPERTY THAT HAS BEEN HISTORICALLY IRRIGATED BY THE SUBJECT WATER RIGHTS.**

Commented [JS5]: See Section 10.5 of the Master Agreement.

(e) **ON OR BEFORE DECEMBER 31, 2099, AN APPLICANT FOR WATER SERVICE, WHO IS ALSO THE REGISTERED OWNER OF A CERTIFICATE ISSUED BY THE DEPARTMENT TO EVIDENCE ONE (1) OR MORE RAW WATER DEDICATION CREDITS, MAY REDEEM SUCH CREDIT(S) IN WHOLE OR IN PART (BUT ONLY IN WHOLE NUMBERS) TOWARD THE SATISFACTION OF ANY CASH-IN-LIEU FEE OBLIGATION ASSOCIATED WITH THE APPLICANT'S REQUEST FOR WATER SERVICE IN ACCORDANCE WITH SECTIONS 14.06.060, 14.06.070, 14.06.080, AND 14.06.110. ONE (1) RAW WATER DEDICATION CREDIT REPRESENTS THE EQUIVALENT OF, BUT NOT AN INTEREST IN, ONE (1) ACRE-FOOT OF RAW WATER THAT AN APPLICANT WOULD OTHERWISE HAVE TO SATISFY BY FURNISHING TO THE CITY A CASH-IN-LIEU FEE.**

Commented [JS6]: See Section 10.5 of the Master Agreement

(f) Applicants for water service to single-family residential and multi-family residential developments with four (4) units or less within the City limits shall dedicate raw water **AND IF THE APPLICANT CANNOT DEDICATED RAW WATER, FURNISH TO THE CITY ANY APPLICABLE CASH-IN-LIEU FEE IN ACCORDANCE WITH SECTION 14.06.060** in the amount of three (3) acre-feet per acre, or fraction thereof, of property to which water service will be provided. **STREETS, RIGHTS-OF-WAY, DRIVEWAYS, SIDEWALKS, OUTBUILDINGS, AND ANY OTHER PART OF THE PROPERTY THAT HAS BEEN OR WILL BE DEVELOPED SHALL BE INCLUDED IN THE CALCULATION OF THE TOTAL GROSS ACREAGE OF THE PROPERTY, REGARDLESS OF WHETHER SUCH AREAS HAVE BEEN DEDICATED TO PUBLIC USE. THE CITY MAY, IN ITS SOLE DISCRETION,**

Commented [JS7]: See Res. 2, 2016 (Gross Area Calculation)

EXCLUDE AREA(S) FROM THE TOTAL GROSS ACREAGE, PROVIDED THAT IRRIGATING SUCH AREA IS LEGALLY PROHIBITED BY PLAT OR DEED.

(g) Applicants for water service to non-residential and multi-family residential developments with more than four (4) units within the City limits, including, without limitation, commercial, industrial, and group housing (apartment buildings, condominiums, nursing homes, hotels, and motels), shall dedicate raw water **AND IF THE APPLICANT CANNOT DEDICATED RAW WATER, FURNISH TO THE CITY THE APPLICABLE CASH-IN-LIEU FEE IN ACCORDANCE WITH SECTION 14.06.070** in the amount of the water service demand for the subject development. The water service demand for non-residential and large multi-family residential developments shall be determined by multiplying the total units proposed by the applicant by the average unit use, as set forth in the business category and water use table below. The water service demand for industrial developments and commercial developments of a type not specifically identified in the business category and water use table below shall be determined by the Director of Water and Sewer on a case-by-case basis, utilizing the projected volume of total water use by the subject development.

Business Category and Water Use		
Category	***Units***	***Average Unit Use (Gallons Per Unit Per Year)***
Auto Service and Repair	SF	12
Car Wash	Bay	1,350,000
Childcare	SF	47
Church	SF	4.5
Grocery Store	SF	20
Gas Station Without Car Wash	SF	93
Hospital	SF	21
Hotel/Motel	Room	30,300
Medical Office	SF	25
Multi-Family Residential (Greater than 4 units)	Unit	35,500
Office	SF	14

Recreation With Pool	SF	122
Recreation Without Pool	SF	25
Restaurant (Outdoor Seating Areas 50%)	SF	188
Retail	SF	16
School	SF	11
Warehouse	SF	5
Industrial and Other Commercial	Demand determined on case-by-case basis	

(h) APPLICANTS FOR WATER SERVICE TO NON-RESIDENTIAL AND MULTI-FAMILY RESIDENTIAL DEVELOPMENTS WITH MORE THAN FOUR (4) UNITS WITHIN THE CITY LIMITS, INCLUDING, WITHOUT LIMITATION, COMMERCIAL, INDUSTRIAL, AND GROUP HOUSING (APARTMENT BUILDINGS, CONDOMINIUMS, NURSING HOMES, HOTELS, AND MOTELS), FOR WHICH A SEPARATE AND ADDITIONAL LANDSCAPE IRRIGATION TAP AND SERVICE LINE IS REQUIRED IN ACCORDANCE WITH SECTION 14.06.040, SHALL ALSO DEDICATE RAW WATER AND IF THE APPLICANT CANNOT DEDICATED RAW WATER, FURNISH TO THE CITY THE APPLICABLE CASH-IN-LIEU FEE IN ACCORDANCE WITH SECTION 14.06.070 IN THE AMOUNT OF THE LANDSCAPE IRRIGATION DEMAND FOR THE SUBJECT DEVELOPMENT. LANDSCAPE IRRIGATION DEMAND SHALL BE DETERMINED BASED ON (i) THE TOTAL GROSS ACREAGE OF PROPERTY TO WHICH WATER SERVICE WILL BE PROVIDED AND (ii) THE TYPE OF LANDSCAPE AS SET FORTH IN THE LANDSCAPE-WATER USE TABLE BELOW. LANDSCAPE PLANS WITH MORE THAN SEVENTY-FIVE PERCENT (75%) HIGH WATER USE VEGETATION ARE ASSUMED TO BE ENTIRELY HIGH WATER USE AND SHALL BE CALCULATED AS SUCH. STREETS, RIGHTS-OF-WAY, DRIVEWAYS, SIDEWALKS, OUTBUILDINGS AND ANY OTHER PART OF THE PROPERTY THAT HAS BEEN OR WILL BE DEVELOPED SHALL BE INCLUDED IN THE CALCULATION OF THE TOTAL GROSS ACREAGE OF PROPERTY, REGARDLESS OF WHETHER SUCH AREAS HAVE BEEN DEDICATED TO PUBLIC USE. THE CITY MAY, IN ITS SOLE DISCRETION, EXCLUDE AREA(S) FROM THE TOTAL GROSS ACREAGE, PROVIDED THAT IRRIGATING SUCH AREA(S) IS LEGALLY PROHIBITED BY PLAT OR DEED.

Commented [JS8]: Staff Policy.

LANDSCAPE WATER USE

WATER USE	**DEDICATION REQUIREMENT**
HIGH WATER USE (>14 GALS/SF ANNUAL USE)	**THREE (3) ACRE-FEET/ACRE**
MEDIUM WATER USE (10-14 GAL/SF ANNUAL USE)	**TWO AND ONE-THIRD (2.33) ACRE-FEET/ACRE**
LOW WATER USE (<10 GALS/SF ANNUAL USE)	**ONE AND TWO-THIRDS (1.67) ACRE-FEET/ACRE.**
NO IRRIGATION	**NO RAW WATER REQUIREMENT FOR LANDSCAPE**

***

14.06.070 - Cash in lieu of raw water required; non-residential and large multi-family residential.

***

(b) The cash-in-lieu fee for non-residential and large multi-family residential developments shall be set by resolution of the Water and Sewer Board and calculated by multiplying the water service demand for the subject property, as determined in accordance with Section 14.06.050(**~~ed) above~~**, **AND THE LANDSCAPE IRRIGATION DEMAND, AS DETERMINED IN ACCORDANCE WITH SECTION 14.06.050(h),** by the fair market value of water per acre-foot.

14.06.060 - Cash in lieu of raw water required; single-family and small multi-family residential.

(a) Any applicant for water service to single-family residential and multi-family residential developments with four (4) units or less within the City limits that cannot satisfy the requirements of Section 14.06.050 **~~in full~~** through the dedication of water rights shall furnish to the City a cash-in-lieu fee to fulfill **ALL OR** the remainder of the dedication requirement associated with its request for water service.

14.06.070 - Cash in lieu of raw water required; non-residential and large multi-family residential.

(a) Any applicant for water service to non-residential and multi-family residential developments with more than four (4) units within the City limits, including, without limitation, commercial, industrial, and group housing (apartment buildings, condominiums, nursing homes, hotels, and motels), that cannot satisfy the requirements of Section 14.06.050 **~~in full~~** through the dedication of water rights shall furnish to the City a cash-in-lieu fee to fulfill **ALL OR** the remainder of the dedication requirement associated with its request for water service.

14.06.080 - Exception for large parcel single-family residential.

