

WORK SESSION AGENDA ITEM SUMMARY

City Council



STAFF

Alice Conovitz, Water Conservation Specialist
Mariel Miller, Water Conservation Manager

SUBJECT FOR DISCUSSION

2024 Water Efficiency Plan Status.

EXECUTIVE SUMMARY

The purpose of this item is to describe the state-mandated Fort Collins Utilities (Utilities) Water Efficiency Plan (WEP) and the 2024 update process. The updated WEP will set conservation goals, incorporate extensive public engagement focusing on marginalized community members, and employ numeric modeling and an equity analysis to help prioritize future water conservation and efficiency strategies. Potential strategies include education, voluntary incentives, regulations, and standards. The Agenda Item Summary also provides background on water use and Utilities' work to manage water supply and demand.

GENERAL DIRECTION SOUGHT AND SPECIFIC QUESTIONS TO BE ANSWERED

1. What is Council's vision for the Water Efficiency Plan and how it addresses water conservation and efficiency?
2. What does Council need to know from our engagement, equity, analysis, and water demand modeling efforts?

BACKGROUND / DISCUSSION

Water is an essential resource for all of us. The City of Fort Collins and Utilities have a strong commitment to ensure its efficient use. Utilities is updating its [2015 WEP](#) (Attachment 1). The updated plan will:

- meet Colorado Water Conservation Board (CWCB) requirements
- set new goals to reduce the amount we use within the Utilities water service area
- guide water use for Utilities customers and the City organization
- inform Utilities planning decisions and better use of resources

By updating our water efficiency goals and strategies, we aim to continue reducing water use in our service area to increase equitable and resilient outcomes for all community members through minimizing the

frequency and severity of water shortages and providing all customers the opportunity to participate in conservation programs.

WEP recommended strategies are expected to include a mix of education and voluntary incentives, such as rebates, and required actions which could be implemented through codes, standards, and regulations. New water conservation goals and strategies set in the WEP will focus on long-term reductions in water demand to minimize the frequency and severity of water shortages for Utilities' water customers. In contrast, short-term responses to water shortages are defined in Fort Collins City Code Section 26-167 and the City's [Water Shortage Action Plan](#)¹ (WSAP).

Alignment

The WEP aligns with the City of Fort Collins' Strategic Objective ENV 4.4, "Provide a resilient, reliable, and high-quality water supply," and the Water Utility's mission statement, "We are a One Water Utility, providing exceptional water services for our community through integrated, resilient, and equitable practices and systems." Other City and state policies and plans that align include:

- Water Supply and Demand Management Policy
- WSAP
- Our Climate Future
- City of Fort Collins 2022 Strategic Plan
- Municipal Sustainability and Adaptation Plan
- City Plan
- Colorado Water Plan

Collaboration with Other Water Providers

Certain areas within City limits are served by other neighboring utility providers. This creates complexities around project planning, coordination, and customer communications. Other water providers have their own WEPs that describe goals and strategies for their service areas; however, Utilities values these partnerships and continues to look for ways to collaborate with other providers. To-date staff have had several meetings with East Larimer County and Fort Collins-Loveland Water Districts to discuss the WEP. Staff plans for future discussion related to identifying opportunities to work together on conservation and efficiency strategies and will incorporate findings in the WEP.

WEP Update Process

The CWCB requires water providers to prepare WEPs to outline how they plan to enhance water efficiency to combat increasing competition and demand for water. Utilities received grant funding (\$160,000) from the CWCB and a one-time budget enhancement offer (2023-2024; \$145,000) to fund consultant support for numeric water demand modeling, inclusive public engagement, and an equity analysis. The Utilities' Water Conservation team (Water Conservation) began work on the WEP update in January 2023 and targets completion by late 2024.

To steer the process and selection of water conservation goals and strategies, staff developed guiding principles as a foundation for the WEP update. These are presented in Attachment 2. Building on the guiding principles, the WEP update involves the following key tasks:

¹ The WSAP establishes conditions and restrictions to manage Utilities' water use when there is a projected water shortage. Restrictions work well in infrequent and severe situations, but frequent restrictions can have short- and long-term impacts to businesses; landscapes, especially tree health; and water revenue. Available online at fcgov.com/WSAP.

- **Model water savings from conservation strategies under a range of current and potential conditions, including climate, population, and population density.**
 - Water conservation and efficiency strategies selected for evaluation will be based on community engagement and input from staff and leadership, as well as data availability and model capabilities. Staff will prioritize the strategies based on potential water savings, equity, cost, resources, and feasibility.
- **Engage with staff to identify conservation goals and strategies for how the City uses water.**
 - Follow a One Water² approach, which aims to meet both community and ecosystem needs for resilience and reliability through collaboration and integrated and equitable management of water resources.
- **Engage with the community, with an emphasis on marginalized community members.**
 - Develop relationships with engaged community members by working with four compensated Community Consultants who will connect with their networks; conduct focus groups with marginalized and/or highly impacted community members; meet with the City's Climate Equity Committee; broadly distribute a survey designed to inform goals and strategies; and provide materials in English and Spanish.
 - OurCity (ourcity/fcgov.com/WEP) serves as the primary information source and survey hosting platform.
- **Analyze equity of both the update process and proposed conservation and efficiency strategies.**
 - Track engagement participation to determine if tactics to involve marginalized community members in the WEP update process have worked.
 - Perform gap analysis of strategies and the customer demographics that are likely to participate, to evaluate if Utilities is creating opportunities for all customers to reduce their water bills and be more resilient.
 - Develop and implement an equity evaluation of the potential outcomes of strategies so equity can be considered along with water savings potential and cost when prioritizing which strategies to implement.

Water Use and Demand Management Overview

Utilities currently provides water to approximately 32,800 residential and 2,800 commercial customer accounts. The 2022 estimated residential population served was 137,200. On average, residential customers use about 60% of the treated water delivered each year and commercial customers use about 40%. Commercial customers include large irrigation-only accounts and landscapes like those maintained by homeowner associations. Each year, indoor water use accounts for about 57% of total treated water used, while outdoor and seasonal uses are about 43% of the annual total on average. The [2022 Water Conservation Annual Report](#) (Attachment 3) summarizes current treated water demands by sector and savings from conservation programs.

Since 2000, population has grown by 16% while water use within Utilities' water service area has decreased by 34% per capita. However, that rate of decrease slowed between years 2020-2022.

