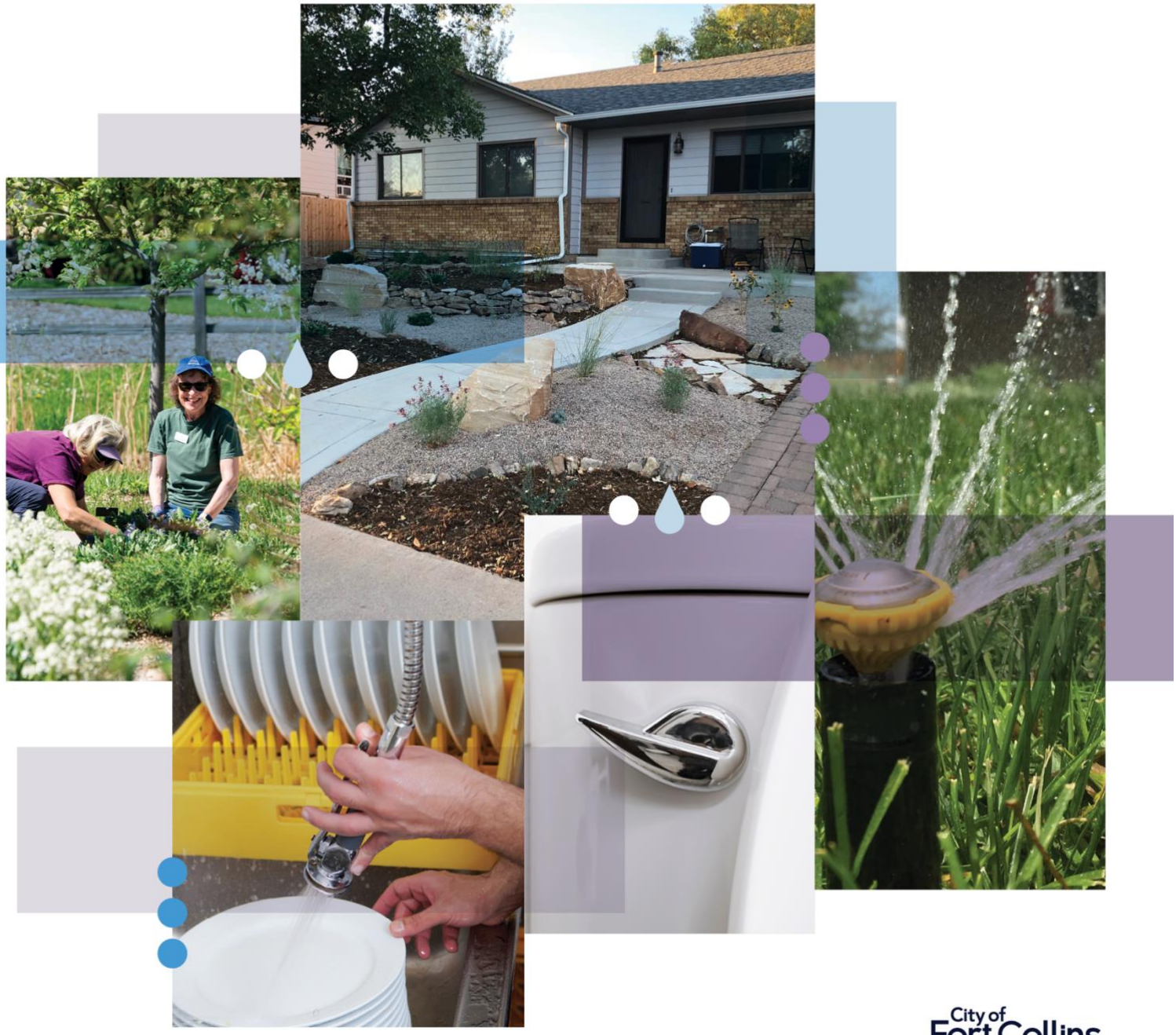
Fort Collins Utilities

2025 WATER EFFICIENCY PLAN



City of Fort Collins

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Acronyms

AF	Acre-Foot (equals 325,851 gallons)
AFY	Acre-Feet per Year
AMI	Advanced Metering Infrastructure
AWE	Alliance for Water Efficiency
AWWA	American Water Works Association
BFO	Budgeting for Outcomes
BMP	Best Management Practice(s)
C-BT	Colorado-Big Thompson
CEC	Climate Equity Committee
CWCB	Colorado Water Conservation Board
DET	Demand Estimation Tool
ELCO	East Larimer County Water District
ET	Evapotranspiration
FACE	Future Avoided Cost Explorer
FCLWD	Fort Collins-Loveland Water District
GMA	Growth Management Area
GPCD	Gallons per Capita per Day
HOA	Homeowners Association
ILI	Infrastructure Leak Index
LiDAR	Light Detection and Ranging
LCU	Large Contractual User

MG	Million Gallons
MGD	Million Gallons per Day
MGY	Million Gallons per Year
NEPA	National Environmental Policy Act
NPIC	North Poudre Irrigation Company
PDT	Planning, Development, and Transportation
PVLC	Pleasant Valley and Lake Canal
RFO	Return Flow Obligation
SRF	Storage Reserve Factor
SSD	Southside Ditches
SWSI	Statewide Water Supply Initiative
WEP	Water Efficiency Plan
WET	Water Efficiency Tool
WFCWD	West Fort Collins Water District
WQA	Winter Quarterly Average
WSAP	Water Shortage Action Plan
WSDMP	Water Supply and Demand Management Policy
WSR	Water Supply Requirement
WSSC	Water Supply and Storage Company

Acknowledgements

Land

We acknowledge and honor the lands situated within the City of Fort Collins as the original homelands of the Hinono'eiteen (Arapaho), Tsétsėhéstâhese (Cheyenne), Nʉmʉnʉʉ (Comanche), Caiugu (Kiowa), Čariks i Čariks (Pawnee), Sosonih (Shoshone), Oc'eti S'akowin (Lakota) and Núuchiu (Ute) Peoples. This area is an important site of trade, gathering, and healing for these Native Nations. These lands are home to a diverse urban Native community representing multiple Native Nations and Indigenous Peoples. Despite forced removal and land dispossession, they continue to thrive as resilient members of our community. We are grateful for Native community members and honor the rich cultural heritage they bring to our collective community. We further recognize and value their social, intellectual, economic, and cultural contributions. The City of Fort Collins is committed to supporting, partnering, and working with the Native and Indigenous community.

Community

We are grateful to the community members and City staff who participated in many hours of efficiency-focused engagement and to the Colorado Water Conservation Board for its support through a Water Plan Grant.

Staff and Consultants

Numerous staff from multiple City departments, as well as technical consultants, provided input and subject matter expertise:

City of Fort Collins

- City Attorney's Office
- Communication and Public Involvement
- Community Development and Neighborhood Services
- Community Engagement
- Distribution System Division
- Environmental Services
- Equity and Inclusion Office
- Financial Operations
- Natural Areas
- Parks
- Planning, Development and Transportation (PDT)
- Water Conservation
- Water Quality Services Division
- Water Resources Division

Technical Consultants

- INTERA
- Hazen and Sawyer
- Lotus Engineering & Sustainability

- Colorado Climate Center

Executive Summary

Overview

The 2025 Water Efficiency Plan (WEP) outlines the Fort Collins Utilities (Water Utilities) approach to manage water use and efficiency amid growing supply and demand pressures.

By improving how water is used across residential, commercial, and municipal sectors, the WEP helps support long-term water resilience for the Water Utilities system and customers. The plan supports the City's "One Water" commitment—managing water holistically to promote healthy watersheds, resilient communities, and water equity.

Water Efficiency Goals

The WEP sets two goals intended to lower water use, minimize the frequency and magnitude of future water shortages, build long-term landscape resilience, and encourage the City to continue leading by example. These goals reflect community feedback, staff input, and a commitment to act now to prepare for a hotter and more variable climate.

Goal 1: Reach 4% Annual Reduction in Water Use by 2040
This goal applies to all customer sectors, including homes, businesses, and City operations, and aims to reduce the risk of water shortages.

- Target 1.1: By 2040, lower overall annual treated water use by 320 million gallons (MG), or 980 acre-feet (AF), below projected water use
- Target 1.2: Double the volume of savings from efficiency strategies by 2040, relative to 2020-2024 average performance
- Target 1.3: Lower treated water use at City properties by a total cumulative volume of 5 MG (15 AF) by 2040

Goal 2: Improve Efficiency and Resilience on Public Landscapes

- Target 2.1: The City will complete at least 7 new projects on City landscapes by 2040. These projects aim to improve drought resilience, reduce raw or treated water use, and reinforce the City's role as a leader in water efficiency.

Water Efficiency Strategies

Water Utilities will advance water efficiency efforts through over 70 existing or new strategies that align with the following four approaches:

- Behavioral strategies that include actions like outreach, education, water use benchmarking, and technical assistance for water-efficient practices.

- Regulatory strategies that build on existing requirements for landscapes, buildings, and development standards.
- Infrastructure opportunities that include maximizing benefits from technology, like the City's existing advanced water meters, to offer customer data access, leak detection and notifications, and reduce water loss through distribution system maintenance.
- Economic strategies that include rebates, financial assistance, and pricing structures that incentivize efficiency.

Key Benefits of Water Efficiency

Water is both essential to life and limited in our region. Water efficiency strategies are cost-effective ways to manage use to minimize water shortage risk, while providing enough water to support the community's values.

Benefits of water efficiency include:

- Resilience: Proactive water efficiency buffers the community against climate-driven shortages. Climate model projections show an average increase in monthly maximum temperature of approximately 1.8°F–2.8°F by 2040, which will raise demand, especially for outdoor uses.
- Business stability: Water efficiency supports long-term economic growth and service continuity.
- Leadership: Efficient water use across City sites demonstrates what's possible – maintaining healthy landscapes while using water wisely.
- Affordability: For individuals, lower consumption can help keep bills down. For the Water Utilities, efficiency can delay capital expansion projects and reduce the need to acquire costly water rights.
- Do more with the water we have: Some conserved water can be stored for periods of drought, leased for agriculture, or used to support a healthy river system.

Equity and Community Engagement

The WEP was shaped through more than 5,000 touchpoints via surveys, meetings, and interviews. Not all community members or businesses have equal access to water-saving technologies or upgrades, and the WEP reflects that reality. Engagement and equity were integrated throughout the planning process. Staff used feedback directly to develop water efficiency goals and strategies, with input from renters, seniors, small business owners, and non-English speakers, among others.

The community said:

- Lead by example: The City must walk the talk

- Support landscape change: Less turf, more native plants
- Make programs accessible: Simplify the process to participate and save; provide education and materials in multiple formats and languages; offer upfront financial support, not just rebates
- Encourage and require efficiency through a balance of volunteer actions and incentives with thoughtful regulation
- Address challenges for renters and mobile home residents

Water Use Snapshot

In 2024, the Water Utilities provided high-quality treated water to about 36,000 water accounts, serving approximately 139,000 people, or about 80% of our city's population. Below is a snapshot of typical water use across the service area:

- Total billed treated water use: About 5.7 billion gallons annually.
- Residential use: Accounts for about 64% of billed treated water.
- Commercial use: About 34% of billed treated water is used for businesses and other non-residential purposes such as offices, retail, hospitality, industry, and irrigation-only accounts.
- City use: Nearly 2% of billed treated water is used at City-owned properties, supporting recreation, vibrant public landscapes and trees, and City facilities and services. The City also uses untreated raw water on parks, cemeteries, and other landscapes.
- Outdoor watering causes significant seasonal spikes, with demand more than doubling in summer months. About 40% of total annual water use goes to outdoor irrigation.
- On average, water demand per person is about 135 gallons per day (GPCD), though this fluctuates based on weather and behavior.

Next Steps and How to Get Involved

Everyone has a role to play in reaching the WEP's goals. Here are examples of how individuals and businesses can contribute to a 4% reduction in water use overtime:

Residential Customers

The average single-unit household in the Water Utilities service area uses about 80,760 gallons of water a year. A 4% reduction equals about 3,200 gallons of savings each year (relative to current average use).

- Change your showers: Swapping out an old showerhead for a free 1.5 gallon-per-minute version and cutting your shower from 12 to 8 minutes can save up to 1,500 gallons per year.

- Check your sprinklers: Outdoor water use spikes in the summer. Free sprinkler check-ups save households an average of 5,000 gallons per year. Many lawns have correctable issues like overspray, tilted heads, or inefficiently set timers.

- Redo your yard: Native landscaping is water-smart, supports ecosystems, and looks great. A 550-square-foot project can save 3,300 gallons annually while rebates through the Xeriscape Incentive Program or Garden in a Box can help cover the cost.

Business Customers

Typical water use and potential savings vary based on business type, size, and other factors. The WEP includes a variety of commercial efficiency strategies, including custom rebates that let a business identify what opportunities work best for them.

- Plumbing upgrades: Replacing 10 older urinals with WaterSense models could save a business 26,000-60,000 gallons annually. Even smaller changes—like upgrading five toilets—can cut 11,000 gallons a year.

- Large water efficient landscapes: Replacing bluegrass turf with native grass species is a cost-effective strategy for reducing water use on large landscapes. Converting 10,000 square feet can save approximately 70,000 gallons annually. Water Utilities offers rebates up to $15,000 for qualifying projects.

Looking Ahead

By 2040, the City intends to continue and expand efforts to best serve our customers and to be a regional leader in efficient water management. The 2025 WEP lays the foundation for a resilient, thriving community that values water as a shared resource.

Whether you're a homeowner, renter, business owner, property manager, or visitor, your actions matter. Progress toward the WEP goals will be tracked and shared publicly each year through an annual water conservation report. To learn more or participate in efficiency programs, visit: *fcgov.com/utilities*.

Introduction

Fort Collins Utilities (Water Utilities) is a community-owned utility operated within the City of Fort Collins (City) government organization that provides critical services including water treatment and delivery. Every year, the Water Utilities treats and delivers over 8 billion gallons of high-quality drinking water to about 36,000 water accounts, serving about 80% of the population and 60% of the land area within the Fort Collins, Colorado city limits. Water is an essential resource for all, and Water Utilities has a strong commitment to ensure efficient water use.

Water efficiency is a critical demand management tool to minimize risk of future water shortages and maximize benefits of water use in the community. Since 1977, an active Water Conservation Division[1] has fostered efficiency with a variety of strategies that influence demand through voluntary behaviors, thoughtful regulations, technical and physical infrastructure, and economics. The overall mission is to manage water use in a way that minimizes water shortage risk, while supporting the community's values. The Water Conservation Division works to foster a water efficient, adaptive, and knowledgeable customer base through education, policies, and cost-effective water efficiency programs.

Although Water Utilities has a robust, reliable, and diverse water supply, the region's water resources are finite and experience pressure from increasing temperatures, continued growth, and a legacy of high water-use landscapes. These challenges continue to make water more expensive and can create difficult community trade-offs. Water Utilities acknowledges these trade-offs and applies a One Water[2] approach to managing water supply resources and water demands. Staff and decision-makers strive to consider the complex intersections of water uses with climate, land use planning, equity, and affordability to make meaningful changes, especially to support the most vulnerable parts of the Fort Collins community.

Water Conservation Goals

This Water Efficiency Plan (WEP) guides the work of the Water Utilities and the greater City organization as it pertains to water demand management through long-term efficiency. The WEP sets two goals intended to lower water demand, minimize the frequency and magnitude of

[1] The Water Utilities Water Conservation Division conducts water demand management to extend water supplies through conservation and efficiency activities that reduce water demands and lower losses and inefficiencies. For simplicity and consistency with CWCB guidance, the term "efficiency" is used throughout this document to refer to both behavioral and technology-based water demand management; however, in practice, efficiency generally refers to technology-based solutions (e.g., a high-efficiency showerhead), while conservation focuses on the water savings through behavior (e.g., choosing to take a shorter shower).

[2] One Water, as described by the Water Research Foundation in the 2017 *Blueprint for 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."

future water shortages, and build long-term landscape resilience[3]. These goals reflect community feedback, staff input, and a commitment to act now to prepare for a hotter and more variable climate.

Goal 1: Reach 4% annual reduction in water use by 2040 to reduce risk of shortages

The WEP will set an overall water conservation goal that applies to all treated indoor and outdoor water use within the Water Utilities' water service area (Figure 1), including both customer and City water use. The objectives of this overall goal are to gradually lower demand to minimize the frequency and magnitude of shortages, expand access to efficiency opportunities, lead by example as a City organization, and offset increasing demands driven by climate change. Staff anticipate that a 320 MG savings is expected to offset the demand increases driven by an average increase in monthly maximum temperature of approximately 2°F by 2040, which is a plausible future scenario for Fort Collins based on climate models.

Goal 1 incorporates three specific targets, which are discussed in more detail in this document:

- **Target 1.1: By 2040, lower overall annual treated water use by 320 million gallons (MG), or 980 acre-feet (AF), below projected water use**
  - Every year, take actions to keep total treated water use lower than it is projected to be without active efficiency strategies, ramping up to being 4% lower than projected by 2040.
  - Looking ahead to 2040, a 4% reduction would mean that actual demand was about 320 million gallons (MG), or 980 acre-feet (AF), lower than projected for the year.
  - Interim reduction targets will gradually ramp up annual savings between now and 2040, as shown in Figure 1:
    - By 2030: 3% reduction, estimated at 220 MG (675 AF) below projected water use
    - 2035: 3.5% reduction, estimated at 270 MG (830 AF) below projected water use
    - Reductions in treated water demand by Water Utilities customers, including City water accounts, will contribute to this target

- **Target 1.2: Double the volume of savings from efficiency strategies by 2040, relative to 2020-2024 average performance**
  - To reach Target 1.1 savings of 320 MG below projected annual water use by 2040, the Water Conservation Division will increase program offerings and participation to increase savings over the current annual average of 155 MG below projected annual water use. Quantifiable treated water savings from efficiency strategies that serve customers, as well as partnerships with City departments to lower City treated water use, will count toward this target.

[3] This WEP defines resilience as the capacity to prepare our human and natural systems to respond and adapt to changes and disruptions of various scales that affect our ability to thrive, as defined in the City's 2021 Our Climate Future Plan.

- **Target 1.3: Lower treated water use at City properties by a total cumulative volume of 5 MG by 2040**
  - This target will achieve average annual reductions of 360,000 gallons per year by 2040 for City properties, adding up to 5 MG (15 AF) below projected annual water use in total water savings between 2026-2040.
  - This savings is expected to come from a variety of projects lowering indoor and outdoor treated water demand in City buildings and properties. Strategies with ongoing year-after-year savings, such as plumbing or turf replacement, will be prioritized.

Progress toward Goal 1 will be evaluated based on tracking treated water demand by customer sector, including City properties, as well as Water Conservation Division program participation and savings.

Goal 2: Improve water efficiency and build resilience on City-owned landscapes, to benefit the community and environment

For the first time, the WEP will set a goal directed at the City's outdoor water use, which encompasses both treated and raw water and properties both inside and outside of the Water Utilities' service area. Community feedback shows a widespread desire for the City to take responsibility and action related to efficient water use. Beneficial outcomes for actions on City-owned landscapes include contributing to overall water efficiency (Goal 1) by lowering municipal water use, building resiliency in our public landscapes to prepare for a hotter future, prioritizing water use for spaces that most benefit the community, and creating highly-visible projects that inspire water-saving actions by local individuals and businesses. Goal 2 incorporates one specific target:

- **Target 2.1: The City will implement at least 1 new water-saving project in each 2-year municipal budget cycle, for at least 7 new projects on City landscapes by 2040**
  - Projects that lower treated or raw water use and/or build landscape resilience on City-owned properties within the Fort Collins Growth Management Area (GMA) will count toward this target; this approach reflects the City's intention to lead by example and benefit the entire community regardless of water source or provider.
  - Landscape projects that lower treated water use on City-owned properties that are within the Water Utilities service area will also count toward Goal 1 targets.

Progress toward Goal 2 will be evaluated based on the number of projects, associated water savings, and total project area completed each year.

As described in Section 4, progress toward these goals will be achieved through a variety of efficiency strategies, which include programs and policies that promote long-term reductions in water demand through four core approaches to managing water use - behavioral, regulatory, infrastructure, and economic. In addition to expected water savings, strategies were evaluated for cost, customer reach, co-benefits including equitable and environmental outcomes,

feasibility, and acceptance. Additional information, including descriptions of selected strategies and the strategy selection process, is provided in other sections of this WEP.

This WEP updates and builds on past water demand management efforts, replacing past efficiency goals described in Appendix A.

Scope and Guiding Principles

The WEP update process incorporated extensive community engagement, an equity evaluation, integration with land use planning, and quantitative modeling to analyze water demand and potential savings. Staff also considered current and future climate and growth predictions. The WEP aims to manage the water customers use by:

- Setting goals to reduce the amount of treated water used within the service area to lower shortage risk and increase resilience of City-owned landscapes to benefit the community and environment
- Developing efficiency strategies to lower water use for Water Utilities customers and the City organization
- Informing planning decisions and staff activities for the next 7-15 years

The WEP focuses on lowering treated (i.e., potable) water use within the Water Utilities' service area. Although adjacent water providers and raw (i.e., non-potable) water use are briefly discussed for context and may be indirectly influenced by the WEP goals and strategies, they are outside the scope of this plan.

The following principles, developed by an interdepartmental team of City staff, guided the WEP update process and decision-making for efficiency goals and strategies:

- Engage marginalized community members and address systems of oppression, while also pursuing broad engagement
- Build and strengthen working relationships within the municipality and across the community, to better implement water efficiency strategies
- Reduce water demand to increase preparedness and resilience for ongoing and uncertain climate, economic, and social risks to water availability
- Commit, as stewards of the City, to be leaders in efficiency
- Create water efficiency strategies based on future supply and demand projections, and decision-making that is data-driven, regionally adaptive, considers the triple bottom line (economic, environmental, and community) and affordability
- Target water efficiency strategies that provide multiple benefits for the community, the environment, and consider the entire water system, including the river

The WEP aligns with the Colorado Water Plan and with multiple City policies, including a City strategic objective to "[s]ustain the health of the Cache la Poudre River and regional watersheds while delivering a resilient, economically responsible and high-quality water supply for all Fort Collins residents". It also aligns with the Water Utilities' mission statement, "[w]e are a One Water Utility, providing exceptional water services for our community through integrated, resilient, and equitable practices and systems."

The updated WEP will be approved and adopted by the Fort Collins City Council in 2025 and replace the previous versions. The plan's content and organization follow Colorado Water Conservation Board (CWCB) municipal water efficiency plan guidance and were developed to meet or exceed requirements for water efficiency planning outlined in the State of Colorado's Water Conservation Act of 2004.

1 Profile of Existing Water Supply

Water Utilities serves residences and commercial entities of various types within the service area boundaries shown in Figure 1. The water service area does not coincide with city limits or the Fort Collins GMA boundary. Fort Collins-Loveland Water District (FCLWD), East Larimer County Water District (ELCO) and other water providers supply some areas within city limits. Furthermore, Water Utilities provides water service to customers beyond city limits including some residential and industrial use and wholesale water to West Fort Collins Water District (WFCWD). Water Utilities maintains approximately 540 miles of pipeline and about 36,000 water service connections.

1.1 Overview of Existing Water Supply System

Water Utilities owns rights to raw water from multiple sources, which provide a diverse and robust supply:

- Colorado-Big Thompson (C-BT) Project units stored in Horsetooth Reservoir – The C-BT project diverts water from the upper Colorado River, transporting the water to Horsetooth Reservoir, other facilities and users across Colorado's Front Range. Northern Colorado Water Conservancy District (Northern Water) manages the C-BT Project and sets the annual quota that determines how much water is available per unit. This quota significantly affects the supply available each year and is influenced by snowpack, storage reserves, and system-wide demands.

- Cache la Poudre (Poudre) River basin – The Poudre River is part of the larger South Platte River basin. Water Utilities' Poudre River sources include senior flow rights and agricultural water rights converted to municipal use, all of which can be taken directly from the river. The amount of usable water in the Poudre River in any given year is highly variable and dependent upon snowpack, runoff duration, and water quality conditions in the 1,056-square-mile drainage area above the Poudre canyon mouth.

- North Platte River basin flows via Michigan Ditch and Joe Wright Reservoir – The Michigan Ditch and Joe Wright Reservoir system diverts water from the Michigan River (part of the North Platte River basin) into the Poudre River and Joe Wright Reservoir. Joe Wright Reservoir holds about 2,300 MG (7,100 AF) of storage and is Water Utilities' only raw water storage that can be delivered into its treated water system. It has limited function as drought protection for Water Utilities.

Water Utilities' water supply and treatment system consists of several key facilities that are illustrated in Figure 2. These facilities include the Fort Collins Pipeline, Joe Wright Reservoir, Michigan Ditch, Horsetooth Reservoir, Rigden Reservoir, and the Water Treatment Facility. For more detailed information on each supply source, see the City of Fort Collins' Water Supply and Demand Management Policy (2012).

Figure 1: The Water Utilities service area and surrounding water provider boundaries

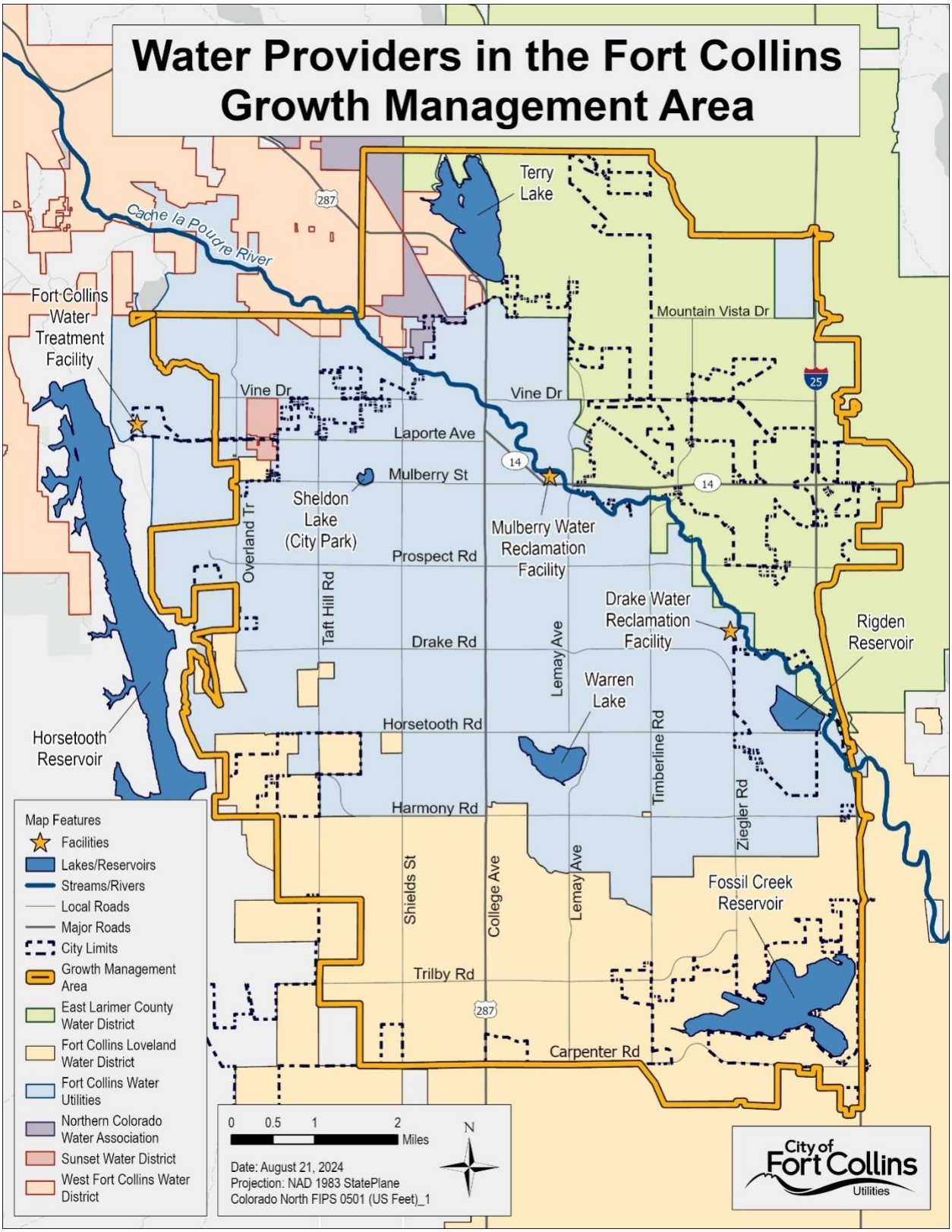
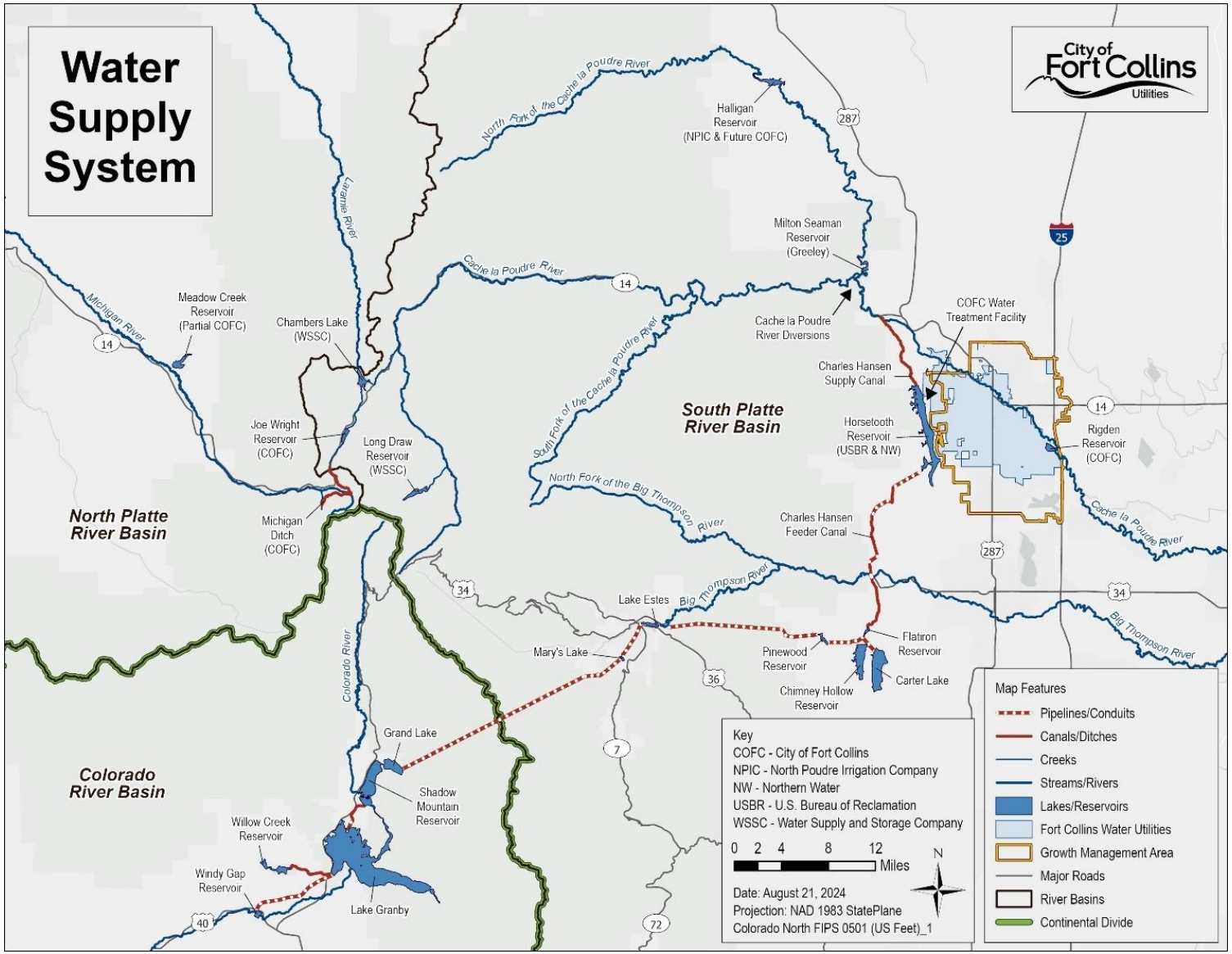


Figure 2. Water Utilities' source water supply system



1.1.1 Raw Water Supply Yield

Water Utilities has developed a diverse portfolio of water rights to fulfill customer demands throughout the year. In average and wet years, Water Utilities' water rights yield more water than service area demands. However, the usable amount of water provided by these rights varies year-to-year due to environmental conditions and limitations set in water right decrees. Availability of water rights does not always coincide with demands (e.g., stream and river levels are highest in the spring, while water demands tend to be greatest in the hot summer months when stream flows have declined), and Water Utilities' ability to use water rights is sometimes limited by circumstances such as infrastructure projects or water quality concerns.