(a) The water rights dedication and cash-in-lieu fee requirements set forth in Sections 14.06.050 through 14.06.070 shall not apply to applications for **~~domestic~~** water service to **A LARGE PARCEL SINGLE-FAMILY RESIDENTIAL DEVELOPMENT, DEFINED AS A** ~~parcels~~ **PARCEL**, of ~~land~~ **PROPERTY** exceeding one (1) acre that contain only one (1) single-family residence. **~~Any application for water service to such a parcel through a tap~~**

~~larger than three-quarters of an inch (¾") in diameter is not considered domestic, and therefore ineligible for the exception in this Section.~~

(b) ~~All applicants for large parcel single-family residential water service pursuant to this Section shall dedicate to the City raw water in the amount of three (3) acre-feet per three-quarter-inch (¾") domestic tap, as a prerequisite to, and as a part of the consideration for, City water service to the subject property.~~ **ALL APPLICANTS FOR WATER SERVICE TO A LARGE PARCEL SINGLE-FAMILY RESIDENTIAL DEVELOPMENT SHALL DEDICATE RAW WATER AND IF THE APPLICANT CANNOT DEDICATED RAW WATER, FURNISH TO THE CITY THE APPLICABLE CASH-IN-LIEU FEE IN ACCORDANCE WITH SECTION 14.06.080(c) IN THE AMOUNT OF THE WATER SERVICE DEMAND FOR THE SUBJECT DEVELOPMENT. THE WATER SERVICE DEMAND FOR LARGE PARCEL SINGLE-FAMILY RESIDENTIAL DEVELOPMENTS SHALL BE DETERMINED BY (i) THE TOTAL GROSS ACREAGE, OR FRACTION THEREOF, OF PROPERTY TO WHICH WATER SERVICE WILL BE PROVIDED AND (ii) THE TYPE OF LANDSCAPE AS SET FORTH IN THE LANDSCAPE WATER USE TABLE IN SECTION 14.06.050(g) ABOVE. LANDSCAPE PLANS WITH MORE THAN SEVENTY-FIVE PERCENT (75%) HIGH WATER USE VEGETATION ARE ASSUMED TO BE ENTIRELY HIGH WATER USE AND SHALL BE CALCULATED AS SUCH. STREETS, RIGHTS-OF-WAY, DRIVEWAYS, SIDEWALKS, OUTBUILDINGS AND ANY OTHER PART OF THE PROPERTY THAT HAS BEEN OR WILL BE DEVELOPED SHALL BE INCLUDED IN THE CALCULATION OF THE TOTAL GROSS ACREAGE OF PROPERTY, REGARDLESS OF WHETHER SUCH AREAS HAVE BEEN DEDICATED TO PUBLIC USE. THE CITY MAY, IN ITS SOLE DISCRETION, EXCLUDE AREA(S) FROM THE TOTAL GROSS ACREAGE, PROVIDED THAT IRRIGATING SUCH AREA(S) IS LEGALLY PROHIBITED BY PLAT OR DEED.**

(c) Any applicant for large parcel single-family residential water service pursuant to this Section that cannot satisfy the requirement of Section 14.06.080(b) ~~**in full**~~ through the dedication of water rights shall furnish to the City a cash-in-lieu fee to fulfill **ALL OR** the remainder of the dedication requirement associated with its request for water service.

(d) The cash-in-lieu fee for large parcel single-family residential water service pursuant to this Section shall be set by resolution of the Water and Sewer Board and calculated as the cash equivalent of ~~**three (3) acre-feet of water per three-quarter-inch (¾") domestic tap,**~~ **THE CALCULATED WATER SERVICE DEMAND** using the fair market value of water per acre-foot.

***

14.06.110 - Raw water surcharge and supplemental cash in lieu of raw water; exception.

***

(c) Large parcel single-family residential customers shall be entitled to an annual allotment ~~**of three (3) acre-feet per three-quarter-inch (¾") domestic tap**~~ **EQUAL TO THE WATER SERVICE DEMAND CALCULATED IN ACCORDANCE WITH SECTION 14.06.080**.

Any such customer whose metered water use in a calendar year exceeds its annual allotment shall be required to pay a raw water surcharge on the volume of water used in excess of such allotment.

***

14.06.130 - Plant investment fees for water service; inside and outside the City.

(a) All applicants for water service, whether inside or outside the City limits, shall furnish to the City a water plant investment fee **BASED ON THE DIAMETER OF THE TAP** as a prerequisite to, and as a part of the consideration for, City water service to the subject property. The water plant investment fee shall be the minimum amount set by resolution of the Water and Sewer Board, unless subsequently increased by resolution of the City Council. The diameter of a service line water tap installed for fire suppression purposes shall not be considered when calculating plant investment fees due pursuant to this Section.

(b) Upon approval of the Director of Water and Sewer, plant investment fees may be based on the volume of a customer's annual allotment rather than the diameter of ~~its~~ **THE** tap. When the Director of Water and Sewer authorizes a plant investment fee based on ~~size of service~~ **THE VOLUME OF A CUSTOMER'S ANNUAL ALLOTMENT**, **THEN** the schedule of tap fees set by resolution of the Water and Sewer Board shall be applied in accordance with the size of service **LINE**.

***

14.06.170 - Water service outside the City limits.

The Director of Water and Sewer may consider applications for extraterritorial water service from persons or entities located outside the City limits. Any such extraterritorial water service authorized shall be contingent upon receipt by the City of written consent to the service from the jurisdiction in which the extraterritorial customer is located, if so required. Any person or entity granted such extraterritorial water service shall agree to ~~transfer~~ **COMPLY WITH THIS CHAPTER 14.06** when a request for City water is made, at no cost to the City, ~~certain water rights, including Northern Colorado Water Conservancy District allotments, irrigation water and carriage rights of such water, to the City~~ before receiving water service from the City.

14.06.180 - Transfer of water rights upon annexation.

Any petitioners requesting annexation of their ~~land~~ **PROPERTY** to the City shall agree, as a prerequisite to receiving approval of such annexation and on behalf of themselves and all successors in interest to the ~~land~~ **PROPERTY** to be annexed, to ~~transfer~~ **COMPLY WITH THIS CHAPTER 14.06** at no cost to the City, ~~water rights, including Northern Colorado Water Conservancy District allotments, irrigation water and carriage rights upon subdividing and/or requesting domestic water service to the City,~~ before receiving the approval of the annexation.

14.06.190 - Special agreements approved by City Council.

The provisions of this Chapter 14.06 shall not preclude the City Council from approving special agreements with applicants for water service ~~regarding~~ **MODIFYING** the requirements for development within the City, **PROVIDED THAT SUCH AGREEMENTS ARE APPROVED BY ORDINANCE**.

***

14.06.240 – PUBLIC HEARING; SCHEDULING.

IF THE CITY COUNCIL EITHER (i) AMENDS SECTIONS 14.06.050 THROUGH 14.06.120, SECTIONS 14.06.170 THROUGH 14.06.190, OR THIS SECTION 14.06.240 OR (ii) APPROVES A SPECIAL AGREEMENT IN ACCORDANCE WITH SECTION 14.06.190 ON FIRST READING OF THE RESPECTIVE ORDINANCE, THEN THE CITY COUNCIL SHALL SCHEDULE A PUBLIC HEARING TO TAKE PLACE NO SOONER THAN TWENTY-EIGHT (28) DAYS THEREAFTER. THE CITY COUNCIL SHALL PROVIDE NOTICE OF THE PUBLIC HEARING BY PUBLISHING THE PROPOSED ORDINANCE ALONG WITH THE DAY, HOUR, AND PLACE AS REQUIRED BY THE CITY CHARTER.

Commented [JS9]: See Section 10.5 of Master Agreement.

Greeley Water Dedication Code
Consolidation and Revisions

Water & Sewer Board | January 20, 2021

Background

- In brief, Greeley's raw water dedication policies prescribe:
  - The amount of water required for specific development types
  - The sources of water or other means to meet dedication requirements
  - Process and procedures
- Water dedication policies are contained in:
  - Chapter 14.06 of the Greeley Municipal Code
  - Various W&S Board resolutions
  - Master Plans and staff policies

Need for Consolidation

- Best practice – single source of policies for developers and staff
- Required per Terry Ranch Project Master Agreement
  - Creates raw water dedication credits
  - Code revisions needed to allow redeeming credits for raw water requirements
  - Greeley defaults if future policy changes no longer accept credits, specifically disadvantage credits, or make certain other changes
  - Credit-holder allowed to object to certain dedication policy changes
  - Consolidated policy needed for credit-holder review

Consolidation

- Consolidated policies:
  - Existing Chapter 14.06 – Majority of Policies
  - Board Resolution 14, 2014 – Dedication Requirements
  - Board Resolution 2, 2016 – Gross Area Calculation
  - Board Resolution 1, 2019 – GLIC Yields
  - Board Resolution _, 2020 – GIC Yields and Requirements
  - Section 10.5 of Terry Ranch Master Agreement – Raw Water Credits

Revisions

While consolidating code, staff recommend a few minor revisions:

1. Graduated raw requirements for landscaping in commercial and multi-family development:
    - Included in commercial and multifamily raw water dedication policy updates in 2019, but ultimately not incorporated in Municipal Code
2. Large parcel, single-family developments
    - Revise dedication requirements to align with 2019 changes
    - 3 AF per acre only applies to developed portion of lot

Path Forward

- Code changes approved concurrently with Terry Ranch closing
- February 17, 2021: Seek W&S Board recommendation to City Council
- Council ordinance
  - March 2, 2021: First Reading
  - March 16, 2021: Second Reading

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 13

TITLE: TERRY RANCH PROJECT UPDATE

RECOMMENDATION: INFORMATION ONLY

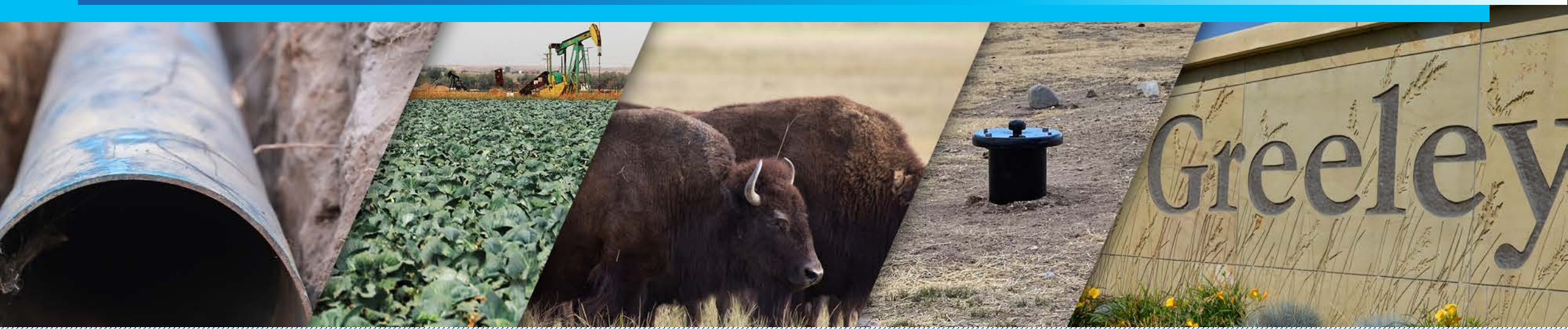
ADDITIONAL INFORMATION:

In June 2020, Greeley entered into a Master Agreement for acquisition of groundwater rights and associated water storage underlying the Terry Grazing Association Ranch in northwest Weld County (the "Terry Ranch Project"). Since that time, staff and consultants have undertook extensive inspection and diligence activities on the ranch. Such diligence will inform the City whether to close on the project. This item presents a summary of diligence finding to date.