² One Water is an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs, as defined by the Water Research Foundation in the 2017 Blueprint for One Water. Utilities anticipates developing a One Water strategic plan by 2025.

Water Conservation staff develop and implement strategies to save water. These activities include planning, programming, and policies for indoor and outdoor water use by residential, commercial, and multi-family customers. Our current programs (residential: fcgov.com/save-water and commercial: fcgov.com/water-efficiency) largely focus on incentives and education around reducing water use at existing properties. For new construction, Water Conservation has more recently addressed developing efficiency-related development standards and codes.

The current WEP set a water conservation goal to reduce Utilities' customer use to 130 gallons per capita per day (GPCD)³ by 2030 and outlines five key areas of opportunity. Since then, staff have made significant progress within these areas, including:

- leveraging meter technology to provide customers with leak alerts and a data portal to track their use
- sending monthly water use reports to all customers
- creating more education and opportunities to reduce outdoor use with irrigation equipment rebates, at-home sprinkler checkups, and water-efficient landscape conversion education and rebates
- adding new programs and incentives for commercial customers
- permitting graywater systems and increasing indoor fixture efficiency standards

In 2022, our programs saved an estimated 173 million gallons (531 acre-feet) of water. This is about 2.5% of Utilities' total treated water demand for 2022 (6.96 billion gallons or 21,359 acre-feet) and is more than double the average annual savings from conservation programs prior to 2018. A portion of estimated annual savings will persist into future years, such as savings from efficient toilet and landscape installations. Many other strategies, such as educational campaigns, and influences, like weather, generate water savings but are challenging to quantify and not included in annual water savings totals. In both 2021 and 2022⁴, water use was 139 GPCD, 6.5% above the current WEP goal.

WEP Helps Provide a Reliable Water Supply

Utilities uses a multi-faceted approach to ensure a reliable and flexible water supply now and in the future. The WEP is one of many tools used to manage a diverse portfolio of water rights and complexity of users and water demands. Historically, during average and wet precipitation years, these water rights provide more water than customers use. During hot and dry years, current supplies may not meet demands while also maintaining a stored reserve of water for emergencies.⁵ Furthermore, we anticipate a future where climate impacts and population growth increase demands and put pressure on Utilities to restrict water use.

³ Water consumption is often characterized by daily, per person use, measured in gallons per capita per day (GPCD), and is commonly used as an industry standard for benchmarking despite calculation methods that vary. Utilities calculates GPCD by taking the total annual treated water demand (excluding large contractual customers) and dividing by the service area population.

⁴ Utilities will publish the 2023 Water Conservation Annual Report in the first quarter of 2024. Due to a 123% increase in precipitation during 2023's irrigation season (compared to 5-year average) total treated water demand was approximately 15% less than projected for the year and per capita water use for 2023 is estimated at 132 GPCD.

⁵ Section 2.1.3 of the City of Fort Collins Water Supply and Demand Management Policy states the water supply planning criteria will include a storage reserve that equates to 20% of annual demand in storage through a 1-in-50-year drought. This is meant to address emergency situations like pipeline failures or wildfire impacts. The reserve equates to about 3.7 months of average winter demand and about 1.5 months of average summer demand.

The approach and tools include:

- **Planning and modeling:** Population growth and climate trends are used to generate water demand forecasts. These demand forecasts inform the 2019 Utilities [Water Supply Vulnerability Study](#)⁶ and strategic plans such as the WEP, Water Supply and Demand Management Policy, and Water Shortage Action Plan. A new demand model is being developed as part of this WEP update.
- **Water supply storage:** Storage infrastructure is critical to reliably save and deliver water. In addition to the storage available in Joe Wright Reservoir, the 8,200 acre-feet (2.7 billion gallons) enlargement of Halligan Reservoir through the Halligan Water Supply Project is essential for Utilities to meet projected future demands without frequent water shortages and corresponding restrictions.
- **Conservation and efficiency:** A suite of strategies guided by the WEP allows us to do more with the supplies we have and, in the long-term, has the potential to minimize the frequency and severity of future water shortages and corresponding restrictions.

WEP Minimizes Future Risks

The [Water Supply Vulnerability Study](#) (see footnote 7 and City Council Work Session on 3/24/2020) identified key risks to Utilities' water resources:

- A warmer/drier climate poses the largest risk.
- Reductions in Colorado-Big Thompson supplies would have significant impacts.
- High water demands represent a significant vulnerability. It is important to implement conservation and efficiency efforts and track demand trends.
- Water storage is crucial. Without enlarging Halligan Reservoir, Utilities' current water supply planning criteria could not be met under most future climate and demand conditions. Also, water storage can help capture water saved from conservation and efficiency efforts.

The 2024 Colorado Climate Center's [Climate Change in Colorado](#)⁷ report documented a 2.3 degree Fahrenheit increase in the statewide annual average temperature from 1980-2022, and projects temperatures to rise an additional 1.0-4.0 degrees by 2050. For our region, the report notes slightly greater future warming.

The Water Supply Vulnerability Study indicates that even with storage in an enlarged Halligan Reservoir, a hotter, drier climate will require Utilities to impose water restrictions more frequently, based on projected demand for 2065 population. Historically, Utilities has imposed mandatory water restrictions at a frequency of 1-in-10 years in response to projected shortages from drought. Even if the Halligan Reservoir enlargement is completed and precipitation amounts do not change relative to today, the Water Supply Vulnerability Study projects that the need for mandatory restrictions would increase to about 3-in-10 years with a 5 degree temperature increase. Other factors such as reduced precipitation, higher than anticipated population increase or less focus on water conservation strategies would produce even greater frequency and severity of water shortages and restrictions. Implementing thoughtful and thorough water conservation and efficiency strategies can minimize the frequency and severity of water shortages and restrictions while providing all customers the opportunity to participate in conservation programs to reduce their bills and be more resilient to future shortages.

⁶ Available online at fcgov.com/utilities/img/site_specific/uploads/wsvs-final-report.pdf.

⁷ Available online at climatechange.colostate.edu.