Water Utilities' portfolio of supplies yields an estimated 10,560 – 24,020 MGY (32,400 – 73,400 AFY), as presented in Table 1. The treatable yield refers to the amount of available water after considering limitations due to water right priorities, decreed volumetric limitations, return flow obligations, losses, and operational constraints. Treatable yield ranges are calculated based on a range of conditions from dry years and low allocations to wet years with abundant yields.

The proportion diverted from either Poudre or Horsetooth supplies is adjusted frequently to maintain water quality and meet legal agreements. Each year on average, less than half of Water Utilities' customer drinking water comes from Poudre supplies and more than half comes from Horsetooth supplies. However, the relative proportions can vary significantly month-to-month and day-to-day.

After treated and raw water demands are met for Water Utilities' existing customers and raw water delivery obligations are fulfilled, remaining surplus water is evaluated annually and can be allocated for rental through the Water Utilities' Raw Water Rental Program.

Table 1: Water Utilities' annual treatable source water yield

Raw Water Source	Annual Treatable Yield (AF)	Annual Treatable Yield (MG)
Horsetooth Reservoir		
C-BT Project (Northern Water)	9,400 – 18,800	3,680 – 4,110
North Poudre Irrigation Company	6,400 – 12,800	2,090 – 4,170
Windy Gap / Platte River Power Authority Reuse Plan	0 – 2,300	0 – 750
Horsetooth Reservoir Total	**15,800 – 33,900**	**5,150 – 11,050**
Cache la Poudre River basin		
Direct Flow Rights	11,300 – 12,600	3,680 – 4,110
Pleasant Valley & Lake Canal Company	1,900 – 6,100	620 – 1,990
Southside Ditches	1,300 – 12,900	420 – 4,200
Water Supply and Storage Company	900 – 2,400	290 – 780
Joe Wright Reservoir / Michigan Ditch (diversions from North Platte River basin)	1,200 – 5,500	390 – 1,790
Cache la Poudre River Basin Total	**16,600 – 39,500**	**5,410 – 12,870**
Total	**32,400 – 73,400**	**10,560 – 24,020**

Water Utilities uses water supply modeling to estimate the system's firm yield, which is the amount of source water supplies available in a series of drought years, to be approximately 9,900 MGY (30,400 AFY). The range of treatable yields shown in Table 1 are greater than the firm yield because they do not consider the potential impact of long-term climate change on the source water basins, which could significantly reduce the yields under hot and dry conditions.

1.1.2 Reusable Water Supplies and Graywater

Water Utilities' primary source of reusable water is the Michigan Ditch which yields between 390 – 1,790 MGY (1,200 – 5,500 AFY) of reusable water. This water is stored in Joe Wright Reservoir, and much of it is used in the Reuse Plan. The Reuse Plan involves Water Utilities and multiple partners to generate reusable effluent that is used by Platte River Power Authority, who in turn provides Windy Gap water to Water Utilities. Although the Windy Gap water is classified as reusable, Water Utilities only uses the supply once before reallocating the effluent

to its partners as dictated by the Reuse Plan. Generally, the Reuse Plan can increase Water Utilities single-use supplies by 750 MG (2,300 AF) in a typical year.

As of November 2022, graywater capture and reuse systems are allowed within the Water Utilities water service area. Due to Northern Water policies that limit C-BT use (which is over half of Water Utilities' supplies), graywater can be used for toilet flushing only and cannot be applied to landscapes.

1.2 Supply Reliability

Water Utilities is responsible for providing an adequate and reliable supply of water to its customers. The Water Supply and Demand Management Policy (WSDMP) provides a foundational framework for Water Utilities' water supply and demand management decisions. This policy defines three main planning criteria:

- Storage Reserve Factor (SRF): 20% of annual demands
- Planning Demand Level: 150 GPCD[4]
- Drought Criterion: 1-in-50-year drought

Since 2000, Water Utilities has imposed mandatory water restrictions three times (a frequency of about 1-in-8 years) in response to projected shortages, which can be driven by drought, infrastructure needs, or water quality concerns.

Water Utilities actively monitors source water quality and watershed health. It is also taking steps to improve supply reliability through the Halligan Water Supply Project, described in Section 1.3.2.

1.3 Supply-Side Limitations and Future Needs

Water Utilities conducted a Water Supply Vulnerability Study (2019) to investigate its water supply system's ability to meet future demands under various potential future hydrologic conditions, risks, and uncertainties. The vulnerability study identified key risks to Water Utilities' water resources:

- Climate change is the most crucial vulnerability.
- Reductions in C-BT supplies would have significant impacts.

[4] The WSDMP planning level of 150 GPCD is used for long-range water resource planning to safeguard a high level of water supply reliability and incorporates water supply needs for contractual obligations or other purposes. The planning level is intentionally higher than the water use goals set in past WEPs (Appendix A) to address uncertainties inherent in water supply planning and to account for supply needs such as contractual obligations which are not likely to be influenced by water efficiency or other demand management actions described in this WEP.

- High water demands represent a significant vulnerability; it is important to implement efficiency efforts and track demand trends.
- Water storage is crucial. Without enlarging Halligan Reservoir, Water Utilities' current water supply planning criteria could not be met under most future climate and demand conditions.

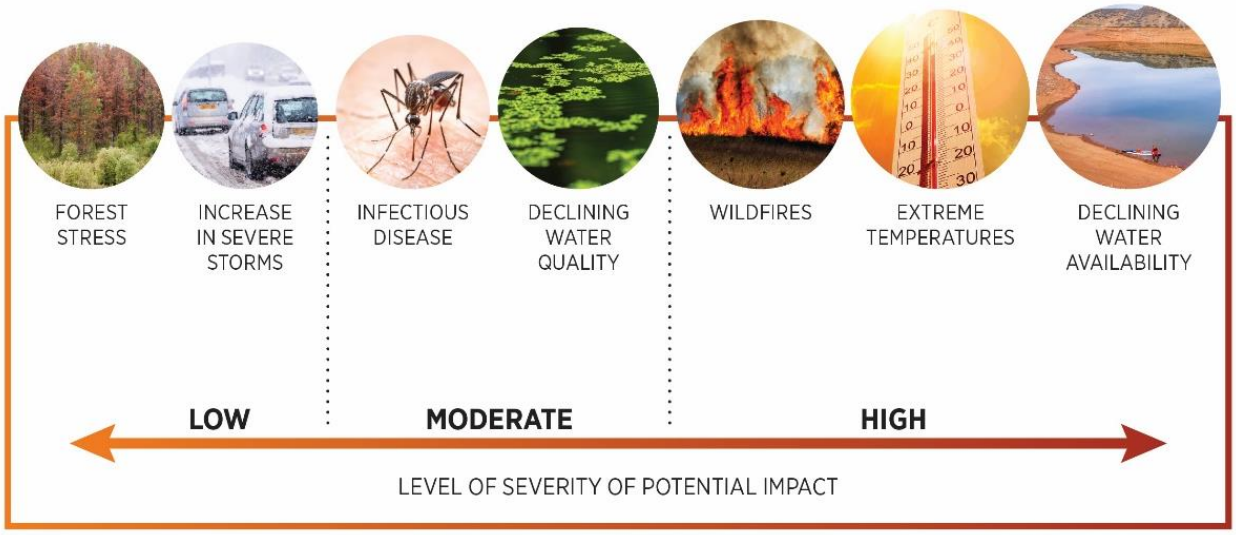
The vulnerability study indicates that even with increased storage from an enlarged Halligan Reservoir, hotter, drier conditions will require Water Utilities to impose water restrictions more frequently in the future. The vulnerability study analysis projected that the need for mandatory restrictions would increase to about 3-in-10 years with a 5-degree temperature increase, a 2.5-times increase over current shortage trends. These vulnerabilities underscore the importance of maintaining an impactful water efficiency program for long-term demand management.

Similar to the WSVS findings, the CWCB's 2023 Colorado Water Plan identifies a gap between water supply and demand for the South Platte River Basin, and notes that the combination of scarcity, growth, and future uncertainty will stress water resources.

1.3.1 Climate

Fort Collins is already experiencing the effects of climate change. With rising global temperatures, it is expected that disruptive events like wildfires, drought, and floods will increase in intensity and severity (Figure 3), as described in the 2021 Our Climate Future Plan. Local impacts are likely to include less reliability of water supplies and more demand for water to maintain existing landscapes, creating pressures on both sides of the supply-and-demand balance.

Figure 3: Climate hazards facing Fort Collins



In 2024, the Colorado Climate Center published its third edition of the Climate Change in Colorado[5] report, which 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 the Northern Front Range region, the report notes slightly greater future warming. The report also anticipates more frequent and intense droughts, regardless of precipitation rates in the future.

Colorado Climate Center researchers provided a customized analysis of localized future maximum temperature and precipitation projections for Fort Collins. This analysis used Coupled Model Intercomparison Project Phase 6 (CMIP6[6]) climate datasets that were statistically downscaled using the Localized Constructed Analogs (LOCA)[7] method, which yields an ensemble of modeled climate projections at a localized geographic scale suitable for hydrologic modeling. The Shared Socioeconomic Pathway scenario SSP2-4.5[8], informally referred to as the “middle-of-the-road" scenario, was used for the Fort Collins analysis.

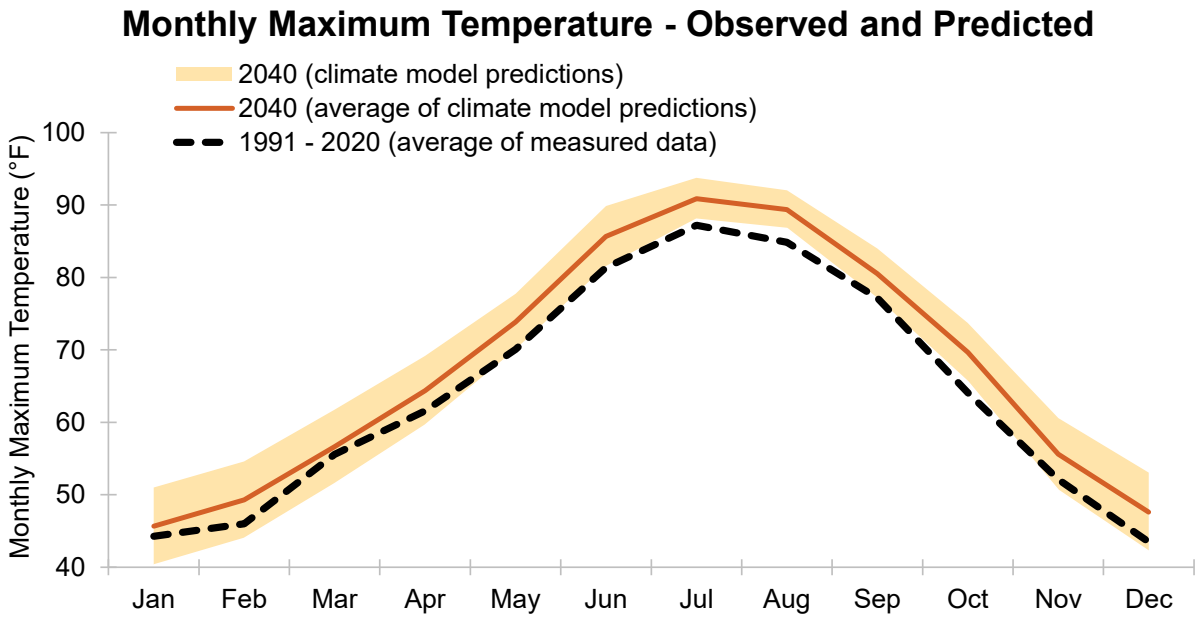
The Colorado Climate Center analysis produced monthly maximum temperature and total precipitation outputs for 1991-2100. The 1991-2014 period is a subset of the historical climate simulations from the CMIP6-LOCA dataset, and the 2015-2100 period uses future climate projections under the SSP2-4.5 scenario. Data were statistically processed to generate a mean and range of projections for each month in this time period. The range was defined by the mean of model predictions plus/minus one standard deviation. Figure 4 (upper plot) presents the range of predicted temperatures for 2040, as well as the average for the 30-year period from 1991-2020, which was used as the WET model baseline. The lower plot in Figure 4 presents the same information for total monthly precipitation.

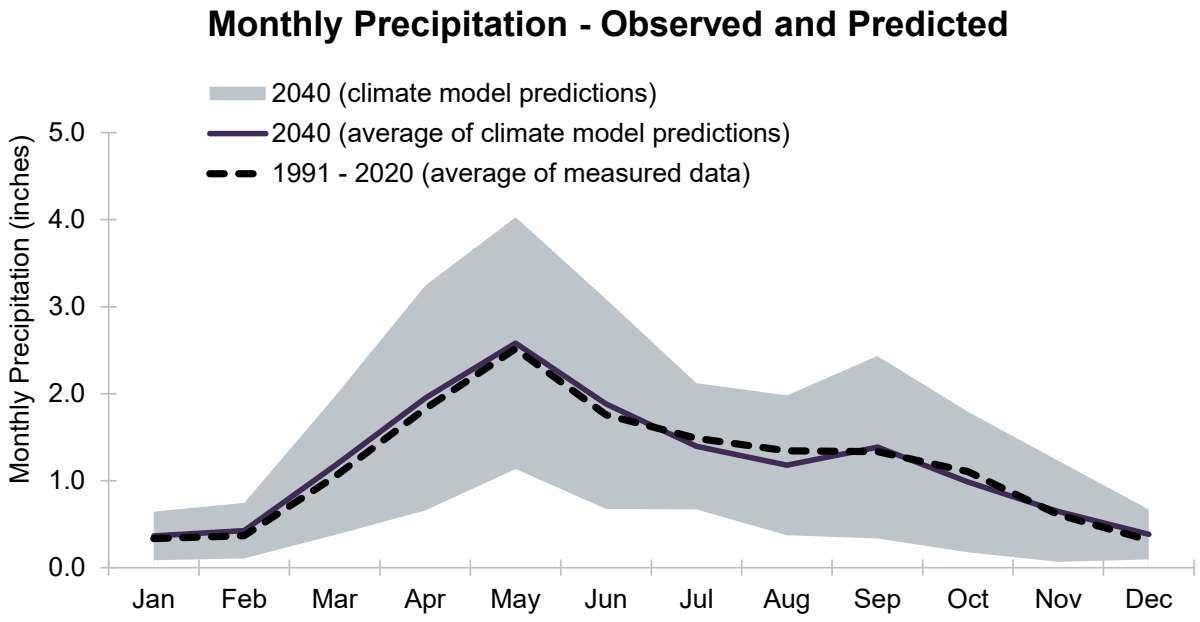
As shown in the figures, climate model projections for the Fort Collins area indicate that, by 2040, monthly maximum temperatures will generally be warmer relative to the 30-year period from 1991-2020. Climate model predictions for monthly precipitation vary, suggesting that it is difficult to predict whether the future amount of precipitation in Fort Collins is likely to be higher, lower, or similar to the 1991-2020 period.

[5] Available online at climatechange.colostate.edu.
[6] CMIP6, coordinated by the World Climate Research Programme, is the most current set of global climate model data produced using numerous climate models within an integrated framework. Additional information is available at pcmdi.llnl.gov/CMIP6.
[7] LOCA version 2 datasets provide CMIP6 climate model projections over a 6-kilometer grid scale. Additional information is at loca.ucsd.edu. Dr. David Pierce at the UC San Diego Scripps Institution of Oceanography lead the development of this open-source dataset, which is available for download at cirrus.ucsd.edu/~pierce/LOCA2/CONUS_regions_split/.
[8] Shared Socioeconomic Pathway scenario describes the future scenarios of human societal developments used in climate modeling. The SSP2-4.5 pathway is a scenario in which the current patterns of social, economic, and technological trends are similar to historical patterns.

Water Utilities staff used the Colorado Climate Center's projections to generate monthly temperature and precipitation inputs to model water demand and efficiency strategy savings for this WEP.

Figure 4. Predicted monthly maximum temperature and monthly precipitation for Fort Collins, relative to 1991 - 2020.





1.3.2 Storage Constraints and Planned Improvements

Water Utilities needs additional storage capacity to increase the yield and reliability of its water supply system. Acquiring storage in the Poudre River basin would strengthen Water Utilities' water supply sources by reducing reliance on C-BT storage and thereby minimizing risks associated with Colorado River basin shortages. Additionally, storage can increase the benefits of water efficiency by holding unused water and making it available during times of water need.

In 2003, Water Utilities acquired the ability to enlarge Halligan Reservoir, located on the North Fork of the Poudre River, to provide an emergency storage reserve, increase drought security, improve water system reliability and flexibility, and meet future water demands. Water Utilities is currently going through the permitting processes with plans for its expansion and future water storage use. The U.S. Army Corps of Engineers issued the Final Environmental Impact Statement in 2023. Water Utilities continues to pursue the required permits ahead of construction.

1.3.3 Water Supply Risk Responses

Table 2 summarizes future water supply needs and challenges. In addition to water efficiency, increased water storage (i.e., Halligan Water Supply Project), conservative water supply planning criteria, a robust water supply portfolio, and forward-looking land use planning are utilized to prepare for risks and adapt to a changing climate.

Table 2: Potential limitations/future needs related to water supply system planning

Future Need/Challenge	Yes	No
System is in a designated critical water supply shortage area	✓	
System experiences frequent water supply shortages and/or supply emergencies		✓
System has substantial real or apparent water losses		✓
Experiencing high rates of population and demand growth		✓
Planning substantial improvements or additions	✓	
Increases to wastewater system capacity anticipated		✓
Need additional drought reserves	✓	
Drinking water quality issues		✓

Future Need/Challenge	Yes	No
Aging infrastructure in need of repair	✓	
Issues with water pressure in portions of distribution system		✓
Wildfire and post-wildfire runoff might impact source watershed	✓	

1.3.4 Growth and Water Supply Requirements

To provide reliable water for development, including water rights and associated infrastructure, Water Utilities charges one-time Water Supply Requirement (WSR) fees to customers developing or redeveloping a property with a new water tap. This process ensures new developments share in the responsibility to guarantee a reliable source of water for all customers for years to come. WSR fees vary based on a development's characteristics:

- Outdoor area and number of bedrooms for residential customers
- Building square footage and use type for commercial customers
- Landscape water needs as defined in the water budget table for irrigation-only taps (required in the City's Land Use Code)

Ongoing water use by commercial and irrigation-only accounts is managed through annual water allotments associated with each tap. Accounts with annual use that exceeds the allotment volume must pay an excess water use surcharge. Funds collected through surcharges help offset water use that exceeds the allotment and allows Water Utilities to acquire additional water supplies and maintain infrastructure.

2 Profile of Water Demand and Historical Demand Management

In average and wet years, Water Utilities' water rights yield more water than the service area demands. However, dry conditions and other issues like infrastructure outages and water quality concerns (e.g., due to fires) contribute to water restrictions being enacted approximately once every 10 years to address these potential water supply shortages. Water demand management activities have successfully balanced the potential for growth-driven demand increases in recent years.

2.1 Demographics and Key Characteristics of the Service Area

Water Utilities estimates the population of the water service area was approximately 139,000 in 2024. Although the 35-square mile water service area boundary does not coincide with city limits, city-wide demographics[9] are useful for a general understanding of the service area. In 2023, Fort Collins was home to approximately 170,000 residents, including 30,000 students. Population continues to grow, although the rate of growth has slowed in recent years. Buildout of remaining undeveloped greenspace is expected by approximately 2040 for the current city limits and the Water Utilities service area, but additional redevelopment is anticipated to occur after that. The average household size is 2.27 people, the median age is about 31 years old, and about 10% of households speak a language other than English at home. About 52% of homes are owner-occupied. The median single-unit home value is $548,400 and the median monthly gross rent is about $1,700. About 11% of housing is estimated to have been built before 1960 and about 40% of homes were built before 1980. The median household income is about $82,000. Approximately 15% of residents meet the federal definition of poverty.

Fort Collins is home to two major public higher education institutions: Colorado State University and Front Range Community College. Large employers include education, healthcare, and high-tech companies. The city is also home to numerous breweries – both microbreweries and larger breweries that export products across the country – as well as service-related and small businesses.

2.2 Historical Water Demands

Water Utilities monitors customer water demand as well as system leaks and losses using advanced meter infrastructure (AMI), billing data, and monitoring points in the water treatment system. This robust data supports analysis of seasonal and daily variability across different customer types.

[9] Demographic data for the City of Fort Collins based on the 2020 Census and the 2019-2023 American Community Survey data.census.gov/profile/Fort_Collins_city,_Colorado?g=160XX00US0827425 and Quick Facts census.gov/quickfacts/fact/table/fortcollinscitycolorado/IPE120223#IPE120223.

Up until the early 2000s, the Water Utilities' service area population growth was largely matched by an increase in total water demands. Like many other Colorado communities, the 2002-03 drought spurred Water Utilities customers to rethink their water use. While the population has continued to grow, water demands have exhibited a downward trend as illustrated Figure 5. From 2000 to 2024, the service area population increased about 28% while the 3-year average total treated water demand decreased by about 22%. These reductions are partially due to historical foundational demand management activities such as providing AMI and applying efficiency-oriented water rate structures. A strong water efficiency program, efforts by customers, state-level actions, and the actions described in Section 2.3 have also contributed to demand decreases.

Figure 5: Annual total treated water and service area population

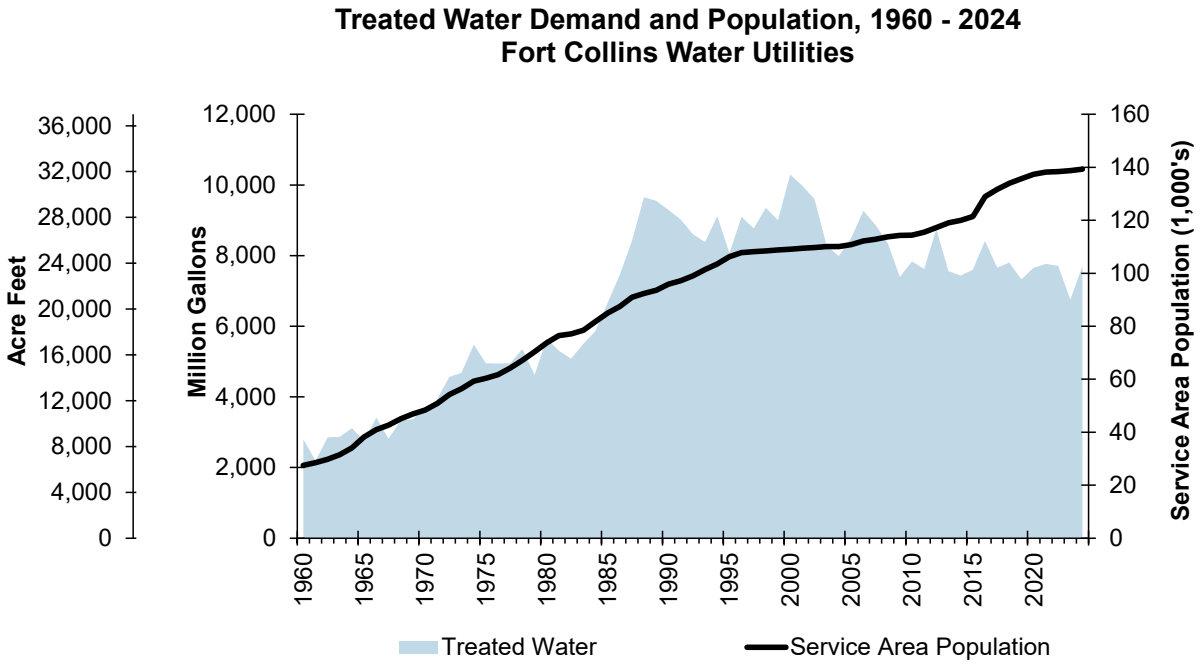


Figure note: Water treatment volume includes customer demands, non-revenue losses, wholesale, and contractual obligations.

Daily water demand varies considerably throughout the year. Water use is fairly consistent throughout the winter months, then more than doubles in the summer months as customers increase use for landscapes and other seasonal purposes. Figure 6 illustrates a five-year average of daily treated water and includes the peak date and volume for each year, highlighting the variability of water demand from year to year.

Figure 6: Daily total water treated (2020-2024)

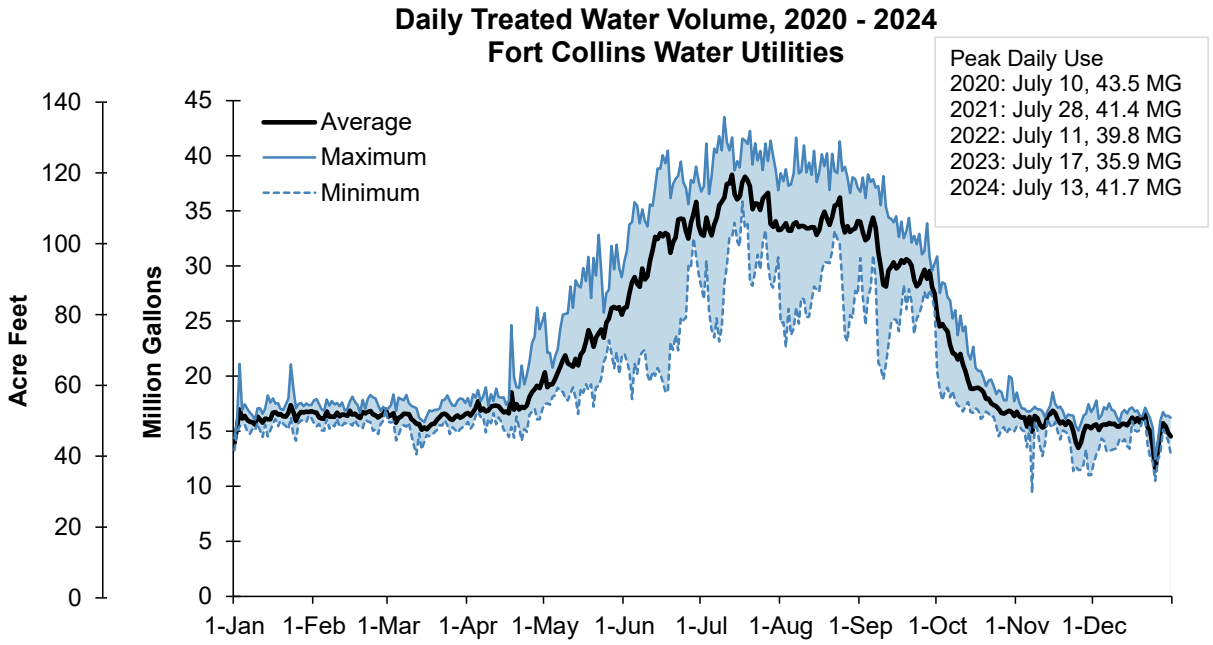


Figure note: Water treatment volume includes customer demands, non-revenue losses, wholesale, and contractual obligations.

2.2.1 Water Demand by Customer Sector

To better understand how customers use their water, Water Utilities evaluated water use for various residential and commercial customer categories. Customer categories were assigned based on billing codes[10] and county tax assessor classifications. Table 3 and Figures 7-10 summarize average water use by customer sector and application (indoor or outdoor). While most accounts are single-unit residential accounts, commercial customers use the most water on a per account basis.

As shown in Figures 7-10, residential categories collectively use the most billed treated water each year: about 63% on average with about 41% attributable to single-unit residences. Commercial customers use about 37% of billed treated water on average. The largest commercial use categories are irrigation-only and homeowner association (HOA) accounts (10%) and offices (8%), followed by combined education, healthcare, group assembly, and group housing (6%), and hospitality and retail (6%). Industrial and other commercial customers use less than 3% of the total billed treated water delivered each year. City government buildings, facilities, and landscapes use about 2% of the billed treated water each year (raw water use by City facilities is discussed in Section 2.2.5).

[10] Wholesale water deliveries and contractual obligations have unique service agreements that differ from other customers. These water uses are included in the treated water totals shown in Figures 5 and 6; however, they are not included in the analysis of demands by customer sector in Section 2.2.1. Water Utilities treats and delivers about 900 MG for wholesale and contractual use.

Table 3: Billed treated water use by customer category (2020-2024)

Customer Category	Number of Accounts	Average Annual Water Use (MG)	Portion of all Billed Use (%)	Average Annual Use per Account (gal)	Indoor / Seasonal Use (% of total annual use)
Residential					
Single-unit residential	29,200	2,320	41%	79,400	51% / 49%
Multi-unit residential	2,460	1,060	19%	463,000	77% / 23%
Duplex	1,350	124	2.2%	92,000	66% / 34%
Total billed residential	**33,000**	**3,520**	**63%**	**n/a**	**59% / 41%**
Commercial					
Irrigation-only & HOAs (excludes City accounts)	627	548	10%	1,800,000	0% / 100%
Office	367	471	8.3%	1,280,000	72% / 28%
Education, healthcare, & group assembly/housing	425	324	5.7%	762,000	59% / 41%
Hospitality, retail, & services	644	324	5.7%	889,000	73% / 27%
Industrial (excludes wholesale and large contractual deliveries)	50	144	2.6%	2,930,000	78% / 22%
City government (includes treated water irrigation)	253	100	1.8%	616,000	14% / 86%
All other commercial	383	166	2.9%	434,000	66% / 34%
Total billed commercial	**2,130**	**2,750**	**37%**	**n/a**	**53% / 47%**
Total billed demand	**35,130**	**6,270**	**100%**	**n/a**	**55% / 45%**

Note: Billed water volume shown excludes wholesale and contractual obligations, which were approximately 900 MG per year from 2020-2024. Non-revenue losses and raw (non-treated) uses are also not included in this table.

Figure 7. Annual billed treated water use for residential and commercial customers

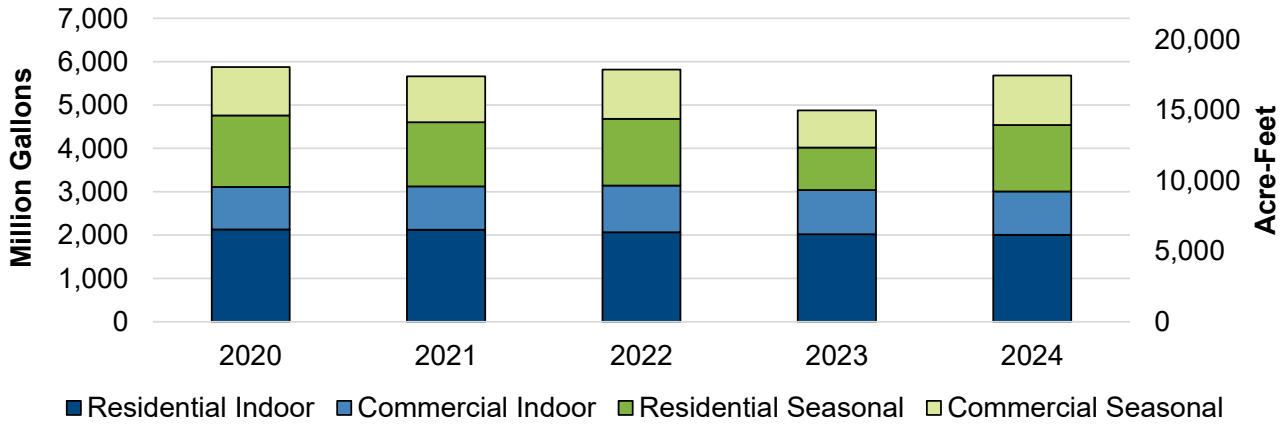


Figure note: Billed water volume shown excludes non-revenue losses, wholesale, and contractual obligations.

Figure 8. Billed treated water use by customer category (2020-2024)

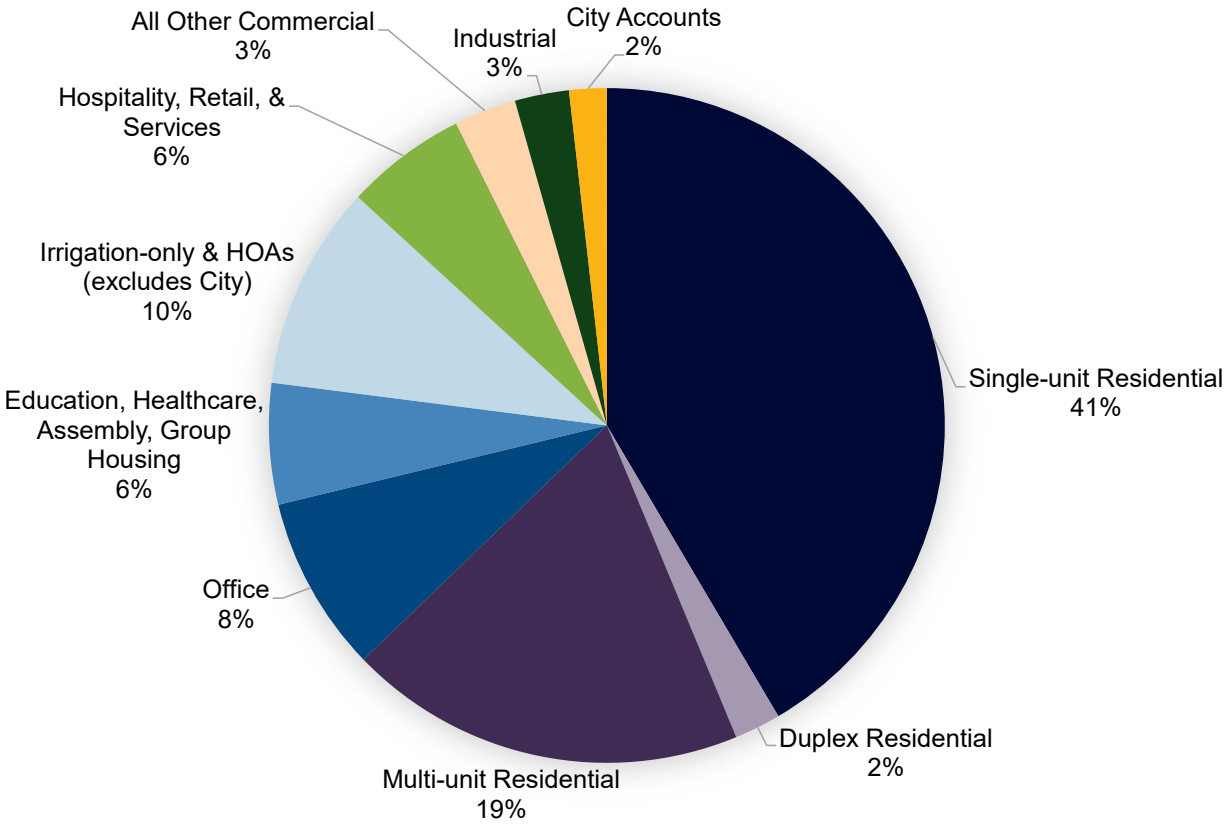


Figure note: Billed water volume shown excludes non-revenue losses, wholesale, and contractual obligations.

2.2.2 Seasonal Demand

Indoor and outdoor/seasonal[11] water use for residential and commercial customers is shown by month in Figure 9. Outdoor water use depends highly on weather, occurs primarily from May through November, and accounts for about 40% of total annual water use. During warmer months, outdoor applications represent more than half of all water use. The percentage of demand by customer type is presented for indoor and seasonal uses in Figure 10. Irrigation-only and single-unit residential accounts make up the greatest total portion of outdoor/seasonal water use.

Figure 9. Average monthly metered and billed treated water use (2020-2024)

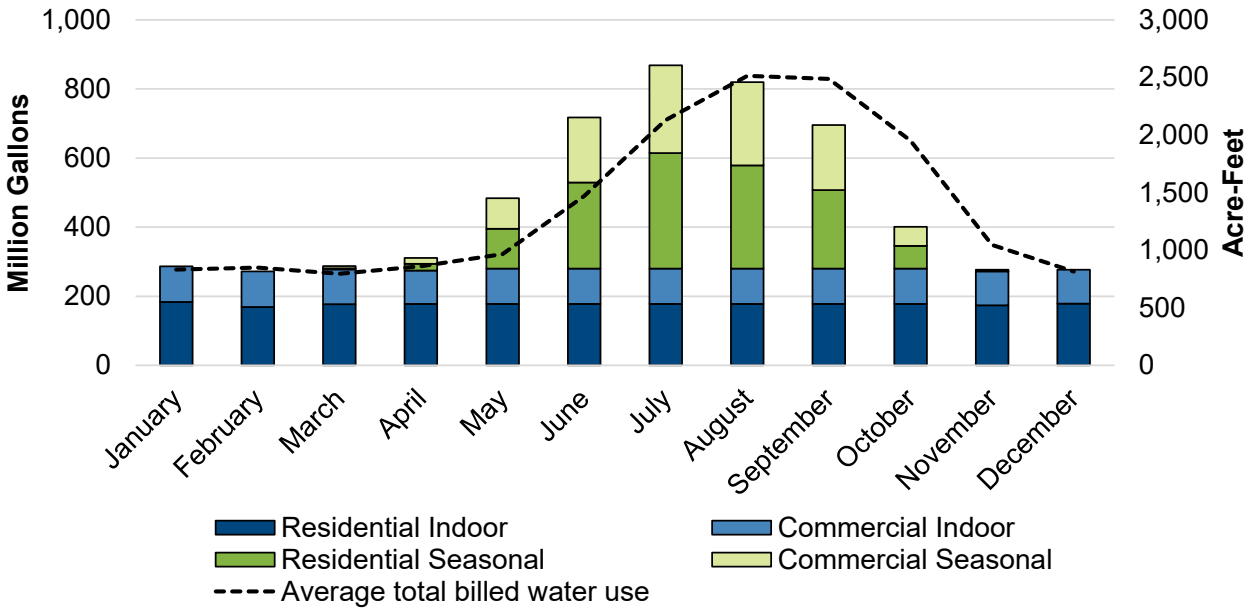


Figure note: Billed water volume shown excludes non-revenue losses, wholesale, and contractual obligations.

[11] A winter quarterly average was used to estimate indoor water use. It was assumed that no outdoor use occurs in those months. For all other months, any demand greater than the winter quarter average is attributed to outdoor or other seasonal uses.

Figure 10. Average indoor (top) and seasonal (bottom) water use by customer sector (2020-2024)

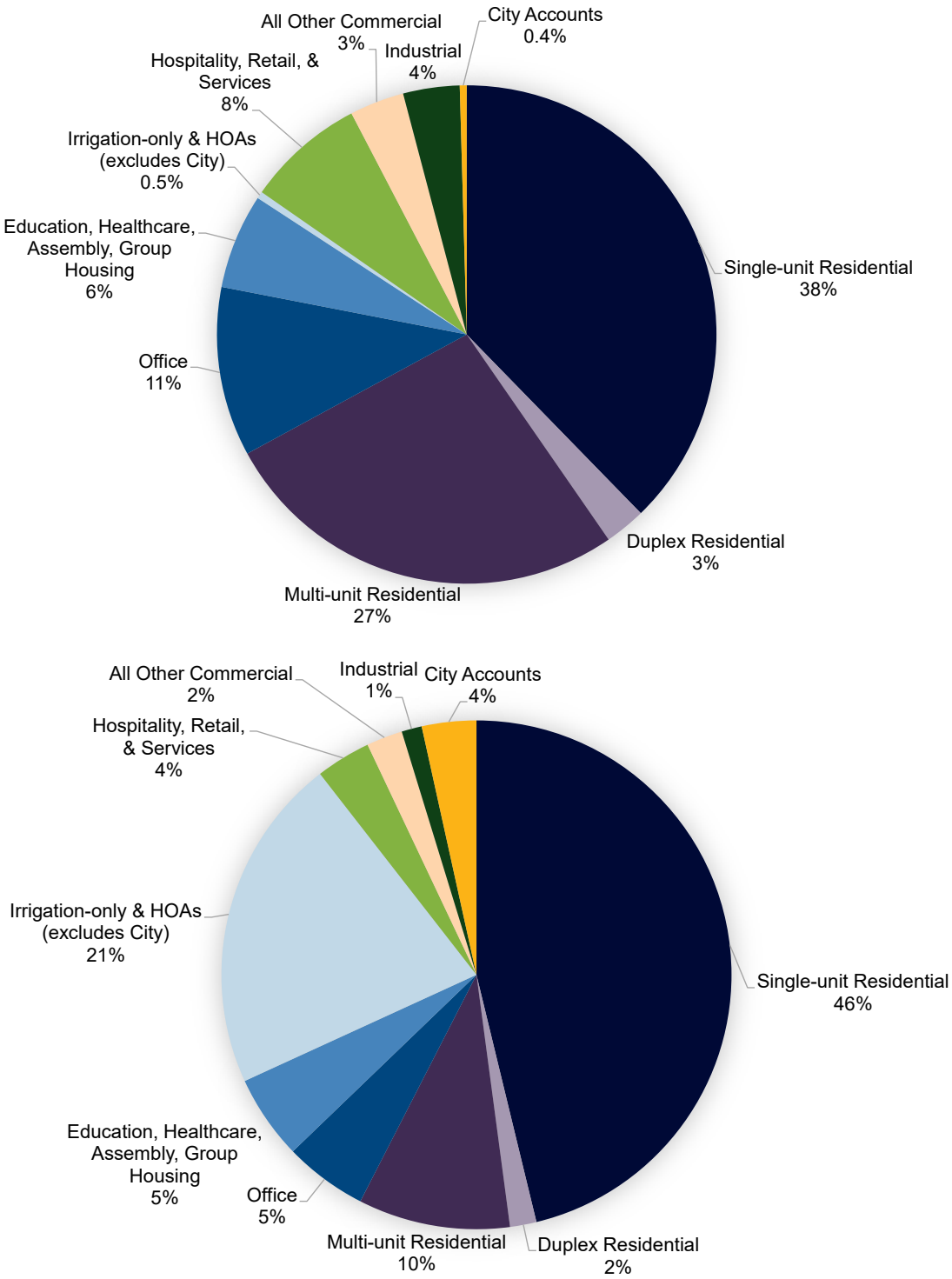


Figure note: Billed water volume shown excludes non-revenue losses, wholesale, and contractual obligations.

2.2.3 GPCD: Water Demand Per Person Per Day

System-wide per capita demand measured in gallons per capita per day (GPCD) is a common metric to evaluate water use independent of population growth. The Water Conservation Division tracks GPCD to monitor trends and compare to past WEP goals. The Water Conservation Division calculates GPCD as the annual total treated volume of water divided by the service area population and 365 days. This calculation includes non-revenue system losses but excludes water used for wholesale and contractual obligations. Other Water Utilities departments and other water providers calculate GPCD using different methods. Because of this, GPCD metrics *should not* be used for comparisons between water providers.

Figure 11 shows total GPCD from 2010 through 2024. The per person demands declined significantly over the last few decades. However, per capita consumption has remained fairly steady since 2017, suggesting that Water Utilities and customers will need to take additional actions to continue lowering demand on a per capita basis.

Water Utilities met the previous WEP goal – reduce demand to 130 GPCD by 2030 – once, in 2023. In that year, the service area experienced unusually high precipitation during irrigation months, which encouraged customers to reduce their outdoor water use. In 2024, per-capita demand was 135 GPCD (draft value), similar to pre-2023 levels.

Figure 11. Water use in GPCD and service area population (2000-2024)

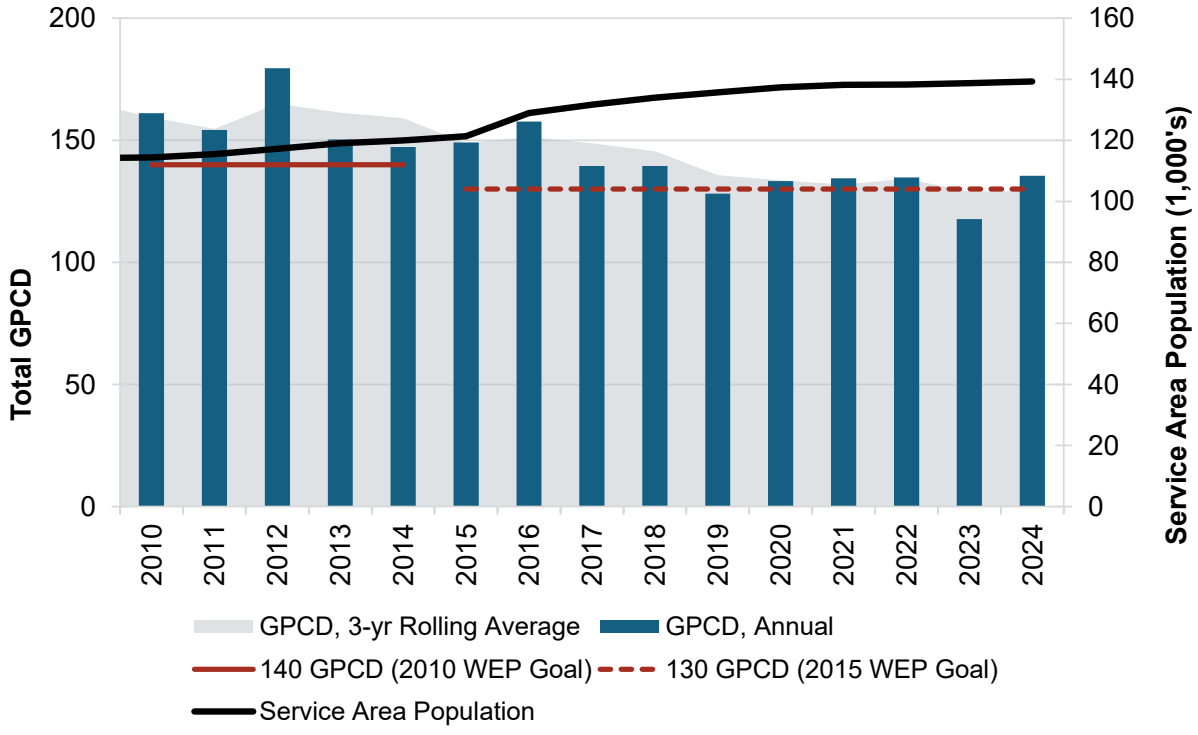


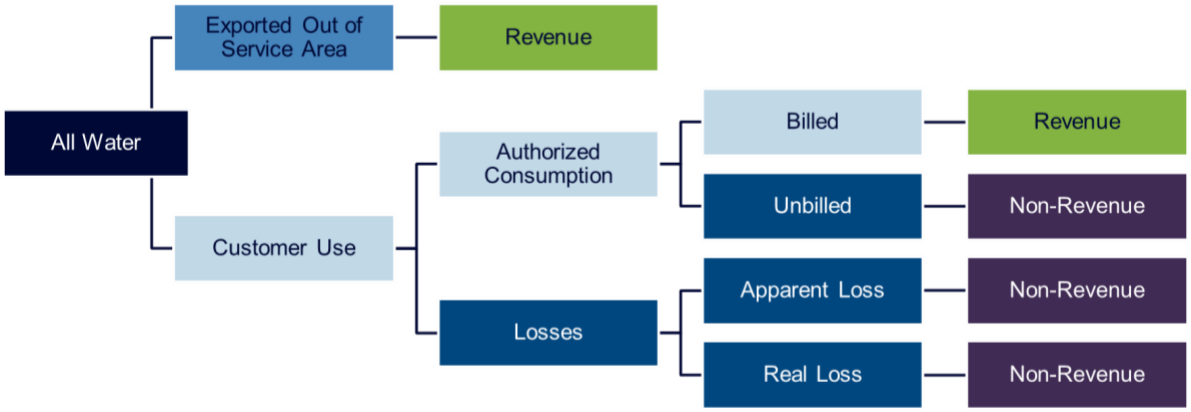
Figure note: GPCD values include non-revenue system losses and exclude wholesale and contractual obligations.

2.2.4 System Water Loss

Every water utility experiences water losses within production and distribution resulting in non-revenue water. Water Utilities uses the American Water Works Association (AWWA) M36 Water Loss Audit standards[12] as required by CWCB. This annual audit is focused on water loss within the distribution system before the customer meters. By collecting and reporting water loss audit data, Water Utilities can increase accountability, recover more revenue, better understand the distribution system, minimize system losses, and track annual variability. The audit incorporates detailed data from various Utility departments to determine types and volumes of water loss, financial loss, and operational efficiency.

The AWWA Water Loss Audit provides a water balance (Figure 12) that compares the volume of water entering a distribution system to the amount of water billed to customers and not accounted for. Each year, Water Utilities can calculate the revenue (i.e., billed) and non-revenue (i.e., physical losses like leaks, and apparent losses like unbilled water uses or data inaccuracies) water from this balance.

Figure 12. Water balance components evaluated in water loss audits



From 2019 to 2023, total non-revenue losses for the treatment and distribution system were estimated to range from 157 to 391 MGY. Of this, Water Utilities estimates that real physical losses from distribution system leaks range from 81 to 195 MGY. Although these real physical losses are an area of opportunity for water efficiency savings through leak detection, maintenance, or operations, the AWWA analysis predicts that some amount of real losses are unavoidable and will persist. Through Water Utilities' Leak Detection Program, crews continually monitor for system leaks with electronic leak-detection equipment and repair water main lines. Approximately 500,000 linear feet of main line is surveyed annually (about 20% of the full distribution system) and approximately 100 main breaks are repaired annually.

[12] Available online at awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control

In addition to the non-revenue and revenue water volume, Water Utilities tracks three other annual water loss metrics to understand the potential scale of non-revenue losses and the confidence in the audit results:

- Water Loss per Connection per Day: From 2019 to 2023, the average daily water loss per connection was 19.6 gallons.
- Data Validity Score: From 2019 to 2023, the average data validity score was 56.8, which was within the expected range and indicated confidence in the input data.
- Infrastructure Leak Index: From 2019 to 2023, the average infrastructure leak index was 0.54. Leak index values less than 1.0 indicate that either loss control is highly effective, or a portion of audit is flawed, and some losses have not been documented.

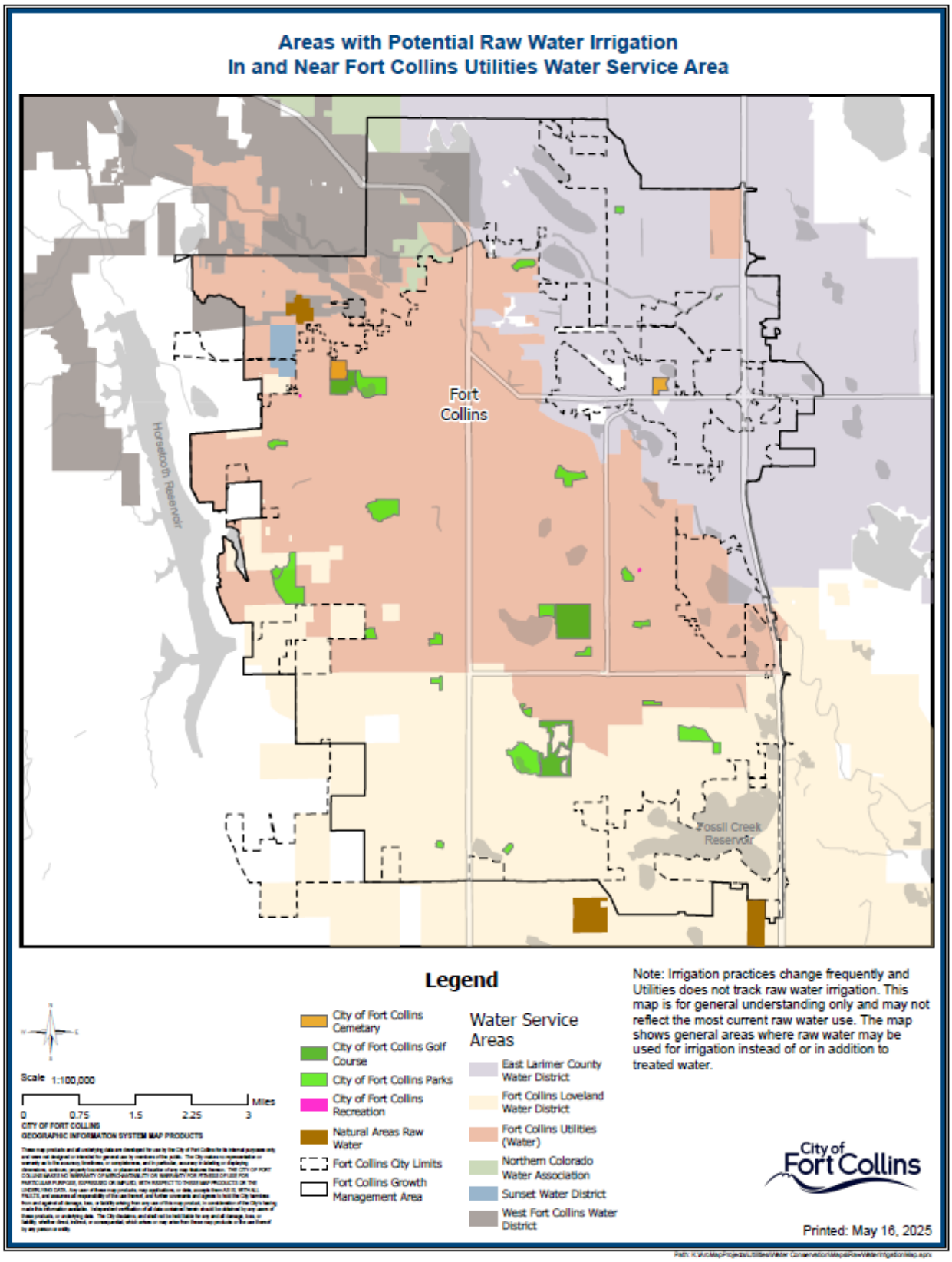
Water Utilities staff will continue to complete annual AWWA water loss audits and work to evaluate input data and results to improve understanding of both physical and apparent water losses.

2.2.5 Raw Water Use

In general, raw water use is managed through agreements separate from Water Utilities and is not subject to Water Utilities' jurisdiction. Therefore, Water Utilities is not considered a dual water provider (as defined in the CWCB's WEP guidance) and raw water uses are not discussed in detail in this WEP. Many entities, including private owners, schools, higher education, and HOAs irrigate with raw water.

The City diverts about 3,000 AFY (978 MGY) of raw water to irrigate City parks, golf courses, cemeteries, greenbelt areas, agricultural lands, and some school grounds. Water Utilities also provides approximately 4,000 AFY (1,300 MGY) of raw water to other entities to meet obligations and to fulfill exchanges and agreements. The City and Water Utilities recognize value in prioritizing raw water over treated water for irrigation, particularly due to lower water cost and avoiding unnecessary water treatment and distribution resources. Irrigation ditches and ponds used to convey and store raw water can provide ecological benefits such as habitat and wildlife corridors, although water loss through seepage and evaporation can also occur. City properties that have some areas of raw water irrigation are shown on Figure 13.

Figure 13. City properties that use raw water irrigation



2.3 Past and Current Demand Management Activities

This WEP update builds on past efficiency program strategies. Water Utilities created its first water efficiency position in 1977, and efficiency staffing and actions have continued to increase over time. A brief history of Water Utilities' water efficiency goals and activities is provided in Appendix A.

The City and Water Utilities have a strong commitment to efficiency that is evident in a long history of working with community members to lower water demand, respond to shortages, and maintain a high quality of life that includes beautiful, healthy landscapes. Water Utilities' programs help customers collectively reduce 155 MGY on average, an annual reduction of over 2.3% in water demand. Water Utilities' portfolio of current and planned new efficiency strategies is discussed in detail in Section 4, with additional information provided in Appendix C.

Figure 14 shows tracked annual water savings from water efficiency programs. Annual efficiency savings include only the water savings estimated for new actions implemented in a given year. This is a conservative approach that avoids over-estimating impacts that can vary year-to-year due to changing individual behaviors, However, many efficiency actions have ongoing savings that can continue for years (e.g., installing an efficient toilet or replacing turf with a xeric landscape). Even more water savings come from actions such as education, outreach, and marketing, with hard-to-measure water use impacts. Our active efficiency and educational strategies, as well as external influences including statewide regulations and passive savings from new technologies, together help Water Utilities manage overall water demand despite upward pressures from climate change and growth.

Figure 14. Annual treated water demand and savings from water efficiency programs

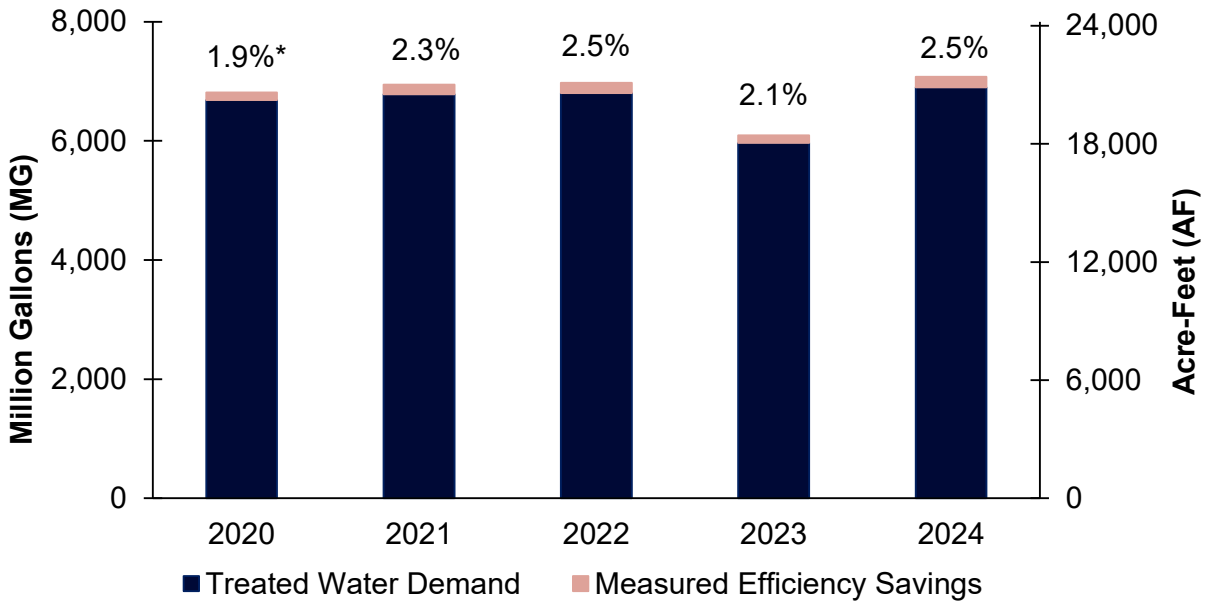


Figure notes:

Treated water volume shown includes non-revenue losses and excludes wholesale and contractual obligations. 2024 values are draft and subject to change.

** This chart shows the 2020 efficiency program savings of 130 MG. In that year, an additional 105 MG reduction resulted from 30 days of mandatory restrictions due to an infrastructure project and wildfire.*

2.3.1 Demand Management for Short-Term Water Shortages

The Water Shortage Action Plan (WSAP) establishes conditions and restrictions to manage Water Utilities' water supply in the event of projected shortages as established by City Code Section 26-167(a). A water shortage occurs when the projected water supply is less than the anticipated water demand as defined by the policy. Events including drought, water quality issues (i.e. contamination, fire, etc.), and infrastructure issues (i.e. pipeline failure, required water treatment facility maintenance, etc.) are all possible water shortage risks.

The response actions identified in the WSAP are designed to rapidly achieve short-term solutions. In contrast, the current and proposed efficiency and demand management strategies described in this WEP are intended for long-term water demand management. Some shortage response actions may also be appropriate as long-term demand reduction strategies and have been evaluated as possible WEP strategies.

2.3.2 Land Use and Water Integration with Demand Management

Demand management is supported by thoughtful integration of water and land use planning to consider current and future water needs together with development and growth patterns. In planning for future scenarios, it is critical to consider the relationship between land use and water efficiency. The City of Fort Collins has participated in two Growing Water Smart workshops in recent years that have each been attended by the Planning, Transportation, and Development (PDT) team as well as Water Utilities staff. Those workshops, along with other business needs, have helped to foster regular interaction between the Water Conservation, Water Resources, PDT, and City leadership teams. Water Conservation staff play an active role in the Development Review process by examining and approving all commercial and multi-unit residential irrigation plans in compliance with the City's Land Use Code. PDT and Water Conservation staff have collaborated to update landscape ordinances, including a requirement that caps the average annual maximum commercial landscape water requirement at 11 gallons per square foot. As of 2022, the WSR is commensurate with the estimated water demand of the new landscape, so developers are further incentivized to design and install low-water landscapes. Descriptions and estimated water savings from water efficiency activities and strategies that integrate closely with land use are included in Appendix C.

2.4 Demand Forecasts for Water Efficiency Planning

For this WEP, the portion of water demand associated with customer water use is most relevant to water efficiency programming and is tracked and predicted on short-term monthly or annual time scales. This WEP does not provide detailed demand forecasts for overall water supply planning but instead focuses on demand projections associated with billed residential and

commercial water use plus non-revenue losses associated with distributing treated water to those customers.

Future water demands are largely dependent on population change, growth patterns, service area boundaries, rates of commercial and industrial development, and climate. The rates and patterns of population growth and associated water demands are also influenced by the economy, land use policies, development incentives, and other factors.

2.4.1 Population Projections

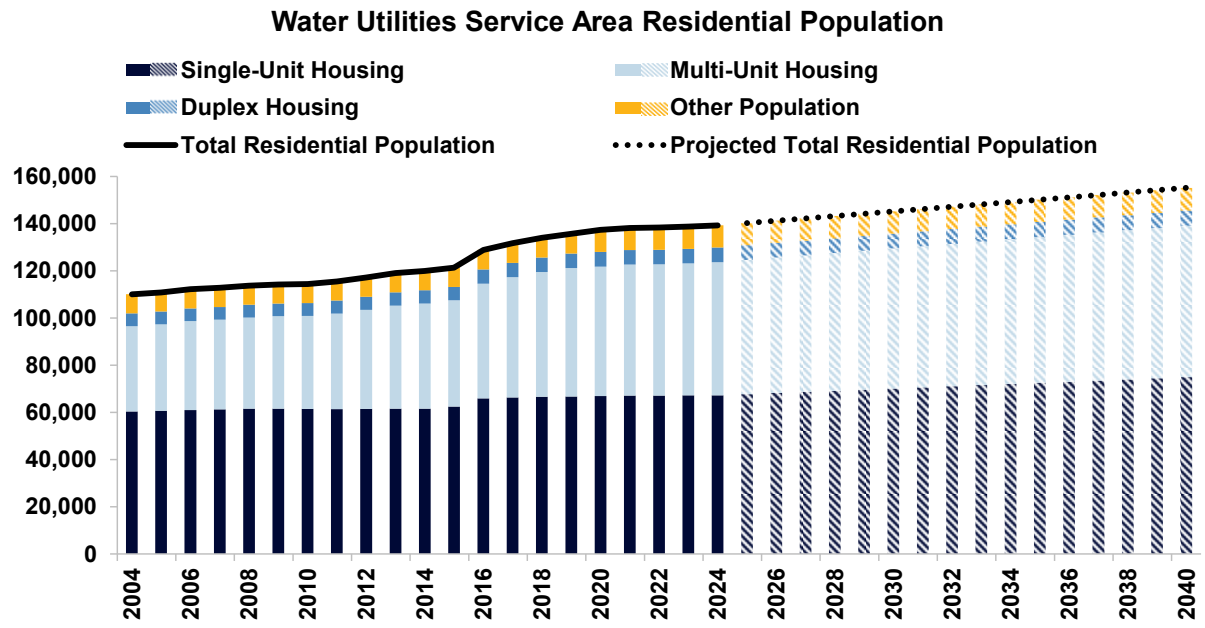
Estimating the current and future population to be served by Water Utilities is challenging. Its service area boundary does not coincide with the city limits and, therefore, official population estimates from the U.S. Census or other sources cannot be directly used. Staff have adjusted population estimation methodologies over time. The current service area population is determined based on the estimated number of residential units multiplied by the average number of persons per unit, plus the estimated population living in group quarters. Service area population is re-calculated each year to reflect changes, particularly the number and type of residential units. The current service area population estimates are lower than past estimates due to an updated methodology as well as observed slowing in rate of growth. Based on U.S. Census data for the entire City of Fort Collins, population growth averaged 3-4% annually in the 1960s-1980s, and 2-3% annually through the early 2000s. Recently, the rate of growth has slowed to about 0.1% per year from 2020-2023.

Water Utilities and PDT staff collaborate to align data and develop the methodologies used to project future population. Staff estimate the number and type of expected residential units based on available undeveloped land, zoning density allowances, and an estimated amount of growth from redevelopment following full buildout of undeveloped land. Water Utilities then uses the expected number and type of residential units to project future population.

It is anticipated that Water Utilities' water service area and the current city limits will reach build-out near 2040, meaning that all vacant, buildable land will be developed. Buildout of the GMA is likely expected to occur after 2050, which could influence growth patterns within the Water Utilities service area. After buildout, it is assumed that the water service area population will only grow via redevelopment. Variables that drive population growth and water demands during redevelopment include changes in population density, landscapes, and conversion of commercial spaces to mixed use or multi-unit residential. Due to the unpredictability of these variables, a range of growth scenarios are used to evaluate possible future demands.

Figure 15 presents recent and projected residential population growth in the water service area. The projections are based on the current amount of land available for development, current land use zoning, and assume buildout by 2040. Water Utilities will continue to update population projections using the best available data. Updated City population projections will be included in the next municipal comprehensive plan update and will be incorporated into the next WEP update.

Figure 15. Current and projected population for the Water Utilities service area



2.4.2 Demand Scenarios

A variety of future conditions that impact water demand are possible for the Water Utilities. Two bounding scenarios were used to estimate the range of demands for water efficiency planning in this WEP:

- **Moderate growth, no climate change** – This "status quo" scenario is based on residential growth projections shown in Figure 15 that assume development of available land by 2040 and current land use zoning, with a service area residential population of 155,150 in 2040. This scenario assumes that temperature and precipitation are consistent with what Fort Collins experienced during the recent 30-year period from 1991-2020 (average lines shown in Figure 4).

- **High growth, hot and dry** – This "higher demand" scenario is based on higher residential growth (more multi-unit dwellings and higher average persons per household), with a service area residential population of 164,280 in 2040. This scenario also assumes that the number of commercial water accounts increased by 10% by 2040, for all commercial sectors. Finally, this scenario applies the upper (mean plus one standard deviation) monthly maximum temperature projections and lower (mean minus one standard deviation) monthly precipitation projections for Fort Collins based on downscaled local climate model projections, as described in Section 1.3.1 and shown in Figure 4.

Both scenarios assume current levels of passive and active water conservation, and assume 8% distribution system loss.

2.4.3 Residential and Commercial Demand Projections

Customer demands are highly variable, can be further analyzed by customer type, and are influenced by demand management, weather, and land use development patterns. These variable customer demands are the focus of efficiency planning and tracking. Past customer demand trends are presented in Section 2.3. Future demand projections provide the foundation for setting the efficiency goals defined in Section 3 and the efficiency strategies described in Section 4.

Water Utilities staff work with consultants to model future water demands. Two key modeling tools are the new Water Efficiency Tool (WET), developed for this WEP update to enable examination of the potential water savings of certain efficiency programs, and the Demand Estimation Tool (DET) developed for the 2019 Water Supply Vulnerability study. Both models[13] evaluate the complex interactions that drive water demand and can be used to predict future demands for the Water Utilities service area under a range of growth, economic, and climate scenarios.

Figure 16 presents historical residential and commercial customer demand (including system losses but excluding large contractual obligations and wholesale), with projected future demand based on modeling a range of possible population growth and climate scenarios. The projections are based on existing levels of water efficiency savings and do not include potential savings from new strategies identified in Section 4. The modeled projections indicate that without efficiency and/or significant changes in landscaping choices, outdoor water use will likely increase over the coming decades as customers strive to maintain their landscapes in a hotter and longer growing season. As discussed in the Water Supply Vulnerability Study, increased demand could drive more frequent water shortages and resulting restrictions.

[13] The WET model was developed specifically to evaluate how water given efficiency strategies impact customer demands in a variety of scenarios. The intended outcome (efficiency planning) and hybrid econometric/end-use specific projection mechanisms in WET are distinct from past GPCD-based projections (such as used in long-term supply planning and for the Halligan Water Supply Project) or the demand estimation tool model, which supported risk analyses in the 2019 Water Supply Vulnerability Study. Instead, the WET focuses solely on the subset of total water use associated with billed residential and commercial customer demands. The WET was not used to predict future large contractual or wholesale demands, does not incorporate storage reserve targets, and does not include a water supply component. WET is a hybrid model that integrates (1) econometrics to examine the impacts of demographic, economic, and climatic factors on water demand variability with (2) water end-use accounting, which is the systematic analysis of how water is used at the household or unit level by residential or commercial “end-users”.

Figure 16. Historical (2000-2024) and range of projected (2025-2040) water use under possible future climate and growth scenarios

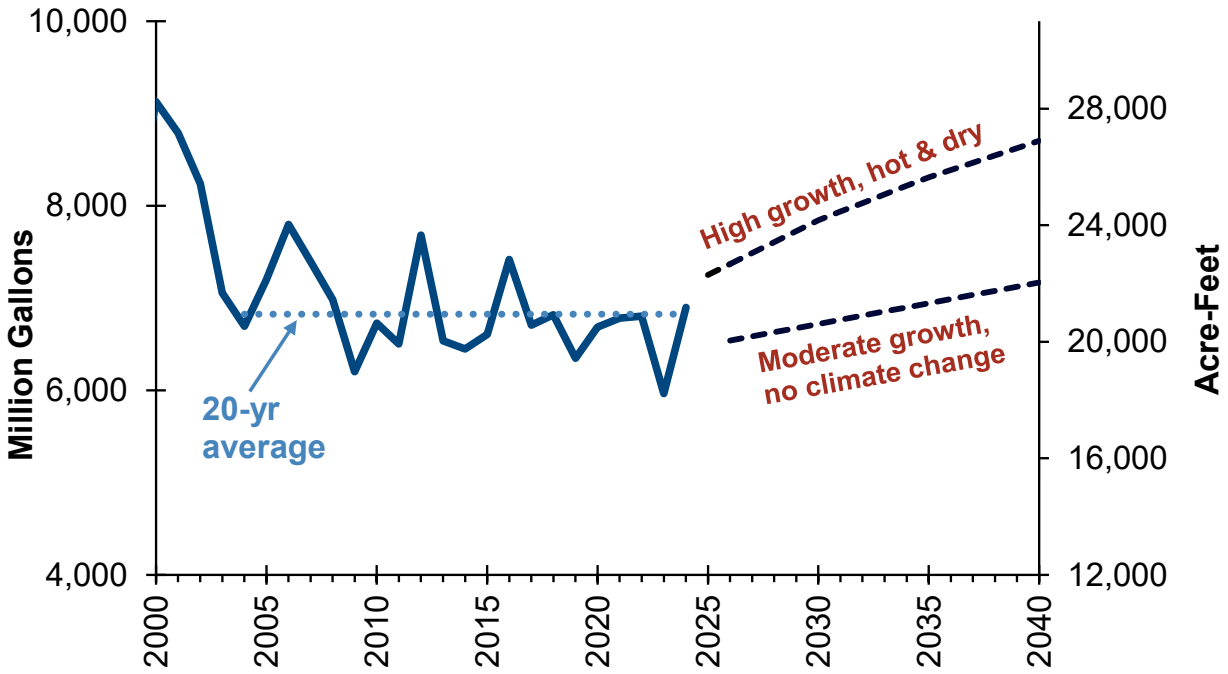


Figure note: Historical water use and projections include customer demands and non-revenue losses, and exclude wholesale and contractual obligations.

2.4.4 Additional Considerations for Overall Water Resource Supply Planning

Overall water supply planning is led by the Water Utilities Water Resources Division and includes all aspects of supply needs including obligations, contractual agreements, system-wide reuse, losses both upstream of treatment and in distribution, and reserve factors. The WSDMP, described in Section 1.2, defines Water Utilities' overall water supply planning criteria. The Water Resources Division tracks and projects all water supply needs for comparison to the supply yields presented in Section 1. Key water demand considerations for overall supply planning are presented here for reference, but are not factored into WEP water efficiency goals, savings projections, or analysis of historical demand by customer sector:

Large Contractual Obligations

Water Utilities has contractual obligations to provide water for the current and future demands of certain large industrial water users. Large contractual users' (LCUs') water use is estimated separately from population-based customer water demand projections and is not included in the GPCD metric because it can significantly skew the per capita demand rates. For long-term supply planning, LCU projections are added to projected customer demands, which are based on population projections and the 150 GPCD set in the WSDMP. The total LCU water use for 2040 is estimated to be about 8,000 AFY and will require a mix of single-use and reusable water sources.

Wholesale Water Treatment

Through an agreement, Water Utilities provides wholesale treated water to the approximately 4,000 WFCWD customers, and most of those customers are residential. In return, Water Utilities is reimbursed with an equivalent amount of C-BT supply. Water Utilities delivered an average of 163 MGY (500 AFY) of treated water to WFCWD over the last decade. Because the treated water is reimbursed, WFCWD demand is not considered in planning for future storage/water right needs.

Commercial Allotments

Water Utilities assigns non-residential water customers an annual water allotment pursuant to Sec. 26-149 of the City Municipal Code. Water use that exceeds the annual allotment is subject to an excess water use surcharge. Unlike regular utility rates, which cover the cost of operation and maintenance of the distribution system, revenue from surcharges go toward acquiring, developing, and improving Water Utilities' water resources to lessen the impact of customers exceeding their planned water demand. Both the used and unused volume of allotments is tracked annually for supply planning purposes. Commercial customers collectively use about 41% of the total allotments issued. However, this varies from year-to-year based on economics, irrigation needs, or other factors.

3 Integrated Planning and Water Efficiency Benefits and Goals

Water efficiency is a key component of the City's One Water approach to collaborative and holistic water resource management that promotes healthy watersheds, resilient communities, and water equity.

City of Fort Collins Water Utilities' mission statement: We are a One Water Utility, providing exceptional water services for our community through integrated, resilient, and equitable practices and systems.

The collaborative One Water approach aligns with the WEP guiding principles and drove the WEP update process:

- Selection of water efficiency goals (Section 3.1)
- Integrated land use planning and water efficiency (Section 3.3)
- Applying an equity lens to engagement and efficiency implementation (Section 3.4)
- Engagement with community and City staff (Section 3.5)
- Selection of efficiency strategies (Section 4)

In addition to applying a One Water approach, this WEP update strives to align with key related policies and plans, described in Appendix B, that provide direction and/or complement Water Utilities' water efficiency efforts.

Collaboration with Other Water Providers

Some areas within Fort Collins' growth management area are served by neighboring water providers. The largest adjacent water providers, ELCO and FCLWD, have their own WEPs that describe goals and strategies for their service areas. Water Utilities values these partnerships and continues to look for ways to collaborate through coordinated information-sharing, planning, communications/outreach, and efficiency strategies.

Important differences exist between the Water Utilities, ELCO, and FCLWD, including source water supply portfolios, organizational policies, size, staffing, mission and vision, financial resources, and growth patterns. Through ongoing and increased collaboration across water providers, there are opportunities for to better plan for risk and improve the resiliency of the water supply systems, and improve alignment and understanding of policies, plans and processes to best serve customers. An analysis conducted in 2021-2022 by consultants, titled "Water Resources Matters in the Fort Collins Growth Management Area: Study Report Results,"

identified over 100 challenges and potential solutions to improve coordination across water providers.

Current strategies for collaboration and coordination between water providers include:

- Interconnected infrastructure in the treatment and distribution systems
- Regular information sharing about water supply and potential restrictions status
- biannual check-in meetings with FCLWD through the Water Utilities Business Resource Team, which supports industrial customers

The WEP includes new strategies expected to encourage collaboration across water providers, such as:

- Establish regular contact and information sharing between Fort Collins water providers and Planning staff
- Integrate water into strategic plans and policies
- Support One Water efforts and an integrated demand management approach

3.1 Water Efficiency Goals

This WEP sets two water efficiency goals to guide Water Utilities, City, and customer actions (Table 4). The goals reflect community feedback, staff input, and a commitment to act now to build resilience and minimize future water shortage risks.

Goal 1 was set based on a "top-down" analysis of expected demand increase paired with a "bottom-up" analysis of feasible savings: Staff estimated future water demand increases based on a range of growth and climate conditions ("top down"), then set a reduction goal based on (1) outperforming historical Water Conservation Division program savings of approximately 2% each year, paired with (2) analysis of cumulative potential water savings from efficiency strategies described in Section 4 of this WEP ("bottom up").

The volume of savings associated with the 4% reduction in Goal 1 is determined based on projected demands for Water Utilities' customers under a range of future growth and climate scenarios. Because demands vary year-to-year, for a specific percentage reduction target (i.e., 4%) the volume (millions of gallons) of savings would go up or down based on variability in consumption. Staff estimate that a 4% reduction in 2040 demand is estimated to require 290 – 350 MG (890 – 1,075 AF) of efficiency savings which reflects the range of estimated 2040 demands driven by different climate and growth scenarios. This level of savings would be an increase of more than two times over average measured Water Conservation Division savings from 2020-2024. To gradually progress to the final 2040 goal, interim annual targets will be tracked from 2030-2040.

To illustrate this concept, Figure 17 shows recent historical customer treated water use (solid blue line) and the projected range of future customer water demands without efficiency

programs under different climate and growth scenarios (dashed blue lines). The green shading represents how the projected customer demands could be lowered with successful attainment of Goal 1. The green diamonds on Figure 17 represent average efficiency savings from interim and final Goal 1 targets. It is important to note that the annual percent reduction targets do not compound year-to-year and will *not* put Water Utilities on a track to zero water use in the future. This approach acknowledges that overall Utility-wide demand is likely to increase over time due to growth and climate change, even with increased efficiency actions and savings

Goal 2 was set based on collaborative discussions across City departments and alignment with the two-year municipal budgeting cycle, with the intent to average one new landscape resilience project with each two-year cycle.

Table 4: Water efficiency goals

Goals	Applicability	Objectives	Key Actions	Metrics
Goal 1: Reach 4% annual reduction in water use by 2040 to reduce risk of shortages	Treated water use in the Water Utilities water service area, including residential, commercial, and City water use	• Gradually lower demand to minimize the frequency and magnitude of water shortages • Offset a portion of increasing demand driven by increasing temperatures from climate change; we anticipate 320 MG savings is expected to offset the demand increases driven by an average increase in monthly maximum temperature of approximately 2°F by 2040, which is a plausible future scenario for Fort Collins based on climate models. • Reduce barriers, expand access to efficiency opportunities	• Target 1.1: By 2040, lower overall annual treated water use by 320 MG (980 AF) below projected water use • Target 1.2: Double the volume of savings from efficiency strategies by 2040, relative to 2020-2024 average performance • Target 1.3: Lower treated water use at City properties by a total cumulative volume of 5 MG (15 AF) by 2040 average performance	From 2030 – 2040, interim annual targets will be tracked, increasing to the 4% reduction goal: • 2030: 3% reduction, estimated at 220 MGY (675 AFY) • 2035: 3.5% reduction, estimated at 270 MGY (830 AFY) • 2040: 4% reduction, estimated at 320 MGY (980 AFY)
Goal 2: Improve water efficiency and build resilience on City-owned landscapes, to benefit the community and environment	City-owned landscapes (not limited by location or water source); projects that lower treated or raw water use and/or build landscape resilience on City-owned properties within the Fort Collins GMA will count toward this target	• Build resiliency in City-owned landscapes to prepare for a hotter future • Prioritize water use for landscapes and places that most benefit the community • Create highly visible projects that inspire water-saving actions by individuals and businesses • Contribute to the overall WEP Goal 1 by lowering the City's water use	• Target 2.1: The City will implement at least 1 new water saving project in each 2-year municipal budget cycle, for at least 7 new projects on City landscapes by 2040.	The number of projects, associated water savings, and total project area will be measured each year.

Figure 17. Water Efficiency Goal 1 interim targets and final 2040 goal

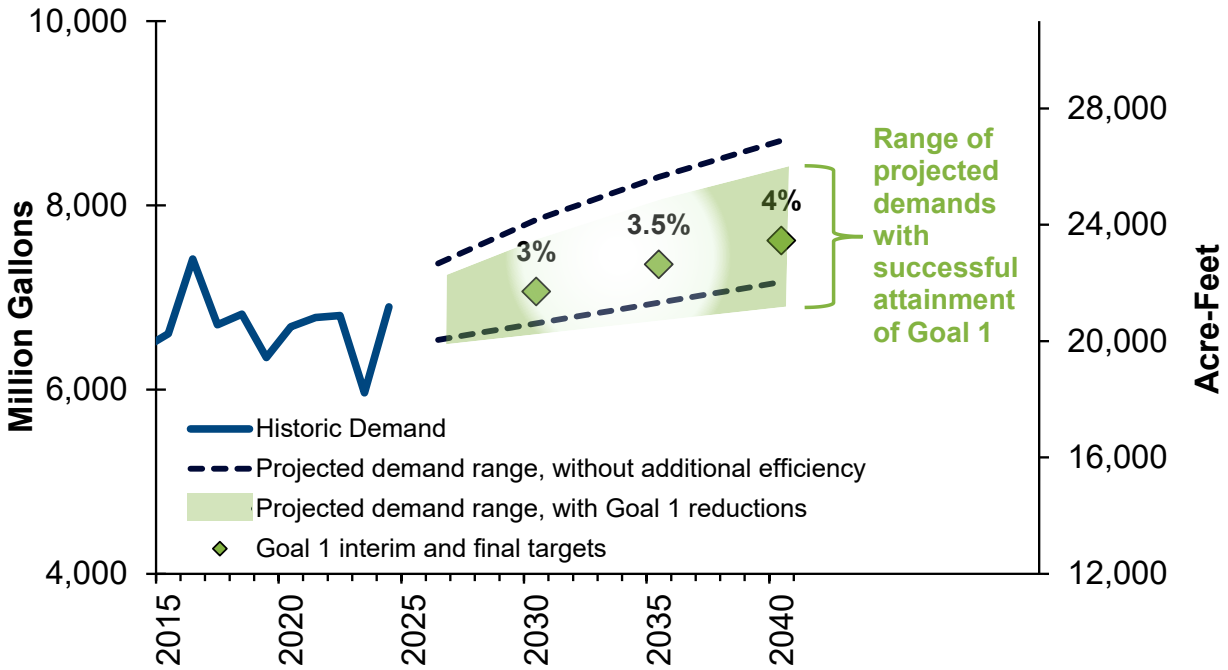


Figure note: Historical water use and projections include customer demands and non-revenue losses, and exclude wholesale and contractual obligations.

3.2 Benefits of Water Efficiency

Water is both essential to life and limited in our region. Water efficiency strategies are cost-effective means to manage water use in a way that minimizes water shortage risk, while providing enough water to support the community's values, including societal and environmental benefits. Some conserved water can be stored for periods of drought, leased for agriculture, and used for beneficial environmental enhancement efforts such as in-stream flow programs. Increased storage provides a physical location for conserved water and enables Water Utilities to take full advantage of savings achieved by customers. See Section 1.3.2 for more information on the role of storage in supply and demand management planning.

By updating water efficiency goals and strategies, Water Utilities aims to continue reducing water use to lower the risk of shortages and increase resiliency for its customers. Among the most significant benefits are the following.

Building Resilience to Drought and Climate Change

Efficiency efforts can help develop a community and landscape that is more resilient to drought conditions, especially during times of declared water shortage, when water restrictions are

enforced. Through support of drought planning and implementation of proactive mitigation efforts, the actions proposed in this plan can help to reduce vulnerability, protect economic health, and ease the effect of drought on individuals, businesses, and landscapes. By increasing water efficiency where it makes sense, like building's plumbing fixtures and unused high water use grass areas, Water Utilities can help prioritize water availability for uses deemed high value by the community, such as trees, which mitigate climate impacts and provide numerous environmental benefits; sports fields, which provide social and physical health benefits; as well as other multi-benefit purposes. Water Utilities could face significant challenges in the years ahead managing both water demands and water supplies. With many uncertainties regarding both water supply and demand, it is prudent to prepare for a wide range of conditions in the future.

Business Stability through Service Continuity

Water efficiency supports long-term economic growth through service continuity that comes from few periods of shortage or restrictions, reducing potentially costly or disruptive impacts to business operations.

Fostering an Efficiency Ethic and Reducing Waste

The success of this plan depends on the cooperation and support of customers. Instilling an efficiency ethic is an important foundation for changing habits and attitudes toward water use. Individual-customer actions make a big difference in protecting quality of life, including today's environment and for generations to come.

Demonstrating a Commitment to Sustainability

The City aims to be leaders in this effort. City properties use about 1.8% of all treated water use in Water Utilities' service area for buildings, recreational facilities, and landscape irrigation that provide services to residents, businesses, and visitors. The City also uses 978 MG (3,000 AF) of raw water to irrigate parks, golf courses, cemeteries, and other greenbelt areas. This WEP update sets savings targets directed at the City's water use.

Providing Water for Multiple Beneficial Purposes

Conservation efforts can help provide more water for beneficial uses beyond normal municipal purposes. For example, the area around Fort Collins continues to be a productive agricultural area, which in addition to representing economic activity, also provides significant open space that many residents desire. When possible, making some of Water Utilities' surplus water available for farmers and ranchers to rent provides supplemental revenue for Water Utilities and its customers. The potential environmental benefits of conserved water are also important. These can include providing additional flow for the local stream systems, supporting in-stream flow programs, improving water quality, enhancing aquatic and riparian ecosystems and recreational opportunities, among other benefits.

Minimizing Increases to Customer Costs

While water rates are expected to rise over time, using less water can help mitigate the pace of those increases by reducing overall system demand and operational costs. In addition to lowering monthly water bills, water efficiency strategies may reduce other costs for a customer when lower water use actions lead to a reduction in energy use, wastewater use, or landscape maintenance.

Reducing Water Utilities Costs

Decisions about water supplies, treatment/distribution capacity needs, and storage facilities are all made in consideration of projected water demand and peak capacity.

- Reduced or delayed acquiring of water rights: if Water Utilities need to acquire additional water equivalent to the Goal 1 reduction targets, this would cost significantly more than the cost associated with the Water Conservation Division programs. Based on 2024 costs, staff estimated that acquiring new water rights currently costs about $0.20 per gallon, while Water Conservation Division programming costs less than $0.01 per gallon saved.

- Reduced treatment and distribution costs: Water efficiency can decrease costs by reducing the amount of chemicals and energy used.

- Delay of capital expansion projects: Decreased wastewater flows have delayed the expansions of the Drake Water Reclamation Facility treatment capacity from 2010 to 2028.

- Reduced Halligan Water Supply Storage project size: The original Halligan Reservoir enlargement planned allotment for Fort Collins was 12,000 AF. Among other factors considered in the federal permitting process, the role of efficiency and the downward trend in per-person water use resulted in reducing the enlargement to 8,200 AF, which represents millions of dollars saved.

- Extra Water Treatment Facility capacity: The Water Treatment Facility was last expanded in 1999, prior to the significant increase in efficiency efforts prompted by the 2002-03 drought. The total Water Treatment Facility treatment capacity of 87 MGD is larger than the expected future peak demand. In 2013, the City entered into an agreement with Fort Collins-Loveland Water District to sell FCLWD up to 5 MGD in excess water treatment capacity.

Avoiding Cost of Inaction

Insufficient action now could lead to future costs, often referred to as the “cost of inaction.” In the 2023 Colorado Water Plan, the CWCB incorporates climate change into planning scenarios and notes that climate change introduces substantial uncertainty. It may increase water demand across all sectors, reduce overall supply, and pose resiliency challenges that must be addressed in current planning. Although water efficiency activities require resources for program materials, incentives, and staff, this investment in water efficiency supports long-term adaptation to climate change, builds resilience, and avoids potential future climate-driven costs.

Although these costs are hard to predict, one example is the potential damage to the Fort Collins' public trees, which have an estimated total replacement value of $112 million. Trees provide essential ecological services, including air purification and heat island mitigation. In addition to the environmental cost of services lost, replacing a single tree costs $350 - $450, and each tree requires intensive care and maintenance for the first two years after planting.

At a broader scale, the CWCB's Future Avoided Cost Explorer (FACE) calculator estimates that, under a medium climate change and moderate growth scenario, Larimer County will experience a cost increase of 5.1 times the current cost due to climate-driven hazards. Estimated total damages could reach $9.7 million--or $20 per person--based on projected impacts to livestock, crops, and recreation.

3.3 Summary of Integrated Land Use Planning Strategies

Integrating water and land use planning minimizes risk of future water shortage by considering water needs together with development and growth. In planning for future scenarios, it is critical to consider the relationship between land use and water efficiency. Looking ahead, it is anticipated that Water Utilities' water service area will reach build-out near 2040, as described in Section 2.4.1, while adjacent areas will continue to develop. Changes in housing density, landscapes, and conversion of commercial spaces to mixed use or residential are all variables that could influence future water demands but are hard to predict.

Most development activity within Water Utilities' water service area is overseen by PDT, the City of Fort Collins' land use authority. The department plays a central role in managing land use, zoning, and development proposals. Properties served by other water districts in Fort Collins city limits (Figure 2) are subject to City land use authority. Larimer County or other municipalities have land use authority over properties outside of Fort Collins' City limit and may be served by Water Utilities or one of the other Fort Collins water providers.

3.3.1 Current Strategies

The City and Water Utilities have prioritized integration of water and land use planning through many long-term and current strategies, which are briefly listed in Section 4, with additional details in Appendices C and D. These strategies are primarily focused around collaboration and thoughtful policy, through actions such as cross-departmental participation in Sonoran Institute's Growing Water Smart workshops, basing WSRs for new development on business use and landscape needs (see Section 1.3.4), and incorporating landscape, irrigation, and soil ordinances into the City's land use codes.

3.3.2 New Strategies

Water Utilities and PDT have reviewed and considered all strategies in the CWCB's Best Practices for Implementing Water Conservation and Demand Management Through Land Use

Planning Efforts and have plans to develop the new land use-focused strategies identified and described in Appendices C and D.

3.4 Equity in Water Use and Demand Management

Numerous City and State efforts support equity in water planning (see Appendix B). The City of Fort Collins Office of Equity and Inclusion promotes a people-centered, community-focused approach so that people of all identities can fully participate in City services and experience equitable community outcomes. The Office of Equity and Inclusion defines equity as both a process and an outcome: “A **process** by which policies, programs and tools are developed to ensure the elimination of existing disparities and includes inclusive engagement that leverages diversity. It becomes an **outcome** once a person's identity or identities no longer impacts their ability to experience equality and access to services.” For water efficiency, Water Utilities and the City can impact equity through processes, like updating this WEP, and through outcomes, like efficiency program and policy strategies.

Staff applied an equity lens throughout the WEP update process. This helped create an inclusive engagement process that placed importance on hearing from disproportionately impacted community members, and in turn elevated efficiency strategies that resulted in more equitable outcomes.

An important guiding principle for the WEP update is to develop inclusive community-driven water efficiency goals and strategies through broad engagement, as well as connecting with and elevating input from disproportionately impacted community members. This includes community members who might have the greatest negative impacts from water bill costs or climate change and community members who have lower historic efficiency participation rates. They may also face barriers to both participating in and benefitting from water efficiency programs and strategies. Together, Water Utilities refers to these as “disproportionately impacted groups” in this WEP, which includes the 14 historically underrepresented groups identified in the City’s Our Climate Future initiative, as well as renters, new residents, and English as a second language customers.

What is a Disproportionately-Impacted Group?

Leading with equity in process means asking who is most impacted by a decision. The WEP update focused engagement resources towards connecting with

- Community who might have the greatest negative impacts from water bill increases or rising temperatures,
- Community members with historically lower participation rates in water efficiency programs, including low income, communities of color, renters, new residents, and non-English speakers,
- The 14 historically underrepresented groups identified in Our Climate Future (some of which are also identified as having low participation):
    - Communities of color
    - Community members under age 29
    - DACA students
    - LGBTQIA+ communities
    - Local indigenous communities
    - Migrant communities
    - Communities of disability
    - Veterans
    - Religious minorities
    - People experiencing homelessness
    - People living in manufactured homes
    - Commuters
    - Low-income communities
    - Small businesses

These identities overlap and intersect. Water Utilities recognizes that many people are part of multiple groups.

3.4.1 Equity in Engagement

WEP engagement included paid community consultants, input from the City's Climate Equity Committee, meetings with community members who identify with one or more EPGs, equity one-on-one interviews, an equity question in the broad survey, and reducing barriers to participation in WEP engagement (Spanish translations, survey paper format and tabling in public spaces, providing food, childcare, and efficiency giveaways at meetings). Further details about all engagement activities conducted and feedback received are presented in Section 3.5 and Appendix B. Participants provided feedback that informed current and future communications and marketing, educational and incentive offerings, policy development, equity evaluations, and outcome metrics. Themes observed from engagement included key equity-related challenges for the community: affordability, renter autonomy, accessibility to programs and services, and the need for long-term relationship and trust building between the community and City organization.

> "It is expensive to be poor, and our policies and subsidies should seek to combat this issue. **Subsidies and grants** should be easily available to help people afford the changes needed to reduce water use — **rebates don't go far enough** to help those who cannot afford the upfront cost."
>
> - *WEP Survey Respondent*

3.4.2 Equity in Outcomes - Strategy Selection and Implementation Planning

To apply an equity lens to efficiency strategy selection, Water Utilities developed a two-step equity evaluation tool to analyze, revise, and prioritize potential WEP strategies. To ensure community input shaped how equity was defined and assessed in the equity evaluation tool, the project team conducted a series of informational interviews with community leaders and with City staff who have been involved in equity efforts.

The tool was designed to identify barriers and improve the accessibility of each strategy evaluated. The evaluation consisted of two steps:

Step 1 - Barrier and Burden Assessment

Initial check of whether the strategy has obvious equity issues, based on staff knowledge of the burden of compliance, unintended consequences, and barriers to participation. This assessment was applied "midstream" in the efficiency strategy selection process to inform both final selection of the short list of proposed strategies, as well as to identify which strategies might need refinement to improve equitable access and positive outcomes. The following key questions guided the assessment:

- Does the strategy have any fundamental barriers that prevent participation by disproportionately impacted groups? (e.g., Internet or cell phone access, travel requirements, home ownership, access to private outdoor space, expertise)
- Is this strategy a reimbursement program, where an upfront purchase is required to participate?
- Could this strategy disproportionately place the burden of compliance on a disproportionately impacted group?
- Could this strategy have negative unintended consequences that disproportionately impact equity-priority groups? (e.g., Non-functional turf may not account for informal uses of green space, rate increases passed on to renters rather than building owners reducing consumption)

Step 2 - Potential to Support Positive Equitable Outcomes Evaluation

For the final list of proposed efficiency strategies, assess the extent to which each strategy can support equitable outcomes for equity-priority groups. A range of questions were applied to each strategy to assess whether the strategy was likely to have a high, medium, or low support of the following desired equity outcomes:

- Preserving water for now and for future generations, including disproportionately impacted community members
- Accessible participation for all, including disproportionately impacted community members
- Investment in and partnership with disproportionately impacted community members
- Affordable water bills
- Minimizing financial water burden

The equity evaluation tool is designed for ongoing use, including before, during or after a water efficiency activity is in place. Staff are considering how to incorporate it into annual project planning and reviews, as well as regular learning opportunities with the community. The equity work conducted for the WEP update is just a starting point. Staff will continue applying these tools to improve access, participation, and efficiency benefits across the community.

3.5 Community Engagement

Water Utilities is committed to thoughtful planning and public participation in government, and community input was vital in shaping the WEP and its associated efficiency goals and strategies. Engagement strategies drew on the One Water integrated and collaborative planning approach, with tactics to broadly engage all water customers while focusing resources on

connecting with disproportionally impacted communities. This resulted in the development of inclusive and community-driven water efficiency goals and strategies.

WEP Engagement Objectives

- Center engagement in diversity, equity, and inclusion.
- Center engagement in a One Water approach.
- Ground engagement in water conservation education opportunities that increase awareness of current opportunities and recognition of the value of efficiency activities.
- Collaborate with City Staff to determine organizational water use goals and priorities for efficiency strategies.
- Collaborate with specific people, including disproportionately impacted, marginalized and historically excluded community members, to understand values, needs, and barriers.

From 2023 through June 2024, engagement captured over 5,000 touchpoints via:

- Survey (1,319 community responses)
- Our City web page
- Advertisements
- In-person meetings hosted by community consultants
- Focus groups and meetings with targeted water users including City departments, HOAs and small businesses
- Meetings with community members who identify with one or more disproportionately impacted groups
- Consultant-led one-on-one interviews
- Input from the City's Climate Equity Committee[14]

Engagement tactics and results are presented in more detail in Appendix B.

3.5.1 Incorporating Feedback into Goals and Strategies

After evaluating raw data from community feedback, staff incorporated feedback from City departments to create guiding themes for goal and strategy development. These themes were critical to developing the WEP goals described in Section 3.2 and the strategy selection process described in Section 4.

The overarching community and staff engagement themes that guided efficiency goal and strategy development were:

- Community values that inform efficiency goals
    - Concerns about water scarcity and providing for future generations
    - Willingness to take action
    - Want all community members to take responsibility and action
    - Support for landscape change away from turf grass

[14] The Climate Equity Committee (CEC) was formed to support the equitable implementation of Our Climate Future.

- Characteristics of efficiency strategies that are generally supported by the community
    - Strategies should show impact by lowering demand at multiple water use levels: individuals, highest users, and municipal.
    - Support upgrades to water-efficient fixtures for both indoor (e.g., plumbing) and outdoor (e.g., irrigation) uses by making them free or inexpensive, and providing installation support.
    - Reduce existing turf and encourage water-efficient landscapes
    - Support customers with leak issues
    - Use regulations to manage some water uses, including new growth, non-functional turf, commercial users, and the highest water users
    - Provide inexpensive actions that save money
    - Provide more education for everyone, specifically:
        - Target HOAs, landscapers, homeowners, and disproportionately impacted communities with resources specific to them
        - Remove barriers by coming to people in places and ways where they are already gathering and comfortable

WHAT WE HEARD **FROM THE COMMUNITY**

“As climate change becomes more severe, water is going to be absolutely critical. I'm concerned about cost of water in the future and how that will affect marginalized communities.”

“We would like to see the City offer some additional assistance or educational opportunities for people so they can be a participant in the City's services and help to meet future challenges.”

“Equal access to safe drinking water at reasonable rates, as well as water to allow for green spaces/trees in all neighborhoods.”

“What is the City of Fort Collins doing to lower its water usage? The City of Fort Collins needs to lead by example.”

“HOAs would like to see the City share best practices shared with HOAs and contractors, so the right things can happen at the right time, both have increased understanding.”

“Offer repair/replacement of dripping faucets, toilets, showers. Many inexpensive repairs can save a lot of water for those without the wherewithal to do the work themselves.”

Many mobile home residents shared… “There is not help for infrastructure or pipes. If you have leaky pipes, need a plumber, have a leak under your home, that’s all out of pocket and usually avoided due to high cost.”

“I think the focus should be on people who can’t afford to do things like change out their shower heads, replace grass with natural, local plants, etc. We did this with no support, but it was costly. Our water bill is much lower because we use so much less but people who can’t afford this need support.”

“There is a strong interest in learning more about xeriscaping and water-efficient landscaping techniques, particularly how to adapt these practices to different yard sizes and business properties.”

“New construction should be designed from the outset to use less water, since the cost of doing it up front is much less. Beyond that, efforts should focus on the highest water users first.”

“The City needs better building codes so new apartment buildings don't have "freeze warning" signs out when it is cold telling tenants to drip their faucets.”

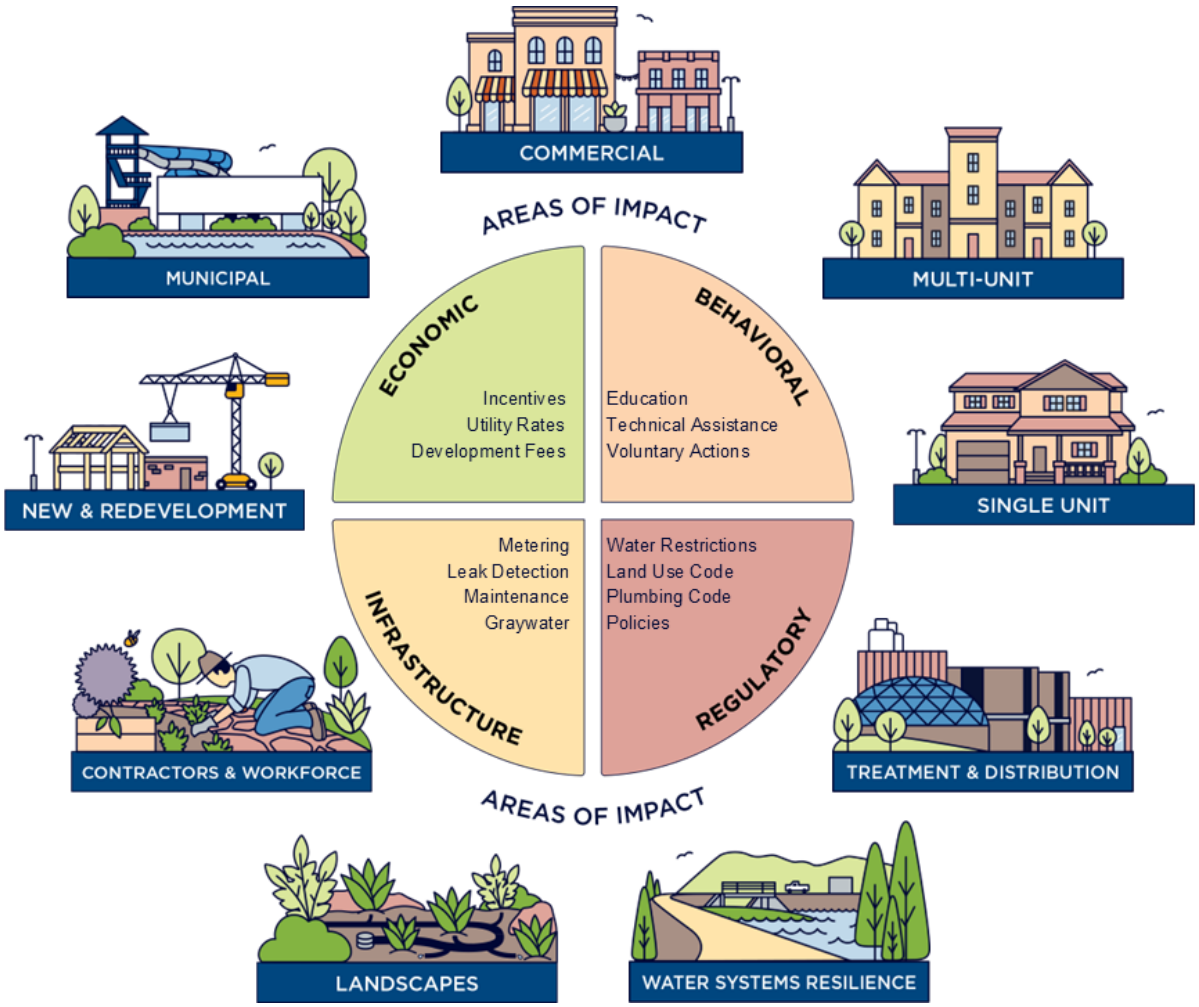
“What will happen to our water availability as our population grows and temperatures increase?”

4 Selection of Water Efficiency Activities

The Water Conservation Division will continue to build on existing efficiency strategies and will develop new strategies to meet efficiency goals and improve equitable outcomes. Strategies can impact the entire service area, and the overall intent of strategy selection is to identify a diverse and balanced set of cost-effective strategies that are expected to lower risk and meet the efficiency goals. Other strategies are intended to cultivate a water efficient, adaptive, and knowledgeable customer base through education and outreach.

By updating water efficiency goals and strategies, Water Utilities aims to promote long-term reductions in water demand through a variety of approaches to manage water use - behavioral, regulatory, infrastructure, and economic (Figure 18).

Figure 18. Approaches to influence water demand and areas potentially impacted by efficiency strategies



With input from customers and staff, Water Utilities identified key themes that informed strategy selection, as described in Section 3.5 and Appendix B. By continuing effective strategies and gradually implementing new strategies, Water Utilities is developing a portfolio of strategies that are expected to:

- Increase water savings and landscape resilience to lower risk and meet the WEP goals
- Provide opportunities for all customers, including disproportionately impacted groups and those who have had low historical participation rates
- Reflect best practices and provide customized strategies to meet high-use and unique customer sector needs
- Continue doing what works well and is liked by customers
- Lower City water use and implement projects to lead by example as a City
- Continue integration of water and land use planning

Water Utilities has a robust water efficiency approach with several efficiency activities that have been implemented for years. Staff intend to continue many of these effective and liked activities within their current portfolio of strategies. The efficiency strategies outlined in this WEP are likely to evolve over the years and the exact specifics of each are subject to change as a result of changing state legislation, regulations, technology, customer preferences, funding availability, appliance/fixture saturation rate, and Water Utilities/City priorities. Water efficiency strategies are intended to be implemented, monitored (Section 5) and refined over time to best serve Water Utilities customers.

4.1 Summary of Selection Process

In support of Goal 1, customer efficiency strategies are directed toward lowering customer treated water demand while supporting equitable outcomes. Staff conducted a tiered selection process using the following steps:

1. Identify strategies: Compile “long list” of all current and potential new strategies
2. Qualitative screening: Eliminate infeasible strategies based on staff input
3. Criteria-based screening: Screen remaining strategies based on selection criteria
4. Prioritize: Prioritize the highest-scoring strategies based on offering a diverse portfolio of efficiency options with broad reach across customer sectors and a variety of approaches to impact demand (Figure 18)

For City actions associated with lowering the City’s treated water use (supporting Goal 1) and advancing efficiency and resilience on City-owned landscapes (supporting Goal 2), strategy identification and selection was conducted through collaborative engagement and decision-making meetings with cross-

departmental staff. The focus was on identifying efficiency and resilience actions that integrate with land use planning and align with existing plans, policies, practices, and available funding.

4.1.1 Selection Process and Criteria

Strategy Identification

In addition to a review of existing activities, staff researched new and innovative activities to develop an initial comprehensive "long list" of water efficiency strategies to consider. Potential activities were identified from several sources including the CWCB's technical resources, the Colorado WaterWise Guidebook of Best Practices for Municipal Water Conservation in Colorado, a broad literature review, exploration of other utility case studies, and input from the community and City staff, described in Section 3.5 and Appendix B,

Qualitative Screening

Water Conservation staff performed an initial qualitative screen to narrow down the initial comprehensive list of potential new strategies by identifying and eliminating infeasible, duplicate, and low-impact strategies. Staff qualitatively considered whether the new strategy concepts were likely to significantly contribute to water savings, could feasibly be implemented with reasonable time and resources, were likely to receive public acceptance, and were likely to improve equity by increasing accessibility to efficiency programs.

For the new strategy concepts retained following this qualitative evaluation, staff developed brief high-level program plans to develop scope, objectives, implementation requirements, and resource needs.

Criteria-based Screening

Current efficiency strategies and the potential new strategies that passed the qualitative screen were scored based on six criteria, which were selected through a collaborative cross-departmental staff process and informed by the WEP guiding principles. Staff developed a modified version of the spreadsheet-based Alliance for Water Efficiency (AWE) Water Conservation Tracking tool to perform the criteria-based screening process and tabulate a combined score for each existing and potential new strategy evaluated.

The following screening criteria were evaluated to develop total numeric scores, based on weighted averages of the following scores:

- Water savings potential: How effective is the activities in terms of gallons of water saved per program dollar spent? The default AWE tool calculation method was used, informed by actual or projected water savings and cost data.
- Cost: What are likely initial and ongoing program costs?
- Ease of implementation: How labor- and time-intensive is the program? Does Water Utilities have the staff resources to properly support, monitor and evaluate the program? Staff assigned a high, medium, or low score based on past project experience and the preliminary program descriptions developed for potential new strategies.

- Acceptance: Does this activity meet the needs and wants of Water Utilities water customers? Does this activity support the social and economic health of customers? Staff assigned a high, medium, or low score based on community engagement and past project experience.

- Co-benefits: Staff identified potential environmental (e.g., promote short-term drought responses, lower greenhouse gas emissions) and social (e.g., improve water literacy, foster positive interactions with government) co-benefits.

- Reach: How many customers could be impacted by this program? What types of customers does it reach? Is it likely to reach previously unengaged customers? The default AWE tool calculation method was used, informed by actual or projected participation information.

A subset of strategies were carried forward to final prioritization (Section 4.1.2) but were not evaluated in the criteria-based screen because they were either required or an identified high priority:

- Existing strategies that were considered necessary to continue into the future due to external requirements. These include required actions to support State requirements, like the Water Loss Audit.

- Municipal strategies to lower the City's treated water use in support of Goal 1. As described in Section 4.2, these were developed through collaborative discussions to align with existing needs, practices, and objectives.

Strategies that were evaluated based on the screening criteria, but not selected for implementation at this time, are tabulated in Appendix C. This includes historical and existing strategies that will be discontinued and potential new strategies that were considered but not prioritized for implementation.

4.1.2 Prioritization Process

The existing and new strategies that were retained following the criteria-based screen were all practical strategies to implement and the results of the process described here will be saved for future reference and consideration. However, it is expected that not all of the strategies are necessary to attain the 4% reduction identified in Goal 1, and it is not possible for the Water Conservation team to implement all of these strategies in the near future. As a final step, staff prioritized the highest-ranking existing and potential new strategies to create a cost-effective and balanced strategy portfolio that provides a mix of behavioral, regulatory, infrastructure, and economic activities. Staff also sought a mix of programs that are broadly available to all customers as well as those that are tailored to high water uses or disproportionately impacted customers.

4.2 Strategies for Goal 1

If fully implemented, Water Utilities estimates that programs and projects outlined in this WEP will lower treated water demand by up to 314 MG per year by 2040. Regulatory changes could lower annual demands by an additional 46 MG per year, and other factors such as rate or fee changes could further impact demands. Brief descriptions and a detailed tabular summary of existing and new efficiency strategies are provided in Appendix C.

Water Utilities currently manages or supports a wide variety of programs and policies aimed to lower treated water demand through more efficient water use, build resilience, and increase community awareness.

As described in Section 2, on average these strategies have lowered water demand by 130 – 180 MG each year, up to 2.5% of treated water demand, and involved over 25,000 participants or community touch points each year. Water Utilities is planning to gradually add 10 new strategies over the coming years to expand program offerings and access and make additional progress toward the WEP goals.

The portfolio of water efficiency strategies selected to lower treated water demand in support of Goal 1 is summarized below. New strategies are indicated with an asterisk (*). Strategies are organized according to the primary approaches, or "levers," of impact: behavioral, infrastructure, economic, and regulatory.

Table 5: Current and New Water Efficiency Strategies Supporting Goal 1

Approach	Strategies
Behavioral strategies	• Community educational programs and events for all ages • Campaigns such as Fix a Leak Week and Imagine a Day without Water • Garden Party / Eco Fest event with classes and native plant swap • Xeriscape Demonstration Garden • Efficiency equipment giveaways, including showerhead swaps • Irrigation system assessments for single-unit residential • Irrigation system assessments for commercial and HOA properties • Indoor assessments and equipment direct installation for single-unit residential • Indoor equipment direct installation for multi-unit residences and small businesses • Indoor use assessments for commercial facilities • Saving water hotline to report water waste • Customized water use reports for residential and commercial accounts • Customized single-unit residential water budgets • Water use estimator spreadsheet tool for development concepts • Waterwise landscape professionals network and support • High bill evaluations* • Wrap-around support for efficiency in large turf areas and HOAs* • Rental tenant and owner/manager outreach and giveaways* • Commercial water use benchmarking* • Comprehensive conservation communications plan*
Infrastructure-based strategies	• Advanced metering for all accounts • Customer data portal • Leak alerts and high-use notifications • Monthly billing with rate codes that align with tiered rates and customer type

Approach	Strategies
Economic strategies	• Indoor product rebates for residential and commercial customers • Irrigation equipment rebates for residential and commercial customers • Xeriscape Incentive Program rebates and grants for residential customers • Xeriscape Incentive Program rebates and grants for large commercial and HOA landscapes • Garden in a Box discounts • Custom rebates for commercial projects • Conservation-oriented tiered/seasonal rate structures • Conservation-oriented water supply requirement fee • Allotments and excess water use surcharge for commercial accounts • Plumbing repair assistance* • On-bill financing for efficiency upgrades* • Design assistance and incentives for new development and redevelopment*
Regulatory strategies	• Wasting water ordinance and code enforcement • Building codes and plumbing standards • Landscape, irrigation, and soil codes • Parkway landscaping regulations • Stormwater criteria supports low impact development • Review of irrigation plans during development review • Graywater reuse for toilet/urinal flushing • Water adequacy determination regulation • Restrictive covenants ordinance • Water Shortage Action Plan • Daily sprinkler watering window* • Examine existing land use regulations for barriers or conflicts to water efficiency*

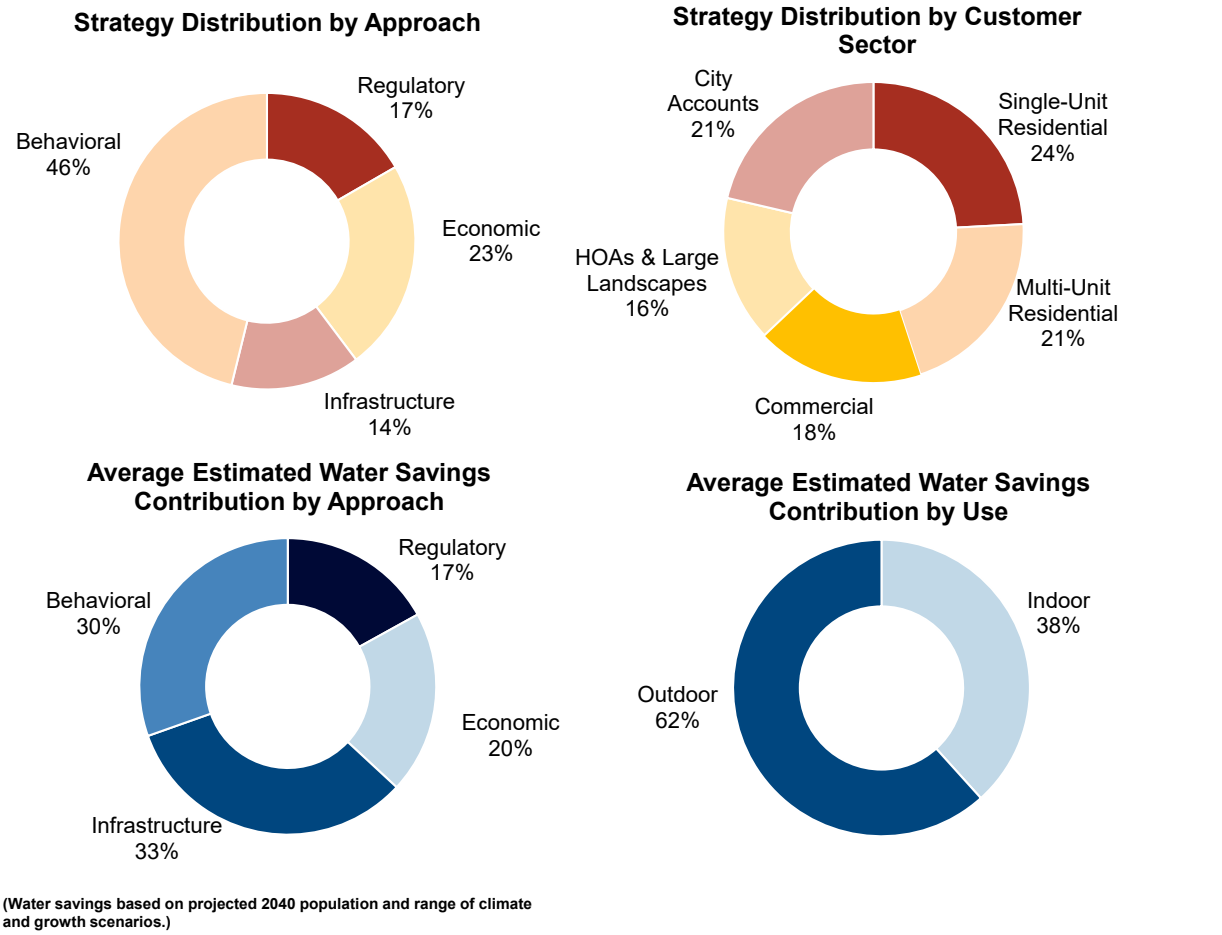
** indicates new strategies identified in this WEP.*

4.2.1 Examples of How Customers can Contribute to Goal 1 Reduction

Strategies can impact the entire community and this WEP identifies a set of strategies that not only align with feedback from engagement but also target cost-effective water savings. The portfolio of water efficiency strategies is diversified to collectively meet the WEP goals and targets, and to support the WEP guiding principles listed in the Introduction. Strategies are intended to be implemented, tracked, and refined over time. By cultivating a water efficient, adaptive, and knowledgeable customer base through education and cost-effective water efficiency programs, the community can help minimize water shortage risk and support the City's strategic objectives.

Figure 19 shows how the prioritized strategies work together to provide water savings through a variety of approaches.

Figure 19. Summary of water efficiency impacts with full implementation of all current and new strategies.



(Water savings based on projected 2040 population and range of climate and growth scenarios.)

Water Utilities customers have a variety of options to lower their water use, including the strategies outlined in this WEP. To illustrate how individual actions can collectively help achieve the 4% reduction target in Goal 1, the following examples highlight actions different customers might take overtime:

Residential customers

The average single-unit household in the Water Utilities service area uses about 80,800 gallons of water a year. This means that the average residential customer can help meet the 4% WEP goal by lowering their water use by about 3,200 gallons each year (relative to current average use).

- Change Showers: Swapping out a 2.5 gallon-per-minute showerhead for a free 1.5 gallon-per-minute version (currently offered for free through the Water Conservation Showerhead Swap program) and cutting shower from 12 to 8 minutes can save up to 1,500 gallons per year and save about $5 on water bills.
- Check Sprinklers: Outdoor water use spikes in the summer. Free irrigation assessments save participating households an average of 5,000 gallons per year and over $16 on water bills. Many lawns have correctable issues like inefficient watering schedules and broken or tilted heads).
- Redo Landscapes: Native landscaping is water-smart, supports ecosystems, and looks great. A 1,000 square-foot project can save 6,000 gallons annually and lower water bills by about $20 annually. The average cost to Xeriscape Incentive Program participants for a project of this size was $1,840 and rebates can cover up to $1,000 of that cost. Additional savings are possible through the Garden in a Box discounts.

Business customers

The typical water use and potential for water efficiency savings varies based on business type, size, and other factors. The WEP includes a variety of commercial efficiency strategies, including custom rebates that let a business identify what opportunities work best for them.

- Plumbing Upgrades: Replacing 10 older urinals with WaterSense models could save a business between 26,000—60,000 gallons annually and up to $180 on annual water bills. Even smaller changes—like upgrading five toilets—can cut 11,000 gallons a year. Rebates available for urinals and toilets typically offset about 20% of the installation costs.
- Water Efficient Large Landscapes: Replacing bluegrass turf with native grass species is a cost-effective strategy for reducing water use on large landscapes. Converting 10,000 square feet can save approximately 70,000 gallons annually. Water Utilities offers rebates up to $15,000 for qualifying projects.

4.3 Strategies for Goal 2 and One Water Demand Management

In support of Goal 2, the City organization will continue refining current best practices while also exploring new opportunities to improve water efficiency and build resilience across City-owned landscapes. In some cases, these actions will also yield treated water savings that contribute to Goal 1 targets while advancing integrated land use and water planning, as well as One Water integration across Water Utilities and the City organization. Brief descriptions and a detailed tabular summary of existing and new City strategies are provided in Appendix D.

City departments currently implement numerous best practices and operation strategies that address distribution and treatment inefficiencies, lower treated and raw water use, improve landscape resilience, or achieve a combination of these. New strategies to lower the City's treated water use (in support of Goal 1) and improve landscape resilience (in support of Goal 2) were developed through collaborative discussions to align with existing needs, practices, and objectives.

Strategies focused on lowering City treated water use and building landscape resilience; new strategies are indicated with an asterisk (*):

- System water loss audits
- Distribution line repair/replacement
- Efficiency incorporated in plans, policies, and best practices
- Irrigation application rates based on water need and system audits
- City landscape designs follow xeriscape principles and irrigation best practices
- Prioritize raw water sources for irrigation to lower treatment costs
- Track water use data for City buildings and properties
- Prioritize dedicated irrigation to trees
- Implement and update Municipal Sustainability Adaptation Plan
- Increase pace of plumbing retrofits in City buildings*
- Irrigation and landscape efficiency projects on City-owned properties*
- Increase pace of distribution line replacement/repair*
- Water Conservation Division provides technical and financial support for City efficiency and resiliency projects*
- Establish regular contact between City planning departments and water providers*
- Look for opportunities to expand Water Conservation Division involvement in development review*
- Further integrate water and efficiency into strategic plans and policies*
- Support One Water efforts and integrated demand management*
- Use City properties to pilot efficiency activities (e.g., commercial use benchmarking)*

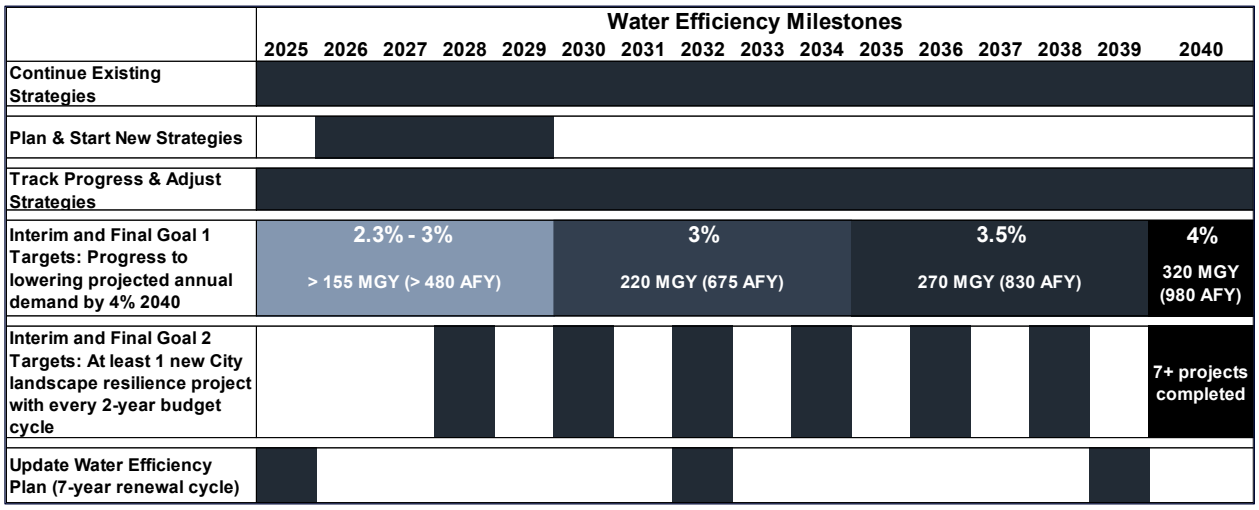
5 Implementation and Monitoring

This WEP presents a general implementation timeline and monitoring approach. Impactful water efficiency requires ongoing, adaptive management to track progress, identify and respond to changing conditions, and adjust the portfolio of efficiency strategies and/or implementation tactics to progress towards goals and support City priorities.

5.1 Implementation

Implementation of new customer strategies will be staggered over the coming years to gradually increase water savings, align with staff capacity, and allow time for planning. Some strategies may also require City Council review and approval (e.g., policy changes) or funding acquisition prior to implementation. For City actions related to lowering the City's treated water demand or building landscape resilience, staff aim to complete at least one new project for every 2-year municipal budgeting cycle, for a total of at least 7 projects by 2040. Figure 20 presents a conceptual implementation timeline.

Figure 20. Conceptual implementation timeline



Key activities that Water Conservation staff will generally apply to implement efficiency strategies include:

- Determine if an approval process is necessary or desired; approval is required for actions such as code changes or funding requests
- Develop and regularly update individual implementation plans

- Identify and obtain needed resources such as staff time, funding[15], materials/supplies, or external expertise
- Seek community and partner input, as needed, to effectively plan, market, and refine strategies
- Monitor strategy metrics such as water savings, participation rates and demographics, units replaced, or area impacted.
- Adjust strategies to improve water savings and equitable outcomes, manage funds and resources, or align with broader Water Utilities, City, state, or federal requirements and objectives.

The Water Conservation Division will holistically evaluate the combined efficacy and balance of the full suite of efficiency strategies to consider the best timing for bringing new strategies online, making substantial modifications, or discontinuing activities.

Successful implementation of water efficiency strategies will benefit from ongoing alignment with the engagement themes, development of an efficiency-focused communications and marketing plan, and maintaining the community and staff relationships that were fostered during WEP engagement. Staff will seek new opportunities to partner with broad-reaching organizations in the community such as schools, higher education, and professional and community organizations to share information and promote efficiency. This will facilitate water use understanding and efficiency opportunities between Water Utilities and the community, especially City departments and disproportionately impacted community members.

5.2 Monitoring

Water Utilities staff routinely monitor high-level metrics to evaluate water demand, efficiency impact, and potential shortage risk. These metrics include:

- Total volume of water treated
- Total volume of water billed to customers
- Combined measurable Water Conservation program savings
- Average GPCD
- System water losses

[15] The programs that ultimately are implemented will be a function of the City's budgeting process or, in some cases, securing grant funds. The City uses a Budgeting for Outcomes approach, which emphasizes accountability, innovation, and partnerships. This is a two-year process that begins with updating the City's Strategic Plan, which directly informs the funding choices in the budget. Throughout both phases of this two-year cycle, community input is an important factor in setting the City's priorities and objectives.

- Water supply indicators such as snowpack, storage levels, and other parameters outlined in the Water Shortage Action Plan
- Climate influences on demand, including temperature, precipitation, and evapotranspiration (ET)
- Difference between projected and actual water demand

Many of these metrics are posted online at *fcgov.com/Water Utilities/water-availability-demand* to support transparency and community water literacy.

Additionally, Water Conservation Division staff track key performance indicators to quantify individual and combined impacts of efficiency strategies. The following metrics will be tracked to evaluate progress towards the WEP goals:

Goal 1 Metrics

- Treated water savings from individual efficiency strategies: This will be estimated based on various strategies' water savings as a result of completed projects, participation, area, and other measurable methods.
- Total treated water savings: The cumulative measurable savings from individual Water Conservation Division efficiency strategies. Indirect impacts associated with education or other hard-to-measure effects are not included in these estimates.
- Total billed water demand, as well as:
- Billed treated water demand by various residential and commercial customer sectors, evaluated by season and indoor/outdoor use
- Billed treated water use for City properties
- Area of residential and commercial water-efficient landscape improvements
- System water losses
- Program participation rates, disaggregated by demographics and/or geographic area when possible
- Number of treated water efficiency projects on City properties and total City treated water savings
- Reach and touchpoints from educational activities
- Strategy-specific metrics such as number and type of rebates issued, wasting water calls, count of new development irrigation reviews completed, assessments completed, leak notifications, portal registrations, or volunteer hours logged
- Strategy-specific customer feedback such as participant surveys

Goal 2 Metrics

- Total number of City landscape resilience projects completed
- The number and square footage of irrigation efficiency projects completed on City-owned landscapes
- The number and square footage of turf-to-low-water landscape conversion projects completed on City-owned landscapes

The Water Conservation Annual Report provides a detailed overview of the impact of water efficiency programs. It serves as a tool for accountability, keeping the community informed about progress toward water efficiency goals, challenges faced, and the direction for the future. The annual report is posted online in an accessible format and available in print form at events.

6 Adoption, Public Review, and Formal Approval

6.1 Adoption of New Policy

City of Fort Collins City Council approved and adopted this WEP by resolution on September 2, 2025. This document replaces the previous WEP, which was approved in 2015.

6.2 Public Review Process

6.2.1 Public Review of WEP Document

Water Utilities conducted an extensive public engagement process as part of preparing this WEP, as described in Section 3.5 and Appendix B. Public comments on the draft WEP were received from April 23 – June 23, 2025. During this time, the draft WEP was posted online, and community members could submit comments via an online form or through direct email to staff. Although the draft was prepared in English only, translation via Google Translate was available, and the online comment form was offered in both English and Spanish. Community members could also request a mailed printed version of the draft WEP and comment form. The public comment period was promoted through a bill insert, social media, emails, newsletters, websites, and public events.

Eight online forms and one direct email were received during the public comment period and are summarized as follows:

Goals

- Understandable: 3 Yes, 4 Somewhat, 0 No
- Reflect community values: 3.7 (out of 5)
- Appropriate for our community: 2 Yes, 4 Somewhat, 1 No
- Applicable to my life: 2 Yes, 4 Somewhat, 1 No
- Ambitious: 4 Yes, 3 Somewhat, 0 No

Strategies

- Understandable: 3 Yes, 4 Somewhat, 0 No
- Applicable to my life: 3 Yes, 4 Somewhat, 0 No
- Target right uses: 4 Yes, 3 Somewhat, 0 No
- Appropriate for our community: 3 Yes, 4 Somewhat, 0 No
- Adequately support customers: 2 Yes, 3 Somewhat, 2 No

Write-in comments generally aligned with the feedback received during WEP engagement (Section 3.5 and Appendix B).

6.3 Local Adoption and State Approval Processes

Staff met with multiple Fort Collins advisory boards and commissions during the WEP preparation phase, as well as during the public comment period to seek final input and

recommendations for approval. These meetings are described in Appendix B. The WEP was presented to Fort Collins City Council at Work Sessions on Feb. 13, 2024, and Feb. 25, 2025. At the regular session on September 2, 2025, Council adopted the plan by resolution.

Water Utilities staff maintained regular communication with CWCB staff during the WEP preparation process. The CWCB reviewed the public comment. The Council-approved final WEP was sent to CWCB for approval in the fall of 2025.

6.4 Periodic Review and Update

Progress towards the WEP goals will be monitored annually and reported in the Water Conservation annual reports, which are publicly available and submitted to the Fort Collins Water Commission for review. Water Utilities will develop an updated WEP at the frequency required by state regulation. The next WEP update is expected to begin in 2032.

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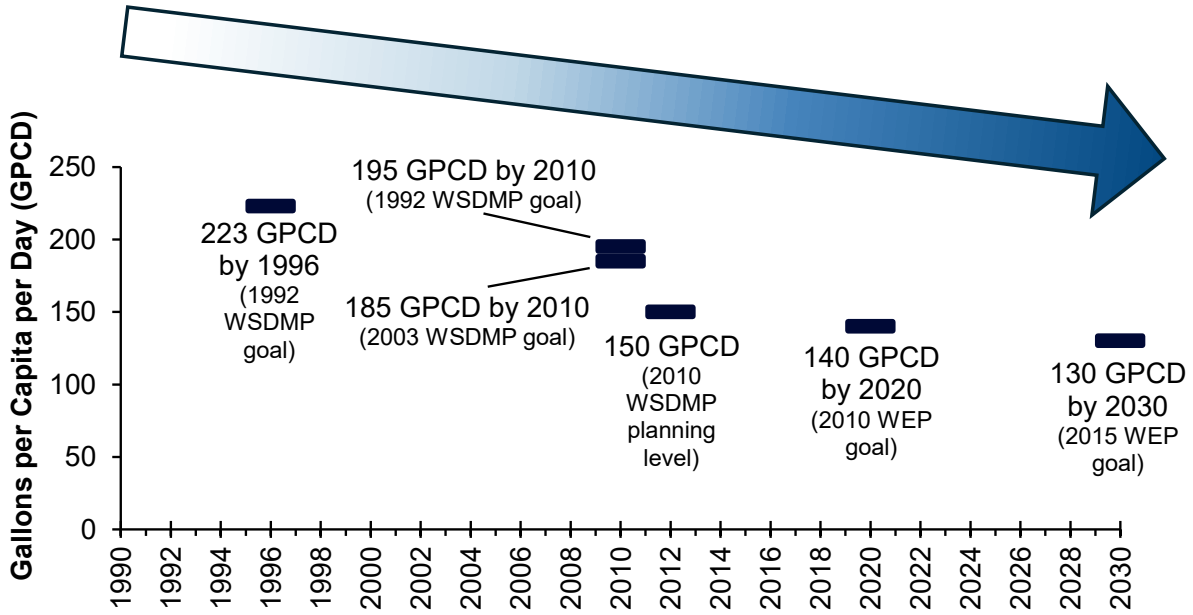
Appendix A: Brief History of Water Conservation

This WEP updates and builds on the past water demand management goals and efficiency program strategies. Water Utilities has a long history of active water efficiency. Faced with a drought in 1977, Water Utilities created a part-time water efficiency position. In 1989, the position expanded to a full-time position. The first WSDMP in 1992 lead to an expansion of efficiency projects and increased educational and outreach efforts. The 1992 policy set an efficiency goal of 195 GPCD by the year 2010. Subsequent revisions of the WSDMP, followed by the first Water Efficiency Plan in 2010, have set increasingly rigorous goals and planning demand levels, as shown in Figure A-1 below.

Figure 21: Historical water demand management planning levels and goals for Fort Collins Water Utilities



Prompted by the drought of 2002-03, Water Utilities made several efforts to increase accountability and encourage efficient use of water, including fully metering every customer. Water Utilities implemented an efficiency-oriented rate structure – a tiered rate structure – with a seasonal component, created several new outreach and educational programs, and developed its first Water Supply Shortage Response Plan as guidance during drought and other emergency conditions.

Water Utilities' Water Conservation program expanded again in 2010 with the development of a formal Water Conservation Plan, which was approved by the Colorado Water Conservation Board in early 2010. This plan set the efficiency goal of 140 GPCD by 2020. The 2015 WEP replaced the Water Conservation Plan and set a goal to lower demand to 130 GPCD by 2030. City Council approved the budget for additional programs and staff outlined in the 2015 WEP.

The 2015 WEP identified five key areas of opportunity for greater water efficiency that guided efficiency activities for the past several years:

- Leverage advanced meter Fort Collins data and capabilities
- Promote and support greater outdoor water efficiency
- Encourage greater integration of water efficiency into land use planning and building codes
- Expand commercial and industrial strategies
- Increase community water literacy

Water Conservation Division programs, policies, and activities have centered around these areas of opportunity since 2015. Water Utilities' per person demands declined significantly over the last few decades. However, per capita consumption has remained fairly steady since 2017, and Water Utilities met the previous 2015 WEP goal only once, in 2023. In that year, the service experienced unusually high precipitation during irrigation months, which encouraged customers to reduce their outdoor water use. In 2024, per-capita demand was 135 GPCD, similar to pre-2023 levels.

Appendix B: Alignment, Equity, and Engagement

Strategic Alignment

In addition to applying a One Water approach as described in Section 3, this WEP update strives to align with key related policies and plans that provide direction and/or complement the Water Utilities' water efficiency efforts. Along with the most recent 2015 WEP, these documents were considered by staff when developing this updated WEP and will also guide implementation moving forward.

City of Fort Collins Strategic Plan (2024)

This document is a result of a planning process incorporating input from community members, businesses, City Council, and City staff. It identifies the City's key outcome areas as well as several strategic objectives in each area; these are to guide the work in all City service areas. Water efficiency aligns very strongly with Strategic Objective ENV 2, "Sustain the health of the Cache la Poudre River and regional watersheds while delivering a resilient, economically responsible and high-quality water supply for all Fort Collins residents."

City of Fort Collins Administrative Policies (2024)

The City's Administrative Policies include guidelines for water conservation in City operations. The Policies reinforce the City's commitment to a water conservation ethic and to using water efficiently, as a model for wise water use throughout the community. The Policies also note that, whenever feasible, City activity located outside of the Water Utilities service area should also follow Water Utilities guidelines and requirements, including but not limited to, the Water Efficiency Plan and Water Shortage Action Plan.

Colorado Water Plan (2023)

The Colorado Water Plan provides a framework for helping Colorado meet its water challenges through collaborative action around water development and water conservation. The Plan guides future decision-making and supports local actions to address water challenges with a collaborative, balanced, and solution-oriented approach that builds resilience. The Colorado Water Plan includes actions in four main focus areas: Vibrant Communities, Robust Agriculture, Thriving Watersheds, and Resilient Plannings.

Fort Collins City Council Priorities (2024 – 2026)

City Council Priority 7: Protect Community Water Systems in an Integrated Way to Ensure Resilient Water Resources and Healthy Watersheds

Fort Collins City Plan (2019)

The City's comprehensive plan, City Plan guides how the community is expected to grow over a one- to two-decade horizon. City Plan includes guidance on future land-use and transportation.

Municipal Sustainability Adaptation Plan (2019)

The Municipal Sustainability and Adaptation Plan is the employee roadmap to being a sustainable organization. The City aims to be sustainable and resilient to continue to provide world-class services and demonstrate excellence and innovation in daily work. With this plan, the City formally addresses climate adaptation and resilience, to prepare for the future.

Natural Areas Master Plan (2014)

This plan sets priorities for conserving land and water while providing meaningful education and appropriate recreation opportunities.

One Water Framework (2025)

Opportunities for integrated water resource management will be identified through a One Water evaluation and ongoing implementation of One Water principles. The One Water Action Framework advances collaborative and holistic water management approaches that promote healthy watersheds, resilient communities, and water equity.

Our Climate Future (2021)

This plan guides the City toward a more sustainable future while focusing on the needs of people and provides a high-level framework to achieve carbon emissions reduction objectives. Big Move #3 – Climate Resilient Community addresses water as follows: Update the Water Efficiency Plan, a Council-approved and State-required guiding document for water conservation and efficiency. Adopt a holistic approach to integrated water resource planning and management Explore and adopt water-wise landscaping standards. Explore incorporating Nature-based Solutions in the planning and development of infrastructure and other City projects. The plan also includes an action to adopt a holistic approach to integrated water resource planning and management.

Parks Infrastructure Replacement Plan (2022) and Parks and Recreation Master Plan (2021)

These plans identify planning and infrastructure replacement priorities for the City' parks, trails, golf courses, swimming pools, and recreational facilities, including irrigation systems. These priorities provide opportunities to align and collaboratively address water efficiency and landscape resilience targets set in this WEP. The Master Plan identifies goals and actions, including prioritizing the use of raw water or other irrigation systems that conserve water resources and build resiliency and targeting reduced water consumption.

Water Shortage Action Plan (2020)

This document identifies the restrictions and requirements intended to achieve progressively higher levels of water savings under various projected water shortage conditions. The original plan was approved by City Council in 2003 and updates were approved in 2014 and 2020.

Water Supply and Demand Management Policy (2012)

This is the guiding document for water supply and demand management activities. The objective is to provide a sustainable and integrated approach to 1) ensuring an adequate, safe, and reliable supply of water for the beneficial use by customers and the community, and 2) managing the level of demand and the efficient use of a scarce and valuable resource consistent with the preference of Water Utilities water customers and in recognition of the region's semi-arid climate. The original water supply-focused policy was developed and approved in 1988; it was updated in 2003 and again in 2012, with the most up-to-date report published in 2014. This policy defers to the latest Water Efficiency Plan to set the efficiency goals. The policy also requires stable transparent water rate structures that provide an economic incentive to use water efficiently.

Urban Forest Strategic Plan (2025)

This comprehensive plan guides management, protection, and improvement of Fort Collins' urban forest and provides action recommendations to ensure that the urban forest remains healthy and vibrant into the future. The plan includes water efficiency and drought resilience actions including giving trees dedicated irrigation, creating a drought response plan, developing educational resources for tree watering and drought-tolerant species selection, creating water-smart landscapes on City properties.

Equity Considerations

The Water Conservation Division acknowledges equity concerns associated with water use and efficiency, including efficiency program participation, and that costs are increasing and vulnerable populations will be disproportionately impacted by climate. Removing barriers and providing more equitable access to water efficiency program participation, will better customers by reducing their water use and associated costs, increasing individual resilience to future water shortages, and decreasing the entire community's risk of future water shortage through overall lower demands. Equity is integrated into the WEP update process and Water Conservation work through (1) targeted engagement activities, (2) selection of efficiency strategies, and (3) implementation and evaluation of efficiency strategies.

Numerous City and State efforts support equity in water planning, including:

City of Fort Collins 2024 Strategic Plan
(Strategic Objective: Neighborhood & Community Vitality 3)

Identify and remove systemic barriers and advance equity so that persons of all identities, including race, ethnicity, religion, sexual orientation, gender identity, gender expression, age, mental and physical abilities, and socioeconomic levels can access programs and services with ease and experience equitable outcomes

2024-2026 City Council Priorities

Improve human and social health for vulnerable populations: Obstacles and barriers exist that impede access to services for our underserved community members. We need to work with our

regional partners and invest in a robust and accessible safety net to create conditions where one is not needed.

2021 Our Climate Future Plan (Appendix I)

We designed Our Climate Future with the goal of equitable solutions that address a spectrum of needs within our community…This approach is intentional about addressing barriers and designing solutions that work for those most impacted, while also ensuring all community members can benefit, participate, and influence outcomes.

2023 Colorado Water Plan

Recognizes that robust and inclusive water planning builds resilience to respond to water challenges and advances equitable outcomes for all.

Importance of Equity in Water Conservation Planning

Accessibility

Currently, water efficiency programs underserve some groups in the community. Analysis of efficiency program participation data relative to Census demographics revealed:

- Current programs underserve diverse and low-income areas.
- In addition to other races/ethnicities, Hispanic, non-white community members show the largest gap in program participation
- Programs predominately serve homeowners while underserving renters

Housing and Water Utilities Costs

The cost of water is a key element of housing affordability – both the cost to develop housing and the Water Utilities cost passed on to the future owner/occupant. The 2021 Fort Collins Equity Indicators Final Report notes that the median annual combined water and electric utility cost is about 1.8% of median income for City residents. Water Utilities affordability programs aim to minimize this cost through programs that offer emergency and long-term assistance through reduced utility rates and access to efficiency programs. As of 2024, approximately 570 Water Utilities water customers were enrolled in the Income Qualified Assistance Program.

Expanding water efficiency opportunities is also important as Water Utilities looks to the future and strives to maintain affordability and quality of life across the community. Water utility rates are predicted to increase in the coming years in response to critical infrastructure needs.

Climate Impacts

Climate change can worsen long-standing inequities, as noted in in the Fifth National Climate Assessment[16], “Some communities are at higher risk of negative impacts from climate change due to social and economic inequities caused by ongoing systemic discrimination, exclusion, and under- or disinvestment. Many such communities are also already overburdened by the

[16] nca2023.globalchange.gov

cumulative effects of adverse environmental, health, economic, or social conditions." By applying an equity lens to water demand management planning now, Water Utilities aims to follow the approach laid out in the Our Climate Future plan, which acknowledges that local governments have the opportunity to prioritize actions that simultaneously address equity and enhance community resilience - leading to better outcomes for all.

Equity in Engagement

When an equity lens is applied to interactions with the public, Water Utilities ensures that all voices are heard and informed. Equity and inclusion work is especially focused on elevating the voices of communities who have been disproportionately disadvantaged and historically excluded. To increase public participation and quality civic engagement, City staff worked to better understand the circumstances and characteristics of the local community and demographics and the positional power of municipal government to influence who benefits directly.

WEP Sections 3.4 and 3.5 described efforts to develop inclusive community-driven water efficiency goals and strategies by engaging disproportionately impacted customers (including those who have been historically and currently excluded and underserved), while also pursuing broad general engagement. A variety of engagement tactics were implemented including a widely promoted survey and numerous meetings. The most effective ways to receive feedback from disproportionately impacted community members involved investing time and resources on targeted group or one-on-one interactions and making it easier for people to participate. These engagement efforts helped fill in information gaps remaining following the broader survey.

Water Utilities successfully collected a statistically significant number of survey responses (1,319). Staff provided paper surveys at frequented community locations (e.g., libraries), tabling at community events, meeting customers where they were (e.g., attending a student gathering), and offering Spanish language versions. Five people responded in Spanish and 40 filled out the paper version of the survey[17]. 58% of survey respondents answered demographic questions. Comparison of respondent demographics to City-wide census demographics identified demographic gaps in survey responses including residents who identified as Hispanic, Black, or Asian, non-student renters and low-income residents, non-residential customers (including businesses, organizations, and institutions), and people than age 30.

Themes observed from WEP engagement included these equity-related challenges for the community:

Affordability

The most frequently mentioned equity issue dealt with the cost of water efficiency. Wealth fundamentally offers high-income customers freedom of choice in how much water they use.

[17] While these numbers may appear low relative to the overall response total, the consultants recommended continuing to provide these alternative distribution channels for maximal accessibility of future surveys.

These customers can typically afford projects or technologies that help them reduce their water use, which may be out of reach for lower-income customers. Lower-income customers, on the other hand, were perceived to struggle more to afford basic water bills and/or efficiency upgrades, limiting their ability to use less water. Many respondents noted that wealthier customers are more likely to have outdoor irrigation needs such as lawns and thus raised excessive outdoor water use as an equity concern.

Renter Autonomy

Concerns arose around the ability of renters to participate in programs because they do not have sole control over their water usage. From an infrastructure perspective, renters lack access to water use information that may influence how efficient or conservative they are with their water. Metering practices tie multiple customer's irrigation water to a single bill or are only accessible to the property owners or managers, and appliances and equipment that use water are often selected by landlords. Depending on who pays water bills and how water costs are determined, there can be conflicting incentives or little motivation for renters or property owners to invest in water efficiency at a rental property. Water Conservation Division staff have also observed a related concern: aging infrastructure in rental properties and mobile home parks can lead to water leaks, service outages and high bills. Tenants have little power to change this.

Accessibility and Participation

Many survey respondents observed that water efficient technologies may be cost-prohibitive for low-income residents or disallowed for renters. Some respondents expressed dissatisfaction with the current rebate programs, which require upfront cost investment and can be complex or time-consuming. These barriers may disproportionately dissuade customers from participating in such programs.

Relationship Building

Equity-priority audiences prefer a variety of outreach methods. Every audience is different, and Water Utilities should understand what works best for each by working directly with community members or partner organizations. Reframing engagement from an aspect of the planning process to long-term relationship-building will increase access to efficiency programs.

To better understand the community's sentiments and values related to equity and water use, the survey included an optional write-in response to the following question:

> *In the Water Efficiency Plan update process, we are focusing on equity. Equity means considering individuals' and communities' histories, lived and living experiences, and needs. It also means prioritizing and serving those most marginalized first and with deeper care. When you think about equity as it relates to using water in Fort Collins, what comes to mind?*

The 523 responses to this question illustrated a broad lack of consensus on the definition of the word "equity" in this situation and the role that it should play in Water Utilities' work and approach to providing services. Many respondents (approximately one-third) discussed the structural and systemic challenges to water efficiency: that certain demographic groups such as renters, low-income residents, and non-English speakers would benefit from dedicated programming that supports their access to clean, affordable water and water efficiency.

> "This is a hard question to answer. If we want all customers to receive the same high level of service, regardless of their background, then this shouldn't matter."
>
> *- WEP Survey Respondent*

Others (slightly over one-quarter of respondents) responded critically to the question, suggesting that Water Utilities' focus on "equity" is misguided or unfair. These respondents preferred to treat all customers the same, believing that targeted programs would draw resources away from others, the community, or the overarching problem of water overconsumption.

These varied responses reflect a broad community dialog regarding equity versus equality and the challenge of balancing equitable program delivery with programing equally accessible to all.

Equity in Conservation Strategy Selection and Implementation Planning
As described in WEP Section 3.4, staff and consultants developed a two-step equity evaluation process to identify barriers and improve the accessibility of efficiency strategies. The project team conducted a series of informational interviews with City staff and community leaders to develop the evaluation tool.

Conservation strategy selection involved conducting a red flag assessment (step 1 of the equity evaluation process). This is an initial check of whether the strategy has obvious equity issues, based on staff knowledge of the burden of compliance, unintended consequences, and barriers to participation. This assessment was applied "midstream" in the efficiency strategy selection process to inform both final selection of proposed strategies, as well as to identify which strategies might need refinement to improve equitable access and positive outcomes.

In addition to the red flag assessment, the following criteria (Section 4.1.1) informed strategy scoring and final selection:

- Acceptance: Does this activity meet the needs and wants of Water Utilities water customers? Does this activity support the social and economic health of customers? Staff assigned a high, medium, or low score based on community engagement and past project experience.
- Reach: How many customers could be impacted by this program? What types of customers does it reach? Is it likely to reach previously unengaged customers?

The default AWE tool calculation method was used, informed by actual or projected participation information.

- Co-benefits: Staff identified potential environmental (e.g., promote short-term drought responses, lower greenhouse gas emissions) and social (e.g., improve water literacy, foster positive interactions with government) co-benefits. Strategies with more likely co-benefits received a slightly higher score.

The second step of the equity evaluation will be applied during implementation planning for the full portfolio of existing and new efficiency strategies. This will involve evaluating each strategy's potential to support positive equitable outcomes and developing implementation plans intended to maximize positive equitable outcomes for disproportionately impacted and underserved groups. A range of questions will be applied to each strategy to assess whether the strategy is likely to have a high, medium, or low support of the desired equity outcomes. Staff will work to adjust program implementation over time to increase the likelihood of high support for positive outcomes.

As noted in WEP Section 3.4, the efforts to elevate equity in both engagement and decision-making should be considered the starting point of an ongoing approach to offering equitable water efficiency activities that best serve all customers. Staff will continue applying and refining the engagement tactics and equity evaluation methods in an effort to improve access, participation, and efficiency benefits across the community. To the extent possible, program participation will be tracked and compared to demographics or other indicators as one metric to evaluate changes in participation and equity over time.

Engagement Activities

The following engagement activities were conducted during development of the WEP. Feedback from these activities is summarized in Section 3.5.

Engagement with the Community

Feedback from community members was critical to the development of water efficiency goals, selection and preliminary design of efficiency strategies, and development of the equity evaluation tool. A wide variety of tactics were conducted over several months to foster both broad participation and feedback from equity-priority groups. Community engagement activities are summarized in Table 5 and included:

Community Consultants

The broader public engagement process began by hiring four community members to lead engagement with equity priority stakeholder groups. Each of these community consultants selected their target stakeholder groups based on their specific backgrounds and experiences. The community consultants' program was integral to the engagement approach of this plan update process. Designed to collect community insights and feedback authentically and through trusted community brokers, the community consultants program emphasized meeting communities where they are rather than inviting them to come to Water Utilities of the City.

Meeting formats ranged from one-on-one phone calls and home visits to attending an existing community meeting, deploying many of the engagement "best practices" described in the engagement plan. Reaching over 110 community members in over 15 different locations across the city and over the phone and in people's homes.

Community-Wide Survey

Water Utilities and the consultant team also developed a community-wide survey to collect input from the broader Fort Collins community on water efficiency priorities, concerns, and opportunities. The bilingual survey was uploaded to the City's online engagement platform, Our City, and distributed in hard-copy form to two libraries, the Water Utilities Administration Building, and events attended by Water Utilities staff. Water Utilities promoted the survey digitally through several avenues, including Our City, social media, email distribution lists, and at events attended by Water Utilities staff. The tabling events hosted by staff to promote the survey included paper version with English and Spanish translation, efficiency-related giveaways, and coloring books for kids. Ultimately the survey garnered 1,329 responses, including 40 hard copy responses and five Spanish language responses.

Community Events

Water Utilities staff attended several community meetings throughout the process to collect input and feedback from specific stakeholder groups. Over the course of six months, Water Utilities staff presented at or organized eight meetings, to listen and collect feedback on water efficiency goals, programs, and challenges.

Informational Interviews

Along with interviewing key staff and members of the Climate Equity Committee, five community leaders were involved in a discussion about the equity evaluation process. These individuals were identified by Water Utilities as key connectors and experts who could provide insight into existing equity challenges in the City, on best practices for integrating equity into plans, and from the perspectives of equity priority communities.

Table 6: WEP update community engagement activities

Audiences Reached	**Engagement Tactic**
Community Consultant-Led Engagement: Over 110 engaged	
Native American community	Community Consultant-led activities including meetings and tabling
Small business owners and managers	
Wildlife Interest	
Religious groups	
Elderly	

Audiences Reached	Engagement Tactic
Mobile Home residents	
Colorado State University community	
Spanish speakers	
Students	
Renters	
WEP-Focused Meetings and Events: Over 200 engaged	
Representatives from various City Boards and Commissions	Presentations and feedback collection at City-organized board and commission meetings
Water-wise landscaping professionals	Presentation and feedback collection at facilitated meeting of participants in Certified Landscaping Professionals & Xeriscape Incentive Program Ambassadors programs; included meal
Spanish speakers in mobile home parks	Facilitated engagement with participants in Community Champions group; included translation services, meal, and childcare
Colorado State community	Defend Our Beer tabling event
Broad community	Campus sustainability groups facilitated workshop
People with disabilities	People First
Small business owners	Presentation and feedback collection at facilitated meeting of NoCo Business Connect; included meal and translation services
HOA residents who have completed water-wise landscape projects	Presentation and feedback collection at facilitated meeting of participants in Water Utilities landscaping programs
Broad Community Outreach: Over 4,700 engaged	
WEP community survey	1,319 (40 submitted via paper handouts, 1,279 submitted online; 5 in Spanish, rest in English)

Audiences Reached	Engagement Tactic
WEP information sharing at community events including Earth Day, Eco Fest, Defend Our Beer	186 participants Feedback frames were used to gain “Yes” or “No” votes on 12 water efficiency strategies
WEP outreach and marketing including bilingual movie theater ad, utility bill inserts, customer emails, key accounts meeting, social media, e-newsletters, university student advertising, staffed info booths	3,216 hits on the public engagement website about the WEP update

Engagement with City Advisory Groups

Staff sought input on water use, conservation, and efficiency from multiple advisory groups:

City Council

Water Utilities staff presented information about the WEP update process and proposed goals and strategies at City Council Work Session meetings on February 13, 2024, and February 25, 2025. Council provided feedback and comments that informed the final WEP goals and strategies.

City Board and Commission Super Issues Meeting

City board and commission participants have the opportunity to participate in “Super Issues” meetings to learn about and discuss broad topics that could affect the community at large. Water Utilities staff presented an overview of the WEP and demand management strategies. Feedback was collected through discussion and an informal questionnaire. General sentiment was that the greatest opportunities for efficiency may exist with commercial customers (including businesses, HOAs and commercially metered multifamily properties) with high outdoor use. Participants suggested that engagement should include heavy incentives and light regulations, or an even mix of incentives and regulations.

Water Commission

The City’s Water Commission advises the City Council on focuses on all aspects of water. Staff met with Water Commission on April 6, 2023, and May 18, 2023, to seek early input on efficiency strategies to consider for evaluation during the WEP update. An interactive voting exercise and large group discussion indicated a high interest in turf restrictions, budget-based water rates, and increased collaboration on efficiency programs. Staff met with the Water Commission again on March 20, 2025, and June 5, 2025, to provide an update and seek feedback on proposed goals and strategies. They unanimously-approved a motion to support the WEP at their July 17, 2025 meeting.

Natural Resources Advisory Board

The Natural Resources Advisory Board advises the City Council on all matters pertaining to the sustainability of the City’s natural resources including water resources. On June 26, 2024, staff

presented an overview of the WEP and led an engagement activity to seek input on water efficiency strategies as they pertain to urban tree health/benefits and raw water irrigation. On May 21, 2025, staff presented an overview of the WEP draft that was available during the public comment period and solicited final input from Board members. The Natural Resources Advisory Board provided a letter of support for the WEP update to City Council on June 18, 2025.

Parks and Recreation Advisory Board

The Parks and Recreation Advisory Board advises and makes recommendations for matters pertaining to Parks and Recreation. On May 28, 2025, staff presented an overview of the WEP draft that was available during the public comment period and solicited final input from Board members. They provided specific comments, which staff addressed through revisions to the WEP text and a comment response memorandum dated June 23, 2025. Staff returned to address questions at the June 25, 2025 meeting. The Parks and Recreation Advisory Board provided a letter of support for the WEP update to City Council on July 28, 2025.

Planning and Zoning Commission

Planning and Zoning Commission makes recommendations to the City Council regarding zoning, annexations, major public and private projects and long-range planning activities. The Commission is also the final decision-making authority regarding land use proposals including development plans. On May 9 and May 15, 2025, staff presented an overview of the WEP draft that was available during the public comment period and solicited final input from Commissioners. They unanimously-approved a motion to support the WEP at their May 15, 2025 hearing.

Climate Equity Committee

The City's foundational climate action plan, Our Climate Future, helped establish the Climate Equity Committee (CEC), a citizen advisory group that advises the City on integrating equity into its climate work. The CEC met with Water Utilities staff three times throughout the process and provided deep feedback on the engagement process and equity evaluation.

Engagement with City Staff

A variety of engagement activities were conducted with City staff who work in departments that use water for municipal purposes including parks, natural areas, cemeteries, open spaces, streetscapes, municipal trees, municipal buildings, recreation centers, and pools. Staff feedback informed organizational water use goals and strategy priorities, as well as alignment with policies, plans, and practices. Staff engagement tactics are summarized in Table 6 and included:

Staff Core Team and Lead Team

The Strategic Leadership Team is made up of seven city staff members, with the goal of helping to champion, learn, integrate, and support. This team stays informed on WEP progress and helps to provide strategic guidance on the outcomes including the WEP goals, integration with Our Climate Future, and Water Commission communications. Following the completion of WEP, these champions will help to implement WEP strategies within teams across City organizations.

The Staff Core Team consists of more than 10 city staff members. Like the Strategic Leadership Team their goal is to stay informed and provide strategic guidance throughout the WEP update process. The Core Team reviews, provides feedback and varying perspective, guides overall direction, ensures continuity of subgroup tasks and alignment with overall WEP efforts. Following the completion of WEP, this team will help to facilitate implementation of WEP strategies within teams across City organizations. Both teams meet monthly or quarterly and at key milestones.

Staff Road Shows

As a part of preliminary pre-engagement hundreds of staff and community members were engaged in a dozen presentations or activities during this phase. Presentations were given by Water Conservation staff to key departments across the City. The road shows were intended to provide awareness of the WEP update effort and foundational information to City staff departments, prior to facilitated meetings in Q1-Q2 2024 with some departments to identify and discuss water efficiency strategies.

Staff Focus Groups and Meetings

In April of 2024, Water Utilities hosted several City staff in a series of four focus groups intended to collect feedback on the Water Utilities' proposed strategies and goals. Additional small group meetings were also held. Staff attendees were from various departments and divisions across the City's water users, including Parks, Operation Services, Engineering, Environmental Services, Water Resources, Water Treatment, Field Operations, Planning, Recreation, Forestry, Golf, Parks Planning, Natural Areas, Gardens on Spring Creek, Economic Health, Customer Care and Technology, Energy Services, Utilities Affordability Programs, and Social Sustainability.

Informational Interviews

A key aspect of this plan update process for Water Utilities was the development of an evaluation by which strategies would be assessed for their potential equity impacts. This evaluation was co-created by Water Utilities staff and the consultant team, then vetted through a series of informational interviews with key staff members, members of the Climate Equity Committee, and five community leaders. The community leaders were identified as key connectors and experts who could provide insight on existing equity challenges in the City, on the best practices for integrating equity into plans, and from the perspectives of equity priority communities.

Table 7: WEP update City staff engagement activities

Focus Area	Engagement Tactic	Date
WEP Road Shows	WEP overview and kick-off presentations with at departmental all-staff meetings	
Municipal Indoor Water Use	Facilitated focus group feedback collection by consultant facilitator	4/1/2024
Municipal Outdoor Water Use		3/21/2024
Municipal One Water and Conservation Opportunities, Including Municipal Operations, Distribution, and Stormwater		3/21/2024
Land Use and Building Policies and Customer Impacts		4/1/2024
Informational Interviews with staff working on equity, climate, and sustainability topics	1:1 or small team interviews by consultant facilitator	June 2024
Information sharing meetings with staff from departments and divisions including Parks, Operation Services, Engineering, Environmental Services, Water Resources, Water Treatment, Field Operations, Planning, Recreation, Forestry, Golf, Parks Planning, Natural Areas, Gardens on Spring Creek, Economic Health, Customer Care and Technology, Energy Services, Utilities Affordability Programs, and Social Sustainability	Internal meetings to share information, seek collaboration opportunities, and align municipal efforts	Summer 2024
State of the Water and Parks departmental meetings	Internal meetings to learn about practices and challenges, seek collaboration opportunities, and align municipal efforts	Spring 2024, Spring 2025
Municipal water use goal and strategy development (follow-up to facilitated focus groups)	Meetings with key staff and managers for departments connected to WEP municipal efficiency strategies	Summer – Fall 2024

Key Findings from WEP Engagement

Seven primary research questions were used to guide feedback collection across all engagement tactics. Below is a summary of community member feedback as interpreted by the project team, organized by the seven questions.

- What are the public's top concerns about water efficiency, and how strongly are those concerns held? Will those concerns drive public action?
    - Long-term viability of Fort Collins' water supply, especially given the changing climate and population growth.
    - Water scarcity and potential for rising water costs, which would exacerbate equity and access issues.
    - Financial cost of water efficiency upgrades, particularly around xeriscaping.
    - Threats to water quality, especially for mobile home park residents and with climate change.
    - The issues of scarcity and sustainability were nearly universal.
    - Some responded with desires to curtail population growth and development; or require much more stringent regulations on water use for new development.
    - Others expressed broader support for public action.

- What water efficiency strategies (e.g., programs, incentives, policies, education) are the public most interested in?
    - Water efficient fixtures were the most mentioned incentive program followed by xeriscaping and water audits.
    - Education was a commonly mentioned strategy to promote water efficiency with the public.
    - Opportunities to tailor education and outreach for: landscapers as they are key players in guiding homeowners; HOAs that set policies for outdoor landscaping for their communities; homeowners and realtors to normalize xeriscaping and water-wise landscaping; and equity priority communities to promote participation in programs.

- What are the public's values and sentiments related to equity as it pertains to water efficiency and uses?
    - Wealthy residents and businesses can afford to pay fines or higher rates.
    - In contrast, low-income residents would struggle to pay for bills, fines, and necessary upgrades.
    - Landlords may pay water bills for their renters, which means tenants do not necessarily benefit from water efficiency efforts.
    - Low-income communities face higher leakage rates, older infrastructure, and less efficient fixtures and appliances.
    - Urban heat island effect and tree canopy coverage may suffer from water use restrictions, which would disproportionately impact equity priority communities.

    - Concern over the conflicting incentives between landlords and tenants, both residential and business.

- What is the public's appetite for mandates versus incentives?

    - Greater interest in regulating large businesses, public spaces, HOAs and the City's operations. This was particularly strong in equity priority communities and young people.
    - More desire for incentives targeted at private residences, small businesses, and mobile home parks.

- What are the gaps in the existing *public outreach approach?*

    - Low-income renters.
    - Spanish speaking community.
    - HOAs, landscaping professionals, and realtors are important groups to continue or begin engaging.

- What are the potential drivers for individual action on water efficiency?

    - Increased transparency on City water efficiency efforts and major commercial users.
    - Understanding of the impact of individuals' efficiency efforts.

- What are effective methods for reaching both general and priority audiences?

    - Invest in building relationships and building in the time during engagement processes to listen to people's concerns first.
    - Reframe engagement from an aspect of the planning process to long-term relationship-building work. (Climate Equity Committee)
    - Identify opportunities to streamline or leverage existing intervention points such as when business owners receive their business licenses.
    - Meeting community members at locations or times when they are already meeting and attending community events.
    - Engagement opportunities to continue building off including:
        - Renewing Community Consultant contracts.
        - Strengthening relationships with community groups.

Suggestions for Future Engagement

Water Utilities received many suggestions throughout the engagement process for opportunities to improve or build on its engagement efforts. Central to these recommendations is the idea of reframing engagement from an aspect of the planning process to long-term relationship-building work. Every engagement should be treated as an opportunity and building block for creating deeper relationships in the community. There was a strong desire throughout Water Utilities' engagement with equity priority communities for the City generally to center engagement and strategy development around their needs. Participants stressed the importance of identifying groups missing from previous efforts and developing ways to craft culturally relevant, accessible messaging and communications. To adapt a common refrain in public engagement, the

community's feedback suggests that simply "inviting them to the table" misses the opportunity to meet them at their own table.

Appendix C: Efficiency Strategies Supporting Goal 1

Water efficiency strategies were identified and selected following the process described in WEP Section 4. This process yielded a portfolio of both existing strategies that will be continued and opportunities for new strategies to gradually implement.

In this WEP update, Water Utilities categorized water efficiency strategies based on the primary approaches, or "levers," of impact: behavioral, infrastructure, economic, and regulatory. These categories are similar, but not identical, to the SWSI Levels Framework (foundational activities, targeted technical assistance and incentives, ordinances and regulations, and educational activities) outlined in the CWCB's Municipal Water Efficiency Plan Guidance Document. The SWSI level description for each strategy is listed to facilitate comparison to CWCB guidance.

The range of annual water savings for recent years is presented for those programs that have tracked quantitative savings; however, many of the other programs listed have likely also lowered overall community water use but are difficult to quantify (e.g., educational activities). As described in Section 2, current Water Utilities' programs with tracked program savings help customers collectively reduce 155 MGY on average, an annual reduction of over 2.3% in water demand.

Current Strategies Supporting Goal 1

This section provides a summary table (Table 7) and brief descriptions of the current Water Conservation program activities that staff intend to continue to make progress towards **Goal 1: Reach 4% annual reduction in water use by 2040 to reduce risk of shortages**. Additional information about these strategies is provided in Table 7. Some strategies implemented on City-owned properties, described in Appendix D, will also support Goal 1.

Behavioral Strategies

Community Education Programs and Events (1977)

Water Utilities conducts educational programs about Xeriscape landscaping, watering techniques and practices, fixture replacements, and general water efficiency. A daily Lawn Watering Guide is published on the City's website during the watering season. Information is disseminated via bill inserts, bus benches, billboards, events, newspaper articles, TV and radio announcements, Water Utilities website information, social media, and more. The team also serves as technical experts to help commercial customers with water use or billing questions. Displays are set up at several community events. Staff regularly adjust the focus and content of educational programs and materials based on community interest in need. Potential topics for future education include the goals and strategies in this WEP, climate and resilience, and regional water availability issues. (SWSI Educational activity) Key highlights of educational activities include:

- Student (K – 12) Education Programs (1977) – Led by Water Utilities Community Engagement staff, presentations and hands-on activities are provided to school classes on water topics, including the history of water in Fort Collins, water use and efficiency, water chemistry and watersheds. (SWSI Educational activity)
- Water Conservation Annual Report (2012) – The annual report provides a detailed overview of the impact of water the Water Conservation Division's efficiency programs over the past year. It serves as a tool for accountability, keeping the community informed about progress toward water efficiency goals, challenges faced, and the direction for the future. The report is posted online in ADA-accessible format and available in print form at events.
- NoCo Bloom Articles and Advertisements (2016) – Articles and advertisements focused on water-efficient landscape practices in a free three-times annually publication produced collaboratively between the City, Colorado State University, and Larimer County Extension. Article and advertisement content varies year-to-year. (SWSI Educational activity)

Campaigns (2016)

Fort Collins participates campaigns to promote efficiency, such as Imagine a Day Without Water sponsored by the U.S. Water Alliance and Fix a Leak Week activities sponsored by U.S. EPA WaterSense. Activities and promotions vary year-to-year and are conducted in partnership with Water Utilities Community Engagement staff. (SWSI Educational activity)

Garden Party / Eco Fest Community Event (2003)

Annual one-day event with free classes, a native plant swap, live music, and numerous booths staffed by local professionals, non-profits and City staff promoting water-wise landscaping. Hundreds of people attend the event each year.

Xeriscape Demonstration Garden (1986)

Staff oversees maintenance of the City's Xeriscape Demonstration Garden and provides tours at organized events and upon request. Water Utilities is also partnering to support various demonstration gardens and other events at the Gardens on Spring Creek. (SWSI Educational activity)

Efficiency Equipment Giveaways (1990)

Free indoor and/or outdoor water-saving devices and information are offered frequently to customers during events. Giveaways vary, but have included shower timers, faucet aerators, toilet tank banks, playing cards with conservation tips, hose timers, hose nozzles, and gardening gloves. In 2024, giveaways were further promoted through the free Showerhead Swap program. The showerhead swap program allows customers to exchange qualifying used showerheads for free, new high-efficiency showerheads. This program was piloted in 2024 over 5 months. (SWSI Educational activity)

Irrigation Assessments – Residential (1999)

Free assessments are offered to homeowners to help them improve sprinkler system efficiency. Since 2024, this has been done in partnership with Resource Central. (SWSI Targeted Technical Assistance and Incentives activity)

Irrigation Assessments – Commercial and HOA (2024)

Assessments are offered to businesses and HOAs to help them improve sprinkler system efficiency. Since 2024, this has been done in partnership with Resource Central. (SWSI Targeted Technical Assistance and Incentives activity)

Indoor Assessments and Direct Installation – Residential (2007)

Free inspection of home and installation of appropriate products based on a home's needs. Products may include showerheads, aerators, toilets and energy-efficiency items. Since 2012, this has been done in partnership with Larimer County Conservation Corps.

Direct Installation for Small Businesses and Multi-Unit Housing (2007)

No-cost installation of low-flow aerators, pre-rinse spray valves, and showerheads.

Indoor Assessments – Commercial (2004)

A free, whole facility energy and water assessment to help customers understand and manage utility costs and identify savings opportunities.

Saving Water Hotline (2014)

Community members can submit an online notification or call a phone hotline to report leaks, flowing, or pooling water. Water Conservation staff respond to the notifications and work with customers to resolve the water waste concerns.

Water Reports – Residential (2014) and Commercial (2018)

Customers receive customized reports that display their water use and compare it to either similar households (residential) or to historical use (commercial and a subset of residential). (SWSI Educational activity)

Residential Water Budgets (2020)

Water budgets based on occupancy, irrigable area, and weather provide customized water use targets to help single-unit and duplex customers understand and manage their water use. Residential water budgets are managed and distributed through the MyWater data portal.

Water Use Estimator for Development (2022)

Born out of cross-collaboration between Water and PDT staff at a Growing Water Smart workshop, this tool is used to estimate how much water a proposed development might use. The tool can be used during Development Review to support project design choices and decision-making that promotes water-wise development before development approval.

Waterwise Professionals Network and Support (2016)

This program bridges the community with local landscape and irrigation professionals who are well-versed in water-efficient practices, while also connecting these professionals to City programs, training, and resources. A filterable public webpage lists businesses that have attended the mandatory annual meeting, serving as a valuable resource that staff can direct customers to for guidance.

Infrastructure (Including Operations)

Advanced Metering (2014)

Commercial and multi-unit units have been metered for decades; the Water Utilities fully metered residential customers by 2003. The Water Utilities transitioned to advanced metering infrastructure (AMI) in 2014. The data resolution is hourly intervals for water. (SWSI Foundational activity)

Monthly Billing with Detailed Rate Codes (2001)

Customers are billed on in 30-day increments according to the tiered rate structure and customer type. Billing data is connected to advanced metering infrastructure readings for each account. Customers can access their water use data through an online data portal and monthly paper or electronic bills. Staff have multiple methods to analyze customer use data by sector to support efficiency programming, while maintaining security of private customer information. (SWSI Foundational activity)

Customer Data Portal (2014)

This web-based portal was developed to provide customers with near-real time access to their historical and current electric and water usage and costs. The portal also provides comparisons to the previous bill period, and illustrates which tier you are currently in. There are alert-based features that a customer can use to provide automatic notifications when they reach a certain usage level or cost level. A mobile version was launched in December 2014. (SWSI Foundational activity)

Leak Alerts and High Use Notifications (a.k.a. Continuous Consumption Program; 2015)

This program uses a commercial software program to identify and notify customers who have hourly water usage for 24 hours. Customers with the highest continuous flow rates are contacted to make them aware of the continuous consumption and the likely leak. Staff troubleshoots with the customer to try to find the source of continuous use. (SWSI Foundational activity)

Economic Strategies

Indoor Product Rebates – Residential (2010)

Rebates for qualifying high-efficiency equipment including toilets, smart home monitors, and showerheads. The type and model of fixtures rebated changes over time based on water savings, availability, and interest

Indoor Product Rebates – Commercial (2003)

Rebates for qualifying high-efficiency equipment including toilets, urinals, and commercial kitchen and laundry appliances. The type and model of fixtures rebated changes over time based on water savings, availability, and interest.

Irrigation Equipment Rebates – Residential (2018)

Irrigation equipment rebates are available to all customers, and incentivize the replacement of old equipment with new, more efficient technology. Rebates are issued for qualifying equipment including weather-based irrigation controllers, high-efficiency nozzles, drip irrigation conversions, rain sensors and more.

Irrigation Equipment Rebates – Commercial (2019)

Irrigation equipment rebates are available to all customers, and incentivize the replacement of old equipment with new, more efficient technology. Rebates are issued for qualifying equipment including weather-based irrigation controllers, high-efficiency nozzles, drip irrigation conversions, rain sensors and more.

Xeriscape Incentive Program Rebates – Residential (2010)

Residential accounts are eligible to receive a rebate for projects that reduce outdoor water demand on the property through landscape renovation.

Xeriscape Incentive Program Rebates – Commercial (2020)

Commercial accounts are eligible to receive a rebate for projects that reduce outdoor water demand on the property through landscape and irrigation renovation.

Xeriscape Grants (2024)

Grant funding for outdoor water efficiency projects such as irrigation repairs or efficiency upgrades and low-water landscape installation

Garden in a Box Discounts (2017)

Through a partnership with Resource Central, customers receive discounts for professionally designed, regionally appropriate, water-wise garden kits.

Custom Rebates – Commercial (2011)

Rebate offering for any upgrade that has a documented water savings compared to current process or equipment. E.g. Cooling tower conductivity control, car wash reuse, leak detection and repair, custom appliance replacement, etc. (SWSI Targeted Technical Assistance and Incentives activity)

Conservation-Oriented and Seasonal Rate Structures (2003)

Water Utilities implements an efficiency-oriented rate structure for residential and commercial customers. On a monthly basis, Water Utilities charges a fixed base charge and, in most cases, a variable, tiered block rate based on volume of water used. There are 3 tiers for single and double-unit housing accounts, 2 tiers for commercial accounts, and 1 tier for multi-unit residences. Multi-unit residences and commercial taps have a seasonal rate increase from May

to October when water use is higher due to irrigation. Current rates are posted online at fcgov.com/Water Utilities. (SWSI Foundational activity)

Conservation-Oriented Water Supply Requirement Fee for Commercial Water Taps (2022)

The Water Supply Requirement (WSR) is a development fee collected to pay for the water necessary to serve a new or upsized, commercial water tap. The WSR is determined by calculating demand based on various factors depending on the property type, including business type, number of beds, landscape area, and more. In general, the WSR fee varies for commercial water taps such that lower-water-use developments pay less, while higher-water-use developments pay more.

Allotments and Excess Water Use Surcharge for Commercial Accounts (1984)

Commercial water accounts are each assigned an annual allotment - the volume of water a tap can use in a 12-month period before incurring an excess water use surcharge. The excess water use surcharge is a volumetric charge based on water used through the remainder of a 12-month billing period once an account has exceeded the annual allotment. When appropriately sized, allotments have potential to serve as a valuable efficiency tool.

Regulatory Strategies (Regulations and Ordinances)

Wasting Water Ordinance and Code Enforcement (1917)

Staff enforces the section of the City Code that prohibits wasting water. Wasting water complaints are investigated. Complaints are used as an education tool, but enforcement by ticketing is also an option.

Building Codes and Plumbing Standards (1978, 2012, 2019, 2022)

Historically, Water Conservation has recommended code updates and participated in and/or led update proposals. Conservation-related code elements include: All construction within the City of Fort Collins shall comply with adopted International codes, including but not limited to Building Code, Energy Conservation Code, Plumbing code, and all local amendments adopted for each. Included in local amendments are specifications for maximum flow rate and consumption for plumbing fixtures and fittings. In addition to historical efficiency-oriented code changes, active Water Conservation leadership and involvement is expected for implementation of recent efficiency-oriented code updates and upcoming proposals such as 2025 Plumbing code updates and alignment with future State-level legislation. (SWSI Regulations and Ordinances activity)

Landscape, Irrigation and Soil Preparation Codes (1994, 2003, 2025)

Historically, Water Conservation has recommended code updates and participated in and/or led update proposals. Conservation-related code elements include new developments and redevelopments on commercial properties require landscape and irrigation plans that comply with adopted Land Use Code. Requirements include efficient design of irrigation, dedicated irrigation to trees, an average gallon per square foot cap on outdoor water demand, and minimums for plant coverage and tree canopy. A rain shut-off device and a post-installation audit are required for commercial sprinkler systems. By City Code ordinance, all properties

where areas are disturbed and proposed to hold plant material require soil loosening and soil amendment. In addition to historical efficiency-oriented code changes, active Water Conservation leadership and involvement is expected for implementation of recent efficiency-oriented code updates and upcoming proposals such as alignment with pending State-level legislation related to landscapes. Activities anticipated in coming years include actions related to 2025 Landscape, Irrigation, & Soil Code Amendments, Streetscape Standards, and Parkway Landscaping Regulations.

Parkway Landscaping Regulations (2013)

Streetscape Standards detail standards for appropriate water-wise landscape designs in parkways and medians on all road types. Residential and commercial streetscape landscape plans require Development Review.

Stormwater Criteria Manual, including Low Impact Development Criteria (2011, 2013, 2016, 2018)

The City has stormwater and low impact development (LID) criteria, adopted by ordinance, that set out landscape design standards to manage stormwater, and which can encourage efficiency through practices such as mulching, native plants, and rain gardens

Development Review includes Water Conservation Review of Plans (2011)

The Water Conservation Division reviews irrigation plans for new commercial developments and redevelopment to ensure irrigation systems and landscapes being installed meet municipal code standards for water efficiency. Landscapes installed for new commercial development and redevelopment are required to use less than 11 gallons of water per square foot per year.

Graywater for Limited Water Reuse Ordinance (2022)

Graywater (i.e., water used in a residential, commercial or industrial building that is collected after the first use and put to a second use) can be collected from certain indoor bathing and washing fixtures and use for toilet and urinal flushing.

Water Adequacy Determination Regulations (2023)

Water Adequacy Determination requires proof that new developments have secured sufficient water supply. Updates to the policy over time have further outlined the process as a part of the Development Review process. Limited supply and high cost of water resources have resulted in developers pursuing more creative ways to provide water to their proposed developments, particularly projects striving to provide affordable housing or the denser development patterns called for in the City Plan.

Restrictive Covenants Ordinance (2003)

City Code prohibits HOA covenants from banning the use of Xeriscape or requiring a percentage of landscape area to be planted with turf, if the homeowner owns the property and pays for the water that irrigates the landscape.

Water Shortage Action Plan (2003, 2020)

The Water Shortage Action Plan includes a comprehensive list of tactics and restrictions for customers to implement in the event of a water shortage. The WSAP also includes definitions of shortage levels and guidelines for the City Manager to declare a shortage or restrictions.

Table 8: Current efficiency strategies supporting Goal 1

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
--: *Indicates efficiency savings not quantitatively tracked or estimated.*							
Behavioral							
Community education programs	1977	--					✓
Student (K-12) education programs	1997	--					✓
NoCo Bloom articles and advertisements	2016	--					✓
Water Conservation programs annual report	2012	--					✓
Campaigns – Fix a Leak Week, Imagine a Day Without Water	2016	--					✓
Garden Party / Eco Fest community event	2003	--					✓
Xeriscape Demonstration Garden	1986	--					✓

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Efficiency equipment giveaways	1992	--					✓
Showerhead swap	2024	**875,000**			✓		
Irrigation assessments – residential	1999	**153,000 – 2,045,000**			✓		
Irrigation assessments – commercial and HOA	2024	not available			✓		
Indoor assessments and direct installation – residential	2007	**981,000 – 2,750,000**			✓		
Direct installation for small businesses and multi-unit housing	2019	**165,400 – 5,086,000** (multi-unit housing); **12,465 – 92,500** (small businesses)			✓		
Indoor use assessments – commercial	2017	6,000 – 670,000			✓		

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Saving water hotline	2014	89 – 120 reports received annually; volume of savings not available			✓		
Water use reports – residential and commercial	2014	**24,000,000 – 75,000,000**			✓		
Water budgets – residential	2020	--					✓
Water use estimator for development	2022	--	✓		✓		
Waterwise landscape and irrigation professionals network and support	2016	--					✓
Infrastructure							
Advanced metering for all accounts	2014	--		✓			

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Customer data portal	2014	--		✓			
Leak alerts and high use notifications (continuous consumption program)	2015	**40,500,000 – 110,500,000**			✓		
Monthly billing with rate codes that align with tiered rates and customer type	2014	--		✓			
Economic							
Indoor product rebates – residential	2010	**2,100,000 – 3,400,000**			✓		
Indoor product rebates – commercial	2003	**12,400 – 1,027,000**			✓		
Irrigation equipment rebates – residential	2018	**1,007,000 – 1,740,000**			✓		
Irrigation equipment rebates – commercial	2019	**1,510,000 – 9,556,000**			✓		

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Xeriscape incentive program rebates – residential	2010	**448,900 – 661,300**			✓		
Xeriscape incentive program rebates – commercial	2020	**54,000 – 3,495,000**			✓		
Garden in a Box discounts	2017	**310,000 – 529,000**					
Xeriscape grants	2024	--			✓		
Custom rebates – commercial	2011	**0 – 15,000,000 (average 3,100,000)**			✓		
Conservation-oriented and seasonal rate structures	2003	--		✓			
Conservation-oriented water supply requirement fee for commercial water taps	2022, most recent update in 2025	--	✓	✓			

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Allotments and excess water use surcharge for commercial accounts	1984, most recent update in 2024	--		✓			
Regulatory							
Wasting water ordinance and code enforcement	1917	--	✓			✓	
Building codes and plumbing standards	1978, most recent update in 2022	--	✓			✓	
Landscape, irrigation and soil preparation codes	1994, most recent update in 2025	**1,700,000** (estimate of annual savings for most recent update)	✓			✓	
Parkway landscaping regulations	2013	--	✓			✓	

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Stormwater Criteria Manual, including Low Impact Development criteria	2011, most recent update in 2018	--	✓			✓	
Development Review includes Water Conservation review of irrigation plans	2011	--	✓			✓	
Graywater for limited water reuse ordinance	2022	--				✓	
Water Adequacy Determination regulations	2023	--	✓			✓	
Restrictive covenants ordinance prevents limits on xeriscape and turf grass requirements	2003	--				✓	
Water Shortage Action Plan	2003, most recent update in 2020	--				✓	

Fort Collins Water Utilities Efficiency Activities	Start Year	Tracked Estimated Annual Water Savings, 2020-2024 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Water Adequacy Determination regulations	2023	--	✓			✓	

Planned New Strategies Supporting Goal 1

The following are descriptions of the new Water Conservation program activities identified for likely implementation in support of **WEP Goal 1:** Reach 4% annual reduction in water use by 2040 to reduce risk of shortages. Additional information about these strategies is provided in Table 8 and cumulative potential impact of these strategies is discussed in Section 4.

Behavioral

High Bill Evaluations for Residential Customers (Targeted start in 2028)

Identify and connect directly with residential customers with high water use. This strategy is about pathways for behavior change and communicating throughout the journey. (SWSI Targeted Technical Assistance and Incentives activity)

Wrap-around Support for Water Efficiency in Community Greenspaces or HOA and Large Turf Areas (Targeted start in 2028)

A stepwise program to support HOAs and other large turf landscapes through irrigation education, irrigation equipment upgrades, turf conversions, and ongoing maintenance. (SWSI Targeted Technical Assistance and Incentives activity)

Rental Tenants and Owners/ Managers Efficiency Outreach & Giveaways (Targeted start in 2027)

Develop educational materials and resources for rental tenants and owners to increase water efficiency awareness and support effective water use practices across rental properties. Educational materials developed may include sample lease language, move-in efficiency checklists, suggestions for behavior changes to lower water use, information on how to find and read a water bill, and welcome packets that include leak detection kits and easy-to-install fixtures like high-efficiency showerheads and faucet aerators. Staff intend to consult and partner with City's Neighborhood Services department to implement this strategy. (SWSI Educational activity)

Commercial Water Use Benchmarking (Targeted planning start in 2027)

Water use benchmarks are standards or reference points used to measure and compare water consumption levels. They help to set goals for water efficiency and identify areas for improvement. Establishing water use benchmarks for indoor and outdoor consumption can drive efficiency efforts. A public-facing website would track and report water use for multi-unit housing and commercial buildings to promote transparency and accountability. City buildings could be used to pilot this strategy prior to general public application. (SWSI Educational activity)

Comprehensive Communications and Marketing Plan for Conservation Promotion (Targeted start in 2026)

Comprehensive and cross-departmental approach to communication and marketing of efficiency strategies, programs, and education about water or water-adjacent topics. Sharing the progress

made toward community and municipal water goals, including projects and upgrades on City-owned properties, must be included in messaging. (SWSI Educational activity)

Infrastructure (Including Operations)
No new infrastructure or operations-based opportunities were selected.

Economic
Plumbing Repair Assistance (Targeted start in 2028)
For under resourced customers, a financial assistance program for plumbing services such as leak detection and repair, and high-efficiency appliance or fixture installation. This strategy also intends to provide access to a network of plumbers who are equipped to identify and repair leaks, install high-efficiency appliances, and align with Water Conservation's goals and resources. (SWSI Targeted Technical Assistance and Incentives activity)

On-Bill Financing for Efficiency Upgrades (Targeted planning start in 2027)
This program is intended to support customers who experience water loss issues that require costly fixes, such as service line repairs or replacements. Customers who meet certain qualifications can receive a multi-year loan and make payments through the Water Utilities billing system. (SWSI Targeted Technical Assistance and Incentives activity)

Design Assistance for New Development and Redevelopment (Targeted planning start in 2027)
Financial and/or technical assistance to encourage more water efficient designs during the design phase of development. Also planned is better promotion of incentives and assistance before and during project development. (SWSI Targeted Technical Assistance and Incentives activity)

Regular Evaluation of Conservation-oriented Rate Structures with Water Conservation Involvement (Targeted start in 2026)
Water Utilities implements an efficiency-oriented rate structure. On a monthly basis, Water Utilities charges a fixed base charge and, in most cases, a variable, tiered block rate based on volume of water used. There are 3 tiers for single- and double-unit housing accounts, 2 tiers for commercial accounts, and 1 tier for multi-unit housing. Multi-unit housing and commercial taps face a seasonal rate increase from May to October when water use is higher due to irrigation. Water Conservation and Finance staff are committed to evaluating the rate structure to make sure the utility is striking the right balance between cost recovery, resource efficiency, and affordability. (SWSI Foundational activity)

Regulatory (Regulations and Ordinances)
Daily Sprinkler Watering Window (Targeted planning start in 2027)
To reduce evaporation and water loss due to drift, implement a daily watering window that prohibits overhead irrigation between the hours of 10 a.m. and 6 p.m. Historically, daily watering windows have only been implemented as a water shortage response action. (SWSI Regulations and Ordinances activity)

Examine Existing Land Use Regulations for Barriers, Conflicts to Water Efficiency (Targeted start in 2028)

PDT and Water Conservation are working together to identify and improve Development Review processes, such as the minor amendment, that may hinder and make more challenging the approval of water-wise landscaping, landscape renovation projects on commercial properties and landscaping on right-of-way property. (SWSI Regulations and Ordinances activity)

Table 9: New efficiency strategies to support Goal 1

Fort Collins Water Utilities Efficiency Activities	Planned Start Year	Potential Estimated Annual Water Savings by 2040 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
--: *Indicates efficiency savings not quantitatively tracked or estimated.*							
Behavioral							
High Bill Evaluations - Residential	2028	**200,000**			✓		
Wrap-around Support for Water Efficiency in Community Greenspaces or HOA and Large Turf Areas	2028	**2,700,000 – 4,200,000**			✓		
Rental Tenant and Owner/ Managers Efficiency Outreach & Giveaways	2027	--					✓
Commercial Water Use Benchmarking	2027	--					✓
Comprehensive Communications and Marketing Plan for Conservation Promotion	2026	--					✓

Fort Collins Water Utilities Efficiency Activities	Planned Start Year	Potential Estimated Annual Water Savings by 2040 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Economic							
Plumbing Repair Assistance	2028	**890,000**			✓		
On-bill financing for efficiency upgrades	2028	--			✓		
Design Assistance and incentives for New Development and Redevelopment	2027	**13,400,000 – 49,200,000**	✓		✓		
Regular Evaluation of Conservation-oriented Rate Structures with Regular Evaluation with Water Conservation Involvement	2026	--		✓			
Regulatory							
Daily Sprinkler Watering Window	2027	**40,200,000 – 47,800,000**				✓	

Fort Collins Water Utilities Efficiency Activities	Planned Start Year	Potential Estimated Annual Water Savings by 2040 (gallons)	Land Use Integration	Statewide Water Supply Initiative Level			
				Foundational Activities	Targeted Assistance & Incentives	Ordinances & Regulations	Educational Activities
Examine existing land use regulations for barriers, conflicts to water efficiency	2028	--	✓			✓	

Efficiency Strategies Evaluated but Not Selected for Implementation

Some new efficiency activities received relatively high scores for one or more screening criterion but were not included in the final set of new strategies identified as highest priority for implementation over the time period of this WEP. These strategies are documented here to support future consideration if conditions change. These are listed in following table:

Table 10: New efficiency strategies evaluated but not currently planned

Not Selected Fort Collins Water Utilities Efficiency Activities	SWSI Category	Mechanism of Impact	Reason for Not Implementing at this Time
Submetering incentives and promotion	Targeted Technical Assistance and Incentives	Behavioral	Low combined screening criteria score
Land development ratings system	Education	Behavioral	Low combined screening criteria score
Landscape water budgets (update and expansion of discontinued program)	Targeted Technical Assistance and Incentives	Behavioral	Low combined screening criteria score; will be considered as part of new commercial water benchmarking strategy
Cooling tower management program	Targeted Technical Assistance and Incentives	Behavioral	Low combined screening criteria score

Discontinued Water Efficiency Strategies

Some efficiency activities have been discontinued over time. These are listed in following table:

Table 11: Discontinued water efficiency strategies

Discontinued Activities	Time Period Program was Active	SWSI Category	Mechanism of Impact	Description
Dishwasher rebates	2007 - 2018	Targeted Assistance & Incentives	Economic	Residential customers purchasing qualified ENERGY STAR ® dishwashers received a bill credit of $25
Allotment Management Program	2019 - 2024	Targeted Assistance & Incentives	Economic	Commercial customers with allotments undersized for their landscape could apply for a temporary waiver from the Excess Water Use surcharge while renovation projects to permanently lower outdoor water demand were completed.
Landscape water budgets for commercial customers	2018 - 2022	Targeted Assistance & Incentives	Behavioral	Participants with at least one commercial water tap received reports comparing actual landscape water use to the estimated landscape water budget developed based on site visit data collection.
Off by October irrigation campaign	2021 - 2023	Educational	Behavioral	Campaign targeted toward residential customers; customers who pledged to turn off irrigation by Oct. 1 were eligible for a $50 credit on their next Water Utilities bill.
Hotel and restaurant efficiency materials	2003 - 2014	Educational	Behavioral	A three-card set available for hotels and other commercial customers to inform guests about the importance of water conservation to our area and to encourage the reuse of towels and linens.

Discontinued Activities	Time Period Program was Active	SWSI Category	Mechanism of Impact	Description
Watershed tours	2012 - 2019	Educational	Behavioral	Educational bus tours of the Water Utilities' Cache la Poudre watershed; involves information about drinking water, protection of water resources, water quality, and managing urban watersheds.
Online water use calculator	2012 - YEAR	Educational	Behavioral	Customers could use an online calculator with their household parameters and historic water consumption to identify ways to improve efficiency and reduce use.
Home efficiency loans, Zero Interest Loans for Conservation Help	2010 - 2016	Technical Assistance and Incentives	Economic	Program for residential customers that offered a low cost, no-money-down financing option for up to 20 years. Loans were repaid by the customer through their monthly utility bill.
Children's Water Festival	1992 - 2022	Educational	Behavioral	Festival geared towards children in grades 3-5 in which presenters and exhibitors led activities and games for children to learn about watershed health and sustainability.

Appendix D: Efficiency and Landscape Resilience Strategies for Goal 2 and City One Water Demand Management

The WEP includes a goal and strategies directed at City-owned properties: **Goal 2: Improve water efficiency and build resilience on City-owned landscapes, to benefit the community and environment**. Beneficial outcomes for actions on City-owned landscapes include contributing to overall water efficiency (Goal 1) by lowering municipal water use, building resiliency in our public landscapes to prepare for a hotter future, prioritizing water use for spaces that most benefit the community, and creating highly-visible projects that inspire water-saving actions by local individuals and businesses

The City organization will focus on continuing and improving current best practices (Table 11) and seeking new opportunities (Table 12) to improve water efficiency and build resilience on City-owned landscapes, in support of Goal 2. In some cases, these actions will also yield treated water savings that contribute to Goal 1 targets and will support integrated land use and water planning and One Water integration across Water Utilities and the City organization. Current Activities Supporting Efficiency and Resilience on City-Owned Properties

In this WEP update, Water Utilities categorized water efficiency strategies based on the primary approaches, or "levers," of impact: behavioral, infrastructure, economic, and regulatory. These categories are similar, but not identical, to the SWSI Levels Framework (foundational activities, targeted technical assistance and incentives, ordinances and regulations, and educational activities) outlined in the CWCB's Municipal Water Efficiency Plan Guidance Document. The SWSI level description for each strategy is listed to facilitate comparison to CWCB guidance

Current Activities and Best Practices for Managing Water Use on City-Owned Properties

This section provides brief descriptions of best practices implemented by City of Fort Collins departments. City departments currently implement numerous best practices and operations which address distribution and treatment inefficiencies, lower treated water use, lower raw water irrigation use, improve landscape resilience, or a combination of these. Note that this list provides several examples but is not fully comprehensive of the many day-to-day best practices, departmental policies, and operational decisions that guide City water use and landscape maintenance. Additional information about these strategies is provided in Table 11.

Reuse Plan (1985)
Treated wastewater from the Drake Water Reclamation Facility is pumped to Rawhide Power Plant for landscaping and cooling water.

Water Loss Auditing (1993)
Annual audit and reporting of Water Utilities treatment and distribution system for water loss, also known as non-revenue water, following State House Bill 1051 requirements and the American Water Works Association M36 methodology. The audit documents and analyzed data about distribution line leaks, meter inaccuracies, and other physical losses or tracking inaccuracies.

Backwash Water Recycling at Treatment Facility (2003)
Backwash water recycling equipment at the water treatment facility treats backwash water and recycles it to the beginning of the treatment process.

Water Main Survey (1993)
Sonar equipment is used to listen for leaks in water main lines and to pinpoint their locations. Crews monitor water leaks on an ongoing basis, with a two-year cycle to survey all water mains. Catching leaks before they have surfaced saves water and costs of excavation and repairs and supports the wasting water ordinance. (SWSI Foundational activity)

Growing Water Smart Workshop Participation (2018, 2024)
Water Utilities and PDT staff attended and participated collaboratively at Sonoran Institute's Growing Water Smart Workshop in both 2018 and 2024. Cross-departmental action items emerged from those workshops, several of which are reflected in Current and Planned Land Use Activities, WEP Sections 3.3.1 and 3.3.2.

Municipal Sustainability Adaptation Plan (2019)
The 2019 Municipal Sustainability and Adaptation Plan is the employee roadmap to being a sustainable organization. The City aims to be sustainable and resilient to continue to provide world-class services and demonstrate excellence and innovation in daily work. With this plan, the City formally addresses climate adaptation and resilience, to prepare for the future.

City Administrative Policies (2024)
The City's administrative policies include a section focused on water efficiency which sets out guidelines including metering and monitoring water use, report and resolve water waste and leaks, indoor water efficiency upgrades, placing a high priority on water efficiency in landscaping, and operating irrigation systems for water efficiency. The policies recognize that there are City operations and facilities located in various water providers' service areas within City limits, each with its own plans and requirements. The policies state that, whenever feasible, City activity located outside of the City-governed Water Utilities water service area should also follow Water Utilities guidelines and requirements, including but not limited to, the Water Efficiency Plan and Water Shortage Action Plan.

Track Water Use Data for City Buildings and Properties (2009)
The Operations Services department tracks and reports building utility usage (water, electricity, natural gas, and sewer).

Prioritize Raw Water Sources for Irrigation of City Landscapes
Raw water is used to irrigate the majority of the City's parks, cemeteries, and golf courses, which lowers treatment and operations costs and lowers overall treated water demands.

Irrigation Application Rates Based on Evapotranspiration and Irrigation Audits
Continue using evapotranspiration to guide irrigation application rates on City parks, such that the irrigation rate is less than the water need based on measured evapotranspiration and precipitation; perform water audits on parks with an irrigation application rates that exceed evapotranspiration-based targets.

Landscape Designs Follow Xeriscape Principles and Best Irrigation Practices
Practices include minimizing high-water use turf grasses in areas other than those with high foot traffic and playing fields, incorporating smart controllers, and installing dedicated irrigation to trees. City-owned landscapes will also follow all municipal landscape and streetscape codes such as limits on nonfunctional turf and soil amendment requirements.

Table 12: Current City of Fort Collins activities and best practices for managing water use and landscapes on City-owned properties and facilities

Fort Collins Efficiency and Landscape Resilience Activities	Start Year	Tracked or Estimated Annual Water Savings (gallons)	Land Use Integration	Area of Impact			
				System Water Loss (Goal 1)	City Treated Water Use (Goal 1)	City Landscape Resilience (Goal 2)	City Raw Water Use
Distribution system water loss audits	1993	--		✓			
Water distribution line survey and leak repair	2009	**700,000 – 1,400,000**		✓			
Track water use data for City buildings and properties	2009	--			✓		✓
Municipal Sustainability Adaptation Plan	2019	--		✓	✓	✓	✓
City Administrative Policies include water efficiency	2018, most recent update in 2024	--		✓	✓	✓	
Irrigation application rates based on evapotranspiration and irrigation audits	--	**8,600,000** (for treated water irrigation in Water Utilities service area)		✓			✓
Prioritize raw water sources for irrigation of City landscapes	--	--	✓	✓			✓

Fort Collins Efficiency and Landscape Resilience Activities	Start Year	Tracked or Estimated Annual Water Savings (gallons)	Land Use Integration	Area of Impact			
				System Water Loss (Goal 1)	City Treated Water Use (Goal 1)	City Landscape Resilience (Goal 2)	City Raw Water Use
Landscape designs follow xeriscape principles and best irrigation practices	--	--	✓		✓	✓	✓
Growing Water Smart Workshop participation	2018, most recent workshop in 2024	--	✓		✓		

Opportunities for City Organization Water Efficiency, Landscape Resilience, and Land Use Planning/Development

This section describes opportunities for new actions to lower the City's treated water use (in support of **Goal 1**) and improve landscape resilience (in support of **Goal 2**), which were developed through collaborative staff discussions to align with existing needs, practices, and objectives. Additional information is provided in Table 12.

Increase Pace of Plumbing Retrofits in Municipal Buildings
City best practices include replacing old plumbing fixtures with high-efficiency models when other changes are made. This strategy involves fast-tracking efficiency upgrades when possible to more quickly increase water efficiency savings and lower treated water use.

Increased Pace of Distribution Line Leak Repair
Water main lines are regularly inspected for potential leaks. This strategy involves fast-tracking leak repairs and line replacement for high-risk main line sections to lower physical water loss following treatment and before customer taps.

Targeted Irrigation-Efficiency Upgrades on City-Owned Properties
Aging or inefficient irrigation infrastructure will be updated or replaced on up to seven City-owned properties by 2040. This strategy is expected to improve landscape resilience and has potential to lower either treated or raw water use.

Targeted Turf-to-Xeric Conversions on City-Owned Properties
Non-functional, high-water-use turf will be removed and replaced with water-efficient landscapes on up to seven City-owned properties by 2040. This strategy is expected to improve landscape resilience and has potential to lower either treated or raw water use. These projects also have the potential to incorporate co-benefits such as insect and pollinator habitat and native plant restorage.

Establish Regular Contact and Information Sharing between Water Providers and PDT Staff
Following the Growing Water Smart Workshop in fall 2024, a team of staff including members from Water Utilities and PDT have committed to meeting quarterly for an indefinite amount of time to share data and department information, as well as make progress on action items identified at the workshop. One of those actions includes developing a half-day workshop in 2025 with the other water providers in Fort Collins to build better partnerships.

Look For Opportunities to Expand Water Conservation's Role in Development Review Process
This strategy expands the role of Water Conservation during the Development Review process. Improvements to procedures for post-occupancy monitoring and enforcement include requesting funding to hire a Zoning Inspector for Water Conservation who would specialize in landscape design review and inspection and other water efficiency code requirements. Pending funding approval, the Water Conservation Inspector would serve as a designated representative

included in the early planning stages of all large scale residential and non-residential development and redevelopment projects for the purpose of providing information about water efficiency advantages and opportunities. This could look like using the Water Wise Estimator Tool, promoting WSR incentives, or connecting developers with other technical assistance.

Integrate Water into Strategic Plans and Policies
PDT and Water Utilities staff are committed to working together to include water efficiency in strategic plans and policies. This includes but is not limited to elevating the importance of water in the next update to City Comprehensive Plan.

Technical and Financial Support for City Efficiency Projects from Water Conservation
The Water Utilities Water Conservation Division will allocate staff time and a portion of the annual budget to support water efficiency and landscape resilience project completion on City-owned properties, as well as water use data tracking and reporting, project planning, cross-departmental collaboration, and marketing to highlight the City's efficiency activities and lessons learned for customer benefit.

Align, Track, and Publicly Display Water Supply and Demand Data Including Municipal Uses
Water Utilities and PDT are working together to identify different ways to track and present water supply and demand data to support conversations with leadership, elected officials, and the community, including data visualization for public consumption. This effort also prioritizes presenting municipal water use publicly to increase visibility and transparency for water use on city-owned properties and progress toward municipal strategies in the WEP.

Prioritize Dedicated Irrigation to Trees
When landscape or irrigation changes are occurring on existing City landscapes or new designs, prioritize dedicated irrigation to trees separate from surrounding turf or other landscapes. Dedicated irrigation valves or zones allows for deeper watering of trees than the rest of the landscape requires. The City is shifting to dedicated irrigation to trees in anticipation of a warmer climate in the future. All public Capital Improvement Projects along streets and in new parks now include dedicated irrigation to trees. This strategy is expected to improve landscape resilience and has potential to lower either treated or raw water use.

Use City Properties to Pilot Efficiency Activities
Staff will seek opportunities to pilot efficiency activities on City properties to contribute to City efficiency efforts and to test and refine strategies before customer participation. Areas of opportunity include testing commercial water use benchmarking on City-owned office, recreational, and industrial facilities, as well as irrigation and landscaping efficiency activities.

Update to Municipal Sustainability Adaptation Plan
Water Conservation staff will participate in the future update to the 2019 Municipal Sustainability and Adaptation Plan, which is the employee roadmap to being a sustainable organization. The City aims to be sustainable and resilient to continue to provide world-class services and

demonstrate excellence and innovation in daily work. With this plan, the City formally addresses climate adaptation and resilience, to prepare for the future.

Support One Water Efforts and Integrated Demand Management Approach
Water Conservation staff will actively participate in collaborative, integrated One Water demand management activities and will seek opportunities to increase efficiency through operations.

Table 13: New strategy opportunities for managing water use on City-owned properties and facilities

City of Fort Collins Efficiency and Landscape Resilience Strategies	Planned Start Year	Potential Estimated Annual Water Savings (gallons)	Land Use Integration	Potential Area of Impact			
				System Water Loss (Goal 1)	Municipal Treated Water Use (Goal 1)	Municipal Landscape Resilience (Goal 2)	Municipal Raw Water Use
Technical & Financial Support for City Efficiency Projects within Water Utilities service area from Water Conservation Division	2025	--		✓	✓	✓	✓
Look for Opportunities to Expand Water Conservation Division's role in Development Process	2025	--	✓		✓		
Establish regular contact and information sharing between Water providers across the growth management area and Planning staff	2025	--	✓		✓		
Integrate Water into Strategic Plans and Policies	2028	--	✓		✓		
Support One Water efforts and integrated demand management approach	2025	--	✓		✓		

City of Fort Collins Efficiency and Landscape Resilience Strategies	Planned Start Year	Potential Estimated Annual Water Savings (gallons)	Land Use Integration	Potential Area of Impact			
				System Water Loss (Goal 1)	Municipal Treated Water Use (Goal 1)	Municipal Landscape Resilience (Goal 2)	Municipal Raw Water Use
Prioritize dedicated irrigation to trees	2026	--			✓	✓	✓
Align, track and publicly display water supply and demand data, including municipal uses	2025	--		✓	✓		✓
Use City properties to pilot efficiency activities	2028	--			✓	✓	✓
Increase pace of Plumbing Retrofits in Municipal Buildings	2027	**130,000 - 400,000**			✓		
Increased Pace of Distribution Line Leak Repair	To be determined	**700,000 -1,400,000** (over existing annual loss reduction)		✓			
Targeted Irrigation Efficiency Upgrades on City-Owned Properties	2028	**275,000+**			✓	✓	✓
Targeted turf-to-xeric conversions on City-Owned Properties	2028	**275,000+**			✓	✓	✓

Appendix E: Glossary

Acre-Foot or Acre-Feet (AF): Volume of water equal to about 326,000 gallons; one acre-foot can supply around three to four single-unit homes in Fort Collins per year

Active Capacity: Usable capacity of a reservoir for storage and regulation of inflows and releases that does not include any capacity below the reservoir's lowest outlet (which is known as dead capacity/pool)

Allotment: The volume of water a tap can use in a 12-month period (Dec. 1 – Nov. 30) before incurring an excess water use surcharge. Allotments only apply to non-residential taps.

Carryover: Ability to save water in storage for use at a later time; often used in reference to storage

Climate Change: Long-term shifts in weather patterns including rising temperatures, increased frequency and intensity of extreme events, and changes in precipitation patterns

Colorado-Big Thompson (C-BT) Project: Bureau of Reclamation project that brings water from the Colorado River basin to the east side of the continental divide via a system of tunnels and reservoirs; operated by Northern Water

Conservation: Water savings through behavior (e.g., choosing to take a shorter shower). For simplicity and consistency with the division name, the term "efficiency" is used throughout this WEP to refer to both behavioral and technology-based water demand management; however, in practice, efficiency generally refers to technology-based solutions (e.g., a high-efficiency showerhead), while efficiency focuses on the water savings through behavior (e.g., choosing to take a shorter shower).

Efficiency Strategies: Actions such as policies, programs, incentives, and education that promote water efficiency

Demand Management: Extension of water supplies through activities that reduce water demands, lower losses and inefficiencies, or substitute alternative supplies such as reuse.

Direct Flow Right: Water rights under prior appropriation taken directly from the surface stream and used immediately for beneficial use.

Drought: Period of below average runoff that can last one or more years and is often measured by its duration, average annual shortage and cumulative deficit below the average.

Drought Criterion: Criterion adopted in the current WSDMP that defines the level of risk for the City's water supply system. The drought criterion states that in a 1-in-50 year drought the Water

Utilities should be able to meet the planning demand level. A 1-in-50 drought corresponds to a dry period that is likely to occur, on average, once every 50 years.

Efficiency: Water savings through technology-based solutions (e.g., a high-efficiency showerhead)

Evapotranspiration (ET): Water lost from the soil through evaporation from the soil surface and transpiration from the leaves of the plant; affected by temperature, relative humidity, wind and air movement, soil moisture availability, and types of plant

Firm Yield: Measure of the ability of a water supply system to meet water demands through a series of drought years

Growth Management Area (GMA): Planned boundary of the City of Fort Collins' future city limits

Gallons per Capita per Day (GPCD): Measurement of municipal water use; for Water Utilities, GPCD is calculated based on the total annual treated water produced at the Water Treatment Facility for use by all Water Utilities water customers (minus large contractual customers and other sales or exchange agreements) divided by the estimated population of the Water Utilities service area and 365 days

Infrastructure Leak Index (ILI): Ratio that compares the water loss volume to the unavoidable annual real losses for a system. A ratio of 1.0 indicates that the utility has reduced losses to the lowest level theoretically possible, given its annual average water pressure.

Light Detection and Ranging (LiDAR): Remote sensing technology that can be used in large-scale landscape analysis

Northern Colorado Water Conservancy District (Northern Water): Organization that maintains the Colorado-Big Thompson (C-BT) Project and several other regional water projects

North Poudre Irrigation Company (NPIC): Irrigation company that supplies water to farmers north of Fort Collins; currently owns all water stored in Halligan Reservoir

Planning Demand Level: Reference water demand used for water supply planning purposes

Return Flow Obligation (RFO): Legal requirement to mimic the historical return of water to a river basin after the official water use has been changed in court

Senior Water Rights: Water rights that have high priority in a river basin relative to Colorado's prior appropriation system

Storage Reserve Factor (SRF): Commonly-used engineering principle in designing water supply systems to address short-term supply interruptions; the current SRF from the WSDMP

mandates having 20 percent of annual demands in storage through a 1-in-50 drought, which equates to about 3.5 months of winter (indoor) demands or 1.5 month of summer demands

Data Validity Score: Unitless measurement indicating confidence in the audit input data

Treatable Yield: Amount of water that can be diverted each year after deductions from legal, natural, and operational factors

Water Loss/Connection/Day: Metric used to scale total apparent and real losses based on accounts served; does not indicate an actual loss of water at an individual tap

Water Rights Portfolio: Collection of water rights owned by a water provider

Water Supply and Demand Management Policy (WSDMP): Document that guides Water Utilities' efforts in balancing its water resources

Water Supply Requirement (WSR): Condition set by Water Utilities for new development; developers must provide water rights or cash-in-lieu of water rights to support the water needs of their developments

Winter Quarterly Average (WQA): Average of water demands in the winter months (December – February)

Yield: Amount of water that is produced from a water right