Terry Ranch Project

Water & Sewer Board Update

January 20, 2021



Due Diligence Update

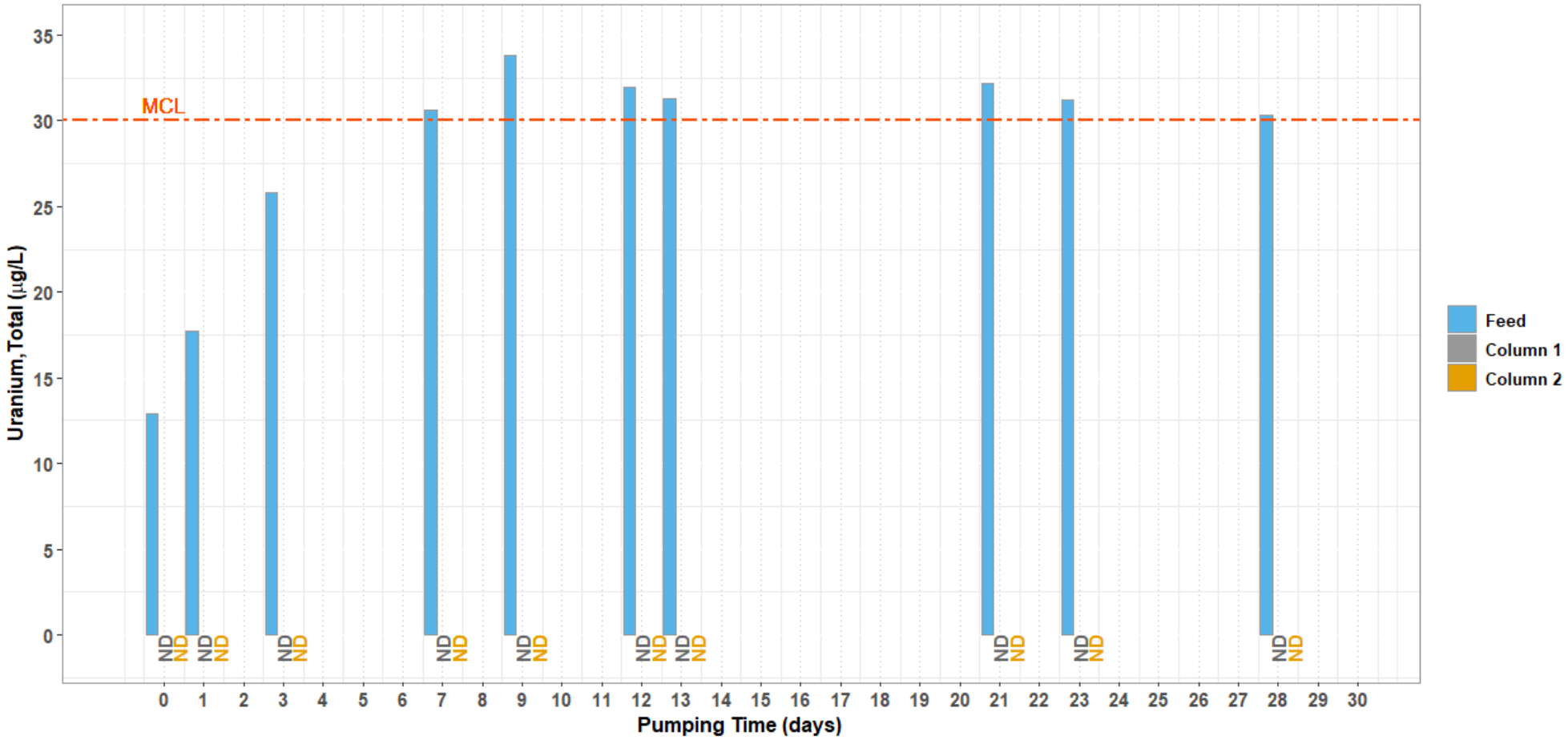
Water Treatment Pilot

Water Treatment Pilot Test Overview

- Pilot operated from Nov 10 to Dec 10 (30 days)
  - Source EB-2
- Water quality sampling and analysis
  - Sampled influent (feed) and effluent (discharge)
  - 1,178 individual analyses
- Pilot operated in same fashion as full-scale plant with two columns in series