NEXT STEPS

Anticipated next steps in February to December 2024:

- Conduct engagement
- Complete modeling
- Conduct equity analyses
- Prioritize strategies
- Q3 2024: Share results at a Council Work Session and with relevant Boards and Commissions
- Complete remaining work to finalize decisions and prepare plan
- Q4 2024: Seek Board and Commissions' recommendations and Council approval, then submit to Colorado Water Conservation Board
- 2025-2032: Implement prioritized water conservation strategies, which may include seeking additional resources including funding, training, and additional staff
- 2032: Next State required WEP update submittal

ATTACHMENTS

1. 2015 Water Efficiency Plan
2. Water Efficiency Plan Guiding Principles
3. 2022 Water Conservation Annual Report
4. Presentation



2-13-2024

Fort Collins Utilities Water Efficiency Plan (WEP)

City Council Work Session

Marief Miller

Water Conservation Manager

Alice Conovitz

Water Conservation Specialist



1. What is Council's vision for the WEP and how it addresses water conservation and efficiency?
2. What does Council need to know from our engagement, equity analysis, and water demand modeling efforts?

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Background

Creating a Reliable Water Supply

1. Planning and modeling

- Water Supply and Demand Management Policy
- Water Supply Vulnerability Study

2. Water supply storage

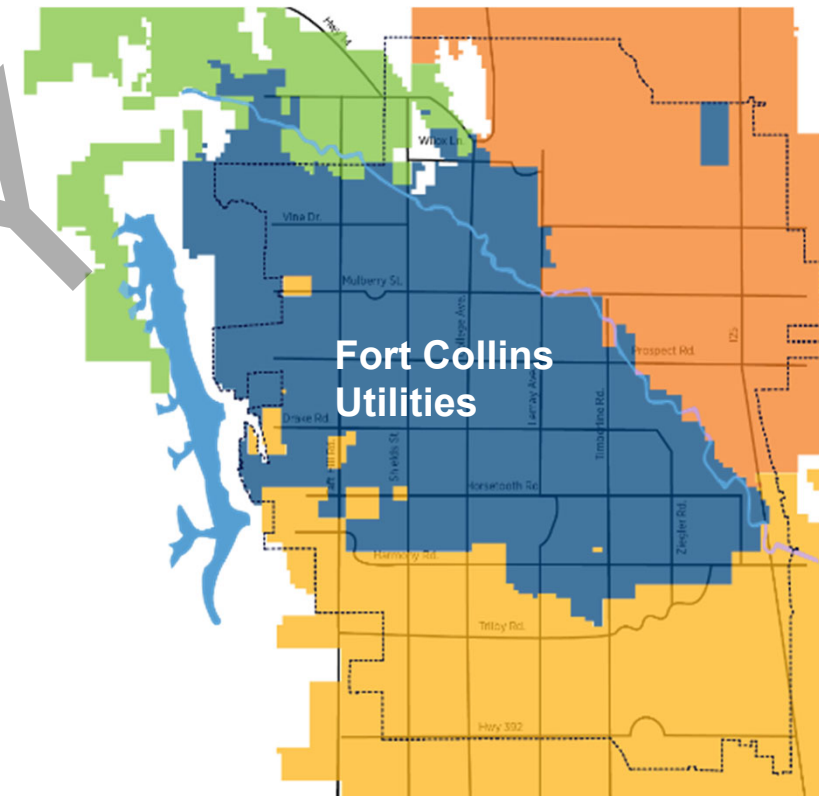
- Halligan Reservoir enlargement

3. Conservation and efficiency (demand management)

- WEP
- Water Shortage Action Plan

Continued collaboration with neighboring water providers

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- Fort Collins Utilities
- West Fort Collins Water District
- ELCO Water District
- Fort Collins-Loveland Water District

Many Ways to Manage Demands

Pros

- Resiliency
- Conservation behaviors
- Water literacy
- Flexibility

Cons

- Requires mandatory efforts to go beyond low-hanging fruit
- Requires ongoing resources
- Takes years to see accumulated savings

Long Term

Water Conservation and Efficiency

Rates/fees

Mandatory

Voluntary

Education

Short Term

Water Shortage Restrictions

Voluntary water shortage watch

Outdoor restrictions

Pros

- Fast-acting
- Can achieve deep reductions

Cons

- Living infrastructure
- Business
- Time
- Water revenue
- Little flexibility

Water Supply: Risks and Solutions



Warmer, drier climate poses largest risk



Potential reduction in Colorado-Big Thompson poses risk



Adequate storage is crucial to meet future water demands



Managing demands is crucial to minimize water restrictions

Water Supply: Risks



Warmer, drier climate poses largest risk

- Historical restrictions
 - **1-in-10 years**
- 2065 predictions without Halligan
 - **9-in-10 years**
- Even with Halligan, climate change will drive more frequent restrictions
 - **6-in-10 years:**
 - temperature ↑ 5°
 - precipitation ↓ -5%
 - **3-in-10 years:**
 - temperature ↑ 5°
 - precipitation no change



Potential reduction in Colorado-Big Thompson poses risk

- No reductions currently planned
- Ongoing challenge
- Solutions: more demand management and Halligan Reservoir enlargement



Adequate storage to meet future water demands

Halligan

- Increase storage
 - Would store 2.7 billion gallons (~8,200 AF)
 - 39% of current annual demand
- Prepare for future demand
- Drought resilience
- 16x more than 2022's annual water conservation program savings

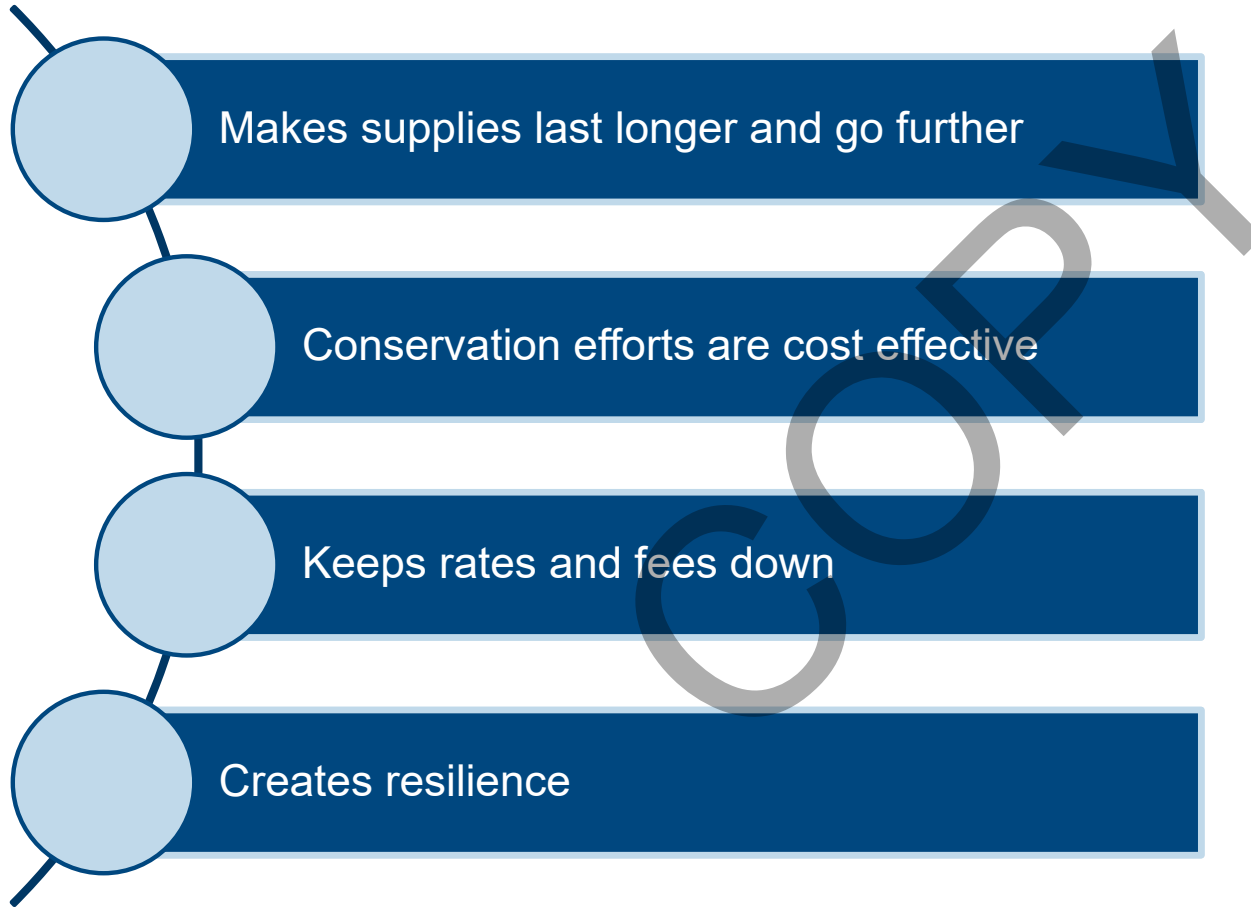


Using conservation and efficiency strategies to minimize water restrictions

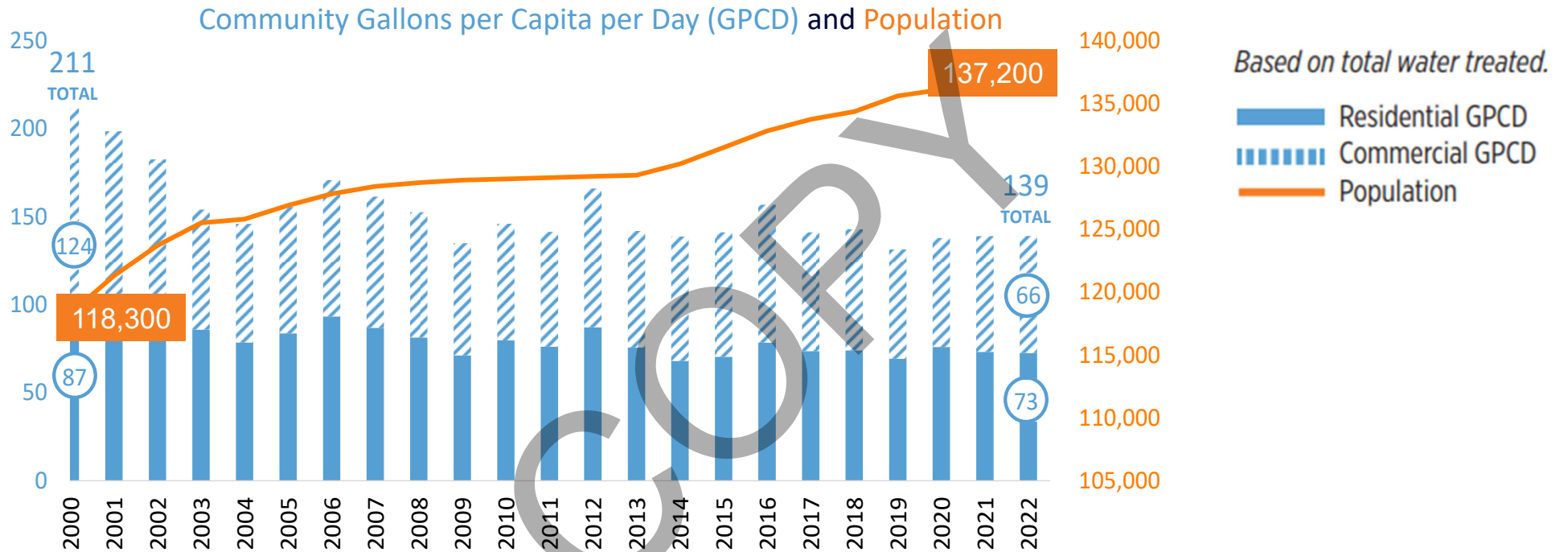
WEP

- Water conservation activities
 - Saved 173 million gallons (531 AF) in 2022
 - 2.5% of current annual demand
- Reduced per capita use by 34% over the last two decades

Why Water Conservation and Efficiency?



Current WEP Goal: 130 GPCD by 2030



Water conservation works

- 16% increase in population
- 34% decrease in GPCD

Current WEP goal: 130 GPCD by 2030

- 5-year average (2018-2022) = 138 GPCD
- 2023 preliminary result = 132 GPCD
 - Precip was 123% more during irrigation season compared to average (2018-2022)



City of
Fort Collins

WEP Update

Creating an informed future state

WEP Purpose and Content



Guide

Guide Water Conservation, Utilities and City on water demand management



Set

Set water use reduction goals



Identify

Identify conservation and efficiency strategies (roadmap to goals)

What's a WEP?

- State requirement
- Planning document with a seven-year cadence
- Developed with extensive community input
- fcgov.com/WEP

It does not...