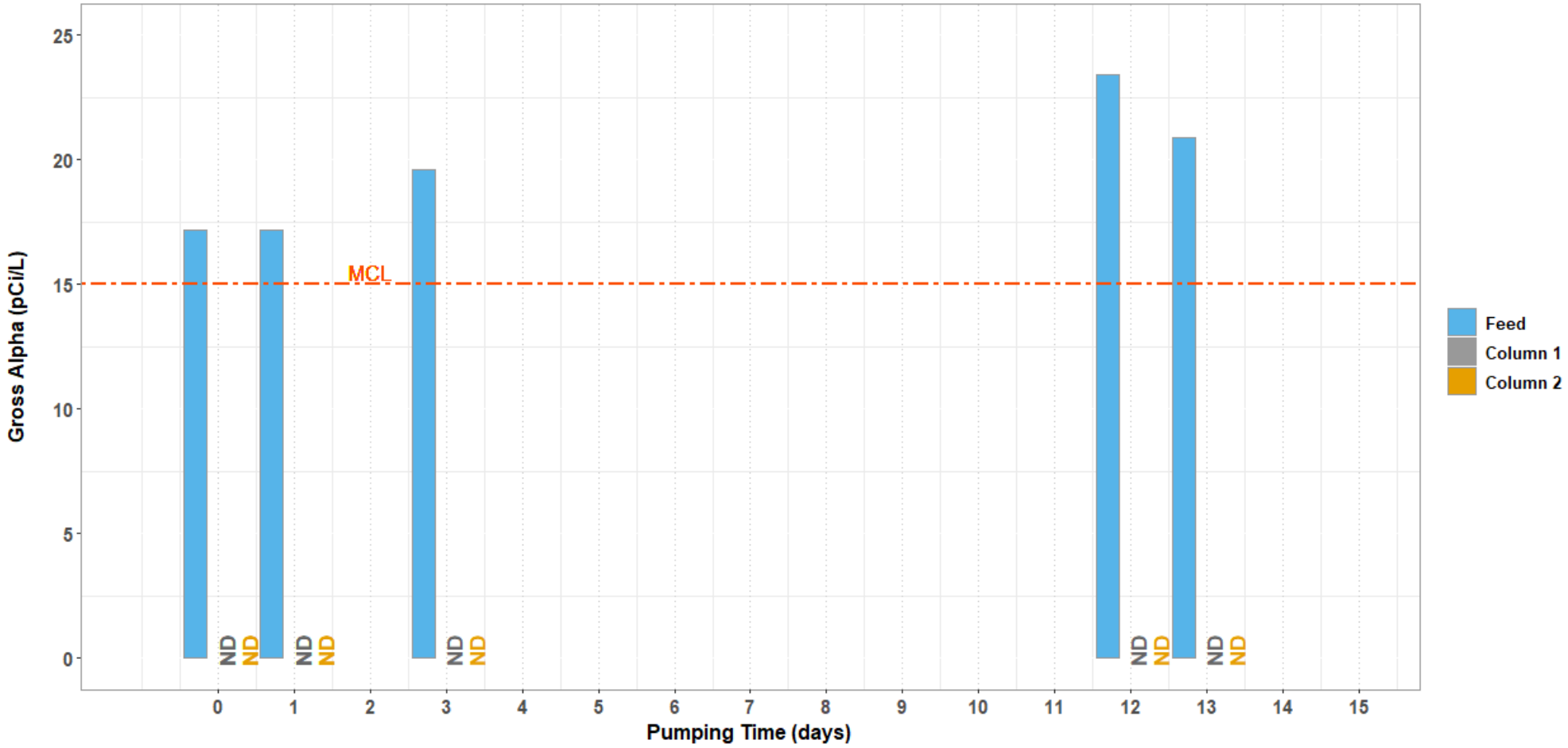
Uranium Results

- All effluent samples were <u>non-detect for uranium</u>



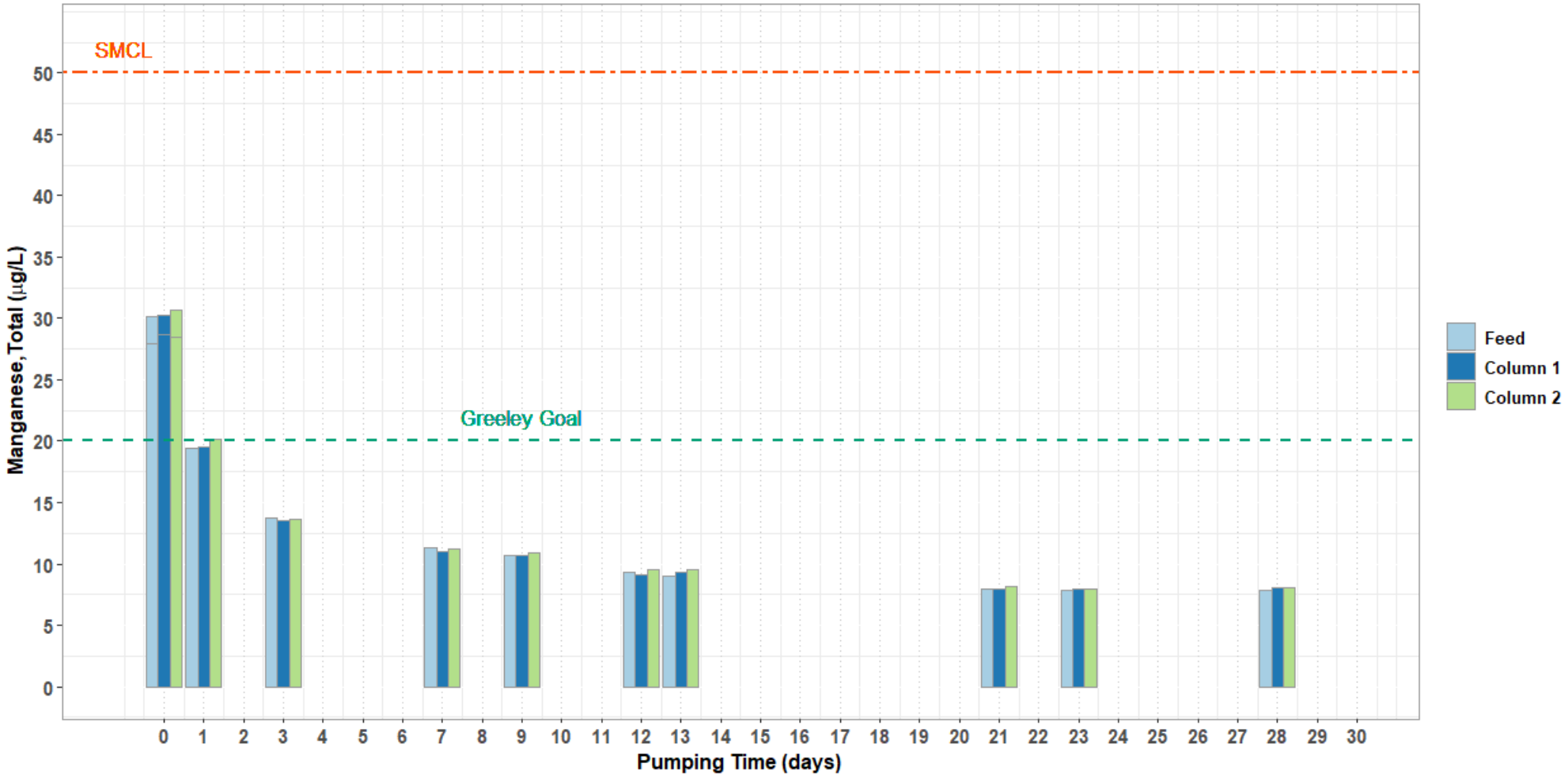
Gross Alpha Results

- All effluent samples were <u>non-detect for gross alpha</u>



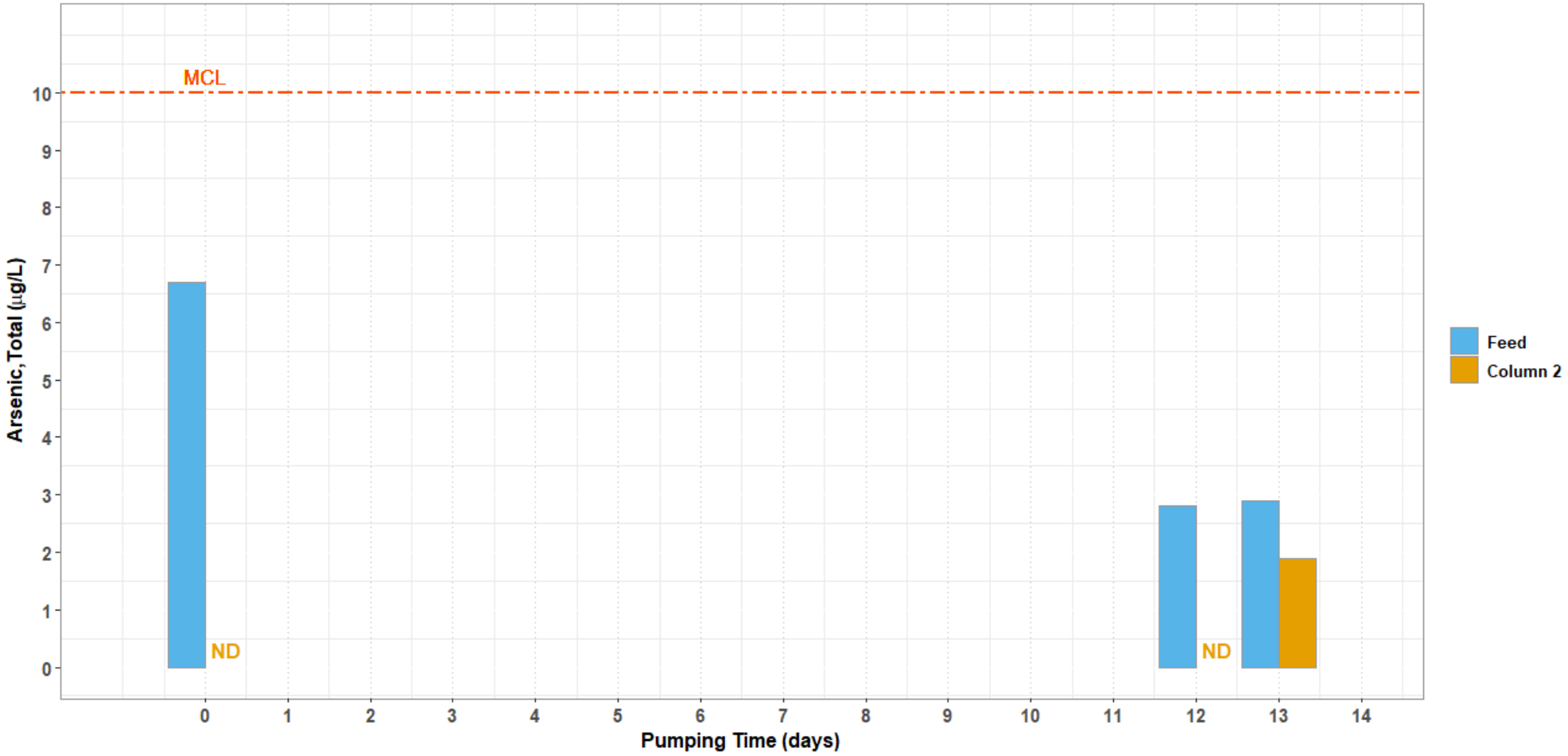
Manganese Results

- Manganese is not removed by the ion exchange media
- Manganese at EB-2 is below Greeley's goal



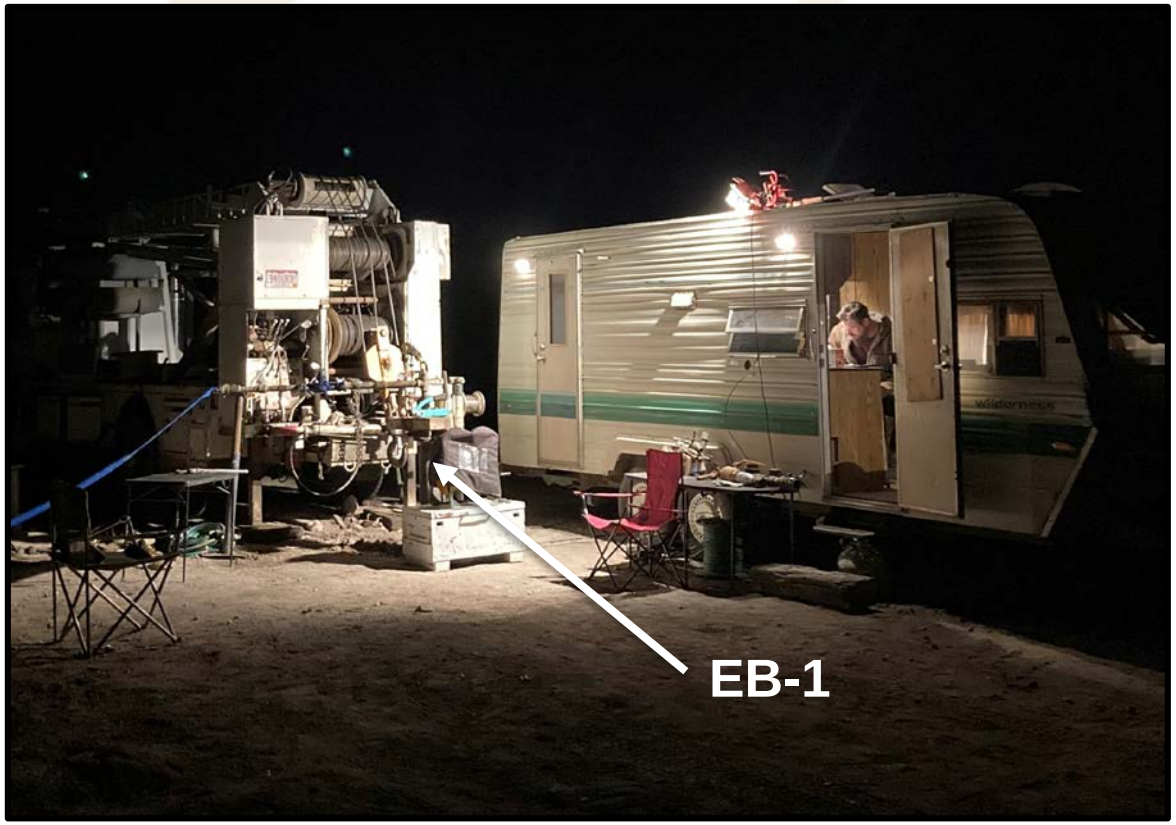
Arsenic Results

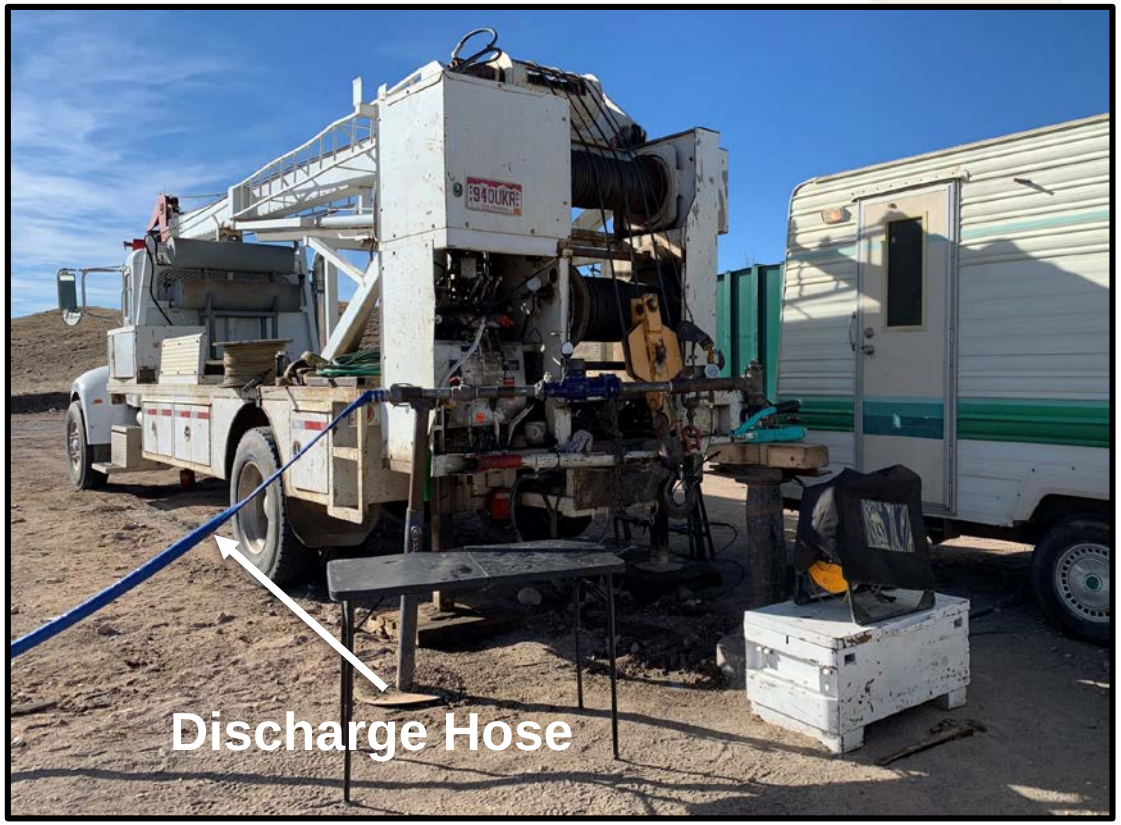
- Effluent samples were <u>non-detect for arsenic</u> except for one sample
- Arsenic can be treated w/ variations in media



ASR Pilot Test Results

Pilot Injection Test

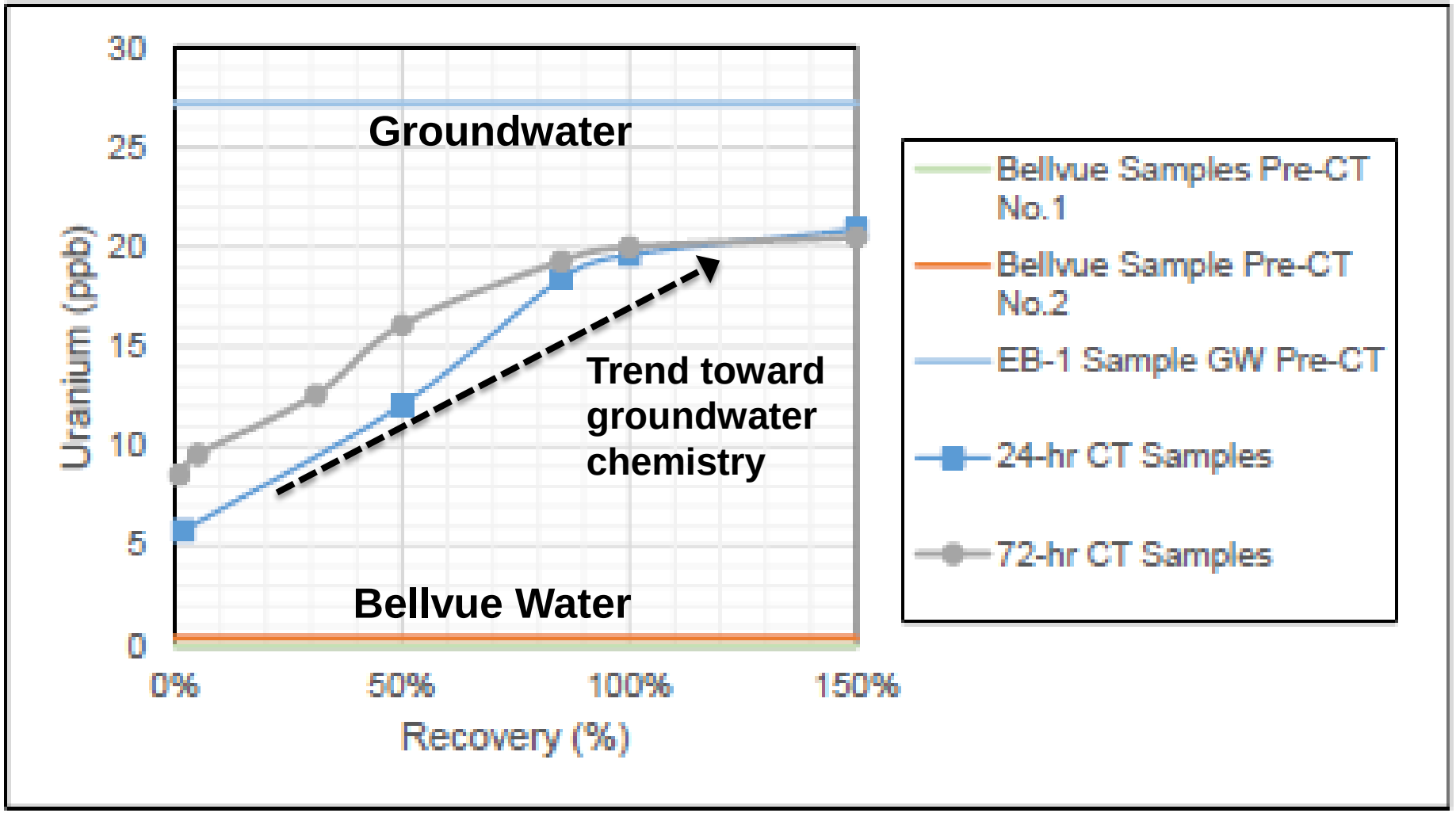




First Cycle: 24 hrs injection, 24 hrs storage, 150% recovery
Second Cycle: 3 days injection, 3 days storage, 150% recovery

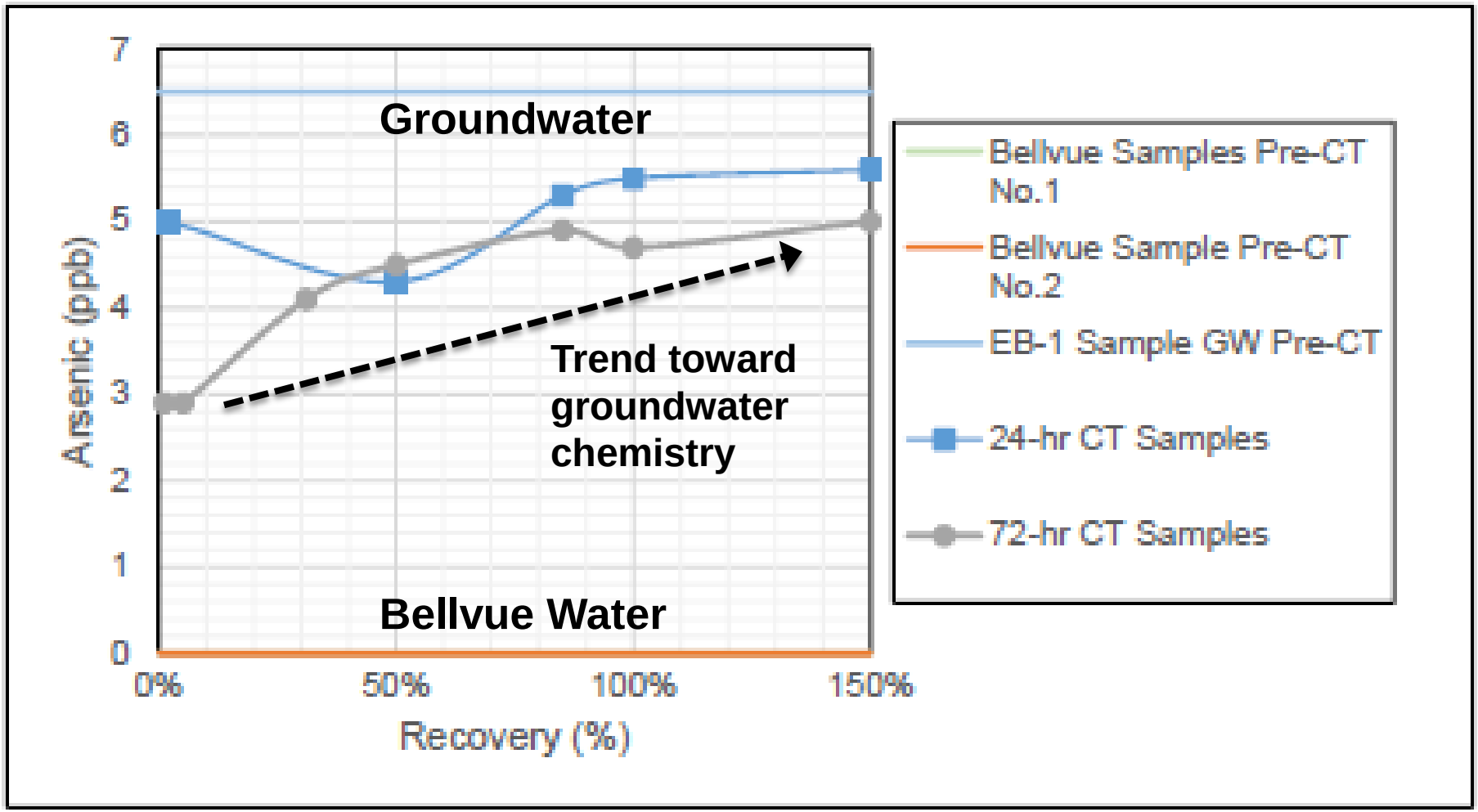
Recovered Water Quality – Uranium

- Recovered water approaches groundwater U concentration with >% recovery
- No evidence of leaching uranium from the aquifer



Recovered Water Quality – Arsenic

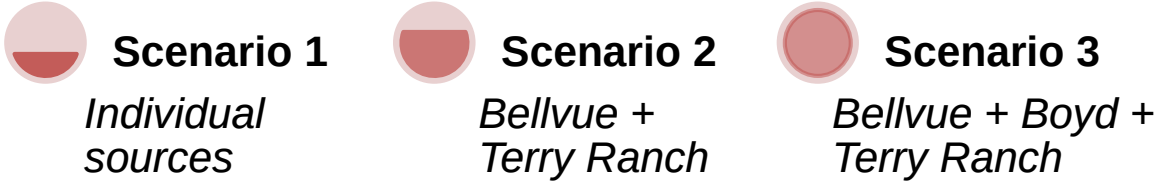
- Recovered water approaches groundwater As concentration with >% recovery
- No evidence of leaching arsenic from the aquifer
- Arsenic can be treated with variations in media