- Create standards or regulations without additional process
- Apply to temporary water shortages
- Apply to areas outside of Utilities' water service area

Looking for Answers and Solutions: WEP Update

Re-evaluate goals and metrics (130 GPCD by 2030)

- Consider future demand, vulnerabilities, climate, growth, attainability

Identify and prioritize demand management strategies (incentives, standards, codes)

- Evaluate based on water savings, engagement, equity, cost, resources, feasibility

Quantitative demand model

- Model water savings from demand management strategies under different climate and growth scenarios

Engagement and equity analyses

- Inclusive public engagement
- Analyze for equitable outcomes and identify/resolve gaps

One Water integrated water management

- Cross-departmental engagement
- Emphasis on land use planning
- Utilize OCF framework and make progress on Big Move #3



Project and Model Set-up

Q1 2023 – Q1 2024

- Plan, build teams, retain consultants
- Water demand model development, data processing, and inputs
- Develop guiding principles & goal framework
- Plan and test engagement

Analyze to Prioritize

Q1 – Q3 2024

- Analyze equity of process and potential strategy gaps/outcomes
- Model conservation strategy savings
- Prioritize conservation strategies
- Share: second Council Work Session (Q3)

Engage to inform conservation strategies and goals

- Include marginalized community members
- Track equity in participation
- Broad, diverse engagement
- City departments

Engage

Q2 2023 – Q3 2024

Draft, revise, finalize WEP

- Seek Board, Commission, Council input
- Council first reading (Q4)
- Submit to state

Prepare and Submit

Q2 – Q4 2024

Broad Engagement

Outreach to marginalized community members: identify motivations/barriers to conservation

- Four Community Consultants
- Focus groups/open houses
- City resources: Equity Office, Climate Equity Committee

Broad engagement throughout community: align conservation with culture and values

- Online platform: ourcity.fcgov.com/wep
- Movie theater ad with survey link
- Key Accounts, business community
- Landscape professionals
- Environmental and community organizations
- Other ads, emails, social media posts, events, meetings
- Synthesize and incorporate past engagement / survey responses from related efforts

City staff and leadership engagement: organizational water use goals and strategy priorities

- Facilitated meetings with City departments
- City Council work sessions (Q3); WEP first reading (Q4 2024)
- Water Commission, Natural Resources Advisory Board (Q3)
- Super Issues meeting (Dec. 2023)

What Success Might Look Like

- More informed planning decisions
- Minimize frequency and severity of water shortages
- More equitable and resilient outcomes for all
- Better utilization of resources



1. What is Council's vision for the WEP and how it addresses water conservation and efficiency?
2. What does Council need to know from our engagement, equity analysis, and water demand modeling efforts?

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Thank you!

ourcity.fcgov.com/WEP



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WORK SESSION MEMORANDUM

Date: February 19, 2024
To: Mayor and City Councilmembers
Through: Kelly DiMartino, City Manager
Tyler Marr, Deputy City Manager/Interim Utilities Executive Director
From: Alice Conovitz, Utilities Water Conservation Specialist
Mariel Miller, Utilities Water Conservation Manager
Subject: February 13, 2024, Work Session Summary: 2024 Water Efficiency Plan Status

BOTTOM LINE

The purpose of this memo is to document the summary of discussions during the February 13, 2024, Work Session. All Councilmembers were present (Councilmember Ohlson attended remotely). Staff members present were Mariel Miller, Alice Conovitz, and Gretchen Stanford. Staff member Donnie Dustin attended remotely.

The purpose of this item was to describe the state-mandated Fort Collins Utilities (Utilities) Water Efficiency Plan (WEP) and the 2024 update process. The updated WEP will set conservation goals, incorporate extensive public engagement focusing on marginalized community members, and employ numeric modeling and an equity analysis to help prioritize future water conservation and efficiency strategies. Potential strategies include rate structures, education, voluntary incentives, regulations, and standards. The staff presentation and Agenda Item Summary also provided background on water conservation and efficiency and Utilities' work to manage water demand to provide a reliable water supply. Staff sought input from Council on the following two questions:

- 1. What is Council's vision for the Water Efficiency Plan and how it addresses water conservation and efficiency?
2. What does Council need to know from our engagement, equity, analysis, and water demand modeling efforts?

DISCUSSION SUMMARY

Council provided feedback and comments, including the following (Council-requested follow-up items are listed separately):



- Providing input on a plan that doesn't extend to all of Fort Collins, but only to the Utilities Water Service Area is challenging. Council asked about neighboring water providers' WEPs and whether they were available to review. Generally, these can be found online either through the Colorado Water Conservation Board or the specific water providers' websites.
- Better understanding of water use based on housing type is helpful for understanding and making development decisions.
- Utilities is pursuing multiple strategies, especially adequate water storage and conservation/efficiency, to prepare for climate change and its impacts.
- It would be helpful to know how we're doing, and to inform the development of future goals, if we could easily compare Fort Collins Utilities water service area's water use to other communities or had some sort of benchmark. Staff responded that we could provide some examples, and acknowledged that gallons per capita, per day (GPCD) is a challenging metric to use for comparisons because it is not measured consistently amongst water providers. GPCD metrics for residential and commercial uses can also be challenging to understand and compare.
- The total estimated annual water savings in 2022 seems small, at about 2.5% of our total treated water. However, staff clarified that this volume includes the savings from about only 16 programs and services that are quantifiable – the Water Conservation Department also implements activities such as education that likely provide water savings but are challenging to measure. The annual savings estimation is also not cumulative, but only a snapshot of new savings initiated each year. Many programs, such as converting to a water-wise landscape, have ongoing year-after-year savings that are not included in the annual savings estimate.
- Staff responded to other questions that were asked about working with school-aged children, businesses, the volume of Halligan Reservoir and location of additional Utilities water storage.
- Council liked the community-outreach approach, but questions how staff will reach marginalized community members in a meaningful way given challenges and over-surveying concerns. Staff will emphasize listening and will work with contracted equity consultants, experienced internal staff, and compensated community consultants who are well connected to various groups in the community and can tailor the engagement to what works best for a particular group.
- Utilities' current tiered pricing structure could be re-evaluated as a conservation strategy.
- When prioritizing strategies and weighing decisions, it is helpful to understand the impact on equity and potential benefits, similar to how Our Climate Future evaluates next moves.
- Council asked about what prompted the work and when it will be complete. Staff responded that the plan is state-mandated and is required to be updated every seven years, with an estimated completion date of Dec. 2024. A plan with a clearer path forward that includes updated goals and prioritized strategies is needed for Utilities and Water Conservation staff to address future risks such as climate change more strategically.
- Concerns regarding impacts to revenue were shared and are being addressed by staff; however, the revenue impact is minimized by the base rate and could be further



addressed through adjustments to the current tiered rate pricing structure to limit impacts to low water users.