Distribution System Water Quality Analysis

Distribution System Water Quality Analyses

- Study conducted to evaluate impacts of the Terry Ranch groundwater added to the existing water supply systems.
- Analyses conducted
  - Review of City's lead and copper sampling data (2014 onward)
  - Evaluate 10 parameters for evaluation of corrosion, metal release and water aggressiveness
  - Assess the stability of distribution system corrosion scales: Existing system evaluated against the new Terry Ranch groundwater source
  - Review indices of corrosion and water aggressiveness
    - (e.g., Langelier Saturation Index, Calcium Carbonate Precipitation Potential, Chloride-to-Sulfate mass ratio, and others)
  - Evaluate the need for treatment adjustments for corrosion control
- Scenarios evaluated:



Distribution System Water Quality Analyses

Study Results: Overall observations

- The Terry Ranch water alone is not conducive to lead corrosion or lead release, but tends to be slightly corrosive towards copper piping. Existing distribution system corrosion scales are not expected to change when Terry Ranch water is introduced, thus pH adjustment of Terry Ranch water is not recommended.
  - Blending with water from existing plants (Bellvue and Boyd WTPs), decreases copper piping corrosiveness. A blend of all three water sources would not be considered corrosive towards metal, including lead or copper.
- Adjustments at Boyd WTP would help reduce the corrosiveness of this water supply.
  - The Boyd WTP pH is lower when compared to other sources
  - Increasing the target pH would reduce the water corrosiveness and aggressiveness. Accomplished through minor additions of caustic soda
  - Allows the 3 water sources (Terry Ranch, Bellvue, and Boyd) to have a similar pH and limit fluctuations in the distribution system

Cost Estimates

Cost Introduction

- ✓ Costs presented at December 16 Board Meeting were preliminary
- ✓ Costs have since been further refined
  - ✓ Refined milestones
  - ✓ Iterated water supply modeling
  - ✓ Added construction escalation – 5% annually
  - ✓ Converted costs to 2020 dollars – 3% discount rate

Construction Phasing

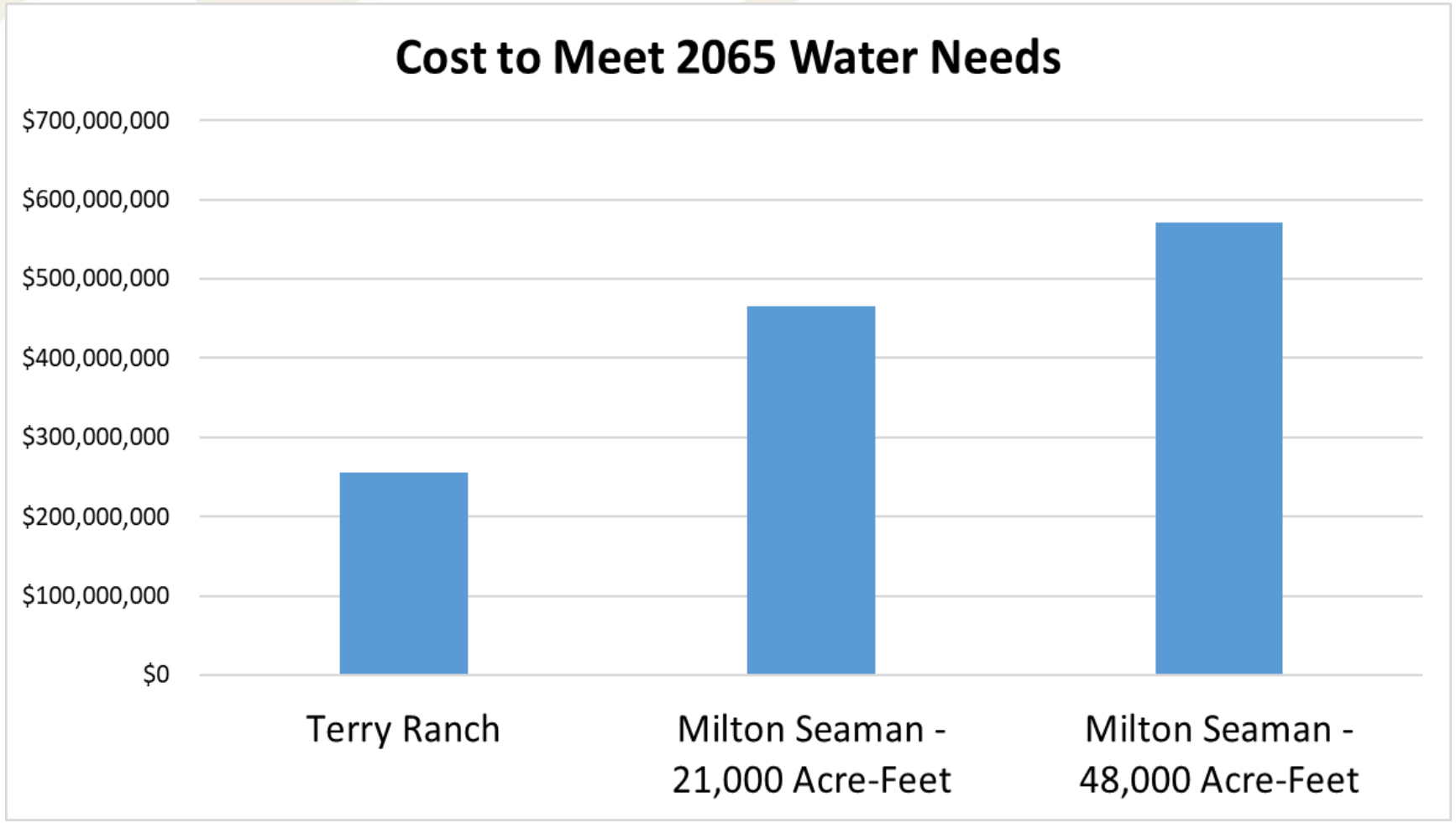
Assumed Completion	Target Event	Infrastructure
2023	Construct 1st Pipeline Segment	Transmission pipeline south of Hwy 14 & all land acquisition
2035	Construct All Backbone Infrastructure	Transmission pipeline north of Hwy 14 and pipeline appurtenances; on-ranch pipelines, roads, and power
2040	Treat and Deliver 8 cfs to Greeley	Treatment plant and fully equipped wellheads
2065	Treat and Deliver 16 cfs to Greeley	Expanded treatment plant and additional wells
2100+ (Buildout)	Inject; Deliver 45 cfs to Greeley	Pumping station, injection system, additional wells, expanded treatment

Construction Cost Estimates

Target Event	**Cumulative Construction Cost Estimate** (if constructed today)	**Cumulative Greeley's Portion of Cost*** (if constructed today)	**Cumulative Greeley's Escalated Cost in 2020 dollars** (phased construction)
1st Pipeline Segment (6 miles) & Acquisition	$34,000,000	$7,000,000	$7,000,000
All Backbone Infrastructure	$210,000,000	$85,000,000	$101,000,000
Treat and Deliver Water to Greeley, 8 Wells	$288,000,000	$163,000,000	$209,000,000
16 Wells Online, Meets 2065 Needs	$318,000,000	$193,000,000	$256,000,000
45 Wells & Injection, Meets Buildout Needs	$470,000,000	$345,000,000	$589,000,000

*Deducts Wingfoot's $125 million contribution.
**2020 net present value considering 5% construction escalation and 3% discount rate. Timeline assumed.

Milton Seaman Comparison

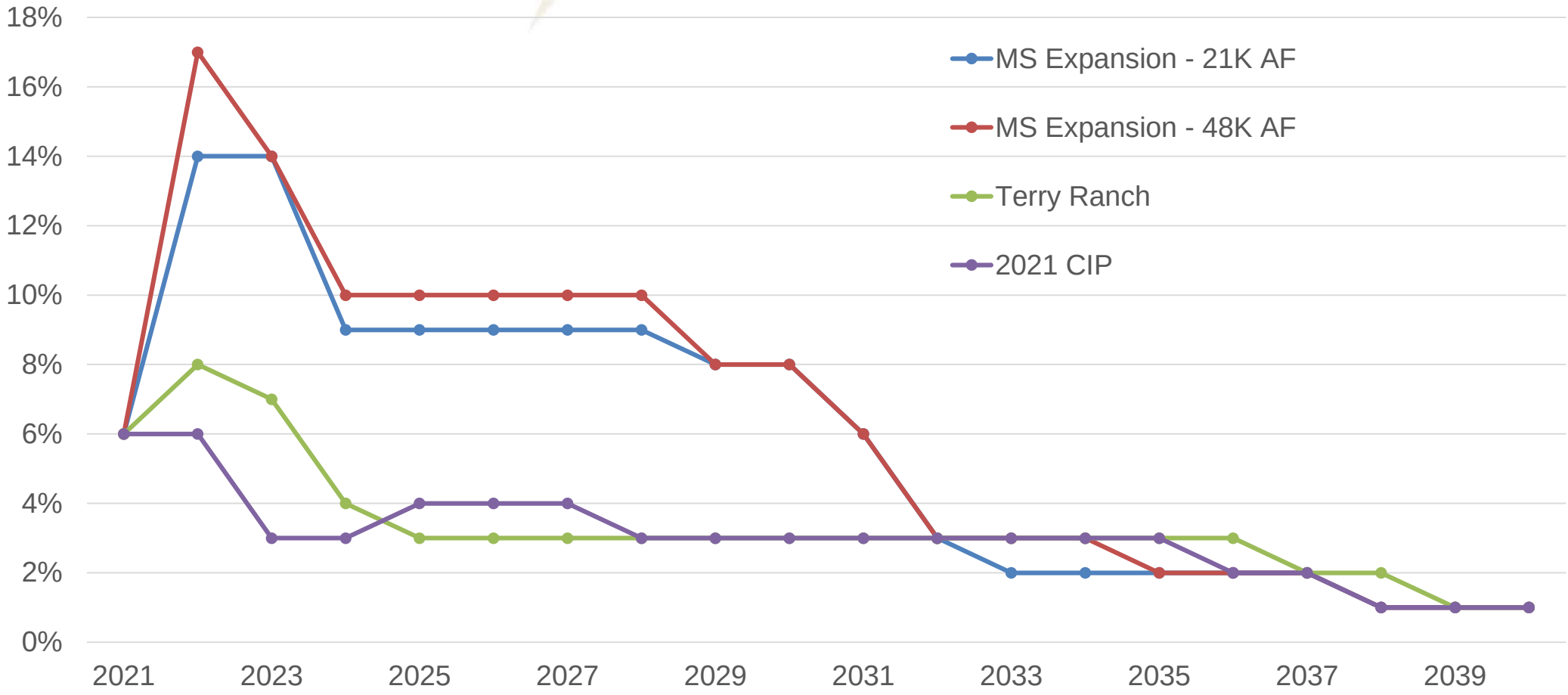


- ✓ Other considerations:
  - ✓ Terry Ranch costs spread over many decades
  - ✓ Terry Ranch requires less water acquisition than Milton Seaman and other alternatives

*Costs presented as 2020 net present values using 5% construction escalation and 3% discount rate. Timeline assumed.

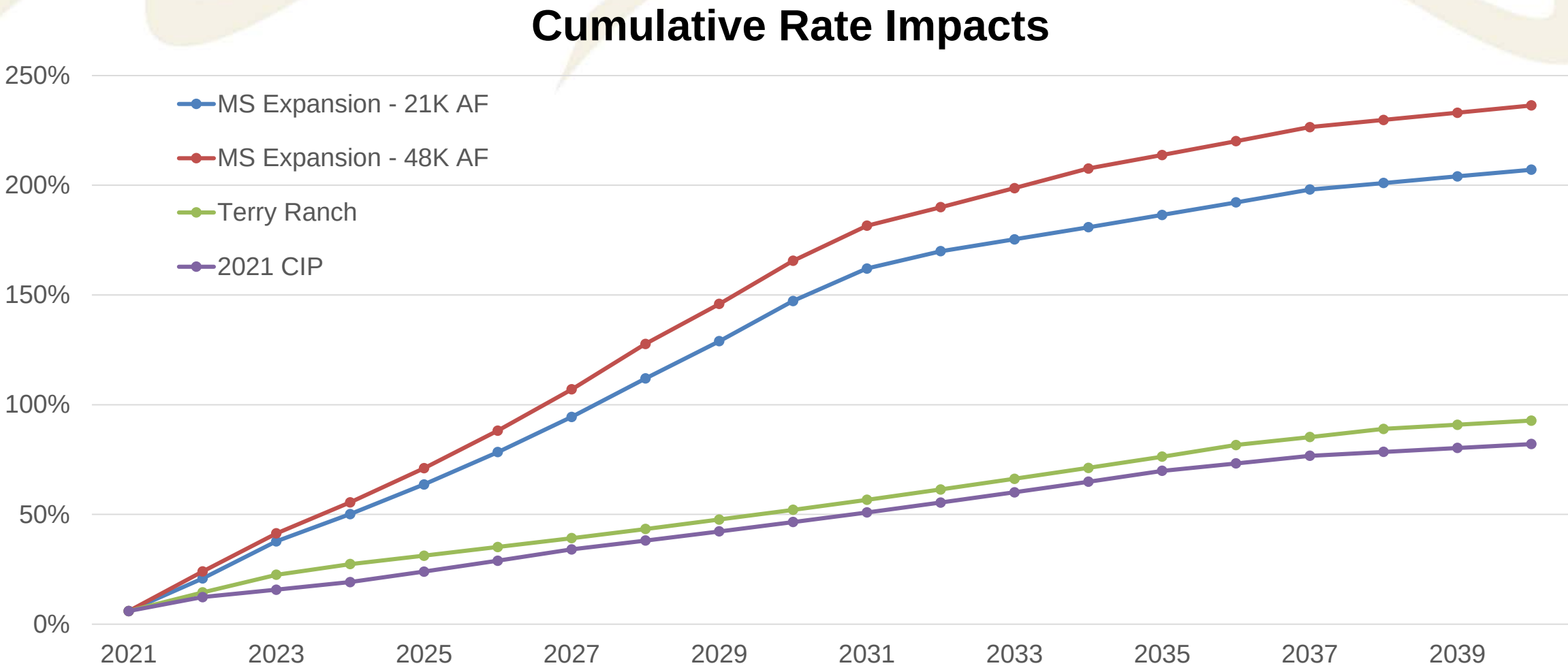
Rate Comparison

Annual Rate Impacts



Rates calculated with future, escalated project costs.

Rate Comparison



Rates calculated with future, escalated project costs.

Operational Costs

Cost per 1,000 gallons	Terry Ranch Withdrawal	Boyd Treatment Plant*	Bellvue Treatment Plant*
Treatment Plant Only	$0.81	$0.84	$0.27
Total Cost to Deliver Water	**$1.63**	**$1.48**	**$0.79**

*2016-2019 Boyd & Bellvue Averages

Terry Ranch will be operated as a drought supply.

Outreach & Next Steps

Community Outreach

- ✓ Community Open Houses - December 2 and **February 10**
- ✓ City Council Meetings - October 13, January 12, March 2, March 16
- ✓ City Boards & Commissions – presenting to 11 in January & February
- ✓ Service Organizations - Chamber of Commerce, Rotary, Kiwanis
- ✓ Community Groups - Realtor Association, L3, others
- ✓ Website - greeleygov.com/terryranch – updating FAQs
- ✓ Social Media

Suggestions for additional outreach are welcomed

Community Feedback & Questions

- What if uranium treatment fails?
  - Terry Ranch treatment will be designed to be fully redundant, just like existing treatment plants
  - Two ion exchange column in series
  - Standby ion exchange columns
- What happens to the uranium after it is removed from water?
  - Third-party vendors will handle all treatment media – collect from site, haul, and dispose.

Community Feedback & Questions

- ✓ Could water quality change over time?
  - ✓ Unlikely and certainly less than surface water
- ✓ Were there other water providers interested in the project?
  - ✓ Yes, but Greeley is uniquely situated to use Terry Ranch water given its location and existing infrastructure.
- ✓ Will Greeley lose water rights associated with Milton Seaman?
  - ✓ No. Rights will be moved. Rights are very junior.

Community Feedback & Questions

- How will Wingfoot make money and what will Greeley residents pay?
  - Wingfoot will sell credits to developers. Wingfoot does not receive any ongoing compensation from water sold to Greeley customers.
  - Greeley foregoes future cash-in-lieu fees from developers, but in return, receives water and storage upfront. Cash-in-lieu revenue is used to develop water supply projects like Terry Ranch.
  - Wingfoot will also receive a portion of revenue for sales of Terry Ranch water to non-Greeley customers, for example, water sold to oil & gas operators.
- What will Wingfoot charge for credits?
  - Wingfoot will likely sell credits at a price less than Greeley's cash-in-lieu rate. Greeley effectively sets the credit price ceiling. Credits will reduce development costs.

Proposed Next Steps

Event	Date
Finalize Diligence and Peer Reviews*	January - February
W&S Board Consideration of Closing	February 17, 2021
First City Council Reading	March 2, 2021
Second City Council Reading	March 16, 2021
Closing Deadline	March 22, 2021

*Diligence findings are being progressively reviewed by staff and 3rd party peer reviewers

greeleygov.com/terryranch

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE __X__ NO ENCLOSURE ____

ITEM NUMBER: 14

TITLE: WATER COURT UPDATE – 4TH QUARTER

RECOMMENDATION: INFORMATIONAL ONLY

ADDITIONAL INFORMATION: Staff will provide an update.

Water & Sewer Department
MEMORANDUM

TO: Greeley Water & Sewer Board

FROM: Jen Petrzelka, Water Resources Operations Manager

DATE: January 12, 2021

RE: 4th Quarter Water Court Cases Update

This memorandum is a review of the Water and Sewer Department's legal activities from October of 2020 through December of 2020. The review includes an update on Greeley's current Water Court cases and a summary of the Water Resources Division's legal expenses.

STATEMENTS OF OPPOSITION

Since the last update in October, Greeley has filed four statements of opposition and stipulated in three cases. Therefore, the current number of pending Water Court cases in which Greeley is an opposer is 38.

Statements of Opposition filed:

Case	Applicant
20CW3142	ACWWA - Whitney Ditch
20CW3146	ACWWA
20CW3147	ECCV & United
20CW3159	2534 Master Association

Stipulations filed:

Case	Applicant
19CW3181	City of Thornton's WSSC Diligence
19CW3225	City of Fort Collins

GREELEY AS APPLICANT

A summary of pending Water Court cases in which Greeley is the applicant is as follows:

19CW3191 (Equalizer diligence, Case No. 05CW326)
On September 30, 2019 Greeley filed its application for a finding of reasonable diligence for conditional surface rights and right of exchange, including storage, of its Lower Equalizer rights decreed in Case No. 05CW326. No absolute claims are being made in this application and all rights remain conditional. No statements of opposition were filed, however, the Greeley Irrigation Company (GIC) filed a motion to intervene which was granted by the court. Greeley has responded to GIC's comments and is awaiting further response.

19CW3239 (Overland Ponds Diligence, Case No. 00CW251)
On December 20th, 2019 Greeley and the Tri-Districts jointly filed this application for a finding of reasonable diligence to make a conditional water right partially absolute. This application concerns the conditional water storage right and conditional appropriative rights of exchanges decreed in Case No. 00CW251. In this application, Greeley and the Tri-Districts are claiming 6.22 cfs diversion rate and 257.3 acre-feet of storage absolute. Seven statements of opposition were filed. After an initial round of comments, five opposing parties remain. No additional issues were reported at the last Opposers' comment deadline, thus we hope to settle the case soon.

20CW3009 (Rockwell Diligence, Case No. W-8695-77)
On January 31st, 2020, Greeley filed this application for a finding of reasonable diligence for the conditional water storage right originally decreed for Rockwell Reservoir in Case No. W-8695-77, and certain conditional appropriative rights of exchange originally decreed to Rockwell Reservoir in W-9385-78. Greeley changed the Rockwell Reservoir Storage Right and certain of the Rockwell Reservoir Exchanges in Case No. 15CW3162 to facilitate the storage and subsequent operation of water attributable to the rights in and from Milton Seaman Reservoir. Four statements of opposition were filed. Three of those parties, the Northern Colorado Water Conservancy District, the McMurry Trusts, and the City of Fort Collins have stipulated, leaving the Cache la Poudre Water Users Association (CPWUA) as the sole opposing party remaining. As of the last status conference, they have indicated there are no further issues and we expect to receive a stipulation shortly.