- One councilmember mentioned a vision for the WEP to be comfortable, but ambitious, in setting goals and identifying strategies.

NEXT STEPS

Staff will respond to the follow-up items listed below in a separate memo expected in March. Other next steps include continuing engagement activities with the public and other staff to inform the WEP planning process through Q3 2024 and finalizing the water demand estimation model. A second work session is currently planned with Council for July 9, 2024, to provide an update on the planning process and seek further direction.

FOLLOW-UP ITEMS

The following items, requested by Council, will be addressed in a separate follow-up memo:

- Per unit water use (indoor and outdoor) by housing type
- Neighboring water providers' WEPs
- Comparisons to other communities' GCPD, separating residential and commercial, where feasible; and evaluate why there are differences, to better understand and learn from others who are doing it well.
- Utilities water rate comparisons across various customer types, to evaluate industry rates.
- Water savings associated with xeriscape standards.

CC: Gretchen Stanford, Utilities Deputy Director Customer Connection



Utilities



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

PO Box 580, Fort Collins, CO 80522

WORK SESSION MEMORANDUM

Date: March 25, 2024

To: Mayor and City Councilmembers

Through: Kelly DiMartino, City Manager 
 Tyler Marr, Deputy City Manager/Interim Utilities Executive Director 
 Gretchen Stanford, Utilities Deputy Director Customer Connections 

From: Alice Conovitz, Utilities Water Conservation Specialist 
 Mariel Miller, Utilities Water Conservation Manager 

Subject: Follow-up to Feb. 13, 2024 Work Session: 2024 Water Efficiency Plan Status

BOTTOM LINE

The purpose of this memo is to provide follow-up information in response to questions raised during the Feb. 13, 2024 Work Session on the 2024 Water Efficiency Plan (WEP). All Councilmembers were present with Councilmember Ohlson attending remotely. A summary of the discussion was documented in a Work Session Memorandum dated Feb. 19, 2024 with subject line, "February 13, 2024 Work Session Summary: 2024 Water Efficiency Plan Status".

The purpose was to describe the state-mandated Fort Collins Utilities (Utilities) WEP and the 2024 update process. The 2024 WEP will set conservation goals, incorporate extensive public engagement focusing on marginalized community members, and employ numeric modeling and an equity analysis to help prioritize future water conservation and efficiency strategies. Potential strategies include rate structures, education, voluntary incentives, regulations, and standards. The staff presentation and Agenda Item Summary also provided background on water conservation and efficiency and Utilities' work to manage water demand to provide a reliable water supply.

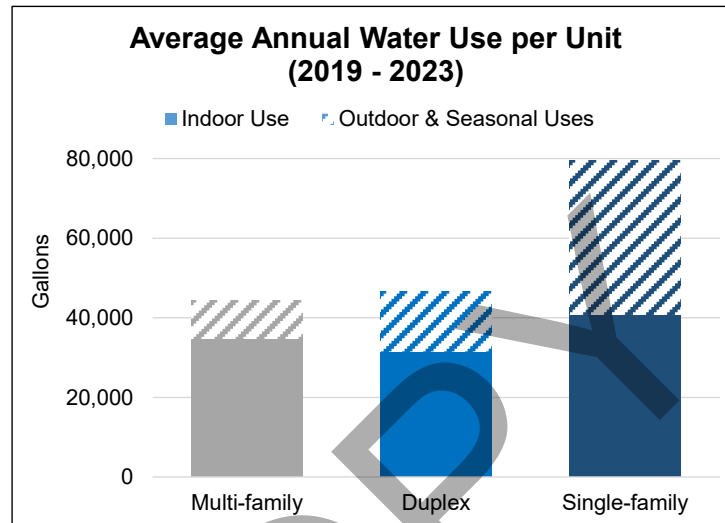
The following items, requested by Council, are addressed in this memo:

1. Per unit water residential water use by housing type.
2. Water Efficiency Plans for neighboring water providers.
3. Water use comparison to other communities.
4. Utilities water rate comparisons across customer types.
5. Water savings associated with xeriscape standards.

ITEM #1 – PER UNIT RESIDENTIAL WATER USE BY HOUSING TYPE

Average annual water use per unit is greatest for single-family customers, who used approximately 78,600 gallons per housing unit on average, as shown below on the plot. The amount of water use per unit is similar between duplex and multi-family customers, averaging approximately 46,300 gallons per unit and 44,400 gallons per unit, respectively. On an average per-unit basis, seasonal outdoor uses account for 49% of single-family residential water use, but

only 33% for duplex and 21% for multi-family residential customers. These patterns reflect the generally higher amount of irrigated outdoor landscapes associated with single-family and duplex residential accounts¹. Additionally, the average number of people per household (pph) varies across housing types, which primarily influences indoor use. We estimate the average occupancy per unit is 2.6 persons per household (pph) for single-family residential, 2.2 pph for duplex, and 1.6 pph for multi-family residential, based on analysis of 2021 U.S. Census Bureau data for the entire city of Fort Collins.



ITEM #2 – WATER EFFICIENCY PLANS FOR NEIGHBORING WATER PROVIDERS

Within the city of Fort Collins' growth management area, Utilities, East Larimer County (ELCO), and Fort Collins-Loveland Water District (FCLWD) each must submit water efficiency plans². The following bullets summarize key information about these plans:

- Utilities: Update is underway with intent to submit update to CWCB in late 2024. The current WEP was completed in 2015 and is available at <https://www.fcgov.com/WEP>
 - The current WEP sets a goal to reduce community-wide per capita water use to 130 gallons per capita per day by the year 2030; however, this goal is being re-evaluated.
- ELCO: The latest WEP was updated in 2016 and is available at https://dnrweblink.state.co.us/CWCB/0/edoc/202185/ELCO_WEPlanUpdate2017.pdf?searchid=1914c118-df55-45bf-a6c6-0c2e1ad3c877
 - ELCOS's WEP set a goal to reduce treated water demands by 740 acre-feet per year by 2035, as compared to predicted use based on passive water demand

1. For multi-family properties with large irrigated common areas, these may be billed at commercial rate codes. In 2023, annual water use was 21% lower than average for irrigation-only accounts, which includes commercial and residential common areas.

2. The Water Conservation Act of 2004 (HB04-1365) requires all retail water providers that sell 2,000 acre-feet or more annually to have a state-approved water efficiency plan.

management.

- FCLWD: The latest WEP was submitted in 2023 and is available at <https://fclwd.com/wp-content/uploads/2023/07/FCLWD-2023-Water-Efficiency-Plan-Update-for-Public-Review-1-1.pdf>
 - FCLWD's WEP set targeted water savings goals by customer class to lower the treated water demand by 10% over the ten-year planning period, or by approximately 1% per year.

Other water efficiency planning documents can be found on individual websites or the searchable water conservation plan database (<https://dnrweblink.state.co.us/CWCB/CustomSearch.aspx?SearchName=WaterConserverPlanSearch&cr=1>) hosted by the Colorado Water Conservation Board (CWCB), the state agency that reviews and approves WEPs.

ITEM #3 – WATER USE COMPARISON TO OTHER COMMUNITIES

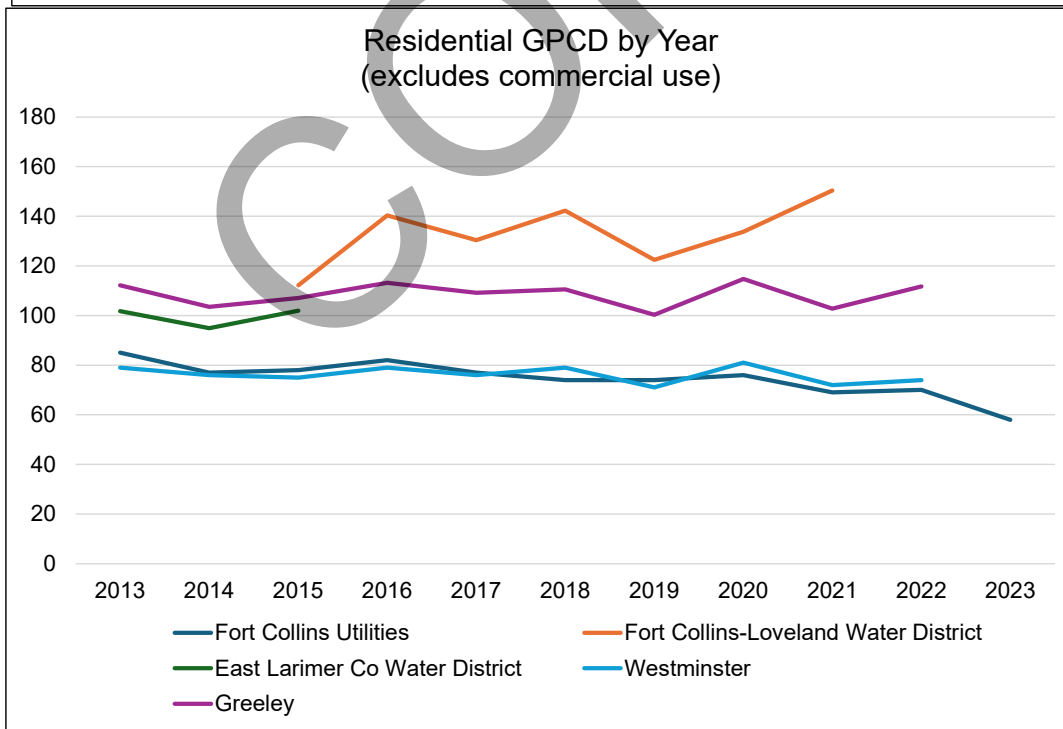
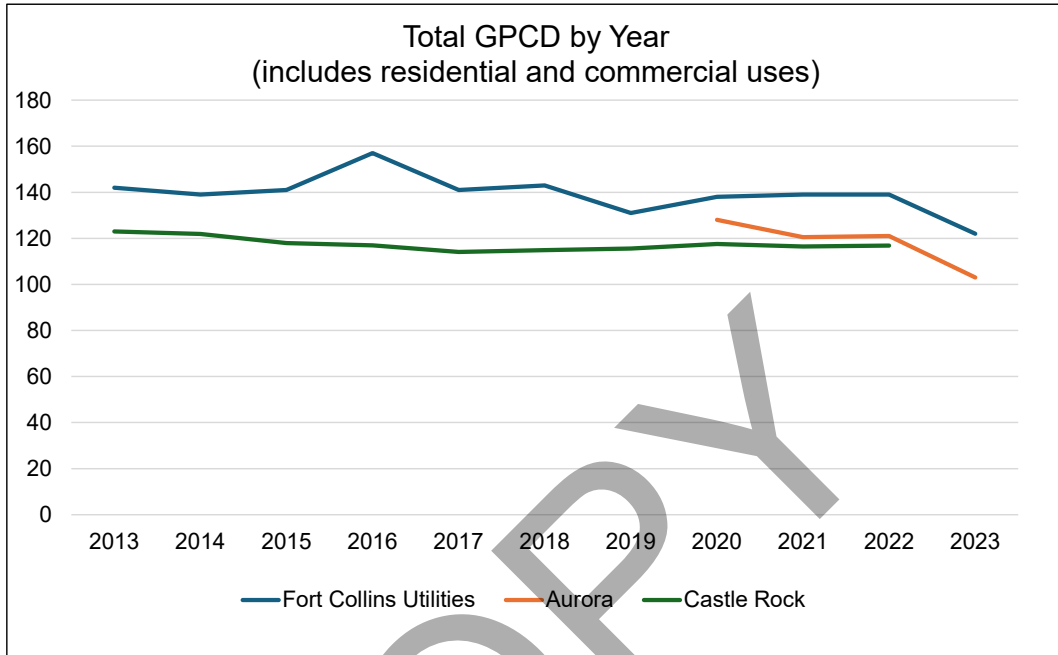
Gallons per capital per day (GPCD) is a common metric used by water providers to evaluate water use independent of population growth. The calculation is typically done annually and can measure total, residential or commercial GPCD. Annual GPCD is calculated as: *volume of annual water demand, divided by population served, divided by number of days in a year.*

GPCD is not typically weather-normalized, which means it will vary across years and climates. Even in areas with similar climates there is variability in the methodology used to calculate GPCD, making it challenging to use as a comparison tool between water providers. The variability or differences happen in the first two values of the equation – volume of water and population. Variations in how water providers define volume of water include total treated water, total billed consumption, total metered consumption, inclusion of untreated water, and inclusion/exclusion of large contractual deliveries to commercial customers. Population estimates can also vary based on data availability and population estimate methods. These inconsistencies all influence GPCD and should be considered when comparing GPCD between water providers. However, if using GPCD to compare, the best option is to use residential GPCD and highlight the differences in the data used.

The final estimation of Utilities' 2023 water demand is 122 GPCD (this is lower than the preliminary estimate presented at the Feb. 13, 2024 Council Work Session, which was initially estimated at 132 GPCD). This is a decrease of 12% from the 2022 demand of 139 GPCD. The drop in GPCD is due to a 123% increase in precipitation during irrigation months compared to prior years. Customers responded to the weather and reduced their outdoor use, but 2023's low GPCD is not likely to persist during drier or hotter years.

Staff researched others' historical GPCD from current WEPs and discussed GPCD in more depth with three other water providers who responded to a request for more information. A few providers we researched and contacted are using GPCD as a performance metric or goal in their WEPs and many consider it a poor tool for comparison purposes, especially when commercial use is included. Some providers were reluctant to provide their numbers. The plots below present GPCD for residential use (upper plot) for those water providers and years that residential-only data was available, and total use (lower plot; total GPCD includes both residential and commercial use) for those that did not have residential data available. (For total

GPCD, calculation variabilities include those described above, as well as the use of raw water, excluding large industrial water use from total GPCD and differences in the amount of commercial water use versus residential use – some communities have relatively very little commercial use.)



Staff recommends moving away from a GPCD goal in the updated WEP as a publicly facing metric, given its complexity and variability. It's likely Utilities would continue to track GPCD internally to monitor for trends. A better goal or performance metric may be volume of water treated and/or metered, or volume of water reduced over a given period. A simplified volume-based metric, such as a reduction in total water use or estimated water savings, would align better to predicted and estimated water savings from conservation and efficiency strategies, which are also expressed as volumes. A simplified metric would minimize public confusion about what GPCD means and its nuances.

ITEM #4 – UTILITIES WATER RATES COMPARISONS ACROSS CUSTOMER TYPES

Utilities is committed to delivering safe, reliable and competitively priced services for all customers. Single-family and duplex water rates have a base charge and three tiers, with increasing costs-per-gallon as use goes up. Multi-family residential and commercial customers have lower rates in winter. Commercial rates are based, in part, on tap size. Current Utilities' water rates for all customer types are available online at https://www.fcgov.com/utilities/img/site_specific/uploads/water-wastewater-and-stormwater-rates.pdf?1704235735.³

Utilities' residential water rates are similar to, or lower than, neighboring municipalities, as shown in the following table:

2024 Residential Average Monthly Utility Bill					
Utility	Electric	Water	Wastewater	Stormwater	Total
Fort Collins Utilities	\$ 88.41	\$ 53.04	\$ 37.04	\$ 23.09	\$ 201.58
Longmont	\$ 82.56	\$ 69.33	\$ 41.33	\$ 18.85	\$ 212.07
Loveland	\$ 89.76	\$ 61.16	\$ 43.04	\$ 24.88	\$ 218.84
Greeley	\$ 100.63	\$ 73.90	\$ 36.99	\$ 18.61	\$ 230.13
Colorado Springs	\$ 99.92	\$ 96.95	\$ 30.53	n/a	\$ 227.40
Boulder	\$ 100.63	\$ 66.72	\$ 48.43	\$ 27.10	\$ 242.89
ELCO	n/a	\$ 58.24	n/a	n/a	n/a
FCLWD	n/a	\$ 61.93	n/a	n/a	n/a

ITEM #5 – WATER SAVINGS ASSOCIATED WITH XERISCAPE STANDARDS

A well-managed landscape built with xeriscape principles – one of which is limiting turf – can yield significant water savings when compared to typical turf-heavy landscapes. Water use data for participants in the Utilities Xeriscape Incentive Program (XIP) show that limiting high-water turf reduced water use by an average of seven gallons per square foot per year for areas converted from turfgrass to xeriscape, or about 60% less water.

³ Detailed water rate information for FCLWD is available online at <https://fclwd.com/support/rates-and-fees/>. ELCO's water rates are available at <https://www.elcower.com/rate-information>.

Turf replacement programs like XIP and development landscape standards reduce current and future water demands. Staff scheduled a hearing in May 2024 for code changes that propose new standards that prioritize water-wise landscapes. If adopted, these new standards would apply to commercial and multi-family development and redevelopment, which include large common areas like those maintained by homeowners' associations. To reduce outdoor water demand, staff will propose that no more than 30% of the total landscaped area (not to exceed 10,000 square feet) in new and redeveloped commercial and multi-family properties be planted with high-water turfgrass species.

Using the criteria of the proposed standard, staff analyzed property and water use data, and several development scenario assumptions. Staff estimate the proposed standard would save at least 53 million gallons annually on multi-family properties alone at GMA build-out compared to no turf limitations. If adopted, the portion of water savings associated with new and redevelopment in the Utilities water service area could help make progress towards a future WEP goal.

Given the variability of business types and unpredictability of future development trends, non-residential commercial property water reduction estimates are more difficult to capture and therefore were not included. It is assumed that if the new standards are adopted, commercial landscapes would achieve a 60% reduction in future water use compared to water use trends seen with current landscapes. The Urban Landscape Conservation Task Force reiterates this challenge in their final report published in Jan. 2024, pointing out the many factors that make predicting water savings for regulations so difficult. Regardless, there is consensus amongst task force and water conservation professionals state and national that one effective way to reduce water use is to reduce new turf installation.⁴ City staff anticipate the water demand model that is being developed for the WEP update to be able to provide more comprehensive water demand estimates for this and other strategies.

NEXT STEPS

Staff will continue to work on the WEP update. Ongoing and upcoming actions include continuing engagement activities with the public and staff to inform the planning process and finalizing the water demand estimation model. A second Council Work Session is currently planned for July 9, 2024, to provide an update on the planning process and seek further direction.

Attachments:

1. Work Session Memorandum: February 13, 2024 Work Session Summary: 2024 Water Efficiency Plan Status
2. Work Session Agenda Item Summary: 2024 Water Efficiency Plan Status
3. 2024 Urban Landscape Conservation Task Force Final Report

CC: Gretchen Stanford, Utilities Deputy Director Customer Connections

⁴ 2024 Urban Landscape Conservation Task Force Final Report