20CW3004 (GLIC Exchange Diligence, Case No. 87CW329)
On January 28th, 2020, Greeley filed its application for a finding of reasonable diligence for the conditional appropriative right of exchange originally decreed in Case No. 87CW329. Under this exchange, Greeley may divert excess municipal return flows from GLIC, Seven Lakes, and Lake Loveland water rights changed in Case No. 87CW329 released from Greeley's WTRF and the Lone Tree wastewater treatment plant by exchange to the headgates of the ditch companies. Statements of opposition were filed by the Cache la Poudre Water Users Association and the Ogilvy Irrigating and Land Company. Greeley responded to Opposers' comments on December 8th. Opposers have until January 22 to provide additional comments.

20CW3054 (Milton Seaman Diligence, Case No. 90CW226)
On April 27th, 2020 Greeley filed this application for a finding of reasonable diligence for a conditional water storage right for the Milton Seaman Reservoir Enlargement in the amount of 9,992 acre-feet. No absolute claim was made in this application, and the right will remain

conditional. Four statements of opposition were filed in this case. Three of the four parties have stipulated leaving the Cache la Poudre Water Users Association (CPWUA) as the sole opposing party remaining. As of the last status conference, they have indicated there are no further issues and we expect to receive a stipulation soon.

20CW3149 (GLIC Diligence, Case No. 99CW235)
On October 26th, 2020 Greeley filed this application for a finding of reasonable diligence for a conditional exchange originally decreed in Case No. 99CW235. The exchanges provides for the use of return flows from certain water rights in Case 99CW235 as a substitute supply for diversions at the headgates of the Greeley-Loveland Irrigation Company. No absolute claim was made in this application, and the right will remain conditional. One statement of opposition has been filed in this case by the Thompson Water Users Association. No deadlines have been set yet. A status conference is scheduled for February 9th.

20CW3174 (WSSC Exchange Diligence, Case No. 07CW190)
On November 25th, 2020 Greeley filed this application for a finding of reasonable diligence for several conditional appropriative rights of substitution and exchange previously decreed for Greeley in Case No. 07CW190. The deadline to file statements of opposition is February 1st.

LEGAL & ENGINEERING EXPENSES:
The Water Resource Division's outside legal and engineering expenses through December of 2020 totaled $645,069 which is 13% more than the $569,061 spent in 2019. See table on following page.

2020 Water Resources Legal and Engineering Costs

1st quarter	
Legal	$18,257
Engineering	$42,378
Total	*$60,635*
2nd quarter	
Legal	$77,014
Engineering	$81,308
Total	*$158,322*
3rd quarter	
Legal	$129,437
Engineering	$50,930
Total	*$180,367*
4th quarter	
Legal	$62,802
Engineering	$182,943
Total	*$245,745*
Annual Total	***$645,069***

4th Quarter
Water Court Cases Update

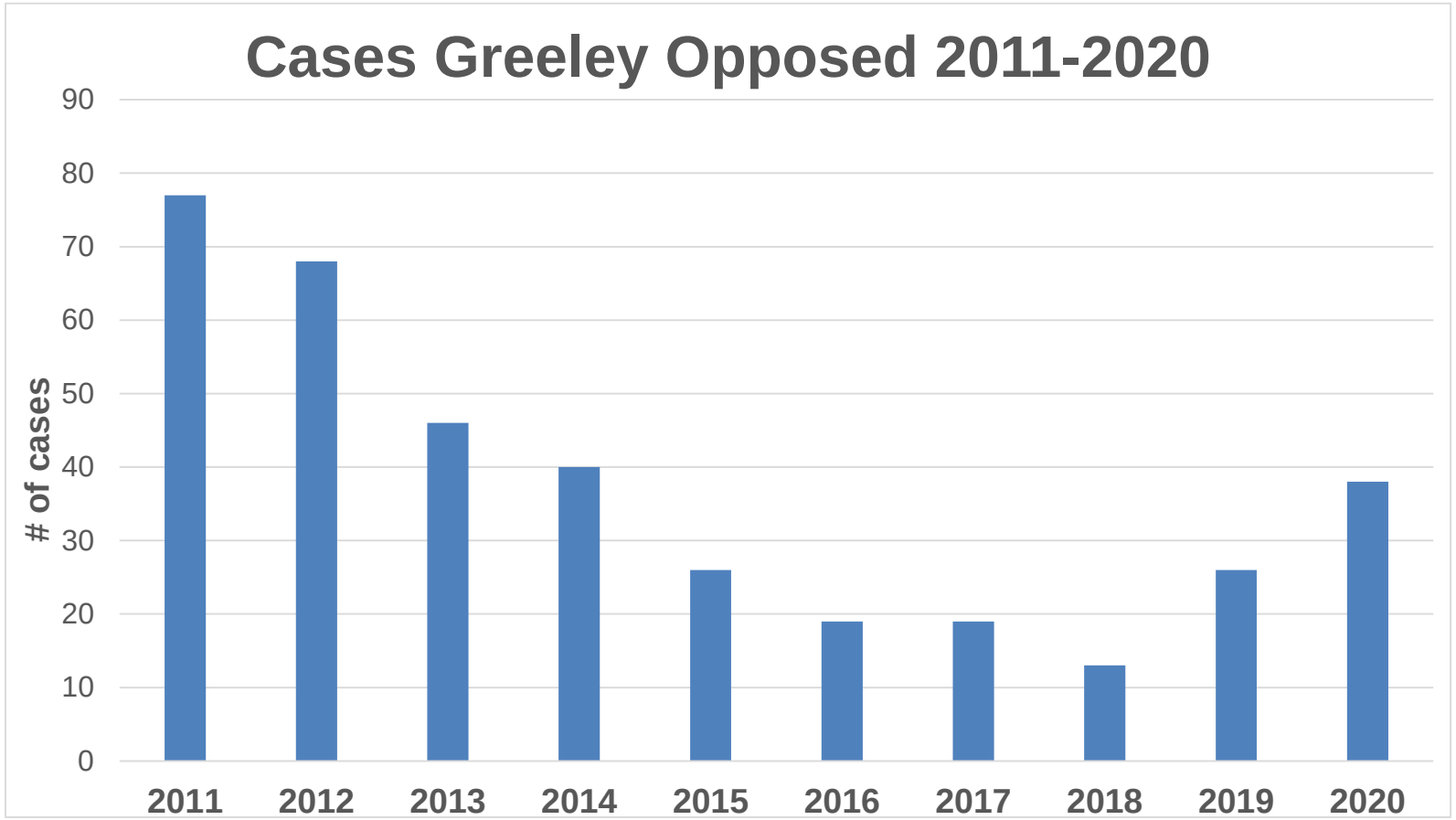
Jen Petrzelka, Water Resources Operations Manager

January 20th, 2021

City of Greeley Colorado

Statements of Opposition

- Since June filed 4 SOO, stipulated to 3 cases
- Number of cases Greeley is an opposer: 38
- Up 12 cases since end of 2019



Greeley as Applicant

Lower Equalizer Diligence (19CW3191)

- Conditional surface rights, storage rights and exchange rights
- Not seeking absolute claims in this application
- 1 Opposer (GIC)
- Awaiting response from GIC on last round of comments

Greeley as Applicant

Overland Ponds Diligence (19CW3239)

- Filed application December 31st
- Conditional storage rights and exchange rights
- Seeking absolute claims for:
  - 18.6 cfs diversion rate
  - 283.58 acre-feet storage
- 7 statements of opposition were filed
- Received comments on initial proposed decree
- Provided comments end of August
- No additional issues reported, hope to settle soon

Greeley as Applicant

Rockwell Diligence (20CW3009)

- Filed application January 31st
- Conditional storage right and appropriative rights of exchange in W-8695-77 and W-9385-78
- No absolute claims
- 4 statements of opposition were filed
- One party remains
- No issues reported, expect to receive stipulation soon

Greeley as Applicant

GLIC Exchange Diligence for Case No. 87CW329 (20CW3004)

- Filed application January 28th
- Finding of reasonable diligence toward the conditional appropriative right of exchange originally decreed in Case No. 87CW3294
- Exchange of effluent from Greeley's WWTP and Lone Tree WWTP to the GLIC system
- No absolute claims
- 2 statements of opposition have been filed
- Completed 1st round of comments
- Opposers have until January 22nd to provide additional comments

City of Greeley Colorado

Greeley as Applicant

Milton Seaman Diligence (20CW3054)

- Filed application April 27th
- Finding of reasonable diligence toward the conditional storage right for the Milton Seaman enlargement (9,992 acre-feet)
- No absolute claims
- 4 statements of opposition have been filed
- No issues reported, expect to receive stipulation soon

Greeley as Applicant

GLIC Diligence for Case No. 99CW235 (20CW3149)

- Filed application on October 26th, 2020
- Finding of reasonable diligence toward the conditional appropriative right of exchange originally decreed in Case No. 99CW235
- No absolute claims
- 1 statements of opposition has been filed
- Status conference scheduled for February 9th

Greeley as Applicant

WSSC Exchange Diligence for Case No. 07CW190 (20CW3174)

- Filed application on November 25th, 2020
- Finding of reasonable diligence toward the conditional appropriative rights of exchange originally decreed in Case No. 07CW190
- Deadline to file statements of opposition is February 1st

Legal & Engineering Expenses

2020 Costs to date

Legal	$ 287,510
Engineering	$ 357,559
Total	**$ 399,324**

This is 10% more than the $569,061 spent in 2019

Questions?

City of Greeley Colorado

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE __X__ NO ENCLOSURE ____

ITEM NUMBER: 15

TITLE: LEGAL REPORT

RECOMMENDATION:

ADDITIONAL INFORMATION:

Legal Report
Greeley Water and Sewer Board Meeting
January 20, 2021

Statements of Opposition: Based on our review of the November, 2020 Water Court Resume, staff and water counsel do not recommend that the Water and Sewer Board file statements of opposition to any water court applications that would be due in the month of January, 2021.

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 16

TITLE: DIRECTOR'S REPORT

RECOMMENDATION:

ADDITIONAL INFORMATION:

WATER & SEWER BOARD AGENDA JANUARY 20, 2021

ENCLOSURE _____ NO ENCLOSURE __X__

ITEM NUMBER: 17

TITLE: SUCH OTHER BUSINESS THAT MAY BE BROUGHT BEFORE THE BOARD AND ADDED TO THIS AGENDA BY MOTION OF THE BOARD

RECOMMENDATION: TO BE DETERMINED

ADDITIONAL INFORMATION: