City of Fort Collins

One Water Action Framework

March 2025 / FINAL

carollo

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Abbreviations

AF	acre-feet
AFY	acre-feet per year
C-BT	Colorado-Big Thompson
CDPHE	Colorado Department of Public Health and Environment
cfs	cubic feet per second
CIP	capital improvement plan
City	City of Fort Collins
CSU	Colorado State University
CWCB	Colorado Water Conservation Board
DPR	direct potable reuse
DWRF	Drake Water Reclamation Facility
EIS	environmental impact statement
ELCO	East Larimer County Water District
FC Utilities	Fort Collins Utilities Department
FCLWD	Fort Collins-Loveland Water District
GMA	Growth Management Area
gpcd	gallons per capita per day
HVAC	heating, ventilation and air conditioning
JOP	Joint Operations Plan
MCL	maximum contaminant level
mgd	million gallons per day
MGPA	million gallons per acre
MWRF	Mulberry Water Reclamation Facility
NBS	nature-based solutions
NGO	non-governmental organizations
NPIC	North Poudre Irrigation Company
O_3/BAC	ozone/biologically activated carbon
OWAF	One Water Action Framework
PAC	powdered activated carbon
PCL	Pollution Control Laboratory
PFAS	per- and polyfluoroalkyl substances
PRPA	Platte River Power Authority
RHAF	River Health Assessment Framwork
SCM	stormwater control measures
SUDS	sustainable urban drainage systems
SWD	Sunset Water District
TOC	total organic carbon

USACE	U.S. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UV	ultraviolet
WEP	Water Efficiency Plan
WFCWD	West Fort Collins Water District
WQL	water quality laboratory
WRF	Water Research Foundation
WSAP	Water Shortage Action Plan
WSSC	Water Storage and Supply Company
WTF	Water Treatment Facility

CHAPTER 1 ONE WATER VISION AND GOALS

1.1 Drivers for Integrated Water Planning

Fort Collins, Colorado is located 65 miles north of Denver in Larimer County along the Cache la Poudre River, between the Rocky Mountain foothills and Colorado's eastern plains. As the fourth-largest city in the state, Fort Collins spans over 57 square miles and is home to around 172,300 residents. The city is also home to Colorado State University and several major commercial enterprises.

The City of Fort Collins' (City) service area boundaries for drinking water, wastewater, and stormwater are not uniform, and in the cases of water and wastewater, certain areas within the city limits are served by neighboring utility providers. This introduces complexities in planning, coordination, and customer communication.

Furthermore, the City faces increasing pressures that must be considered in future planning and operations. For example, population growth, urbanization, reliance on an over-allocated Colorado River water supply and increased competition for available water rights present significant challenges. Increasingly, the City is concerned with mitigating the impacts of climate change, such as potential wildfires, climate-driven shifts in precipitation patterns, and intensifying drought, resulting in the growing scarcity of water resources. Lastly, advancements in technology, aging infrastructure, rising operational costs and service affordability are key challenges.

1.2 One Water Approach

In the last decade, many utilities across the United States started to embrace a "One Water" approach to planning and managing the water cycle in the urban environment. One Water recognizes and takes advantage of the interconnected nature of all aspects of a municipal water utility, ranging from raw water supply to water treatment and distribution, wastewater collection and water resource recovery, and stormwater management. The various types of water that circulate in the One Water cycle are schematically presented in Figure 1.1.

Under a One Water approach, managers of different portions of the water cycle work as a team, navigating across traditional boundaries or "siloes" of responsibility, to seek multi-benefit solutions through holistic water management. As the City of Fort Collins Utilities Department (FC Utilities) is responsible for managing water, wastewater, and stormwater, this department is a logical lead entity. However, the One Water approach goes beyond traditional water management and also aims to include other departments with intersecting responsibilities such as departments responsible for parks, recreation, natural areas, and even transportation and financial departments. The City is in a unique position as both a utility provider and municipal government, offering opportunities for broader stakeholder inclusion and applications.

The City is fully embracing a One Water mindset, with the principle that all water holds value being central to its One Water planning approach. In 2021, to address its ongoing and emerging water management challenges more effectively, the City restructured its Water Utilities to improve efficiency and integration across its divisions. This reorganization included the establishment of a water utilities Executive Director

role to oversee the City's One Water Program and alignment of other senior leadership roles that work across all water sectors. Additionally, a capital project delivery team was formed. Together, these groups oversee the City's water utilities' regulatory compliance, planning, project implementation, and operational functions. This integrated approach is designed to meet the evolving needs of the City's water systems and its customers.

The City's One Water Action Framework (OWAF) will serve as a strategic guide for integrated planning and management of water resources and operations across several City departments—encompassing raw water , drinking water, stormwater, wastewater This framework will enable the City to address its water management challenges and to maximize the benefits of its water resources and address the community's evolving water needs over the next 50 to 100 years. The OWAF is designed to inform capital planning priorities, shape budgeting processes, guide investments in technology and workforce training, identify key collaborations, foster workforce alignment, and act as a communication and engagement platform for both internal and external stakeholders.

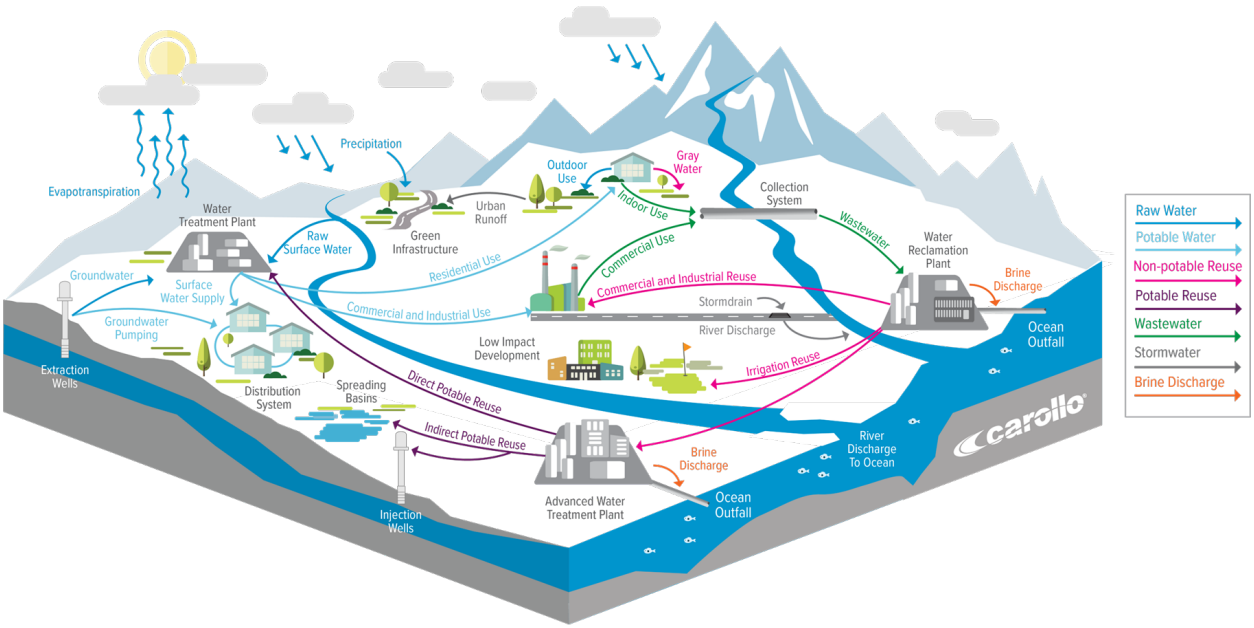


Figure 1.1 The One Water Cycle

1.3 Overview of Self-Assessment Approach

The Water Research Foundation (WRF) One Water Communities Self-Assessment Framework and Rating System (WRF Framework, Arabi et al., 2023) provides a systematic, structured basis for evaluating a community's current standing with respect to One Water implementation, and a framework for setting and achieving goals for One Water planning and management. The WRF Framework is organized around five "pillars":

1. One Water Planning.
2. Organizational Culture.
3. Stakeholder Engagement.

4. Informed Actions via One Water Project Opportunities.
5. One Water Monitoring.

For each of these five pillars, the WRF Framework establishes three Self-Assessment Levels (Figure 1.2):

1. Onboarding.
2. Progressing.
3. Advancing.

Figure 1.2 WRF Self-Assessment Framework Pillars and Levels

The City participated as a pilot utility in WRF's development of the self-assessment framework, and is now using the resulting WRF Framework to guide its One Water efforts through a two-phased work approach. As such, it is moving from Level 1 (Information Gathering) to Level 2 (Plan Development) under the first pillar of the WRF Framework, One Water Planning.

This report documents Phase I tasks and outcomes, including the development of a One Water Vision and Guiding Principles. Phase II will culminate in an OWAF document that details specific goals and strategies tailored to meet current and future needs of the Fort Collins community.

1.4 Report Organization

This report is organized into the following sections, aligned with the WRF Framework approach to One Water planning.

- **Chapter 1** documents the City's **Vision and Goals for One Water**.
- **Chapter 2** provides an overview of the **state of the City's water resource**s, including raw water, drinking water, water resource recovery, and stormwater systems. It should be noted that this description is limited to the water infrastructure assets owned and operated by Fort Collins Water Utilities (FC Utilities), which serves about 80 percent of the Fort Collins Growth Management Area (GMA). This report does not include details of the Fort Collins-Loveland Water District (FCLWD), East Larimer County Water District (ELCO), or other smaller neighboring districts.
- **Chapter 3** documents the City's current **organizational culture** with respect to One Water.
- **Chapter 4** identifies s**takeholder engagement** opportunities for developing and implementing the City's OWAF.
- **Chapter 5** provides an initial list of **One Water Project Opportunities** as vehicles for putting One Water planning and management into action.
- **Chapter 6** documents **One Water Monitoring** recommendations through a set of proposed baseline indicators that can be used to characterize the state of the City's water supplies, water system, wastewater system, and stormwater systems.
- **Chapter 7** summarizes the recommendations of Chapters 2 through 6 and will form the basis for the next phase of the City's One Water planning effort.

The purpose of this report is to provide a foundation for the City's One Water effort and complete the "Level 1" assessments for all five pillars of the WRF One Water Self-Assessment Framework. The findings of this report complete Fort Collins OWAF Phase 1 and inform the scope and scale of Phase 2, which will be aligned with the recommendations summarized in Chapter 7.

1.5 One Water Vision

During the One Water Vision workshop with City staff held on September 12, 2024, workshop attendees participated in an interactive discussion to help define the key elements that should be included in the City's One Water vision statement. The Vision statement is intended to provide high-level direction for long-term One Water management across all aspects of the City's operations. Reference statements were reviewed as examples of how other utilities have established their vision for one water. Carollo used input from this workshop to develop a suite of draft Vision statement alternatives for consideration by the City, with subsequent refinement into a single unified vision statement.

The following top three themes emerged from the open-ended "word cloud" exercise (Figure 1.3):

- Integrated/Holistic.
- Collaborative.
- Alignment.

Figure 1.3 Vision Workshop Word Cloud

As shown in Figure 1.4, the following top themes emerged from the multiple choice exercise:

- Holistic.
- Collaborative.
- Resilient/Resilience (not only climate change resilience, but also operational resilience).
- Equitable.
- Ecosystem Benefits (acknowledging links between the built and natural environments).

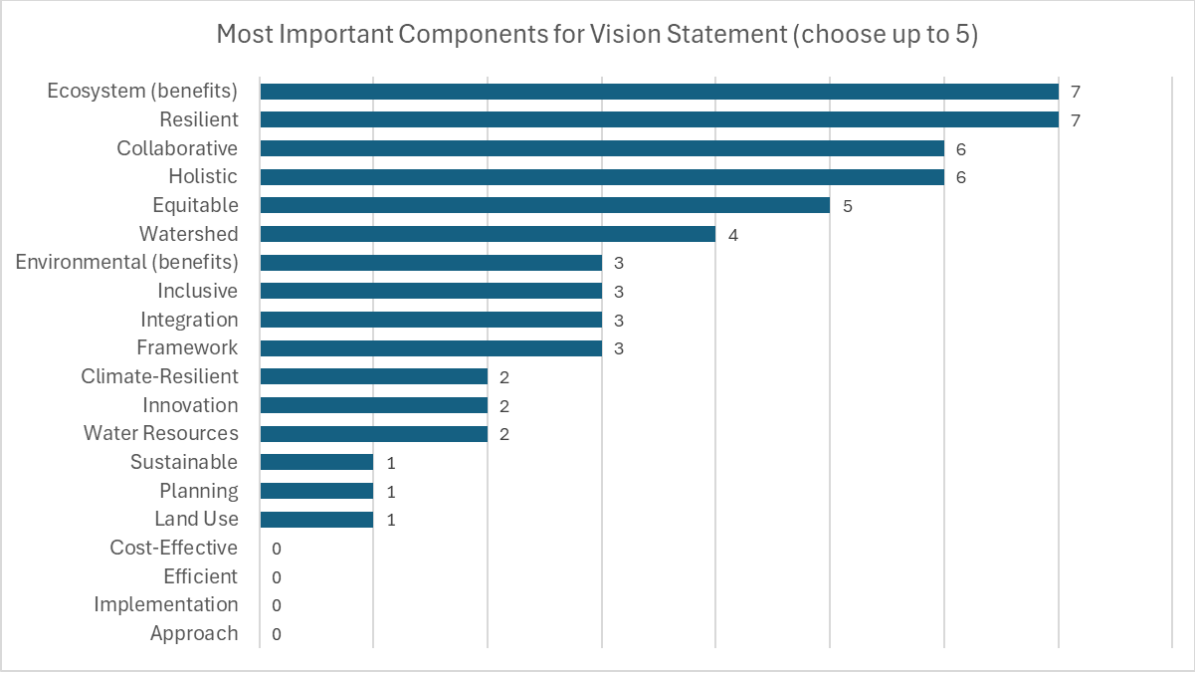


Figure 1.4 Vision Workshop Input on One Water Vision Statement Components

Based on this synopsis of input, and input from City staff, the City defined its Vision Statement for the OWAF as follows:

The One Water Action Framework advances collaborative and holistic water management approaches that promote healthy watersheds, resilient communities, and water equity.

1.6 Goals and Supporting Actions

During the Vision and Goals workshop in September 2024, five initial goals were developed to align with the One Water Self-Assessment pillars (see Figure 1.1). The supporting actions provide a path forward on how each of the goals will support the One Water Vision. Based on input from City staff in the Phase 2 brainstorm workshop in March 2025, it was decided that these goals will be revisited and likely consolidated in Phase 2.

By focusing on the following five goals, the City can effectively implement a One Water approach that promotes healthy watersheds, resilience, and water equity. For each goal, several specific potential supporting actions are identified, which can be further refined as the City progresses along its One Water journey. When implemented, these supporting actions can provide a path forward on how to achieve the five goals and ultimately make Fort Collins' One Water Vision a reality.

1. **Develop and implement an adaptive One Water framework.**
    a. Prioritize and implement multi-benefit projects and programs.
    b. Identify efficiencies through cost and resource sharing to minimize cost and promote service affordability.
    c. Incorporate best practices around sustainability during the planning, design, construction, and operational stages of new projects and programs.
    d. Develop planning and cost-sharing vehicles to implement multi-benefit projects.
    e. Coordinate and align the pursuit of external funding applications for One Water initiatives *(e.g., One Water Utility Fund, shared capital improvement plan (CIP), One Water Operator position).*
    f. Periodically update the One Water Action Framework.
    g. Align and leverage City-wide planning efforts toward multi-benefit outcomes.
2. **Increase watershed health and water systems resilience.**
    a. Identify and implement green infrastructure improvements.
    b. Restore ecosystems.
    c. Decrease pollutants in local waterways.
    d. Mitigate local flood impacts.
    e. Increase stormwater capture and use.
    f. Provide adequate water supply for the future needs of the community.
    g. Plan for climate extremes and other potential risks.
    h. Manage water demands with increased efficiency and explore water reuse.
    i. Establish performance indicators and metrics to track progress and measure the health of the Poudre River.
3. **Foster an organizational culture that promotes resource sharing and collaboration.**
    a. Promote resource and information sharing between departments.
    b. Invest in staff development and training to enhance One Water expertise across all departments.
    c. Provide a fair compensation structure to promote cross-departmental career movement and growth.

4. **Promote regional institutional collaboration**.
    a. Proactively engage regional stakeholders in an equitable manner.
    b. Identify regional water-related collaboration opportunities.
    c. Coordinate with regional partners on outside grant funding applications for regional projects.
    d. Align community engagement efforts and messaging around water between regional entities.
5. **Foster community support for One Water.**
    a. Explore strategies on how to increase public awareness and education around the Value of Water.
    b. Align community engagement activities between City departments and other regional entities.
    c. Engage and educate the community around the benefits of One Water, incl. cost savings and affordability. *(e.g., go to schools, create a website for One Water updates, present at community fairs, host in-person workshops, create education materials, conduct surveys)*.
    d. Provide regular updates on the One Water initiative's progress and achievements to City Council and other public forums.

The goals and supporting actions listed above were used as a basis to develop indicators or metrics to measure progress towards achieving the One Water Vision as discussed in Chapter 6. However, it is recommended that these goals and supporting actions be revisited and refined as needed during the development of the City's One Water Plan in Phase 2 of this effort. Consequently, the indicators and metrics described in Chapter 6 will be revisited also.

CHAPTER 2 STATE OF WATER RESOURCES

This chapter provides an overview of the City's existing water, wastewater, and stormwater systems as a foundation for the OWAF, based on existing documents provided by the City. The documents utilized for this high-level overview of the City's state of water resources, along with the associated data gaps are summarized in the *Data Gaps and Needs Memorandum* which is included in Appendix A. This assessment summarizes existing systems and can help identify information gaps that should be addressed in Phase 2 of the OWAF. The additional data development and analysis needs identified in this high-level water systems assessment will inform the scope and scale of the effort for Phase 2.

This section is organized into the following subsections:

- Section 2.1 - Raw Water Supply System.
- Section 2.2 - Drinking Water System.
- Section 2.3 - Water Reclamation System.
- Section 2.4 - Stormwater System.

For each system, the existing infrastructure and existing conditions are summarized, followed by a description of potential future conditions and information gaps. It should be noted that the descriptions herein are limited to the One Water systems and assets owned and operated by City of Fort Collins Utilities (Water Utilities) only. The Fort Collins One Water Utilities is a municipal utility located in Fort Collins, Colorado, 65 miles north of Denver. One Water treats and delivers an average of 8.3 billion gallons per year to about 36,000 water accounts, which serves about 80 percent of the population and 60 percent of the land area within Fort Collins' city limits. Furthermore, the Water Utilities is a community-owned, not-for-profit utility that serves residential and commercial customers.

2.1 Raw Water Supply System

2.1.1 Existing Infrastructure

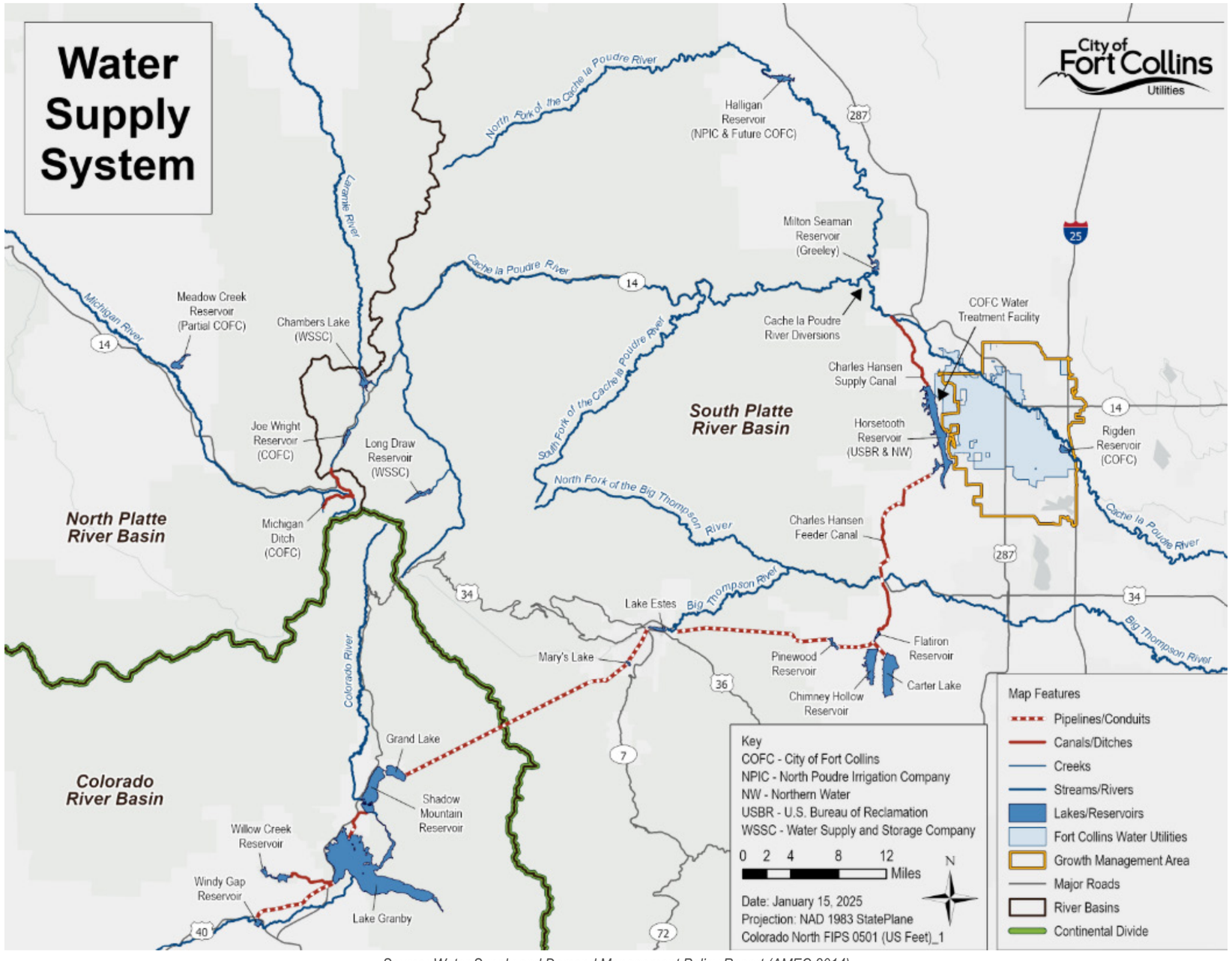
The City utilizes a system of infrastructure to divert, store, and convey raw water for potable and non-potable end uses. This includes Joe Wright Reservoir, Horsetooth Reservoir, and Rigden Reservoir, raw water intakes, raw water conveyance pipelines, and irrigation ditches that bring raw water supplies generally from the west to the City, such as native Poudre Water and the Colorado-Big Thompson (C-BT). Some of this raw water infrastructure is owned by the City, and some is owned by other entities.

The following eleven documents describe the City's existing raw water supply system in detail:

- AMEC 2014. Fort Collins Water Supply and Demand Management Policy Revision Report. April 2014.
- Brendle Group 2022. Water Resource Matters in the Fort Collins Growth Management Area: Study Report. September 2022.
- CDM Smith and DiNatale Water Consultants 2016. Hydrologic Modeling Technical Report for the Halligan Water Supply Project Environmental Impact Statement. October 2016.

- CH2M 2016. Water Treatment Facilities 2015 Master Plan. Prepared for Fort Collins Water Utilities. February 2016.
- City of Fort Collins 2023. Halligan Water Supply Project. Final Fish and Wildlife Mitigation and Enhancement Plan. June 7, 2023.
- City of Fort Collins Water Utilities 2015. Water Supply Planning in the Growth Management Area. City Council Work Session Item by Donnie Dustin and Carol Webb. July 14, 2015.
- DiNatale Water Consultants and CDM Smith 2014. Climate Change Hydrologic Impacts Analysis for the Common Technical Platform for the NISP and HSWSP Environmental Impact Statements. March 2014.
- Harvey Economics 2016. Technical Memorandum HE-1. City of Fort Collins Water Demands (Updated 2016). In support of the Halligan Project Environmental Impact Statement (EIS). 2016.
- Stantec 2019. 2019 Water Supply Vulnerability Study. June 2019
- Northern Water 2020. Press release 'Northern Water, Reclamation Complete Soldier Canyon Dam Work'. November 5, 2020.
- Upper Colorado River Commissioner 2024. Handout titled 'A Sustainable Colorado River Upper Division States Alternative FAQ'. Undated. Obtained April 2024 from Colorado Division of Water Resources staff.
- Water Research Foundation 2012. Joint Front Range Climate Change Vulnerability Study.

A map of the City's key raw water sources and infrastructure is shown in Figure 2.1.



Source: Water Supply and Demand Management Policy Report (AMEC 2014)

Figure 2.1 Overview of the City's Raw Water Supply System

2.1.1.1 Raw Water Storage

The City has a solid water rights portfolio and continues to seek additional storage capacity to firm up those rights. In 2012, the City adopted a policy as part of its water supply planning criteria to establish a storage reserve factor of 20 percent of annual demand based on the most critical year of the modeled 1-in-50 drought (Fort Collins 2014). The City currently satisfies this requirement through a combination of water stored in Horsetooth Reservoir and Joe Wright Reservoir. The City utilizes the following three raw water storage reservoirs with a combined storage capacity of up to 12,771 acre-feet (AF), with 10,871 AF available for storage reserves:

- Joe Wright Reservoir (7,100 AF).
- Horsetooth Reservoir (up to 3,771 AF available through Northern's carryover program).
- Rigden Reservoir (1,900 AF; used primarily for return flow obligations).

Joe Wright Reservoir is currently the only City-owned storage facility able to deliver treatable supplies to its water treatment facility (WTF). Joe Wright Reservoir has a usable storage capacity of approximately 7,100 AF, but during the winter it is ideal to keep the water level less than 5,000 AF to minimize icing in the outlet works. The reservoir is used primarily to store Michigan Ditch water rights and has limited capacity to provide drought protection for Water Utilities.

Much of the usable water storage available to the City is located in Horsetooth Reservoir, which is part of the C-BT Project water system. The C-BT Project is a large regional water supply project managed by Northern Water that allocates water based on the number of C-BT units owned and an annual quota. Each year Northern Water sets the quota as a percent of 1 AF per unit based on storage levels and hydrologic conditions which has averaged about 70 percent. Applying a 70 percent quota, the City's 18,855 total C-BT units yields approximately 13,198 AF of supplies from the C-BT project, excluding rights to some C-BT through ownership in the North Poudre Irrigation Company (NPIC) because these cannot be relied upon as storage reserves through carryover. Because the City does not own any of the reservoirs associated with the C-BT system, any unused C-BT water reverts back to Northern Water with the exception of their carryover storage program which gives the ability to carryover up to 20 percent of the City's unit ownership (3,771 AF) in a separate storage account. Northern Water's carryover storage program is subject to change and does not convey ownership interest in the storage facilities.

The City constructed Rigden Reservoir, a former gravel mine downstream of its Drake Water Reclamation Facility (DWRF) near where I-25 crosses the Poudre River. Rigden Reservoir can be used to manage return flow obligations from its junior storage decree or storage of changed irrigation ditch water rights but does not provide a reliable means of delivering water into the raw water collection system and is not used to count toward the storage reserve.

2.1.1.2 Water Conveyance and Intakes

The Cache la Poudre River water rights are diverted at the Fort Collins Pipeline or at the Munroe Canal, both located about five miles upstream of the Poudre Canyon mouth. Diversions at the Fort Collins Pipeline are conveyed directly to the City's WTF at the base of Horsetooth Reservoir's Soldier Canyon Dam. Water diverted at the Munroe Canal is subsequently diverted from the canal into the Pleasant Valley Pipeline, which is a shared facility with the City of Greeley and three other water districts (commonly known as the Tri-Districts). The Pleasant Valley Pipeline flows by gravity from north to south during

summer months (April-October) to the City's WTF and the Tri-District's Soldier Canyon water treatment plant also at the base of the Soldier Canyon dam. In the winter months (November-March), the flow is reversed, using the pressure head in Horsetooth Reservoir to deliver water from Horsetooth Reservoir south-to-north to the City of Greeley's Bellevue Water Treatment Plant near the Poudre Canyon mouth. The primary raw water conveyance infrastructure is shown in Figure 2.1.

Further details on the City's intakes is provided in the Drinking Water Systems section of this Chapter.

2.1.2 Existing Conditions

2.1.2.1 Overview

Potable water is supplied to Fort Collins residences and businesses by the City's water utility and several other water districts. Planning and growth decisions in the 1950s and 1960s led to the formation of various water districts to serve parts of the city that were growing at that time (Fort Collins 2015). These districts include FCLWD, ELCO, West Fort Collins Water District (WFCWD), and the Sunset Water District (SWD). While these districts provide water to residents and businesses within city limits, this chapter is solely focused on water supplied by the City's water utility, which serves approximately 76 percent of the households within city limits, including Colorado State University (CSU) (Fort Collins 2023).

2.1.2.2 Water Rights

The City's water supplies are derived from a combination of water rights native to the Cache la Poudre River basin and transbasin water from the Colorado River, North Platte River, and Laramie River basins, detailed in Table 2.1. Note that of the total City-owned shares, Parks and Natural Areas own a certain amount that are not part of the treatable water supply. City Water Utilities share ownership is indicated in paratheses.

Table 2.1 City Water Rights Summary

Water Right	Amount	Unit	Notes	Estimated Yield
Fort Collins Pipeline - seniors	19.93	cubic feet per second (cfs)	Senior Direct Flow Rights (1860's) (15 cfs winter)	10,400 to 12,600 AFY
Fort Collins Pipeline – juniors	12.54	cfs	Junior Direct Flow Rights (1955) (17.47 winter)	0 to 5,400 AFY. Typically available only during peak runoff
Pleasant Valley and Lake Canal	202 (169)	Shares; 79% of ditch	Change of use in Case No. 80CW193	1,700 to 5,500 AFY
New Mercer Irrigation Co.	81 (70)	shares; 58% ownership	Change of use in 92CW129. Not all shares converted to municipal use yet	1,200 to 6,500 AFY
Larimer No. 2 Irrigation Co.	104 (100)	shares; 71% ownership		
Arthur Irrigation Co.	726 (628)	shares; 48% ownership		
Water Supply & Storage Co.	29 (26)	shares; 5% ownership		1,000 to 2,500 AFY
NPIC	3,568	shares; 36%	Native rights not used in municipal system – only C-BT units	n/a

Water Right	Amount	Unit	Notes	Estimated Yield
C-BT Units	18,855 (18,801)	units; 6% of available units	Yield dependent on annual Northern Water quota	9,428 to 18,855 AFY
C-BT Units via NPIC	14,272	equivalent units: less 20% ditch loss	Yield dependent on annual Northern Water quota and 20% ditch loss	5,709 to 11,418 AFY
Windy Gap	4,200	AF; contractual from Platte River Power Authority and Reuse Plan	Yield removes payment of C-BT to Water Supply & Storage Company for the Reuse Plan (described below)	2,310 AFY
Joe Wright Reservoir / Michigan Ditch	6,400	AF of storage in Joe Wright Reservoir	Meadow Creek Reservoir increases ability to divert Michigan Ditch water	1,400 to 9,600 AFY

Notes:
AFY - acre-feet per year.

The City's Poudre River rights include direct flow water rights decreed to the City and changed irrigation rights. The changed irrigation rights are derived in large part from ditches that divert from the Poudre River and served historically irrigated acreage that has now been developed within current city limits. These ditches include the Pleasant Valley Irrigation Company, and three ditches (New Mercer, Arthur, and Larimer No. 2 ditches) often referred to as the South Side Ditches. The City also owns shares in the Water Storage and Supply Company (WSSC) which has a combination of native Poudre River water rights and transbasin water rights (described below).

The City's North Platte River basin water rights are derived from the Michigan Ditch which takes water from the Michigan River, a tributary to the North Platte River, and delivers water into Joe Wright Creek in the Poudre River headwaters. This water can be stored in Joe Wright Reservoir or delivered directly to the Poudre River.

The City's Colorado River basin water is comprised of C-BT and Windy Gap Project water, both of which are delivered into Horsetooth Reservoir. The City's WTF takes water directly from Horsetooth Reservoir. In addition to C-BT and Windy Gap water, the City's WSSC shares have transmountain water in the Grand River Ditch. The Grand River Ditch diverts from the Colorado River headwaters in Rocky Mountain National Park and delivers water into the upper Poudre River basin above Long Draw Reservoir. Although most of the WSSC share's transbasin component are from the Grand Ditch, they get some additional transbasin diversions off the Laramie River (Laramie-Poudre Tunnel) that is delivered into the Poudre River basin. The City owns about 4 percent of the WSSC water rights and has changed these water rights to municipal use in its system.

The City owns 18,855 C-BT units outright and owns another 14,272 equivalent C-BT units through ownership of NPIC shares. Each share of NPIC includes 4 C-BT units. As a mutual ditch company, NPIC typically charges a 20 percent ditch loss on all deliveries to all shareholders, so that each shareholder (whether municipal or agricultural) receives the same amount of water per share. This means that effectively, the City receives 11,418 C-BT units from its NPIC shares. In total, these 30,273 C-BT (and NPIC equivalent) units (approximately 21,191 AF with the average quota of 70%) provide a substantial and reliable portion of the City's total water supply.

The C-BT Project was originally authorized as a supplemental water supply, so quotas tend to be lower in wet years, and higher in dry years. However, as the ownership of C-BT units has transitioned from primarily agricultural to primarily municipal today (approximately 85 percent of all units are municipally owned), the quota has been less variable to provide more certainty to municipal providers. However, following the drought of 2002, the quota was only 50 percent due to very low water supply in the Colorado River basin C-BT reservoirs. C-BT accounts for about half of the City's water supply, so low quota water years put a strain on the City's water supply system.

2.1.2.3 Water Service

Water Utilities currently delivers approximately 23,500 AFY of treated water to its customers and approximately 1,400 AFY of non-potable water is delivered and used by parks, golf courses and the cemetery. Additionally, Water Utilities serves about 4,500 AFY of other raw water obligations. Figure 2.2 shows a relative breakdown of the different demands met by the City.

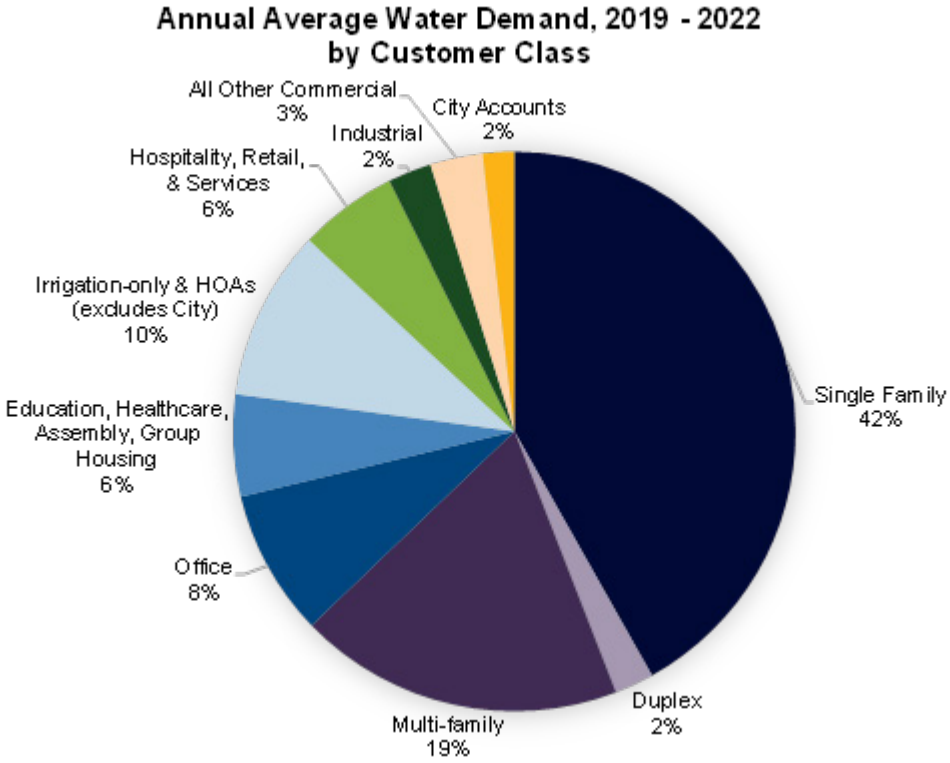


Figure 2.2 Average Annual Water Utilities Demand

Per the City of Fort Collins Water Demands reported in Technical Memorandum HE-1 in support of the Halligan Project Environmental Impact Statement (Harvey Economics, 2016), the per capita water use has decreased since the late 1990s and early 2000s, with a significant decrease occurring because of the 2002 drought and persistent conservation efforts after the drought. The average per capita water use between 2004 and 2014 was 132 gallons per capita per day (gpcd). Data from 2020 to 2024 available on the City's website indicate an average demand daily demand of 22 million gallons per day (mgd) and peak day demand of about 46 mgd, which equates to a maximum day demand peaking factor of 2.1. These

amounts are reflective of the amount of water produced at the WTF, including deliveries to large contractual water users. Apparent and real water losses (non-revenue water) across our distribution system account for an average of 4 percent of water supplied across the last 5 years. It should be noted that the City's calculations used for the Water Conservation Annual Reports differ from the methods used by Harvey Economics, resulting in an average water use in 2023 of 122 gpcd and apparent and real water loss of 5 percent water supplied in 2023. It can be concluded that the calculated water loss is below the typical range of water systems in the United States, which averages around 14 percent according a "*Control and mitigation of drinking water losses in distribution system*" study conducted by the Environmental Protection Agency (USEPA, 2010).

In addition to typical municipal water use, the City has contracts to supply fully consumable water to large contractual users and to the Platte River Power Authority's (PRPA) Rawhide power generating station. Fully consumable water means that the water can be used or reused to extinction. In contrast, much of the City's water supply can only be used once through the municipal system, which generates return flows back to the stream system in the form of treated wastewater effluent equal to the amount of indoor water use except for limited use of graywater.

Water delivered to the large contractual users is treated water which can then be reused on-site or other locations and is thus not returned to the City's wastewater treatment plants. The City delivers effluent to PRPA through the Reuse Plan, described in more detail below. While these two fully consumable demands are a relatively small part of the overall system demand, they require several important operations and coordination with other regional entities and can constrain operations at times. The City also treats raw water for the neighboring West Fort Collins Water District. West Fort Collins Water District provides raw water to the City to treat, so this obligation is not considered in the City's water supply planning but is an important consideration for WTF capacity and maintenance.

2.1.2.4 Operational Agreements

The City has several agreements that control how some of its water rights and water supply can be operated. These agreements are a relatively small part of the City's overall water demand. However, the complexity and legal requirements associated with these operations are very important to the City and impacts decisions the City must make related to the overall risk to and resilience of its water supply in addition to the more typical and visible municipal water uses. The following provides a summary of these agreements, while more detail can be found in the Hydrologic Modeling Technical Report for the Halligan Water Supply Project Environmental Impact Statement (CDM Smith and DiNatale Water 2016) and the Fort Collins Water Supply and Demand Management Policy Revision Report (AMEC 2014):

- **Parks and Other C-BT Obligations**
  - The City delivers 843 AFY of C-BT water and shares in the South Side Ditches (43 shares PVLC, 17 shares New Mercer, 5 shares Larimer No. 2, and 150 shares of Aurthur Ditch) for raw water use at parks and various homeowner associations for irrigated green spaces. These C-BT obligations are in acre-feet and therefore require a different number of C-BT units depending on the annual C-BT quota. In addition to the parks, the City has various other obligations to deliver water to other water districts or other providers to fulfill various water supply and development agreements (e.g. Josh Ames certificates, Kodak supply).

- **Joint Operations Plan:**
  - Michigan Ditch and Joe Wright Reservoir water is part of the Joint Operations Plan (JOP) in coordination with the City of Greeley, WSSC, and the US Forest Service. The JOP specifies minimum flow releases below both Joe Wright Reservoir and Chambers Reservoir for environmental purposes. The City makes a 3 cfs release throughout the winter, with 1 cfs from Joe Wright Reservoir and 2 cfs from Chambers Reservoir. During the summer months, the City must bypass any native inflows to Joe Wright Reservoir (i.e., flows from the local drainage, not counting inflows from Michigan Ditch) to maintain 3 cfs below Joe Wright Reservoir and then can store any amount over the 3 cfs under the Joe Wright Reservoir water rights. Releases from Joe Wright and Chambers are diverted into the Fort Collins Pipeline. Most of the water released from Joe Wright Reservoir is reusable and is used in the Reuse Plan to meet the City's fully consumable demands.
- **Reuse Plan:**
  - The City entered into a three-way agreement with PRPA and WSSC to provide a fully consumable supply of water to PRPA. The PRPA operates the Rawhide power plant approximately 30 miles north of the City and requires up to 4,200 AFY for cooling purposes. PRPA has 4,200 AFY of Windy Gap Project water. Fort Collins treats up to approximately 6,400 AF of fully consumable water throughout the year, which generates up to 4,200 AFY of effluent at its DWRF. This effluent is then pumped to the Rawhide power plant and used for cooling. In return, PRPA provides up to 4,200 AFY of Windy Gap project water to the City which it treats and supplies fully consumable treated water to its large contractual user who then uses the water for outdoor irrigation after initial indoor use.
  - The City obtains up to the 6,400 AFY of fully consumable water through about 2,400 AFY of its Michigan Ditch system, 900 AFY of which is delivered under the JOP (described above). The City gets the other 3,800 AFY from WSSC's Grand River Ditch transmountain rights. The City then gives an additional 1,890 AFY of C-BT water to WSSC in Horsetooth Reservoir to compensate for the loss of the fully consumable status of its Grand River Ditch water. This benefits the City by getting 2,310 AFY of additional supplies (4,200 AFY of Windy Gap from PRPA minus 1,890 AFY given to WSSC). This benefits WSSC because it receives additional water as payment for the fully consumable nature of water that WSSC normally only uses once for irrigation.

2.1.2.5 Ongoing Improvements

The City is currently in the process of obtaining the necessary U.S. Army Corps of Engineers (USACE) permit to enlarge Halligan Reservoir on the North Fork of the Poudre River. Halligan Reservoir is an existing reservoir owned by NPIC. The City has a contractual right to acquire the reservoir for enlargement. The current proposal is to enlarge the reservoir storage capacity by approximately 8,200 AF. The new storage will help meet the City's projected demands and meet its water storage reserve policy. The North Fork of the Poudre River enters the Poudre River immediately downstream of the City's intakes on the Poudre River. However, there is nearly always exchange potential between the confluence of the North Fork and Mainstem and the intakes. This means that in most instances, the City can release water from Halligan Reservoir and deliver this water to the confluence and then divert a like amount of water at its upstream intakes without causing injury to other water users because there are no water users between the intakes and the confluence. The permitting process for Halligan Reservoir began in 2006 and the final

EIS was published in October 2023. The City is currently working on additional permitting requirements before USACE can issue a Record of Decision.

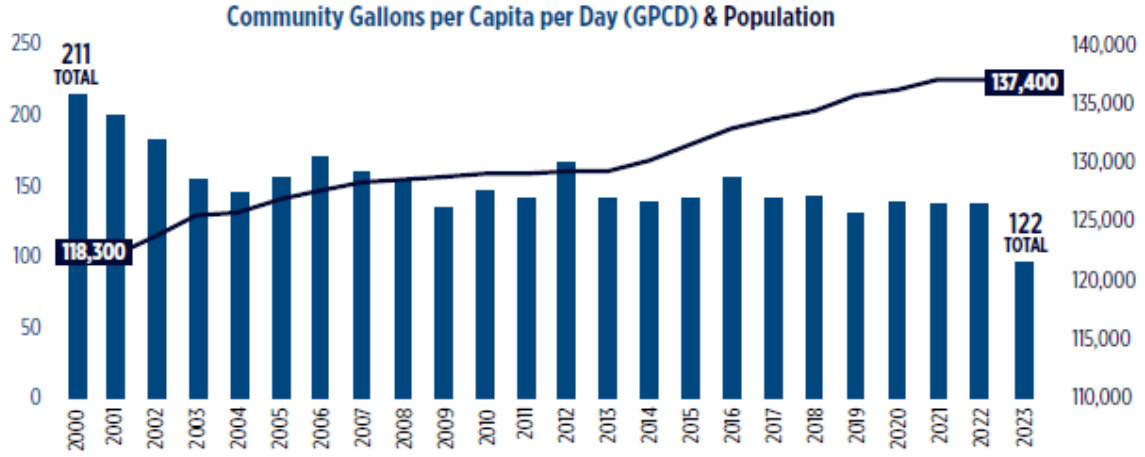
Alongside the longstanding Halligan expansion project, the City's primary water delivery infrastructure components are regularly maintained. The following is a summary of known maintenance and improvement projects. Additional details are presented in the Water Treatment Master Plan (Fort Collins 2015).

- Horsetooth Reservoir – Soldier Canyon Dam outlet works repair completed in November 2020.
- Pipeline Replacement – Portions of the Fort Collins Pipeline were replaced in 2022 to repair sections in danger of failing.
- Pleasant Valley Presedimentation Basin – Settling pond at diversion from the Munroe Canal to reduce suspended solids in the water supply. The basin was constructed after the High Park fire in 2012 as a means to settle out ash and sediment.
- Joe Wright Reservoir and Michigan Ditch – The City completed major improvements upon acquisition from NPIC in the 1970s. Subsequently, a new tunnel was constructed in 2016 after a landslide in 2015 closed the ditch.

2.1.3 Looking Forward

2.1.3.1 Water Demand

The City's service area is surrounded by neighboring water districts, so there is little potential for growth through expansion of the service area. Rather, water use is projected to increase based on development of land within the existing service area (infill development and redevelopment) as well as increasing on-campus student population at CSU. Additionally, an increase in water demand from large contractual water users is projected (Harvey Economics 2016). The 2023 population served by the Water Utilities was approximately 137,400, with approximately 35,000 customer taps. It is estimated that the population served by the Water Utilities will reach about 180,000 by 2065. This corresponds to an increase in treated water demand from 26,700 AFY to approximately 38,500 AFY. Approximately 40 percent of treated water demands are used for outdoor irrigation. Water conservation efforts have been able to reduce per-capita water use by more than 42 percent since 2002 (Figure 2.3) despite increasing population.



Source: 2023 Water Conservation Annual Report (City of Fort Collins, 2023).

Figure 2.3 Community Gallons per Capita per Day (GPCD) and Population Served by the Water Utilities.

2.1.3.2 Ongoing and Potential Future Challenges

The following are key challenges facing the City with respect to raw water supply reliability:

- **Storage Capacity:** Limited storage capacity, leaving vulnerabilities to prolonged droughts or other emergency conditions
- **Carry-Over Storage:** Lack of significant carry-over storage in Horsetooth Reservoir. Northern Water currently operates a carryover program that allows the City to carryover up to 20 percent of its CB-T unit ownership (3,771 AF) into the following water year. However, this program is operated at Northern Water's discretion and is not an entitlement to the City.
- **Climate Change:** Climate change is expected to increase outdoor municipal demands by about 8 percent by 2050 (DiNatale Water and CDM Smith 2014), reduce the amount of water that reaches the stream as runoff (due to an increase in native plant water consumption), shift the timing of snowmelt runoff earlier in the year, and reduce streamflow in the Colorado River basin (Stantec, 2019) which could impact the ability of the C-BT project to divert its full water right even if flows are available at the C-BT points of diversion.
- **Wildfire Risk:** The largest twenty forest fires in Colorado history have all occurred in the past 22 years (State of Colorado 2024). Increasing frequency and intensity of wildfires is anticipated under future conditions with warmer temperatures. In the past decade, the City's watersheds have been directly affected by some of the largest wildfires in Colorado's history. The 2012 High Park fire and the 2020 East Troublesome and Cameron Peak wildfires burned a total of nearly 490,000 acres, severely affecting the City's two primary water source basins.
- **Contract Deliveries:** The PRPA has announced that it plans to decommission the coal-fired unit at the Rawhide power plant by 2029 (PRPA 2024). This will change the amount of water needed as part of the Reuse Plan. The City relies on water from PRPA to meet its treated water demand and its fully consumable water demand. Although PRPA has acknowledged it is contractually obligated to continue to supply this water to the City (personal communication with Donnie Dustin, November 2024), there

may be other opportunities to use the consumable effluent currently delivered to the Rawhide plant for other purposes.

- **Cost and Competition for Water Supplies**:
  - Water is a valuable and scarce resource in Colorado. For this reason, the price of water rights that can be relatively easily delivered into a municipal water system have increased in value tremendously. The cost of a C-BT unit has increased over the past 30 years from approximately $3,000 per unit to over $70,000 per unit in recent years (Figure 2 from Brendle 2022) with prices softening slightly in the past year or so. The availability of C-BT units for sale has steadily decreased over time, with an estimated 85 percent of units now municipally owned. As the availability of C-BT has decreased, the cost of other water sources has increased. Water providers that historically relied heavily or exclusively on C-BT units for new growth are now grappling with how to use other water rights. The increasing prices of a wide variety of water rights in the region will make developing new water supply more expensive. In addition, many water rights require storage to develop a reliable supply through drought conditions (also known as firm yield).
  - Other regional water providers compete for similar water rights that are used in the City's system – both in terms of acquisition of new rights to support future growth, but also in terms of operational aspects where the seniority of water rights governs which entity is allowed to divert water or not. Regional water providers that are experiencing population growth that outmatches their water supply could turn to over-reliance on non-tributary groundwater, which may put future stressors on surface water systems. The City's relationship with and participation with many other regional water providers has played important roles in past water supply in the region and will continue to be an important aspect in the future.
- **Water Supply Expansion Permitting:** To address existing limitations in water supply storage, additional storage capacity is being pursued by the City. This would allow for storage of excess water in wet years for use in future dry periods. Water storage (whether new storage or expansions to existing storage) typically require significant permitting efforts. They can incur significant expenditures and take years or decades to permit, design, and construct.

2.1.3.3 Infrastructure Improvements

The planned Halligan Reservoir expansion faced a new potential challenge when in October 2024, a federal judge ruled in part that Denver Water's Moffat Project EIS did not abide by the National Environmental Protection Act because the analysis did not consider the quantitative impacts of climate change on the flows available to the project (particularly from the Colorado River) and that as a result, the project may not be a practical alternative. USACE is currently evaluating the impact of this ruling on the existing Halligan Reservoir EIS and whether additional evaluation of climate change is necessary (personal communication Cody Wheeler, USACE, November 2024). USACE is anticipating reviewing the potential changes to the physical inflow to Halligan Reservoir as well as the overall effect of potentially lower streamflows on the City's water rights portfolio it intends to store in Halligan Reservoir.

2.1.4 Information Gaps

The water supply for the City is well documented, with numerous planning documents over the last decade covering a span of water supply-related topics. Several of the key planning documents were published earlier in the decade. It is, therefore, recommended that the City update its raw water supply

plans, with an emphasis on resilience against climate change and other evolving supply vulnerabilities. In addition, it is recommended that the City considers preparing an integrated water resource management plan that brings supply and demand management together with the physical treatment and delivery systems needs.

2.2 Drinking Water System

2.2.1 Existing Infrastructure

The City owns and operates a system of infrastructure to divert and treat raw water to drinking water quality that is then distributed to its customers. This includes raw water pre-sedimentation basins and pipelines, the WTF, onsite and offsite finished water reservoirs, a water quality laboratory, and an extensive distribution system.

2.2.1.1 Raw Water Intake Facilities

The City diverts raw water from the Cache la Poudre River (Poudre River) at either the Poudre Intake or through the Pleasant Valley pipeline at the Munroe Canal. These two intakes deliver water to the WTF via separate pipelines. Additional supply from Horsetooth Reservoir is transmitted from the base of Soldier Canyon Dam.

The Poudre Intake is the primary supply for the WTF. The intake is equipped with automated sampling that can alert operators to upstream water quality challenges. A pre-sedimentation basin is located downstream of the intake for removal of sand and grit.

The Pleasant Valley pipeline includes a debris screen and a pre-sedimentation basin for solids removal. This pipeline is available only during the higher flow summer season due to water rights sharing with the City of Greeley.

1In addition to sending raw water to the WTF for treatment to meet potable water quality standards, the City also receives raw (non-potable) water through a number of irrigation company ditches to irrigate parks, golf courses, a cemetery, and other greenbelt areas in the community.

2.2.1.2 Water Treatment Facility

The WTF is a conventional drinking water treatment plant with a firm production capacity of 87 mgd. The WTF was constructed in 1967 as a peaking plant but has since been expanded and upgraded to be the sole water treatment plant for the City, replacing the historic Gateway Water Filtration Plant. The WTF utilizes four parallel process trains with coagulation, flocculation, sedimentation, media filtration, and chlorine disinfection. Powdered activated carbon (PAC) can be dosed at the head of the plant to mitigate taste and odor events. Finished water is delivered to the two on-site Finished Water Reservoirs for operational storage. Solids from the sedimentation process are sent to onsite solids drying lagoons and stockpiled at the WTF for subsequent disposal. Filter-waste wash water is settled out and treated with ultraviolet (UV) disinfection before being discharged to other surface waters under the terms of a discharge permit. Under rare circumstances wash water is pumped to the head of the plant.

No major infrastructure issues that might affect finished water quality were identified in the 2015 condition assessment (CH2M 2015). The WTF consistently complies with all federal and state water quality regulations as well as the standards set by the Partnership for Safe Water, continuing to provide clean water to customers in the City's service area.

2.2.1.3 Water Quality Laboratory

The City's water quality laboratory (WQL) provides the necessary analytical testing and monitoring for the WTF. In the 2018 Water Quality and Pollution Control Labs Master Plan condition assessment, the WQL was recommended to be updated, largely pertaining to efficiency improvements, to remain a top tier municipal laboratory and meet accreditation standards. Of these items, only critical improvements were made to the WQL as the City is considering construction of a new combined water quality and pollution control laboratory. The WQL continues to meet accreditation standards.

2.2.1.4 Water Distribution System

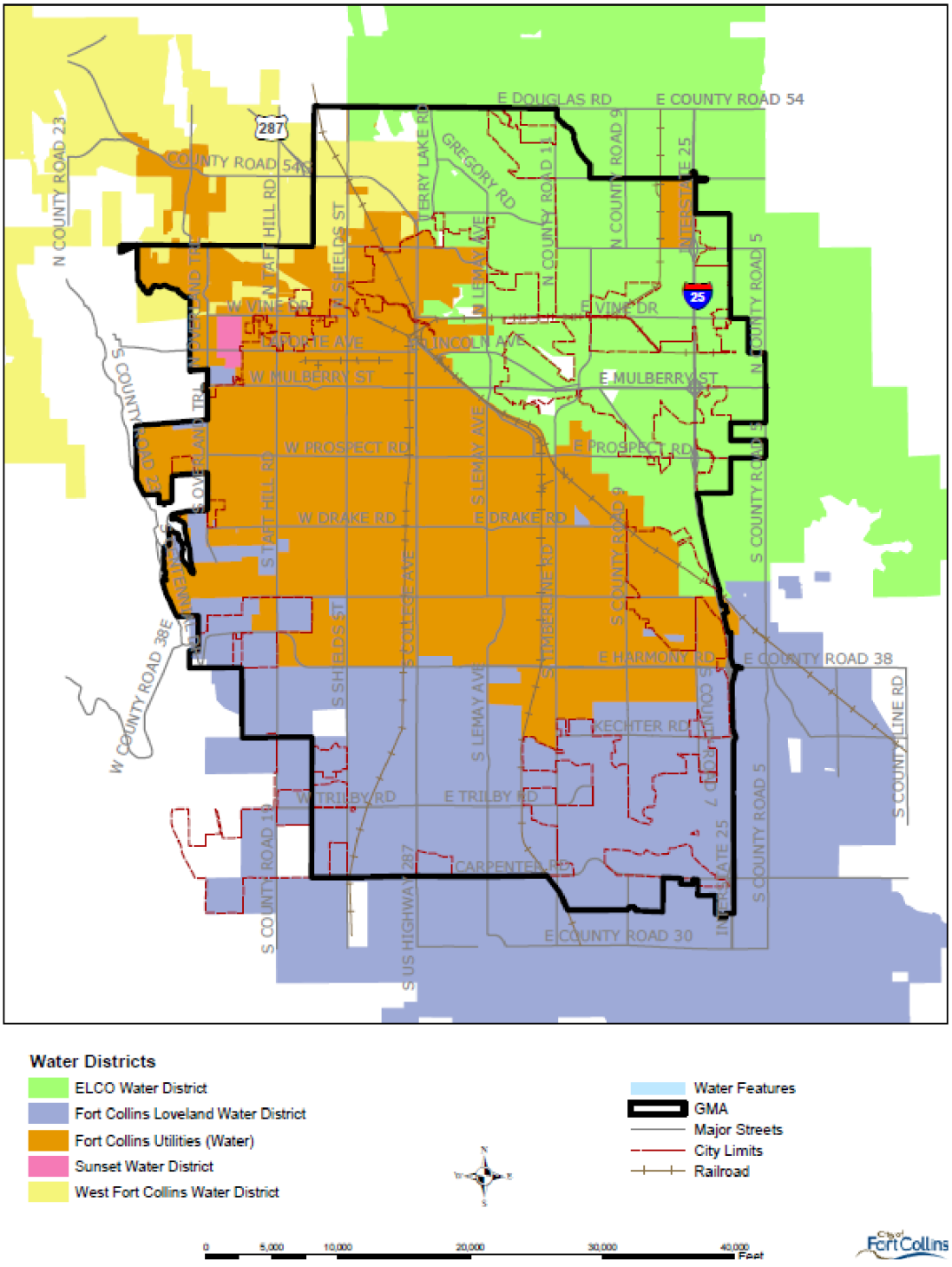
The City manages a water distribution system with over 560 miles of pipeline, 3,600 fire hydrants, four storage reservoirs, and two pump stations. The City implements numerous programs to manage its distribution assets, such as pipeline replacement, leak detection, backflow prevention, water quality monitoring, and flushing. Identified capital projects to improve the water distribution system totaled $192 million in the 2017 Water Distribution and Wastewater Collection Master Plan (Ditesco 2017).

It should be noted that Water Utilities has not had a Water and Wastewater Master Planning Section in the past. Accordingly, there has been one dedicated staff to perform consistent and regular master planning for the water and wastewater linear assets (pipelines). Sporadic reports like the 2017 Master Plan have been done on specific occasions by Water Utilities CIP Project managers. Fort Collins recently hired its first dedicated Civil Engineer to start up a Water and Wastewater Master plan group. Currently, asset inventories are not complete or consistently identified across our distribution and collection systems. It is recommended that Water Utilities develop updated master plans to better inform system maintenance and replacement needs required to support existing demands and new development.

2.2.2 Existing Conditions

2.2.2.1 Overview

The Water Utilities drinking water service area boundaries do not perfectly match the Fort Collins city limits. FCLWD and ELCO, as well as some smaller districts, provide water to some areas within the city limits and will most likely serve additional city residents in the future. Furthermore, Water Utilities provides treated water service to some customers beyond the city limits; this is primarily northwest of Fort Collins, including providing wholesale water to WFCWD and Anheuser Busch to the northeast of Fort Collins. Water Utilities currently serves about 80 percent of Fort Collins' residents and businesses. The City's water service area covers approximately 30 square miles within the Fort Collins city limits. The water service area is shown in Figure 2.4 (AMEC 2014).



Source: Water Supply and Demand Management Policy Report (AMEC 2014).

Figure 2.4 Water Service Area Boundaries

As shown in Figure 2.4, the service area boundary is effectively landlocked by adjacent water utility districts including:

- ELCO.
- FCLWD.
- WFCWD.

In addition, the SWD serves a small portion of the City. The estimated service area population was approximately 132,000 in 2015. As this estimate is a decade old, it is recommended that a new estimate will be prepared as part of the next water master plan update or an integrated water resources plan effort. For planning purposes it would be useful to estimate both existing and future population estimates for the service area of Water Utilities and the various water districts within the Fort Collins city limits, as well as, differentiate between permanent and transient population including the student population of CSU.

The fixed service area boundary allows the City to more accurately project future demands within the service area as no new land is anticipated to be annexed into the service area. The City entered into an agreement with FCLWD, under which FCLWD purchased 5 mgd of capacity under the Water Capacity Agreement. This demand is included in the City's demand projections. At any given time, FCLWD can take as much or as little of the 5 mgd as needed. FLCWD's use is billed at a water rate set forth in the agreement. The City also provides water to the CSU main campus through master meters.

2.2.2.2 Ongoing Improvements

Ongoing capital improvements in 2023 and 2024 include a control gate replacement at Joe Wright Reservoir alongside continual water distribution system pipelines maintenance and replacement projects.

A project involving using water treatment residuals for stormwater nutrient management has been piloted and is awaiting regulatory approval. This is described further in Chapter 5 - One Water Project Opportunities.

2.2.3 Looking Forward

2.2.3.1 Water Demand

Increases in future treated water demand will be limited by the geographic constraints of the City's service area and the effectiveness of the City's current and future water conservation and demand management policies. Increases in demand for the City's treated water system could potentially result from:

- Regionalization with adjacent water districts.
- Production agreements and intergovernmental agreements with adjacent water districts.
- Significant increase in population forecast density (e.g., vertical redevelopment) or Large Commercial customer class.

Formal regionalization with the Tri-Districts (ELCO, FCLWD, and North Weld County Water District) and the City was evaluated in 2014. The participants were unable to reach consensus on forming a regional water authority. The Tri-Districts own and operate the Soldier Canyon Filter Plant, located adjacent to the City's WTF near Horsetooth Reservoir, via the Soldier Canyon Water Treatment Authority.

Water demand and population projections from the 2015 Water Treatment Facilities Master Plan are shown in Table 2.2.

Table 2.2 City Water Utility Population and Demand Projections

Year	Population Served by City Water(1)	City Service Area Average Daily Demand(1) (mgd)	City Service Area Peak Day Demand(1) (mgd)	Average Daily Demand with FCLWD Sales(1,2) (mgd)	Peak Day Demand with FCLWD Sales(1,2) (mgd)
2015	131,870	20.39	47.58	24.20	52.54
2020	143,310	22.17	51.73	26.85	57.60
2025	150,140	23.21	54.15	28.43	60.59
2030	155,140	23.98	55.95	29.75	62.96
2035	161,490	24.97	58.26	31.29	65.83
2040	163,220	25.25	58.91	32.10	67.03
2045	164,720	25.6	59.78	33.02	68.46
2050	168,250	26.0	60.70	33.54	69.54

Notes:
(1) Source: 2015 Water Treatment Facilities Plan.
(2) The sales to FCLWD may go down once their new Cobb Lake water treatment is constructed. Although project timing is still uncertain, it is currently anticipated that FCLWD will continue to request treated water from Fort Collins for at least 8 more years.

As shown in Table 2.2, the City's service area population is expected to be approximately 168,000 by the year 2050, with an average daily demand of 34 mgd and a peak day demand of 70 mgd (CH2M, 2015). These demand estimates assume that no new arrangements are made with neighboring water districts. Given the 87 mgd capacity of the WTF, treatment capacity expansion is not expected to be needed for decades to come.

2.2.3.2 Ongoing and Potential Future Challenges

Current and potential future challenges regarding the City's water system are identified as:

- **Total organic carbon:**
  - Increases in source water total organic carbon (TOC) may occur due to both natural and engineered changes, such as transfers from other water storage reservoirs, runoff from wildfire impacted landscapes, and increased algae production. These types of events can have treatment impacts including reduced PAC efficiency, higher required coagulation, lime and CO_2 doses, and increased disinfection by-product formation.
  - To achieve TOC removal targets under higher source water TOC concentrations, additional treatment may become necessary and could consist of ozone/biologically activated carbon (O_3/BAC) or granular activated carbon.
- **Wildfires:**
  - The threat of wildfire is ever-present in the City's source water watersheds. Wildfires can result in increased source water turbidity, TOC, nutrients, metals and increased flood flows, impacting water treatability, as evidenced in the 2012 High Park and 2020 Cameron Peak fires that severely impacted Poudre River water quality.

  - Post-wildfire conditions can also lead to nutrient loading into high elevation water storage reservoirs as they catch and accumulate eroded ash and sediment. In-reservoir nutrient enrichment has been shown to fuel algal growth and their associated metabolites like geosmin, MIB and cyanotoxins, which are then released into and conveyed to water supply intakes on the Poudre River.

- **Algal Blooms:**
  - Seasonal algal blooms are expected to increase due to future longer durations of warmer weather and reservoir stratification. This would potentially result in increased frequency and concentrations of taste and odor compounds like MIB and geosmin and more frequent cyanotoxin detections.
  - The 2015 master plan recommended increasing the PAC contact time through piping modifications to the Flow Blending Facility (CH2M 2015). Any increase in taste and odor compounds or cyanotoxin detections in source water will require frequent testing, application of PAC, and other strategic operational changes to prevent detections in finished drinking water.
- **Per- and Polyfluoroalkyl Substances:**
  - The Unites States Environmental Protection Agency (USEPA) published maximum contaminant levels (MCLs) for per- and polyfluoroalkyl Substances (PFAS) in April 2024. As of 2023, no PFAS had been detected in the City's raw or finished water supplies. Because of the wide-ranging detection of PFAS across Colorado, ongoing monitoring is necessary to ensure continued compliance with the MCLs.
- ***Giardia* and *Cryptosporidium*:**
  - Future source water degradation could require the City to increase its source water microbial "Bin 1" status to a higher bin, per the Long-Term 2 Enhanced Surface Water Treatment Rule *(Fort Collins Water Treatment Master Plan, 2017)*.
  - This entails more rigorous treatment, potentially including O_3/BAC and/or ultraviolet disinfection.

2.2.3.3 Infrastructure Improvements

Due to the current effective treatment and high-quality water being produced at the WTF, no new treatment infrastructure is necessary for implementation in the near term at the WTF (CH2M, 2015). Continued monitoring of the potential challenges listed above is recommended to monitor the long-term need for future process improvements. Additionally, no treatment capacity expansion is required per the 2015 demand projections (CH2M 2015).

Regular maintenance and replacement in the City's water distribution system will be required as sections reach their structural end of useful life (Ditesco 2017). It should be noted that the Water Utilities has completed the pipe material inventory requirements, as required by the Revised Lead and Copper Rule, which confirmed that there are no lead pipes in the distribution system. The City did though, make a significant capital investment to proactively replace all lead connectors called goosenecks. This work began in 2021 and is anticipated to be substantially completed in 2026. The small percentage of remaining connectors will be replaced when the larger connecting mains are replaced as part of the Water Utilities capital replacement schedule. The City has an internal goal of replacing 1 percent of the system annually.

The City is considering construction of a new combined water quality and pollution control laboratory at a location yet to be confirmed. This combined laboratory would bring both wastewater and drinking water staff together in a collaborative environment and provide crucial upgrades and modernization to the existing laboratories (HDR 2023), consistent with a One Water approach to water resource management. The estimated cost of a new combined laboratory facility is about $35-36.5 million (HDR 2023).

2.2.4 Information Gaps

The most recent drinking water treatment facility master plan was completed in 2015 and is recommended to be updated in the near future to align with the typical 5-10 year interval for master planning and capital improvement plan updates.

2.3 Water Reclamation System

The information presented herein is based on the prior master plan that is currently being updated with an estimated completion in 2025. This section may be revised or replaced in the final version of this report if sufficient information is available at that time.

2.3.1 Existing Infrastructure

The City owns and operates two WRFs, DWRF and Mulberry Water Reclamation Facility (MWRF) for a combined rated capacity of 29 mgd. Meadow Springs Ranch serves as a Class B biosolids land application site. Water reclamation provided by the City spans the boundaries of the regional water districts, serving small regions in the ELCO, FCLWD, SWD, WFCWD, and the majority of the City's water service areas.

2.3.1.1 Wastewater Collection System

As of 2017, the City manages a wastewater collection system comprising over 483 miles of pipeline and 10,695 manholes. The City operates programs incorporating cleaning, jetting, modeling, pipeline replacement, and manhole degreaser. Per the 2017 collection system master plan, the capital project need for collection system improvements was approximately $128 million (Ditesco, 2017). Adjusted to 2024 dollars with Engineering News-Record indices, the capital project need for collection system improvements is approximately $162 million. As noted in section 2.2.1.4, the Water Utilities has not had consistently dedicated staff to perform master planning for the water and wastewater linear assets (pipelines) until early 2025.

2.3.1.2 Drake Water Reclamation Facility

The DWRF is the workhorse WRF for the City, with a design capacity of 23 mgd. DWRF went online in 1968, expanding the treatment capacity to accommodate growth in the City. A series of infrastructure improvements was implemented in 2017 to modernize the facility. In response to changing regulations, additional capital projects were constructed in 2020 for nutrient removal.

The DWRF provides high quality disinfected effluent through a liquids train that includes grit screening, primary clarification, anaerobic-anoxic-oxic (A2O) biological treatment, secondary clarification, and UV disinfection. Treated effluent from DWRF is released into the Fossil Creek Irrigation Ditch. The City also maintains a second discharge permit to the Poudre River for this facility, although it is rarely used. This facility treats solids generated at both DWRF and MWRF, through dissolved air flotation, anaerobic

digestion, and dewatering. The treated solids are then transported to Meadow Springs Ranch for land application.

Per the condition assessment in the 2017 Master Plan Update, the structural integrity of the DWRF was sound. The facility did display signs of surface deterioration, indicating future maintenance. The secondary clarifiers and headworks building were recommended for future improvements. Throughout the facility, the heating, ventilation and air conditioning (HVAC) system is recommended for improvement, along with assorted electrical infrastructure. In the time since the 2017 Master Plan Update, the North Process Train Final Clarifiers Improvement project has been completed, inclusive of replacement of return activated sludge pumps. Major infrastructure improvement and replacement projects recommended in the draft 2025 Master Plan include preliminary treatment, blower and aeration improvements, and a second phase of the phosphorus removal system. Backup power generation to protect against power source and distribution failures is also recommended.

2.3.1.3 Mulberry Water Reclamation Facility

The MWRF complements the larger DWRF, providing a 6 mgd capacity. The MWRF went online in 1948 as the first WRF in the City, providing essential services to the growing population and protecting the health of the Cache la Poudre River. In 2011, infrastructure modifications to improve biological treatment and odor control were implemented.

The MWRF utilizes grit screens, A2O biological treatment, secondary clarification, and UV disinfection before discharge into the Cache la Poudre River. Solids generated at MWRF are transported to DWRF for treatment and transformation into Class B biosolids used at Meadow Springs Ranch.

Per the condition assessment in the 2017 Master Plan Update, the older structures at MRWF are showing signs of aging as they approach the typical concrete service life. From the 2011 improvements, only the aeration system needs evaluation and potential improvement. The older facilities including the influent pumps, grit classifier, blowers, aeration system and ultraviolet disinfection system were recommended to be replaced. Similar to the DWRF, the HVAC system and programmable logic controllers (PLCs) in the older facilities are aged and in need of improvements as of 2017.

2.3.1.4 Pollution Control Laboratory

The Pollution Control Laboratory (PCL) is certified by the State of Colorado to provide the necessary analytical testing and monitoring for the City's WRFs to meet testing requirements under the associated NPDES permits. Per the 2018 Water Quality and Pollution Control Labs Master Plan condition assessment, the PCL needs updates, largely pertaining to electrical and efficiency improvements to remain a top tier municipal laboratory. It has been determined that this laboratory will be replaced, along with the drinking water laboratory, when a combined water-wastewater laboratory is constructed within the next 5-7 years. Further information on the planned combined laboratory can be found in Section 2.2.3.3.

2.3.1.5 Meadow Springs Ranch

Meadow Springs Ranch (MSR), a working cattle ranch, receives approximately 2,355 metric dry tons of treated biosolids from DWRF per year. The Class B biosolids are beneficially used as fertilizer and soil amendments. All biosolids produced by the City are land applied at MSR.

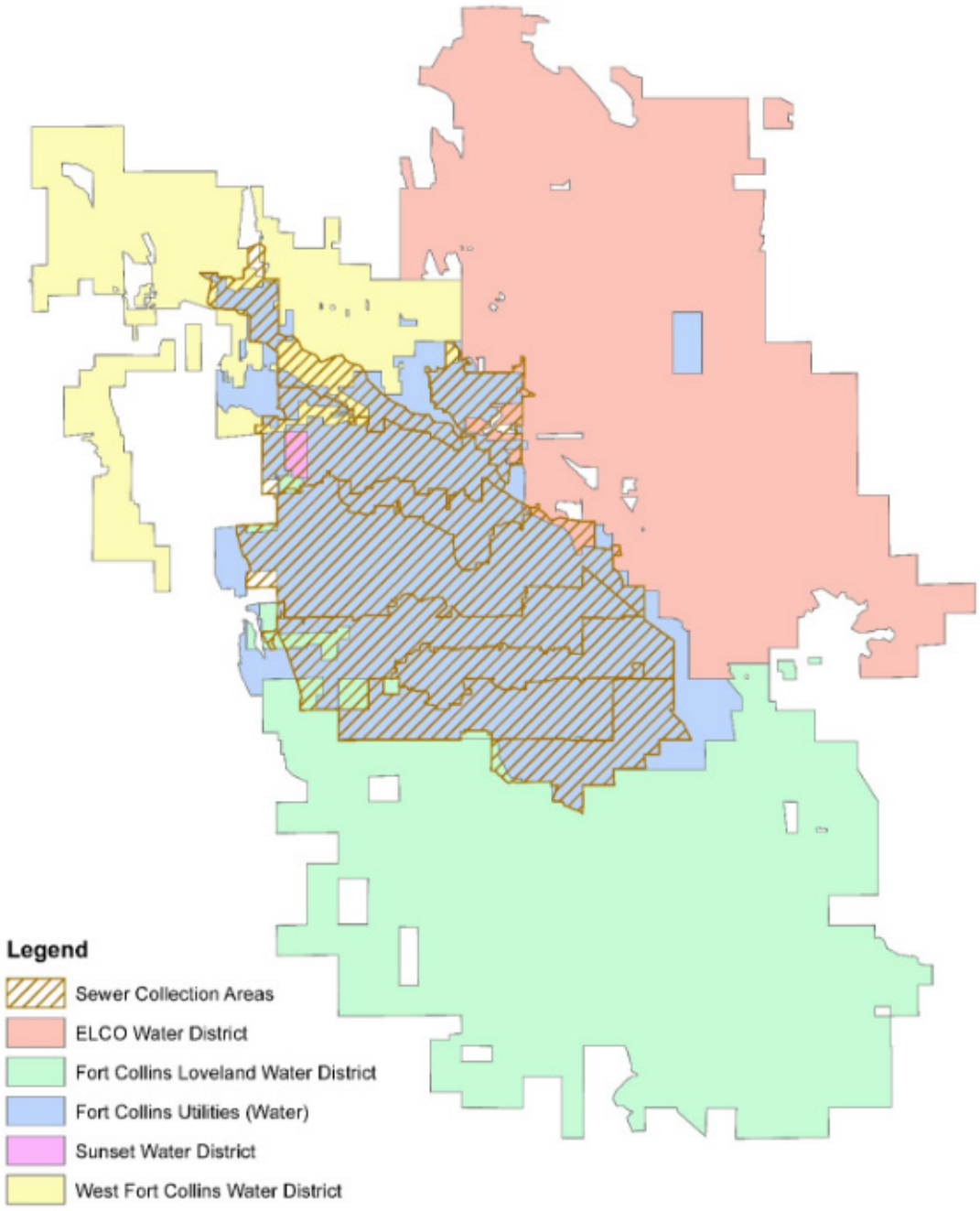
2.3.2 Existing Conditions

2.3.2.1 Overview

The City's WRFs, as of 2024, served approximately 142,522 residents. As of 2024, the annual average flow was 14.10 mgd and the maximum month flow was approximately 17 mgd. These are well within the combined capacity of the City's WRFs (HDR, 2025). Figure 2.5 shows the City's wastewater collection area.

2.3.2.2 Ongoing Improvements

As of 2022, the DWRF is undergoing improvements to the north process train secondary clarifiers, while the MWRF ultraviolet disinfection system is planned for overhaul. Sanitary sewer main replacements are ongoing. Completed projects since 2017 include phase 1 of the nutrient removal systems, DWRF North Process Train final clarifier improvements, and return activated sludge pump replacements. Ongoing work includes master planning updates, replacements and DWRF septage receiving improvements.



Source: Wastewater Treatment Master Plan Update (Carollo 2018).

Figure 2.5 City's Wastewater Collection Service Area

2.3.3 Looking Forward

2.3.3.1 Wastewater Flows

The City's current growth management area consists of an ultimate build-out population of approximately 165,000 residents. While much of the growth is anticipated to result from in-fill of the existing service area, speculative growth to the north of the City could result in up to 100,000 additional residents served by the City over the next 20 years (FC Utilities Visioning Workshop, April 5, 2017).

In addition to speculative growth in the City's growth management area, providing regionalized wastewater treatment to one or more of the surrounding Water Districts has also been discussed:

- ELCO.
- NWCWD.
- FCLWD.
- Boxelder Sanitation District.

At this time, there are no plans to accept flows from the above collection systems for treatment by the City. However, several drivers for the City and the respective districts may result in some level of wastewater regionalization within the planning horizon. This could impact the timing of future capacity expansions that may be required at both of the City's WRFs. The current and predicted future flow to the two water reclamation facilities is shown in Table 2.3, obtained from the draft 2025 HDR Master Plan

If regionalized treatment is not pursued, the City's wastewater service area population is projected to grow significantly through 2035. Table 2.4 obtained from the draft 2025 HDR Master Plan, displays the population forecasts within the service area. As shown, the total water utility service area, or WUSA, population was projected to growth from approximately 142,520 in 2024 to 186,274 in 2044.

Table 2.3 Current and Future Water Reclamation Facility Flows

Flow Condition	Current – DWRF Flows Only	Current – DWRF + MWRF Flows	Project Future (2044) DWRF Flows Only	Projected Future (2044) – DWRF + MWRF Flows
Annual Average Flow (mgd)	11.0	14.1	14.1	18.1
Maximum Month Flow (mgd)	14.5	17	17.4	22.3
Peak Hour Flow (mgd)	25.6	32.9	33.0	42.4

Table 2.4 Water Reclamation Service Area Population

Parameter	2024	2029	2034	2039	2044
WUSA Population	142,522	153,746	164,499	175,040	186,274

2.3.3.2 Ongoing and Potential Future Challenges

Current and potential future challenges regarding the City's wastewater system include:

- Nutrient Regulations:
  - » Regulation 85 and the planned Regulation 31 are the two drivers for effluent nutrient and temperature limits in Colorado.

  - The Colorado Department of Public Health and Environment's (CDPHE's) Voluntary Incentive Program links low-nutrient performance with the potential to delay the stricter Regulation 31 requirements for a given facility.
  - Regulation 31, when implemented by CDPHE in the MWRF and DWRF discharge permits, is expected to have very stringent nutrient limits that will require additional advanced treatment.
- Infiltration and Inflow:
  - Infiltration and inflow continue to be an issue in the collection system, contributing as much as 6 mgd to the WRFs during high runoff events, increasing operational costs and contributing to the need for treatment capacity expansion (Ditesco 2017).
- PFAS in Effluent Discharges and Biosolids:
  - The USEPA is in the process of developing standards for PFAS in biosolids and surface waters through a risk assessment that is anticipated to be completed in 2025.
  - Several states in the United States are already currently developing PFAS limits for biosolids. Since this is a priority focus area for USEPA as well, CDPHE may also develop or adopt PFAS limits for biosolids.
  - As a first step, monitoring and reporting of PFAS in biosolids may be required by CDPHE for WRFs in Colorado. Currently Water Utilities conducts monitoring on a bimonthly basis.
- Lift Stations:
  - Future expansion of wastewater collection in Fort Collins will require lift stations in some areas. This is due to the lower elevation of available land for new development.
  - Fort Collins currently utilizes gravity flow for the wastewater collection system. New lift stations will require municipal code changes, additional training, and potentially new staff.

2.3.3.3 Infrastructure Improvements

In addition to the infrastructure improvements recommended in the 2017 Water Reclamation and Biosolids Master Plan condition assessment, the potential surface water and biosolids PFAS standards and/or the anticipated nutrient and temperature standards could require additional treatment processes and capital expenditures to achieve compliance. For compliance with the anticipated Regulation 31, tertiary filtration will be required with chemical addition by approximately 2038, if the Regulation 85 10-year deferment applies to both facilities. Capacity expansion could prove necessary should the City incorporate development outside of the City's current wastewater service area.

Alongside the treatment improvements, aging sections of the collection system and infrastructure critical to the core treatment process will continue to require repair and replacement.

The City is currently considering the construction of a combined water quality and pollution control laboratory, as described in Section 2.2.

2.3.4 Information Gaps

The City is currently (January 2025) in the process of updating its wastewater treatment and biosolids master plans, which will provide updated projections and a recommended capital improvement plan.

2.4 Stormwater System

2.4.1 Existing Conditions

2.4.1.1 Overview

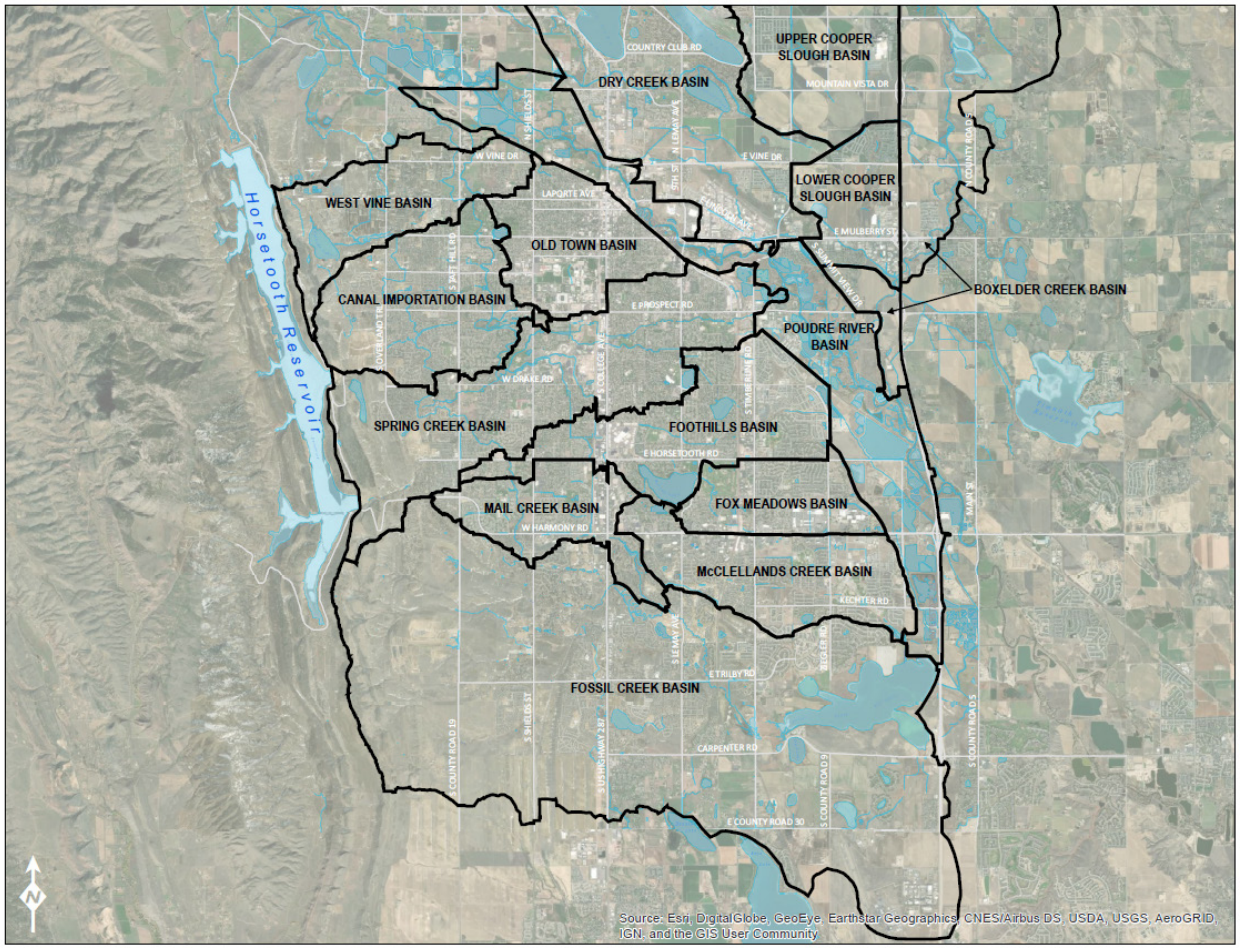
There are 12 stormwater basins within the City's GMA. These Basins are shown on Table 2.5 and listed in Figure 2.6 (Source: City of Fort Collins Stormwater Master Planning Website). The City's stormwater program is crucial for minimizing flooding, erosion, and water quality problems caused by stormwater runoff. As of 2024, the stormwater department receives approximately $18 million annually, with $8 million allocated to implement capital improvement projects. However, the total cost of identified stormwater projects from the 2024 10-year Stormwater capital improvement plan is estimated to be approximately $300 million. At the current funding levels, it would take decades to fund all these stormwater projects.

The Stormwater Master Plan is a compilation of reports that have been prepared for each of the 12 major stormwater drainage basins within the City. They are updated periodically to address new development, improved Master Planning engineering tools and models, and updated topography. Individual basin master plans provide the best source of information regarding the City's stormwater infrastructure and future capital project needs for stormwater management.

Table 2.5 Stormwater Master Planning Completion Record

Basin	Year of Most Recent Stormwater Plan Component Updates				
	Water Quality Plan	Baseline Hydrology Report	Hydraulics and Flood Hazard Area Delineation Report	Selected Plan	Letter of Map Revision
Boxelder Creek (Upper and Lower Cooper Slough)	2012	2014	2006	2021	2019
Canal Importation	2012	2014	2014	2022	
Dry Creek	2012	2014	2002	2004	2019
Foothills	2012	2020	2026	2022	
Fossil Creek	2012	2025(1)	2002	2002	
Fox Meadows	2012	2002	2002	2002	
Mail Creek	2012	2002	2002	2002	2020
McClelland's Creek	2012	2025(1)	2003	2003	
Old Town	2012	2017	2003	2003	
Poudre River	2012	2014	2025(1)	2001	
Spring Creek	2012	2025(1)	2003	2003	2024
West Vine	2012	2017	2020	2024	

Notes:
(1) Reports marked with a 2025 completion date have not been completed as of January 2025.



Source: City of Fort Collins Stormwater Master Planning Website.

Figure 2.6 Stormwater Basins within the Fort Collins GMA

2.4.1.2 Stormwater Master Planning

Stormwater master planning is a key part of the City's stormwater management program, providing guidance for future capital improvement projects to protect people, property and the environment. Each stormwater master plan contains a comprehensive, multidisciplinary approach involving several City departments and public stakeholders to create a plan and vision for how stormwater management can be implemented in each basin. One key goal of each plan is to maximize the use of stormwater improvements while providing complementary features desired by the public.

The purpose of each stormwater master plan is to:

- Identify and prioritize capital projects that reduce flood risk from the 100-year storm to structures and major roadways.
- Identify opportunities to enhance riparian habitat along stream and river corridors and improve water quality.
- Identify opportunities to incorporate natural areas, open space, parks and recreation into future stormwater CIP projects.

- Provide guidance for new and future development.
- Provide guidance for acquisition of property for future capital improvements and areas for preservation or recreation.
- Update the stormwater basin maps based on land use changes and new development
- Incorporate the basin-specific stormwater capital projects in the Stormwater CIP.

The stormwater master planning process for each basin consists of the sequential preparation of the following three separate planning documents:

- Baseline Hydrology Report.
- Hydraulic and Flood Hazard Area Delineation Report.
- Selected Plan of Improvements.

In addition to the three planning documents that have been historically prepared by the City, there are several other documents that contain pertinent information about the City's stormwater system. These are:

- The **Water Quality Plan** provides water quality enhancement alternatives evaluated with a triple bottom line approach. Since 2012, Fort Collins has been considering best management practices for water quality, with the goal of treating approximately 40 percent of the flows per basin.
- **Letters of Map Revision** are prepared as needed to update flood insurance rate maps to show changes to floodplains, floodways, or flood elevations. The **Baseline Hydrology Report** models the predicted peak runoff resulting from a 100-year rainfall event in the drainage basin. Recent updates to the Hydrology reports have converted the older hydrologic models, which were developed in ModSWMM to the widely accepted USEPA SWMM 5.0 model. The **Hydraulic and Flood Hazard Area Delineation Report** documents the hydraulic analysis of major flow paths in the basin, detailing the sources of runoff and floodplain mapping. This report uses the predicted runoff from the Hydrology Report to determine flooding extent from different return period rainfall events.
- The **Selected Plan of Improvements** uses an alternative assessment to analyze the best ways to remove insurable structures from the 100-year floodplain, facilitate more holistic basin management, decrease/prevent street overtopping, and keep stormwater separate from existing canals. This plan analyzes solutions to the potential flooding issues identified in the Hydraulic and Flood Hazard Area Delineation report. The Selected Plan may also include conceptual design of recommended plan of improvements.

Final master plans are first presented to the Water Board and, for select basins, Larimer County Board of Commissioners for approval and then adopted by the City Manager. The most recent updates of these four key documents for each of the 12 Basins are listed in Table 2.5.

2.4.1.3 Ongoing Improvements

The City's internal goal is to update each stormwater master plan every 6 to 7 years. The plan updates are crucial to help prioritize capital expenditures and that funds are directed towards the most impactful areas. However, the preparation of each of these plans is time-consuming and costly and each plan component can take several years to complete. With 12 basins and 4 planning documents per basin, there are 48 plans to prepare to cover the entire City's GMA. Updating the plans for each basin every 6-7 years

would equate to 7-8 plans per year, or approximately 2 basins per year. The City's current funding and staffing resources are currently insufficient to achieve this goal.

Alongside the master plan updates, the City recently began construction on the **Oak Street Project**. This project involves the construction of a new drainage system and implementation of rain gardens to manage runoff along Oak Street. This is expected to reduce the historical flooding concerns through Old Town, with the design intent of safely conveying the 100-year flood.

2.4.2 Looking Forward

2.4.2.1 Ongoing and Potential Future Challenges

The primary ongoing and potential future stormwater challenges in Fort Collins are the:

- **Master Plan Update Frequency:** Due to the large number of basins and required documents for each, updating the master plans is a time consuming and expensive process.
- **Potential Stormwater Lift Stations:** To date, all the City's stormwater and wastewater conveyance has been by gravity. However, due to the topography of available land for new development within the City's service area, there is the possibility that new development may require both wastewater and stormwater lift stations as the expansion areas are located at lower elevations. Training and/or additional staff may be required to maintain and operate lift stations.

2.4.3 Information Gaps and Potential Improvements

The large number of basins and associated master plans make analysis of the entirety of the City's stormwater system a significant effort. A comprehensive summary of the results from each basin's most recent master plan is recommended, akin to the March 2019 Stormwater Master Plan Executive Summary Draft Report. It is recommended that this summary report be updated at least every 10 years to maintain accuracy and guide stormwater capital improvement plan prioritization and implementation decisions. It is also recommended that floodplain management be addressed as part of a more comprehensive stormwater system description and needs assessment as stormwater projects provide relief from flooding. This effort could be considered as a special focus area for the One Water Plan that will be developed in phase 2.

Additionally, a stormwater rate study is recommended to increase program funding based on the identified need for both planning, implementation, and operations and maintenance of stormwater infrastructure. Successful implementation of stormwater capital improvement projects would greatly benefit from a rate increase. Further investigation into adjusted capital improvement projects costs, needs, and public acceptance should be included. Differentiation of rates between new and existing developments may be considered due to the potential costs associated with the construction of lift stations, force mains, and storm drain conveyance pipelines to serve new developments, as well as the replacement of aging infrastructure and capacity upgrades.

2.5 Funding Needs

As evidenced by the large number of identified capital improvement projects across water supply, drinking water, water reclamation and stormwater sectors, rate increases are likely necessary to support

Water Utilities planning and project implementation in Fort Collins. Future rate increases will be balanced with what the ratepayers can support.

CHAPTER 3 ORGANIZATIONAL CULTURE

This chapter assesses the City's organizational culture as it relates to collaborative and integrated One Water management. Through one-on-one interviews and virtual meetings with key stakeholders across various departments, this assessment evaluates the City's progress toward achieving the three levels of the Organizational Culture pillar of the WRF Framework, as outlined in Chapter 1 (see Figures 1.2 and 3.1) and detailed in the WRF Framework Report (WRF 2023).

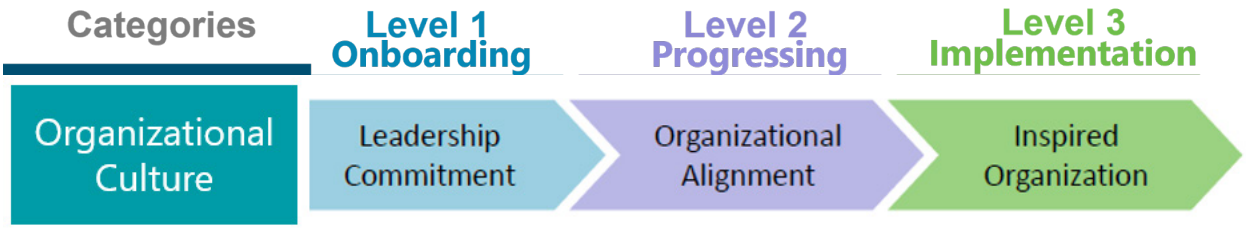


Figure 3.1 One Water Framework: Organizational Culture Levels

3.1 Level 1 - Leadership Commitment

The City has made significant strides toward Level 1 (Leadership Commitment) of the Organizational Culture pillar of the WRF Framework. A dedicated One Water Core Advisory Team drives this initiative. At the time of this report completion, this team includes the following individuals:

- Nicole Poncelet-Johnson: One Water Executive Director for FC Utilities.
- Jill Oropeza: Senior Director of Operations and Planning for FC Utilities.
- Jeremy Woolf: Senior Director with Integrated Water Operations for FC Utilities.
- Matt Fater: Special Projects Manager for FC Utilities.
- Mariel Miller: Water Conservation Specialist for FC Utilities.
- Julia Feder: Environmental Program Manager for Natural Areas.
- Katy McLaren: Senior Environmental Planner for Sustainability Services.

The City has publicly committed to One Water philosophies and actively developed a comprehensive vision and supported actions for One Water as part of Phase I of its OWAF, as summarized in Chapter 1. While the City has demonstrated initial leadership, the following efforts are needed to solidify this commitment and promote the institutional collaboration that is needed to fully achieve Level 1.

- Formally adopt and communicate the Vision and Supporting Actions.
- Formalize leadership commitments:
  - City staff are engaging in elected officials. This includes a presentation to the Water Commission on the City's One Water effort in August 2024, workforce development, and creating fulfilling career paths with more opportunities for interdepartmental collaboration or transitions. The Water Commission wrote a letter of support to the City Council in support of a One Water Operator position. The City's task is to provide further context to the Council and Commission to

show how the One Water elements fit together. There have been no formal conversations with the City Council about where City is headed with One Water. However, Council has established One Water as one of its nine priorities.

» In 2023, Fort Collins published articles that mentioned One Water. City leadership has started publicly committing to One Water. However, until the vision and supporting actions are formally adopted and integrated into daily efforts, this work has only begun. FC Utilities staff will provide One Water updates to the Council in 2025.

3.2 Level 2 - Organizational Alignment

To progress to Level 2 (Organizational Alignment) of the Organizational Culture pillar of the WRF Framework, the City must take steps to strengthen its organizational alignment and collaboration. These include:

- **Interdepartmental coordination:**
  - » The City's Comprehensive Plan outlines the Fort Collins community's vision for development. There is a lack of synergy between the FC Utilities and Planning departments with respect to the City's Comprehensive Plan and vision, which includes, in some cases, competing priorities. Their goals may not be fully aligned, potentially leading to conflicting approaches. It is recommended that in the complexities of expanding water infrastructure to serve new development be addressed in more detail in future updates of the Comprehensive Plan.
  - » There are competing interests when the City considers managing water (e.g., urban development and environmental protection). Moving forward, the City needs to more deliberately plan for how to utilize its available water supply and project future water supply needs to achieve community goals and priorities. This could be accomplished with the development of a water resources plan, or inclusion thereof in a future update of the City's Comprehensive Plan.
- **Centralized data management:**
  - » To enhance collaboration and decision-making, the City should implement a shared mapping process, similar to development review, to visualize the connections between plans, goals, departments, and stakeholders. This visual tool can aid in explaining One Water concepts to leadership and can also be used for communication and education purposes.
  - » Furthermore, the City should foster a culture where One Water principles are integrated into all departmental projects, regardless of their specific focus. Clear decision-making processes and defined roles and responsibilities will be crucial to promote effective collaboration and implementation of One Water initiatives.
- **Updates to City organizational chart:**
  - » FC Utilities is responsible for stormwater, wastewater, and drinking water. Outside of the FC Utilities, there are several other City departments and divisions that involve work on the City's water resources or whose actions can affect elements of water supply, demand, and/or water quality. These departments/divisions include:
    - Community Services:
      - Recreation.
      - Parks Department:
        - Forestry Division.

  - Natural Areas Department.
- Engineering.
- City Planning.
- Building Services.
- Environmental Services.
- Recreation.
- Transportation.
- Communication and Public Information Office.
- Finance.
- Social Sustainability.
- Community Connections.
- Equity and Inclusion Office.
- Real Estate Services.

Deliberate coordination between these departments and the divisions within them is critical for a successful One Water organization. Detailing the flow of information from each of these departments is critical for a One Water culture to penetrate throughout the organization with a clear sense of purpose and direction. It may be helpful to use the change management group to assist with any organizational restructuring and leadership changes.

» The current organizational structure does not optimally support the implementation of One Water. The City has been developing a re-organization for Utilities for light and power and water. By mid-2025, it is anticipated that there will be a different structure. It is important to know where everyone fits in this structure, what the hierarchy is, and where there are barriers to accomplishing a One Water culture. This will facilitate collaboration between departments to discuss priorities and opportunities.

» An organizationally-aligned City has documented internal roles and responsibilities to the agreed-upon One Water objectives, and conducts recurring communication activities with appropriate departments and agencies. The City should drive coordination and encourage its staff to think outside the typical network and typical business processes. Some business processes at the City are centralized (e.g., Real Estate Services), while others (e.g., planning processes) are decentralized. In each area, the City should identify whether there would be greater efficiencies in having processes centralized or decentralized.

3.3 Level 3 - Inspired Organization

To achieve Level 3 (Inspired Organization) of the Organizational Culture pillar of the WRF Framework, the City must foster a culture of innovation, continuous improvement, and employee engagement. Key actions may include:

- **Strengthening interdepartmental collaboration:**

  » Currently, interdepartmental relationships exist on an ad-hoc basis, often driven by individual efforts rather than a formal process. While there are individuals with a strong One Water mindset, the City lacks a structured mechanism to promote consistent and effective interdepartmental collaboration. To address this, it is recommended that the City develop and implement a formal process with clear roles, responsibilities, and communication channels to facilitate ongoing

collaboration and ensure that One Water initiatives are prioritized and implemented. This will help to maintain momentum and continuity, even in the inevitable event of staff turnover.

- During master planning, there are opportunities to better coordinate discrete plans and look for synergies. For example, departments should improve project coordination when projects are being implemented on the same street. Departments should also coordinate when developing long-term goals for water quality and water supply.
- To foster greater collaboration and efficiency between the City's laboratory staff, currently working at various sites, it is recommended that the City continue the planning work, including site acquisition, design and subsequent construction to deliver a renewed, centralized laboratory facility that can serve as a hub for collaboration around water matters between City departments, CSU and other community partners. . Currently, the dispersion of labs and staff across different locations hinders collaboration and coordination. By co-locating teams and resources, the City can facilitate knowledge sharing, cross-training, and career path enhancements.

- **Optimizing resource allocation:**
  - The City should actively seek opportunities to leverage resources and funding across departments to support collaborative, multi-benefit projects, programs, and plans. This could potentially be accomplished via a designated One Water Fund, or via a streamlined system for departments to share funds. In developing this system, it is imperative that there is a staff-wide understanding of, and collaboration on, budget decisions to advocate for all work in One Water.
  - It will also be important to identify and support internal collaboration and cost-sharing amongst water departments and/or related agencies. The existing City finance structure could potentially impede the desired One Water collaboration. Currently, City departments have to bill other departments in the City (e.g., transferring vehicles between water and wastewater fleets). As another example, Utilities must pay the Real Estate Services department to review appraisals for floodplain projects. Determining how to issue payment can take more time than it takes to complete the document review itself. Not pooling water and wastewater funds can also be an issue for the laboratories.
- **Empowering staff:**
  - The City should further invest in staff development through training opportunities. This includes cross-training opportunities to broaden employees' skills and knowledge across different water disciplines. FC Utilities has specialists in stormwater, drinking water, and wastewater, but only some staff have knowledge in all three. By providing clear multi-disciplinary career paths and opportunities for professional growth, the City can motivate staff to contribute to One Water goals.
  - Fostering cross-departmental communication and collaboration, such as through joint training sessions, workshops, and regular meetings, will strengthen the One Water culture and enable staff to identify synergies and opportunities for collaboration.
  - Operational areas within the Water Utility maintain a One Water Operator structure. In this structure, operators are valued equally in all water specialties, with training and transfer potential in other specialties. This structure empowers staff, optimizes resource allocation, and adds resilience by increasing operational knowledge across all water specialties.

- **Adapting to change:**
  - The City should continuously assess the organization's One Water strategy and make necessary adjustments to address evolving needs and challenges.

3.4 Moving Forward

While the City has made progress in establishing a One Water foundation, significant opportunities remain to strengthen the organizational culture. The One Water Plan will provide a roadmap for engaging institutional stakeholders like the Tri-Districts, ditch companies, and CSU, aligning messaging and promoting a city-wide understanding of One Water. To further integrate One Water principles, Phase 2 can include developing targeted communication tools, such as talking points and a roadshow presentation, for use in existing public engagement efforts across the City. By fostering a culture of collaboration, innovation, and continuous improvement, the City can accelerate its journey towards becoming a national leader in One Water implementation.

CHAPTER 4 STAKEHOLDER ENGAGEMENT

In nearly any community, water management is not the sole responsibility of a single department or entity, One Water in Fort Collins will span across several institutional boundaries, requiring a wide range of stakeholders to be involved throughout this collaborative journey. The successful implementation of One Water hinges on a diverse set of stakeholders being interested, engaged, and invested in the future of water in the community. In preparation for Phase 2 of Fort Collins One Water, this chapter identifies key stakeholders for development and implementation of the One Water Action Framework and details a stakeholder engagement roadmap.

As shown in Figures 1.2 and 4.1, the Stakeholder Engagement pillar of the WRF Framework starts with Institutional collaboration (Level 1) and then evolves into Community Engagement around One Water (Level 2). The end goal of this pillar is to have a well-established process of Continuous Feedback (Level 3) from both institutional and community stakeholders on water management related topics.

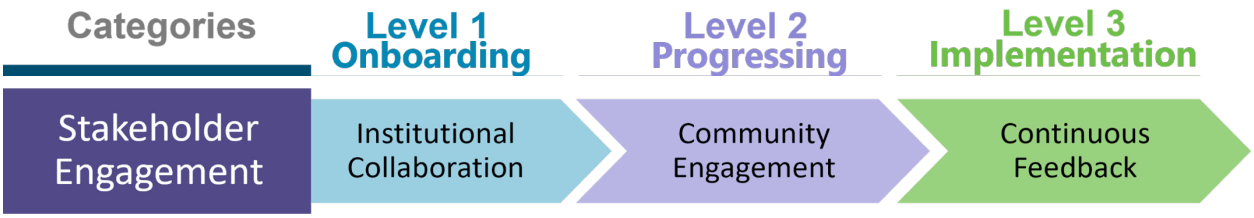


Figure 4.1 One Water Framework: Stakeholder Engagement Levels

4.1 Stakeholder Mapping

One Water in Fort Collins will require proactive and continuous stakeholder engagement. A list of key stakeholders is proposed in this memorandum. The list spans both public and private interests and includes important local, regional, and federal partners. For a more detailed analysis of potential stakeholders, refer to Section 3.3 of the *Data Gaps and Needs Memorandum* included as Appendix A.

4.1.1 One Water Stakeholders

The recommended list of stakeholders for the City's Utilities Department to engage in the development and implementation of its One Water Action Framework includes (in alphabetical order):

- Businesses, developers, the general public, and community group representatives: entities that are directly affected by the City's water management decisions and actions.
- City of Greeley: a regional partner in water supply that shares in some of the City's water supply sources and facilities.
- CDPHE: a critical partner in the regulation of stream water and stormwater quality, drinking water treatment and distribution, wastewater collection and treatment, and water reuse.
- CSU: a major local academic institution affected by the City's water management decisions and actions and a partner in research and innovation.

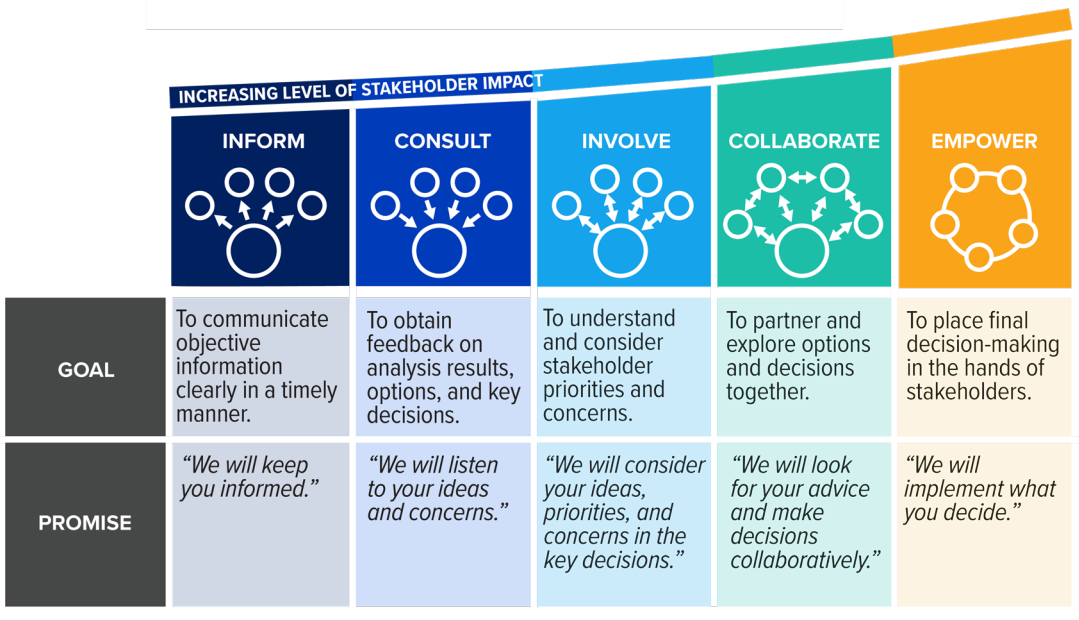
- Colorado Water Conservation Board (CWCB): a partner in water planning and management within and between the state's major river basins.
- Ditch companies: partners in water supply for local and regional agricultural and municipal water users.
- Federal agencies: providing regulatory and management of water and federal lands in and around Fort Collins.
  - Federal Emergency Management Agency.
  - The United States Forest Service.
  - USEPA.
- Non-governmental organizations (NGO): advocates for community and environmental resources in and around Fort Collins.
  - Environmental groups.
  - Charitable organizations.
- Northern Water: a key water supply partner in managing regional water resources.
- Other City departments: those that are affected by water management decisions and actions, and/or can affect water management decisions and actions in Fort Collins (in alphabetical order):
  - Communications and Public Information Office.
  - Natural Areas.
  - Community Services.
  - Community Connections.
  - Environmental Services.
  - Equity and Inclusion Office.
  - Finance.
  - Recreation.
  - Parks.
  - Social Sustainability.
  - Transportation.
- Poudre School District: a major community asset and customer of the City's water services.
- Tri-Districts: agencies providing water and/or wastewater services within the city limits but outside the City's service area.
  - ELCO.
  - FCLWD.
  - NCWCD.

4.1.2 Stakeholder Engagement Groups

Each stakeholder will have varying levels of engagement during the One Water planning process. Moreover, these entities will be key partners in the City's ongoing implementation of the OWAF over time. Four recommended levels of engagement are shown in Figure 4.2, where the smaller inner rings represent groups with a more direct influence on the City's One Water program, and larger outer rings represent a greater number of members with less influence.

The membership, responsibilities, and level of participation varies for each of the stakeholder engagement groups indicated in Figure 4.2. The traditional levels of participation, also referred to as the level of stakeholder impact, are depicted in Figure 4.3.

Figure 4.2 Stakeholder Engagement Groups



Source: Carollo Engineers, 2024

Figure 4.3 Level of Stakeholder Impact

The stakeholder groups and their associated level of impact are generally defined as follows.

- **One Water Core Advisory Team:**
  - The Core Advisory Team is directly responsible for the planning, development, and implementation of the OWAF.
  - The Core Advisory Team is empowered with the highest level of engagement with the highest associated effort and most direct level of control and responsibility for the development and deployment of One Water in Fort Collins.
  - The Core Advisory Team is responsible for communication and coordination across all four stakeholder engagement groups.
- **Steering Committee:**
  - The Steering Committee would be charged with serving in an advisory role to the Core Advisory Team, providing guidance on direction, timeline and methods used by the core team. The Steering Committee would meet regularly with the Core Advisory Team to promote successful outcomes.
  - The Steering Committee would consist of experts and senior stakeholders.
  - The Steering Committee would have frequent two-way communication with the Core Advisory Team.
  - The level of impact of a Steering Committee is typically centered around the *Involve* and *Collaborate* levels shown in Figure 4.3.
- **Outside Agencies:**
  - Outside Agencies can provide specific guidance to the Core Advisory Team. Outside Agencies are inherently linked to regional water supply and management systems. They could be peripherally impacted by the City's One Water initiatives and/or affect the advancement of the City's One Water program.
  - Regular two-way communication between this group and the Core Advisory Team is recommended to continually confirm that One Water is representative of the impacted stakeholders' needs and responsibilities. This communication is expected to occur less frequently than the communication between the Steering Committee and the Core Advisory Team.
  - Outside Agencies will be informed and consulted to more deliberately coordinate water management between the City and these agencies, but they will have less of a direct role in advising and guiding the City's One Water program than the Steering Committee.
  - The level of impact of Outside Agencies is typically centered around the *Consult* and *Involve* levels shown in Figure 4.3.
- **General Public and Other Stakeholders:**
  - The General Public and Other Stakeholders could represent a wide range of interests in the City's water management involving the entire water cycle. This group could be periodically informed by the City and may be solicited for feedback and targeted input to the Core Team at certain stages in the development and implementation of the City's OWAF.
  - It is recommended that this group primarily receive mostly informing communication from the Core Advisory Team and Steering Committee.
  - The level of impact of the General Public is typically centered around the *Inform* and *Consult* levels shown in Figure 4.3.

Each stakeholder has been assigned a recommended level of engagement through a designated Engagement Group. The stakeholder assignments and rationale for the assigned role for each engagement group is summarized in Table 4.1.

Table 4.1 Stakeholder Engagement Group Assignments

Engagement Group	Stakeholder	Rationale
Core Advisory Team	FC Utilities, Parks Department, and the Natural Areas Department.	The Water Utilities and other City Department management and their designees will serve as the central "hub" for leading, managing, and coordinating all water-related decisions and activities in Fort Collins.
Steering Committee	CSU	Leaders of the One Water Solutions Institute at CSU are designated for inclusion in the Steering Committee for their national One Water expertise and local community understanding.
	Northern Water	Northern Water owns and operates key regional water supply systems and is a critical water supply partner with the City. Inclusion in the Steering Committee will promote continued collaboration on the future of regional water supply.
	Other City Departments	As Utilities Department partners, other City departments should be in the Steering Committee to allow for direct coordination and collaboration between City departments that affect water management and are affected by it in the community.
Outside Agencies	City of Greeley	The City of Greeley shares a source water with the City, and thus has vested interest in the One Water planning. Greeley is designated as an Outside Agency for regular two-way communication.
	CDPHE	CDPHE is designated as an Outside Agency for regulatory compliance and reference. Communication with CDPHE will be crucial as the One Water implementation progresses.
	CWCB	The CWCB is designated as an outside agency for intra- and inter-basin planning in Colorado and reference for water resource matters.
	Ditch Companies	Ditch companies, responsible for providing raw water locally, are designated as Outside Agencies. Communication with the Ditch companies will be important throughout the One Water planning and implementation process.
	Federal Agencies	Federal agencies, such as the Federal Emergency Management Agency and the USEPA, are designated as Outside Agencies for regulatory compliance and land use coordination at the federal scale.
	Tri-Districts	The Tri-Districts distribute potable water in close proximity to City services and infrastructure and serve portions of Fort Collins. These districts are included as Outside Agencies because of the need to directly and proactively communicate consistent messages to Fort Collins residents, regardless of their utility service provider.

Engagement Group	Stakeholder	Rationale
General Public and Other Stakeholders	Businesses/Community Group Representatives	Local businesses and community groups are designated for inclusion in the General Public and Other Stakeholders group to promote active information sharing to and between groups that are affected by water management actions in Fort Collins.
	NGOs	NGOs are included in the General Public and Other Stakeholders category, keeping these organizations informed throughout the One Water process and soliciting their active support for One Water initiatives.
	Poudre School District	The Poudre School District, responsible for the public education of potential future water leaders and a major water user in the community, is included in General Public and Other Stakeholders. This placement provides an avenue for the School District leaders to be well informed on the future of water in their community.

4.2 Stakeholder Engagement Roadmap

Stakeholder engagement will occur on a phased basis as the One Water Plan develops, ultimately transitioning into implementation as a regular way of doing business in Fort Collins. This engagement will begin with the formation and organization of the Core Advisory Team at the start of the Phase 2 planning process. As the Core Advisory Team is being finalized, the Steering Committee should be assembled within the first two months, to allow integration of their crucial perspective and guidance early in the planning process. Outside Agencies should be engaged within the first six months, after the Core Advisory Team and the Steering Committee have formed. Lastly, groups in the General Public and Other Stakeholders group should be informed on progress and "quick wins" on a yearly basis at minimum. The public engagement strategies in the One Water Plan will align with the centralized public engagement efforts made being undertaken by the City Manager's office. Further detail on recommended engagement timeline, frequency, and methods for each group is shown in Table 4.2.

Table 4.2 Stakeholder Engagement Roadmap

Engagement Group	Engagement Timeline	Typical Engagement Frequency	Engagement Method
Core Advisory Team	At initiation of Phase 2	Biweekly-Monthly	Frequent meetings with standing agenda to work on supporting actions to help achieve the City's One Water Vision.
Steering Committee	2 months after initiation of Phase 2	Monthly-Quarterly	In-person or hybrid (online) meetings with specific goals and topics for Steering Committee guidance for each topic through involvement and collaboration on ongoing/ new water related projects or policies.
Outside Agencies	6 months after initiation of Phase 2	Quarterly-Semi-Annually	In-person or hybrid (online) meetings designed to inform, consult, and/or involve stakeholders on One Water Action Framework progress and recommendations and to facilitate inter-agency coordination on water management actions and decisions.

Engagement Group	Engagement Timeline	Typical Engagement Frequency	Engagement Method
General Public and Other Stakeholders	9 months after initiation of Phase 2	Semi-Annually or as-needed	Information sharing with requests for feedback on key water management actions and decisions using a combination of public meetings (in-person or virtual), surveys/polls, and website and/or social media updates.

4.3 Advancing Stakeholder Engagement

In many ways, the City has already achieved certain aspects of each of the three levels of engagement:

- Level 1 (Onboarding): Institutional Collaboration.
- Level 2 (Progressing): Community Engagement.
- Level 3 (Implementation): Continuous Feedback.

In developing this OWAF, the City is taking a major step forward toward more structured institutional collaboration. By defining stakeholder groups, the roles of each group, and establishing a proactive schedule for engagement with each group, the City will add structure and expectations to its existing methods for engaging each stakeholder entity.

The City will also enhance its community engagement (Level 2) through deployment of this stakeholder engagement roadmap, building on existing community forums (City Council, public information office, and other avenues) to more deliberately engage the community in a one water mindset focused on multi-benefit outcomes.

Similarly, elements of Level 3 (continuous feedback) are already available to the community and the City's One Water stakeholders and partners. For example, the City has a long history of successfully engaging the community on topics such as its water conservation program, Halligan Reservoir, and Oak Street stormwater projects, to name a few. However, community engagement around One Water has not started yet. As the One Water stakeholder engagement program gains traction in the coming months and years, the City will be well positioned to provide avenues for continuous feedback and will have the necessary mechanisms in place to take action on feedback it receives.

CHAPTER 5 ONE WATER PROJECT OPPORTUNITIES

This chapter assesses the City's One Water Project Opportunities for the Informed Action pillar of the WRF Framework. The WRF Framework (Figures 1.2 and 5.1) defines the following three levels for Informed Actions in developing a One Water program:

- Level 1 (Onboarding): Quick Wins.
- Level 2 (Progressing): Collaboration Opportunities.
- Level 3 (Implementation): Long-term Commitment.

Figure 5.1 One Water Framework: Informed Action Levels

A list of model One Water project opportunities, including past, ongoing, and planned projects, was created from information gathered during the one-on-one interviews conducted as part of developing the Gaps and Needs Memorandum. These multi-benefit projects were input into an organizational matrix to identify key quick-win opportunities. A total of 30 projects and project opportunities were identified in the interviews. After screening projects most relevant to the One Water initiatives, 14 projects were analyzed as shown in Table 5.1. Potential One Water benefits and relevant stakeholders were identified for each of these projects. The One Water benefits were categorized using the benefit types listed in the *Data Gaps and Needs Memorandum* (see Appendix A), with the addition of interdepartmental benefits and public engagement.

Table 5.1 One Water Project Matrix

One Water Project	Project Benefits																
	Floodplain Management / Waterways	Interdepartmental Benefits	Public Engagement	Land Use	Water Quality	Water Supply	Climate Change Impacts (Water Supply / Demand)	Water Treatment	Wastewater Collection / Treatment	Stormwater Management	Ecological Restoration	Watershed Stewardship	Recreation	Indoor Water Efficiency	Outdoor Water Efficiency	Water Reuse	Emergency Response and Preparedness
Direct Potable Reuse		•			•	•		•	•							•	
Fort Collins Utilities Water Efficiency Plan (2025)				•			•							•	•		
Halligan Water Supply Project						•	•				•						
Hickory Regional Detention Pond	•			•						•	•						
Meadow Springs Ranch Regionalization Opportunities				•					•								
Oak Street Stormwater Project		•						•	•	•							
One Water Laboratory					•			•	•								
1883 Water Works / One Water Learning Center			•										•				
One Water Operator					•	•		•	•	•							
Poudre River Flow Consolidation Project at College Avenue	•	•									•	•	•				
Poudre Basin Flows Initiative	•				•						•	•					
River Health Assessment Framework					•						•	•					
Stanton and Fossil Creek Stream Rehabilitation	•	•			•						•						
Water Treatment Residuals Project		•			•			•		•	•						
Count:	4	5	1	3	7	3	2	5	5	4	7	3	2	1	1	1	0

5.1 Ongoing Projects

Several ongoing projects demonstrate One Water in action in Fort Collins. While these projects were not formulated or designed to meet One Water objectives or advance holistic water management in the community, they provide inspiration for ways that projects can be advanced in support of a One Water paradigm.

5.1.1 2025 Water Efficiency Plan

- **Overview:** This State required plan promotes best practices for water efficiency in Fort Collins Utilities water service area, identifying treated water demand goals and various strategies to help achieve the goals. The 2025 Water Efficiency Plan (WEP) creates a municipal goal for outdoor landscapes on city properties, as well as service area wide goal.
- **One Water Benefits:** Land use, water supply and demand related climate change impacts, indoor and outdoor water efficiency, distribution system losses, equity analysis and identification of targeted strategies to improve efficiency for all customers.
- **Stakeholders:** All customers service area wide; adjacent water providers; internal city departments such as Parks, Operation Services, Planning and Development review; community groups; and developers.

5.1.2 Halligan Water Supply Project

- **Overview:** Expansion of Halligan Reservoir will increase the City's water supply, combating water shortages and providing water for sustainable development in the community.
- **One Water Benefits**: Water supply, supply- and demand-related climate change impacts, ecological restoration.
- **Stakeholders:** Environmental groups, ratepayers, state agencies, local agencies.

5.1.3 Oak Street Stormwater Project

- **Overview:** This project involves the installation of a large stormwater outfall system as well as relocation of wastewater collection infrastructure and upgrading water distribution pipes. Rain gardens are implemented to manage stormwater runoff. This project uses a coordinated approach between water, wastewater, stormwater, parks, and forestry departments.
- **One Water Benefits**: Interdepartmental benefits, flood mitigation, stormwater quality treatment, and replacement of aging water distribution and wastewater collection infrastructure.
- **Stakeholders:** Residents, local businesses.

5.1.4 One Water Operator

- **Overview:** The One Water operator will have a role within the Water Utilities Service Area spanning drinking water, wastewater and stormwater and promoting cross-training and a more direct recognition of the interconnected nature of each aspect of the urban water cycle.

- **One Water Benefits:** Enhanced collaboration between drinking water, wastewater, and stormwater teams, career enhancement opportunities, recruiting and retaining talent. Enhanced, water quality, water supply, water treatment, wastewater treatment, stormwater management.
- **Stakeholders:** City departments, City staff.

5.1.5 Poudre Basin Flows Initiative

- **Overview:** This project is a partnership between Cache la Poudre Water Users Association; Colorado Water Trust; City of Fort Collins; City of Greeley; City of Thornton; Northern Colorado Water Conservancy District; CWCB; and Colorado Parks and Wildlife to increase the instream flows of the Cache la Poudre River. This will involve collaboration with a local ditch company to upgrade diversion structures. Partnering with local cities to increase environmental flow benefits the watershed and environmental health, while strengthening meaningful regional water relationships.
- **One Water Benefits:** Floodplain/waterway management, water quality, ecological restoration, watershed stewardship.
- **Stakeholders:** Local agencies, water districts, environmental groups.

5.1.6 River Health Assessment Framework

- **Overview:** This framework guides future watershed planning and management to build upon the previous baseline river health indicators. This data will serve as foundational knowledge for stakeholders interested in addressing threats to river health, prioritizing and implementing projects, and proactively managing the watershed. While this City effort is focused on the stretch of the Poudre River through the City, the sampling data will be combined with data produced by the Coalition for the Poudre River Watershed in the Upper and Lower Poudre River Zones to create one holistic data set for the Poudre River Watershed.
- **One Water Benefits:** Water quality, ecological restoration, watershed stewardship.
- **Stakeholders:** Environmental groups, local agencies, land managers, water providers, agricultural partners, and non-profits.

5.1.7 Stanton and Fossil Creek Stream Rehabilitation

- **Overview:** This project brings together ecological restoration, channel stability and water quality improvements through stream rehabilitation. This includes enhancing floodplain connectivity, improving fish passage and restoring instream function. An important co-benefit of this project is reducing flood risk by creating a more resilient channel and floodplain. This project is a collaborative effort between several City departments, including Utilities, Natural Areas, and Parks. There is also a related PDT transportation project at the upstream end of Fossil Creek to install new culverts beneath Trilby Avenue.
- **One Water Benefits:** Interdepartmental benefits, water quality, ecological restoration, floodplain connectivity.
- **Stakeholders:** Environmental groups, local agencies, and Native Nations.

5.1.8 Water Treatment Residuals Project

- **Overview:** This project involves the application of drinking water residuals for the removal of dissolved phosphorus in stormwater, pending State approval. This is a collaboration between drinking water and stormwater Utilities staff. Successful implementation would lower the drinking water treatment residuals disposal costs and improve the stormwater quality, benefiting the local ecosystem.
- **One Water Benefits:** Interdepartmental benefits, water quality, water treatment, stormwater management, ecological restoration.
- **Stakeholders:** State agencies, environmental groups.

5.2 Potential One Water Projects

The following projects are examples of initiatives that are currently under consideration or development by the City. Each project has the potential to integrate a One Water approach, and a corresponding potential for multi-benefit outcomes. It should be noted that other project opportunities, such as non-potable reuse and green stormwater infrastructure are recommended to be included for consideration in the One Water Plan that will be developed as part of Phase 2 of this effort.

5.2.1 Direct Potable Reuse

- **Overview:** Direct potable reuse (DPR) uses an advanced multi-treatment barrier system to purify recycled water for potable water supply purposes. DPR necessitates collaboration between the Water Utilities water production, reclamation, legal, and water resources staff. An extensive communication plan is both a legal requirement and an opportunity to educate and build trust between local government and the community. Operation of DPR treatment facilities would require staff to be intimately familiar with the Water Utilities' water rights portfolio as well as with both advanced drinking water treatment and wastewater treatment technologies, water quality testing, and reporting requirements. Furthermore, it would drive a need for enhanced source control in the wastewater collection system. It benefits many water management elements such as water supply and climate change resilience. It should be noted that DPR may prove to be a cost-prohibitive option for the City due to the very limited share of its water rights portfolio that is available for reuse. If a closed-loop DPR system was to be constructed, it would require significant augmentation to fulfill the City's return flow obligations. The technical feasibility, effective supply yield, cost, and complex legal hurdles would need to be evaluated and compared with alternative water supply augmentation solutions.
- **One Water Benefits:** Interdepartmental benefits, water quality, water supply, water treatment, wastewater treatment, water reuse.
- **Stakeholders:** State agencies, environmental groups, community groups.

5.2.2 Hickory Regional Detention Pond

- **Overview:** This facility is in the Dry Creek Drainage Basin. It is needed to reduce the potential flooding in the Mason Corridor area on the west side of College Avenue. It is included in the SW 10-Year CIP prioritization list of projects. This project reduces potential flood risk to people and properties. And provides in combination with storm sewer improvements, a regional detention facility and outfall that

adjacent developing properties can utilize freeing up more land for development. It also provides a relocated natural habitat buffer zone.

- **One Water Benefits:** Floodplain management, land use, stormwater management, ecological restoration.
- **Stakeholders:** Neighboring properties and developments, Natural Areas, City Stormwater Maintenance, Parks, Trails.

5.2.3 Meadow Springs Ranch Regionalization Opportunities

- **Overview: T**his potential project explores opportunities with neighboring utilities to share resources related to the application and/or reuse of biosolids. This could include potential cost reductions for all stakeholders, allowing resource dedication to other One Water priorities. This creates regular and direct interaction with other utilities where other One Water opportunities may be identified and explored.
- **One Water Benefits:** Land use, wastewater treatment.
- **Stakeholders:** Neighboring biosolids generators, Natural Areas, CDPHE.

5.2.4 One Water Laboratory

- **Overview:** The One Water Laboratory is a proposed centralized laboratory facility for both water and wastewater treatment with the intent to promote collaboration and efficiency, by leveraging equipment and promoting opportunities for advancing career paths of laboratory staff from different facilities and roles within the Utilities department. This laboratory would replace the two existing and separate laboratories that are at end of life. This project centralizes similar work functions, provides opportunities for cross-training across disciplines, shared culture, space optimization, increased technology /instrumentation efficiencies and partnerships with CSU and others
- **One Water Benefits:** Water quality, water treatment, wastewater treatment, staff advancement and retention though One Water culture, and potential partnerships with CSU and other entities.
- **Stakeholders:** State regulators, City departments, and Utilities staff.

5.2.5 One Water Learning Center/The 1883 Water Works

- **Overview:** This project involves renovation of the historic 1883 Waterworks to include educational resources on Fort Collins water past, present and future, transforming it into the One Water Learning Center. The One Water Learning Center would provide public education and outreach, detailing the whole water cycle, encompassing the urban-environment water interface. This would be a means of educating the community on how past generations had the foresight to plan for the water future currently enjoyed today, and the City and community's responsibility to do the same for future generations through a One Water approach.
- **One Water Benefits:** Public engagement, recreation.
- **Stakeholders:** Residents, local businesses, environmental groups, community groups.

5.3 Quick Wins

Of the analyzed One Water project opportunities, both current and planned, several opportunities stand out as having potential to be "quick wins" that demonstrate One Water in action in Fort Collins. The selected projects highly emphasize interdepartmental collaboration and span many water related benefits. The following projects demonstrate the value of One Water collaborations and should be shared with the community to foster momentum for the future of One Water in Fort Collins:

- Oak Street Stormwater Project.
- Poudre Basin Flows Initiative.
- Stanton and Fossil Creek Stream Rehabilitation Project.
- Water Treatment Residuals Project.

Notably, DPR has the potential to be an extremely valuable and effective One Water collaboration but requires a longer implementation time frame than the "quick win" projects listed.

5.4 Advancing Informed Actions via One Water Project Opportunities

The Quick Wins and One Water Project Opportunities described in the sections above illustrate the City's progress toward Levels 1 and 2, respectively, of the Informed Actions pillar of the WRF Framework. In many ways, the City is already advancing toward the Long-term Commitment envisioned in Level 3 of the Framework. By institutionalizing the One Water approach to project identification, planning, and design, the City will be well positioned to achieve – and stay at – the highest level of the Framework, by "living and breathing" One Water as a regular way of doing business in Fort Collins.

CHAPTER 6 ONE WATER MONITORING

Indicators and metrics play a critical role in the evaluation of progress towards desired goals in an urban setting. Indicators can also facilitate communication of desired goals, strategies, and progress with stakeholders. Indicators that are quantifiable and easy to measure serve as the underlying data system requisite for the effective utilization of most sustainability assessment frameworks with the capacity for benchmarking, rating, and ranking. Indicators and metrics must be aligned with the framework's objectives to provide a quantitative method of evaluation. Effective assessment frameworks often rely on key performance indicators and metrics to improve ease of use and applicability over a range of characteristics and standards.

The Monitoring Plan establishes a common set of baseline (Level 1), benchmarking (Level 2), and performance (Level 3) indicators that are used to monitor progress toward the desired targets and the collective One Water objectives (Figure 6.1). The methodologies used to monitor progress for each indicator should be transparently described and reproducible.

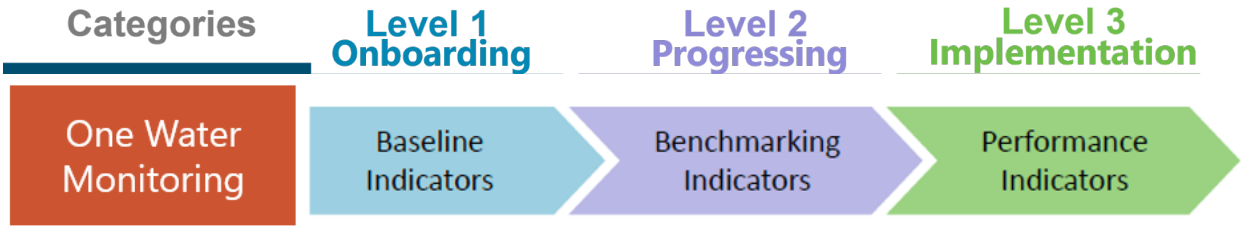


Figure 6.1 One Water Framework: One Water Monitoring Levels

6.1 Overview

The establishment of indicators and metrics is an important component of the One Water Action Framework. An indicator provides summary information on the state of, or change in, the system of interest. A metric characterizes how specific indicators are measured and provides the suggested units of measurement. The individual One Water indicators are described in the following sections. Information is provided to detail the intent of each metric, the sources of data used to update the metric, and the recommended reporting frequency. The City may consider refining the specific metrics for each indicator as new insights are gained by collecting and assessing the relevant data. These improvements may be reflected in the revised definitions of the metrics and/or the spatial and temporal scales at which they are quantified.

The proposed monitoring described herein encompasses indicators and associated metrics that characterize and quantify progress toward achieving the City's One Water goals. One Water approaches address multiple goals by facilitating coordinated and aligned actions to plan, design, and implement multi-benefit projects, programs, and/or policies. Thus, the indicators and metrics must also characterize and quantify the progress toward multiple goals. The relationship between the five One Water goals and the indicators associated with each goal is illustrated in Figure 6.2.

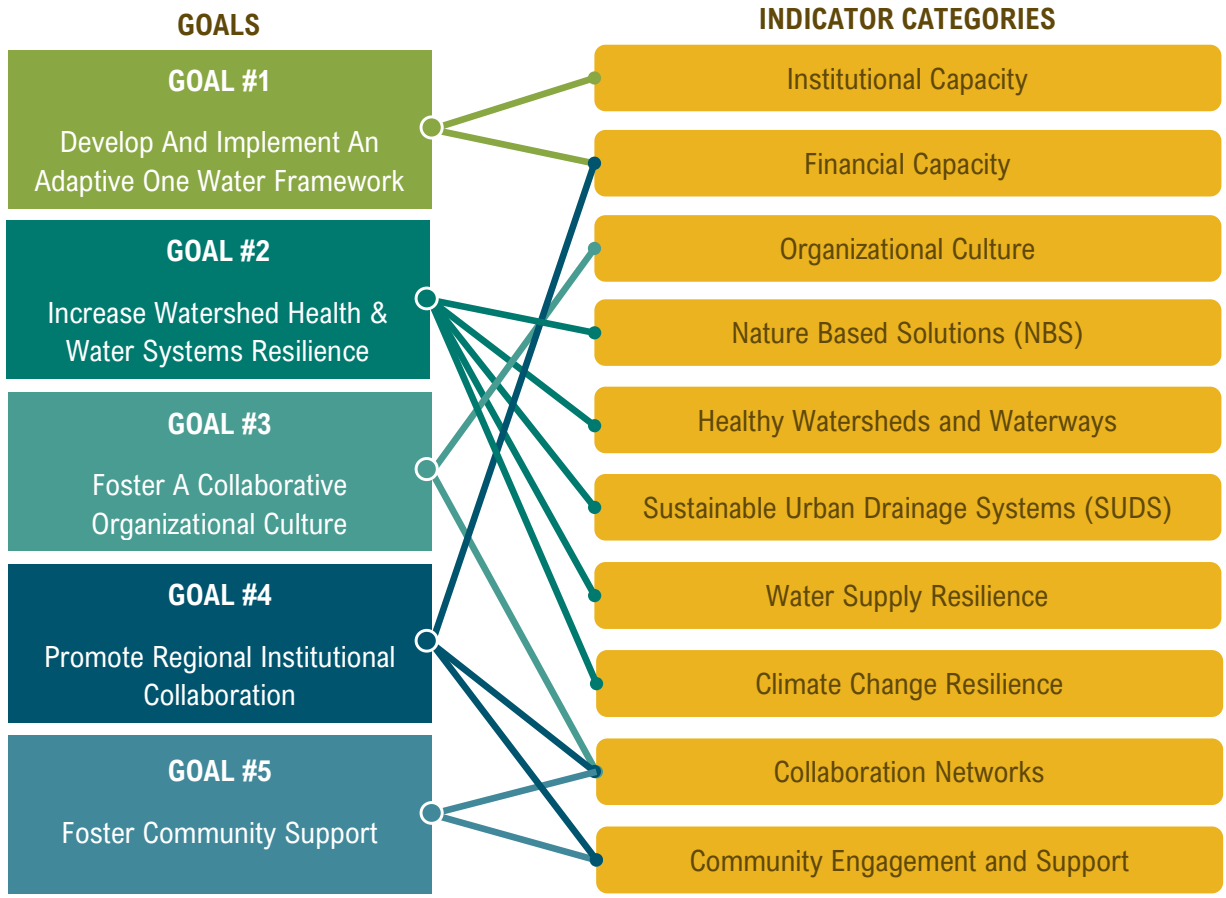


Figure 6.2 Relationship between Proposed Monitoring Indicators and One Water Goals

As stated in Chapter 1, it is recommended that these initial goals and supporting actions developed during Phase 1 will be revisited and refined as needed during the development of the City's One Water Plan in Phase 2. Consequently, the indicators and metrics described in this chapter will be revisited also.

Table 6.1 summarizes the relationship between the Fort Collins One Water goals, supporting actions, and indicator categories.

Table 6.1 Fort Collins One Water Goals, Supporting Actions, and Indicator Categories

Goal	Supporting Action / Strategy	Indicator Category
#1: Develop and implement an adaptive One Water framework	Prioritize and implement multi-benefit projects and programs.	Institutional Capacity
	Develop cost-sharing vehicles to implement multi-benefit projects.	Financial Capacity
	Coordinate and align the pursuit of external funding applications for One Water initiatives.	Institutional Capacity and Financial Capacity
	Periodically update the One Water Action Framework.	Institutional Capacity
	Align and leverage City-wide planning efforts toward multi-benefit outcomes.	Institutional Capacity

Goal	Supporting Action / Strategy	Indicator Category
#2: Increase watershed health and water systems resilience	Identify and implement green infrastructure improvements.	Nature-Based Solutions
	Restore ecosystems.	Healthy Watersheds and Waterways
	Decrease pollutants in local waterways.	Healthy Watersheds and Waterways
	Mitigate local flood impacts.	SUDS
	Increase stormwater capture and use.	Nature-Based Solutions
	Provide adequate water supply for the future needs of the community.	Water Supply Resilience
		Climate Change Resilience
	Manage water demands with increased efficiency and explore water reuse	Water Supply Resilience
	Establish performance indicators and metrics to track progress and measure the health of the Poudre River through the implementation of the River Health Assessment Framework (RHAF).	Healthy Watersheds and Waterways
#3: Foster an organizational culture that promotes resource sharing and collaboration	Promote resources and information sharing between departments.	Collaboration Networks
	Invest in staff development and training to enhance One Water expertise across all departments.	Organizational Culture
	Provide a fair compensation structure to promote cross-departmental career movement and growth.	Organizational Culture
#4: Promote regional institutional collaboration	Proactively engage regional stakeholders in an equitable manner.	Collaboration Networks and Community Engagement
	Identify regional water-related collaboration opportunities.	Collaboration Networks
	Coordinate with regional partners on outside grant funding applications for projects.	Collaboration Networks and Financial Capacity
	Align community engagement efforts and messaging around water between regional entities.	Community Engagement and Support
#5: Foster community support	Explore strategies on how to increase public awareness and education around One Water approaches and benefits.	Community Engagement and Support
	Align community engagement activities between City departments and other regional entities.	Community Engagement and Support
	Engage and educate the community around the benefits of One Water (incl. cost savings and affordability).	Community Engagement and Support
	Provide regular updates on the One Water initiative's progress and achievements to City Council and other public forums.	Community Engagement and Support

Specific One Water indicators are developed for each indicator category to guide monitoring and reporting efforts at the three assessment levels. Table 6.2 summarizes the indicators for each of the three levels of the Fort Collins One Water program. More details are provided for each of the 30 indicators in Section 6.2. It should be noted that the Baseline Indicators (level 1) are intended to be mostly aligned with existing data gathering and reporting efforts that should not require substantial additional effort by City staff, while the level 2 and 3 indicators are progressively more advanced and could therefore require additional telemetry, resources, data analysis, and reporting effort.

For the purpose of this Phase OWAF 1 report, only the Baseline Indicators are recommended for implementation, while the Benchmarking and Performance indicators are suggestions that should be discussed and refined during the OWAF Phase 2 effort as appropriate.

Table 6.2 Proposed One Water Indicators by Assessment Level

Indicator Category	**Level 1 Baseline** (recommended)	**Level 2 Benchmarking** (suggestion only)	**Level 3 Performance** (suggestion only)
Institutional Capacity	Inter-Agency Vision Alignment	Policy, Regulatory, and Planning Alignment	Adaptive Implementation Capacity
Financial Capacity	Financial Viability	Affordability	Cost-Sharing for Multi-Benefit Projects
Organizational Culture	One Water Leadership	Workforce Development	Inspired Workforce
Nature-Based Solutions (NBS)	Green-Blue Spaces	Prioritization of Multi-Purpose NBS	Stormwater and Rainwater Harvesting Using NBS
Healthy Watersheds and Waterways	Receiving Waterbody Quality	Flow Regimes	Aquatic Habitat and Life
Sustainable Urban Drainage Systems	Monitoring Urban Drainage Conditions	Urban Drainage Restoration with NBS	Resilient Flood Plain Management
Water Supply Resilience	Water Use Efficiency	Fit-for-Purpose Use of Alternative Water Sources	Water Supply Portfolio Diversity
Climate Change Resilience	Drought Preparedness	Stormwater Resilience to Extreme Precipitation	Source Water Protection and Restoration
Collaboration Networks	Inter-Departmental Collaboration	Organizational Structure	Regional Collaboration
Community Engagement and Support	Community Access to Water Information	Community Awareness of Water Issue and Programs	Community Buy-In

The indicators in Table 6.2 are a starting point to measure progress toward achieving the One Water goals. The City should collaboratively review and refine the metrics and identify the respective lead and supporting entities that are responsible for tracking and updating the metrics during OWAF Phase 2 and beyond. Progress toward achieving the One Water goals can be measured, updated, and shared with management of the entities who develop the plan and the broader community via a future Fort Collins One Water website.

6.2 One Water Monitoring Plan

A Monitoring Plan supports annual reporting by the City regarding progress toward implementing and achieving the One Water Plan Goals. The information presented herein is intended to provide an initial start for the One Water Monitoring Plan. It is anticipated that the City will prepare annual updates that

summarize the trends and progress toward target values set for each of the metrics – similar to an annual "report card." The summary document could be published on a future One Water Plan web page and actively shared with each of the key stakeholder entities.

It is recommended that the City periodically evaluates each metric to consider:

- Whether the metric continues to be an appropriate method of measuring progress toward the One Water Goals.
- Whether the necessary data continues to be readily accessible for monitoring and reporting of each metric.
- Whether any metrics should be modified, removed, or added to the Monitoring Plan.

The frequency on updating metric reporting will vary depending on the indicator. Annual reporting may be appropriate for some, while quarterly monitoring or every 2 or 5 years may be more appropriate for others. The recommended frequency will be defined with input from City staff upon finalizing the proposed indicators and metrics.

6.3 Indicators and Metrics

As described in Section 6.1, the establishment of indicators and metrics is an important component of the One Water Action Framework. An indicator provides summary information on the (change in) the state of, the system of interest, while a metric characterizes how specific indicators are measured.

The City should develop specific metrics and targets for the individual indicators to be attained by specific planning year milestone(s). While these targets are being established, the City should initiate and continue tracking indicators to inform the establishment of appropriate and attainable targets.

Reporting of indicators, metrics, and the progress toward corresponding targets may include a report card for each metric and an infographics summary page. The City may assign a dedicated metrics coordinator to gather and collect the necessary information to calculate, update, and report out this metric. It is anticipated that for at least the first year of monitoring, the FC Utilities department will spearhead reporting activities.

6.3.1 Indicator Category 1 - Institutional Capacity

This category reflects the capabilities of cities or utilities responsible for water management to achieve One Water approaches through engineering, multi-disciplinary skills, learning, and training.

Level 1 Indicator: Inter-Agency Vision Alignment

This indicator characterizes strategic coordination of goals, policies, regulations, and initiatives across departments, entities, and stakeholders to achieve a shared vision, to promote integrated frameworks and standards that balance community, ecosystem, and development needs.

How to measure: Quantify the number of strategic plans, policies, and initiatives collaboratively aligned with the shared vision across departments and stakeholders.

Level 2 Indicator: Policy, Regulatory, and Planning Alignment

This indicator characterizes the alignment and coordination of institutional roles and policy instruments to increase the capacity for developing One Water strategies and implementation actions.

How to measure: Track the number of water-related planning studies, initiatives and/or policies that are developed through inter-departmental or inter-agency collaboration aimed at removing identified institutional and regulatory barriers that hinder the adoption and implementation of the One Water approach.

Level 3 Indicator: Adaptive Implementation Capacity

This indicator characterizes the ability of a city or utility to innovate, learn, and adjust governance structures and processes to adaptively implement the One Water approach in response to changing conditions, and emerging challenges and opportunities.

How to measure: Assess and quantify the number of inter-agency agreements, policy instruments, and process adjustments made annually to address emerging challenges, leverage opportunities, and support the effective implementation of the One Water approach.

6.3.2 Indicator Category 2 - Financial Capacity

This category describes an organization's monetary resources (e.g., utility rates, other revenue streams, grants, and external funding sources) that can be used to invest in One Water practices.

Level 1 Indicator: Financial Viability

This indicator reflects the financial health of the organization, including its ability to generate revenue and manage costs effectively to support One Water projects.

How to measure: Track financial reserves or annual revenues as a percentage of average annual expenditures (e.g. salaries, real estate, system operations, materials, energy, etc.) used to operate the utility.

Level 2 Indicator: Affordability

This indicator characterizes the organization's ability to utilize the One Water approach to achieve cost savings through optimized use of talent and resources by implementing multi-benefit projects and/or align timing of projects.

How to measure: Estimate cost savings in construction, O&M, and/or labor cost through resource sharing when implementing multi-benefit and collaborative water projects compared to traditional, more siloed, project execution.

Level 3 Indicator: Cost-Sharing for Multi-Benefit Projects

This indicator reflects the interest and commitment of (regional) stakeholders to collaborate on funding multi-purpose projects through cost-sharing agreements, addressing shared regional objectives, and maximizing co-benefits. This indicator is intended to capture collaborations between various city departments, divisions, and/or regional stakeholders.

How to measure: Quantify the annual number and value of formal cost-sharing agreements developed among (regional) stakeholders to fund and implement multi-purpose projects that deliver shared benefits.

6.3.3 Indicator Category 3 - Organizational Culture

This category represents the shared beliefs, values, and norms that guide an organization's commitment to the One Water approach, fostering inclusivity, collaboration, and alignment of long-term goals and strategies through diverse perspectives and equitable practices. Strategies for fair and inclusive compensation may be developed to foster workforce participation in One Water initiatives and projects as well as cross-departmental career movement and growth.

Level 1 Indicator: One Water Leadership

This indicator demonstrates effective leadership by articulating a vision aligned with the broader city aspirations, committing to the delivery of the vision through policies, strategic plans, and investments, and fostering collaboration to achieve One Water goals.

How to measure: Quantify the number of full-time employees equivalents dedicated to One Water activities such as the development of new policies, creation of strategic plans, implementation of collaborative initiatives, fostering interdepartmental collaboration, and securing investments for One Water projects.

Level 2 Indicator: Workforce Development

This indicator underlines the capacity of the organization to improve its workforce capabilities to develop and manage One Water practices. This indicator emphasizes the City's commitment to developing staff versatility across water-related areas including, but not limited to, stormwater, drinking water, wastewater, recycled water, and data management. By promoting cross-training initiatives, it aims to reduce workload imbalances caused by specialized silos, enabling staff to share responsibilities effectively, facilitate knowledge sharing, enhance career growth opportunities, balance workloads, and enhance collaboration within the team.

How to measure: Quantify the number or proportion of employees who have completed training programs focused on One Water principles and technical skills, including cross-training initiatives across water-related areas such as drinking water stormwater, and wastewater systems.

Level 3 Indicator: Inspired Workforce

This indicator reflects the workforce's universal understanding of the One Water vision and goals, actively embodying these principles in their roles. Employees are motivated, collaborative, and adaptive, working across departments and agencies to achieve shared goals. An inspired workforce is supported by formal mechanisms that encourage collaboration, such as cross-departmental initiatives, professional development opportunities, and recognition of teamwork and innovation, fostering a culture of commitment to the evolving needs of the organization.

How to measure: Track and trendline employee participation and engagement by conducting an annual employee engagement survey that focusses on opportunities for employees to actively participate in One Water projects, cross-departmental collaborations, or professional development programs aimed at the implementation of One Water approaches.

6.3.4 Indicator Category 4 - Nature-Based Solutions

This category supports the development of Nature-Based Solutions (NBS), including green stormwater infrastructure, to address water challenges, enhance resilience, and improve community livability.

Level 1 Indicator: Green and Blue Spaces

This indicator characterizes the availability and access to well-maintained green and blue spaces that enhance watershed health, ecosystem diversity, water management, and community resilience.

How to measure: Track the growth in the number or acres or the proportion of urban areas where green spaces and blue waterway corridors are integrated into connected, well-maintained networks to enhance ecosystem health and community benefits.

Level 2 Indicator: Prioritization of Multi-Purpose Nature-Based Solutions

This indicator evaluates the extent to which multi-purpose NBS are prioritized in urban development and water management projects. The indicator measures the proportion of projects incorporating these solutions relative to traditional approaches, reflecting progress toward sustainable and innovative planning practices.

How to measure: Measure the increase in total size of tributary area for which stormwater and urban runoff is captured and treated by multi-purpose NBS relative to traditional (grey infrastructure) approaches.

Level 3 Indicator: Stormwater and Rainwater Harvesting using Nature-Based Solutions

This indicator depicts the implementation and integration of systems to capture, store, and use stormwater and rainwater for fit-for-purpose uses through implementation of green stormwater infrastructure and other NBS. It should be noted that rainwater harvesting in Colorado is only achievable to the extent that the Colorado State Law allows, which is currently very restricted.

How to measure: Track the total volume of stormwater captured (in gallons or AFY) and the number of roof acres equipped with stormwater harvesting systems each year, reflecting the progress in stormwater management capacity and infrastructure expansion.

6.3.5 Indicator Category 5 - Healthy Watersheds and Waterways

This category of indicators focuses on preserving and enhancing the water quality, ecological integrity, and biodiversity of rivers and waterways. The RHAF provides a comprehensive set of indicators and metrics to assess the physical, chemical, and biological integrity of the Cache la Poudre River. The indicators in this category should be characterized and measured according to the RHAF indicators, which include flow regime, sediment regime, wood regime, water quality, riparian floodplain condition, river dynamics, aquatic habitat, and aquatic life.

Level 1 Indicator: Receiving Waterbody Quality

This indicator refers to the ambient water quality conditions in streams, rivers, and lakes that receive runoff, stormwater, or treated discharges from natural and anthropogenic sources. The indicator characterizes the capacity of receiving waterbodies in the Cache la Poudre River watershed to support designated uses such as water supply, agricultural, aquatic life, and recreation.

How to measure: Quantify how often receiving water bodies exceed established water quality standards for key physical, chemical, and biological parameters within a given time frame, such as a calendar year. Specifically, the RHAF specifies numerical grading for temperature, total nitrogen, total phosphorus, pH, and dissolved oxygen as metrics for water quality characterization and reporting. Several river monitoring efforts have been established to collect and analyze water quality conditions along the Cache la Poudre River. The data can be used to assess changes in water quality along the river as well as temporal trends in water quality in response to natural and anthropogenic drivers/stressors.

Level 2 Indicator: Flow Regimes

The magnitude, duration, frequency, and timing of discharge influence river health. This indicator characterizes changes in flow regimes along the Cache la Poudre in response to natural and anthropogenic activities, drivers, and stressors such as land use, water diversions, and reservoirs.

How to measure: The RHAF specifies peak flow, base flow, and rate of change as specific metrics for monitoring and reporting flow regimes. An extensive network of river discharge monitoring stations are available along the Cache la Poudre River, which enable assessment of these flow regimes on an annual basis. Additionally, flow duration curves may be computed for these river gaging station to assess changes in full flow static along the river and over time. Rate of change may be computed for flow quantiles over 30-year assessment time horizons to ensure adequate characterization of the hydrologic cycle in the watershed.

Level 3 Indicator: Aquatic Habitat and Life

Aquatic habitat evaluates the ecological functioning and diversity of waterbodies, surrounding land, and vegetation that support fish and other organisms. Similarly, aquatic life (including fish species, macroinvertebrate, and aquatic plants) indicates ecological functioning of waterbodies. This indicator characterizes the effectiveness of strategies within the Cache la Poudre watershed to reduce habitat fragmentation, enhance ecological connectivity, support biodiversity and aquatic life, and promote ecosystem resilience.

How to measure: The RHMF specifies course-scale and fine-scale aquatic habitats as specific metrics to assess the health and conditions of aquatic habitats in the Cache la Poudre River. Course-scale aquatic habitat support organisms the size of adult fish and amphibians. Fine-scale habitat supports organisms such as macroinvertebrates or fish larvae. The RHMF provides specific steps to quantify and report the diversity and functionality of aquatic habitats and the health of aquatic macroinvertebrates.

6.3.6 Indicator Category 6 - Sustainable Urban Drainage Systems

This category focuses on the design, management, and maintenance of infrastructure and natural waterways in urban areas to effectively manage stormwater, reduce flooding, improve water quality, and support ecological and community benefits.

Level 1 Indicator: Monitoring Urban Drainage Conditions

This indicator represents monitoring the health of rivers and the condition of SUDS using metrics aligned with the RHAF. Specifically, sediment regimes and river dynamics indicators can be used to monitor the conditions of urban streams and drainage networks along the Cache la Poudre River and its tributaries.

How to measure: Sediment regimes influence forms and health of rivers and streams. Specific sediment regimes metrics in the RHAF are watershed supply, localized supply, continuity and transport. River dynamics metrics include planform dynamics and profile dynamics. Planform dynamics describes the patterns if branching and sinuosity of a river. Profile dynamics describe the longitudinal slope of the riverbed.

Level 2 Indicator: Urban Drainage Restoration with Nature-Based Solutions

This indicator focuses on the implementation of NBS along the city's drainage network to reduce bed/bank erosion, improve water quality conditions, and maximize ecosystem services.

How to measure: Quantify the combined area or proportion of urban drainage restoration projects that incorporate NBS, such as wetlands, to reduce flooding risks and enhance stream/river stability, water quality, and ecosystem services.

Level 3 Indicator: Resilient Floodplain Management

This indicator informs the process of identifying and implementing floodplain management policy, regulations, and infrastructure such as multi-functional blue spaces along urban drainage systems. Benefits may include minimizing flooding risks, water quality improvements, and triple bottom line environmental, social, and economic benefits.

How to measure: Quantify floodplain metrics in the RHAF including floodplain physical conditions, riparian vegetation, riparian habitat connectivity, and contributing area of riparian zones.

6.3.7 Indicator Category 7 - Water Supply Resilience

This category assesses the evolving water supply and demand conditions that influence the availability of adequate water supply for the current and future needs of the community. Both water supply and water demand management strategies are included in performance monitoring and assessments.

Level 1 Indicator: Water Use Efficiency

This indicator assesses the current water use intensity within the boundary of the city's water service area. The indicator establishes a baseline for measuring water consumption by use type (e.g., residential, commercial, industrial). Moreover, it characterizes how population change, socioeconomic factors, development patterns, housing policy, and zoning regulations influence water consumption in various sectors.

How to measure: Track water use efficiency by measuring water consumption in gpcd and million gallons per acre (MGPA) of developed areas by use types and land use activities. Conduct assessments for indoor and outdoor water use to guide effective conservation and end-use efficiency programs. Incorporate water loss or non-revenue water from the annual water loss audit. Quantify trends in monthly water

consumption based on gpcd and MGPA metrics. Use this indicator to benchmark the progress toward the water use efficiency targets specified in the city's WEP.

Level 2 Indicator: Fit-for-Purpose Use of Alternative Water Sources

This indicator evaluates the reduction in water demand achieved through fit-for-purpose use of alternative onsite and local water sources.

How to measure: Quantify the proportion of the city's water demands that is met by fit-for-purpose use of recycled water, harvested stormwater and rainwater, and use of graywater.

Level 3 Indicator: Water Supply Portfolio Diversity

This indicator characterizes both the variety (number) and balance (evenness of withdrawals) of the city's water supply resources including native water supply from rivers, reservoirs, groundwater as well as reclaimed local water resources and imported water from trans basin transfers.

How to measure: Quantify the number of water supply sources and annual water withdrawals from each source for different use types (e.g., residential, commercial, industrial, and irrigation). Commonly used indices such as the Shannon Weaver Index may be used to compute the diversity of the city's water sources.

6.3.8 Indicator Category 8 - Climate Change Resilience

This indicator category helps departments represented in the One Water Plan, prioritize and implement climate change adaptation measures to make Fort Collins more resilient to drought, extreme precipitation, and wildfire hazards. Climate change adaptation and the associated infrastructure investments require inter-departmental collaboration and committed leadership.

Indicator Level 1: Drought Preparedness

This indicator fosters successful implementation of the City's Water Shortage Action Plan (WSAP).

How to measure: Track the frequency, duration, and magnitude of historical water use restrictions imposed during droughts.

This data could be used to explore trends in the frequency and intensity of water shortages over time. Use the historical water use trends as baselines to assess how climate change could influence the design drought described in the WSAP. Quantify how water supply enhancements (including planned new water supply systems and diversification of sources through water reuse) and demand management (including end-use efficiency strategies) would increase resilience to drought hazards by reducing the frequency and/or intensity of water shortages.

Indicator Level 2: Stormwater Resilience to Extreme Precipitation

Stormwater control in the city may be influenced by changes in the intensity, duration, and frequency of precipitation events from climate change. This indicator characterizes the robustness of stormwater control systems (including green stormwater infrastructure) across the city's 12 basins in the face of projected intensifying extreme precipitation events.

How to measure: Assess the baseline performance of stormwater control measures (SCM) across the city's 12 stormwater basins for managing the design storms described in the Fort Collins Stormwater Criteria Manual.

This data could be used to explore changes in the selection of design storms over a range of future climate scenarios compared to the historical baselines. Assess the resilience of city's SCMs to future design storms compared to the historical baselines. Use this indicator to benchmark the effects of multi-functional green stormwater infrastructure on stormwater control over the coming decades.

Indicator Level 3: Source Water Protection and Restoration

This indicator characterizes the vulnerability of the city's raw water supply watershed to climate-change induced wildfires.

How to measure: Quantify the size or proportion of the City's raw water supply watershed that is impacted by fire fires, along with the severity of the impact to raw water quality for parameters such as dissolved organic matter, nutrients, and heavy metals.

This data could be used to analyze temporal trends in wildfire events within the Cache la Poudre watershed. Determine the effects of wildfires on water withdrawals for water supply purposes. Project wildfire events and subsequent effects on the Cache la Poudre River discharge and water quality. Assess the effects of source water protection and restoration projects on mitigation of wildfire hazards for the city's water supply withdrawals from the Cache la Poudre River over a range of future climate scenarios.

6.3.9 Indicator Category 9 - Collaboration Networks

This category focuses on promoting collaboration networks within and across organizations as a critical step toward removing institutional silos and achieving the One Water paradigm shift. It emphasizes collaboration and coordination among relevant departments, divisions, external agencies, NGOs, stakeholders, and the general public to effectively plan and implement the One Water approach.

Level 1 Indicator: Inter-Departmental Collaboration

This indicator characterizes the process of jointly reviewing, identifying, developing, or implementing mutually beneficial land use and water policies to align objectives and integrated solutions across multiple organizations or jurisdictions.

How to measure: Track the number of formal meetings, inter-departmental agreements, and collaborative projects initiated and implemented annually to advance mutually beneficial land use and water policy objectives, within a given time frame, such as a calendar year.

Level 2 Indicator: Organizational Structure

This indicator focuses on reforming the governance structure of Fort Collins Utilities to promote inter-departmental collaborations and enable effective, efficient utility management and alignment of implementation actions.

How to measure: Count the number or occurrence of institutional barriers, such as outdated governance structures or conflicting regulations, that are changed or modified to streamline collaboration among departments and agencies and implement One Water strategies and actions.

Level 3 Indicator: Regional Collaboration

This indicator evaluates coordinated effort among utilities, municipalities, and other stakeholders within a region to address shared water management challenges, optimize resources, and achieve mutual benefits through joint planning, service integration, and governance alignment.

How to measure: Track the number of regional projects, plans, or agreements jointly developed and executed annually by utilities, municipalities, and other stakeholders to address shared water management challenges, optimize resources, and achieve mutual benefits.

6.3.10 Indicator Category 10 - Community Engagement and Support

This category focuses on building public awareness, knowledge, and broad support for One Water programs and approaches. It emphasizes raising awareness about water-related challenges, improving water literacy to enhance understanding of water systems and issues, and fostering public support through advocacy, participation, and buy-in for sustainable water solutions and policies.

Level 1 Indicator: Public Access to Water Information

This indicator evaluates the availability and accessibility of information on water sources, use, and management. This includes public reporting of source water assessment results, water conservation guidelines and requirements, water quality and flood control efforts, and other relevant data to inform and educate the community.

How to measure: Measure the proportion of the community that accesses publicly available information on water resources, such as a number of downloads or "hits" of educational One Water brochure placed on the City's website per year.

Level 2 Indicator: Community Awareness of Water Issues and Programs

This indicator assesses the effectiveness of educational activities in raising awareness about water issues among the community, including K-12 students. Outreach activities may also include partnerships with academic institutions and nonprofit organizations to deliver programs that improve understanding of the water cycle, conservation practices, and sustainable water management.

How to measure: Track the number of educational activities, workshops, and programs conducted each year to raise awareness about water issues, particularly among K-12 students. Determine the number of community stakeholders that actively participate in educational and outreach programs by requiring sign-ups and/or the number of community members that attend public events (e.g., community meetings, workshops, training sessions) focused on water-related initiatives.

Level 3 Indicator: Community Buy-In

This indicator assesses the level of public support and commitment to water management initiatives, including the adoption of One Water principles, through demonstrated participation, advocacy, and endorsement of policies and programs that promote sustainable water practices.

How to measure: Quantify the percentage of community members or stakeholders who express acceptance or concern/disapproval of One Water strategies through surveys, public consultations, or participation in related initiatives.

6.4 Implementation of the Monitoring Plan

The monitoring plan assists with evaluation of the One Water program at the three levels: Level 1 – Onboarding, Level 2 – Progressing, and Level 3 – Advancing. It should be noted that the Baseline Indicators (level 1) are intended to be mostly aligned with existing data gathering and reporting efforts that should not require substantial additional effort from City staff, while level 2 and 3 indicators are progressively more advanced and could therefore require additional telemetry, resources, data analysis, and reporting effort.

For example the proposed One Water monitoring program for the Baseline Indicators (level 1) should leverage several ongoing efforts and the products of existing reports that identify and quantify related indicators and metrics including, but not limited to, the RHAF, City of Fort Collins Source Water Protection Plan, Water Supply and Demand Management Policy Report, Water Conservation Annual Report, Upper Cache la Poudre River Watershed Water Quality Trends Report, Municipal Sustainability and Adaptation Plan, and Our Climate Future Report.

For the purpose of this Phase OWAF 1 report, only the Baseline Indicators are recommended for implementation as described herein and graphically depicted in Figure 6.3, while the Benchmarking and Performance indicators are suggestions that should be discussed and refined during the OWAF Phase 2 effort as appropriate.

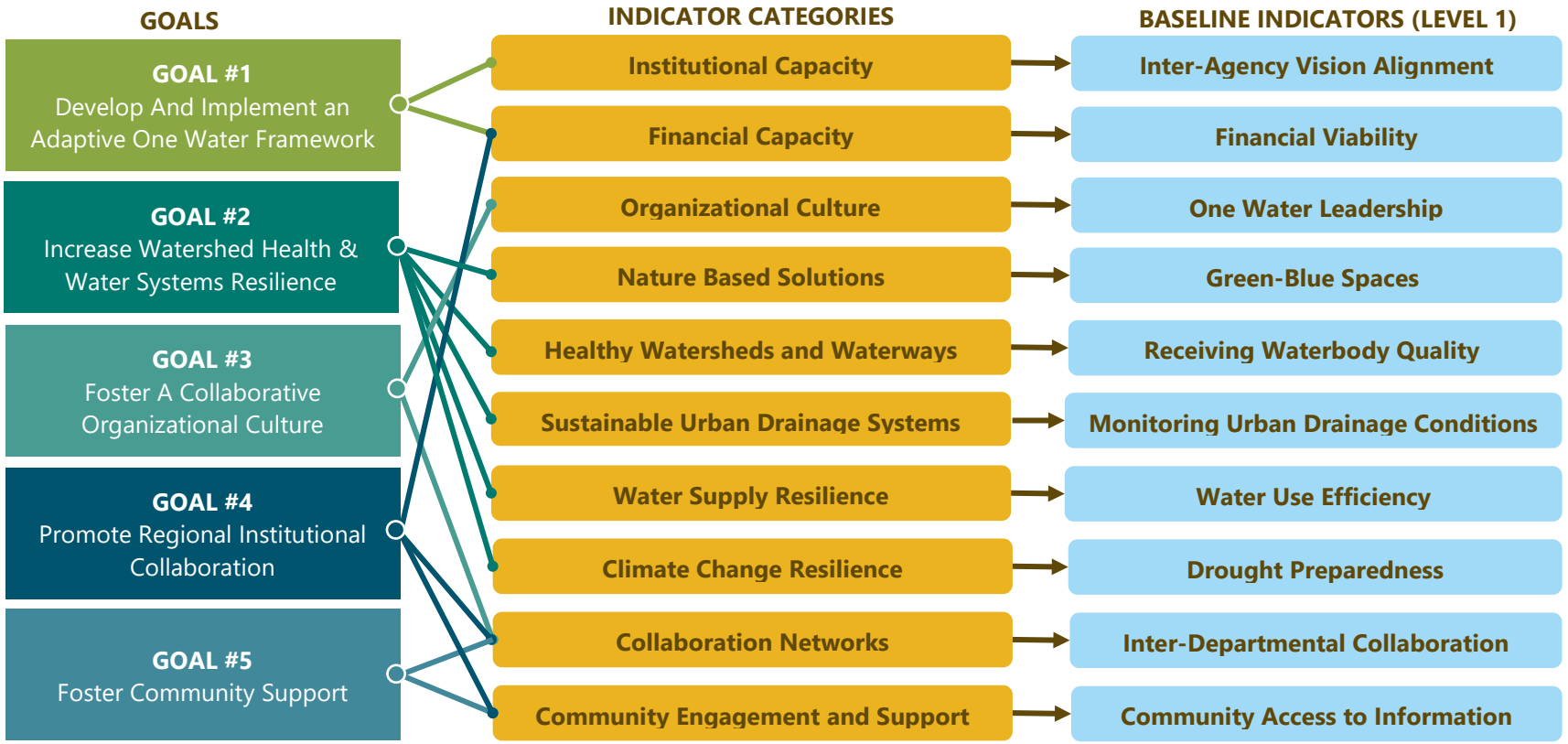


Figure 6.3 Proposed Monitoring Indicators for Level 1 – Onboarding

CHAPTER 7 RECOMMENDATIONS AND NEXT STEPS

The City has established a solid foundation for implementing One Water with the initiative to establish this OWAF. Through previous actions to define leadership roles, the City has established an organizational foundation to integrate the One Water approach in how the City manages its entire water cycle in a holistic manner. It has also made great strides in setting a common understanding of One Water across multiple City departments, including key stakeholders within each department.

The City has made clear progress in establishing the baseline "Level 1" (Onboarding) defined in the WRF One Water Communities Self-Assessment Framework and Rating System (Figure 7.1), and it is well-positioned to advance One Water in Fort Collins across all five pillars defined in the WRF system. The blue stars indicate the average rating from the input during the 1:1 interviews conducted in July 2024 as referenced in Chapter 3.

Figure 7.1 WRF Self-Assessment Framework Pillars and Levels

In Phase 2 of this OWAF, the City should take specific steps to advance to Level 2 of the WRF Framework in each of the five pillars. Fundamentally, this will be defined and structured through the development of a One Water Plan. An approach for each of the five pillars is defined in the sections that follow.

7.1 One Water Planning

The City should continue its path toward implementing One Water in Fort Collins by building on Phase 1 OWAF activities documented throughout this initial report. The Fort Collins One Water Plan developed in Phase 2 will provide further structure for One Water and will serve as a guidance and reference document for years to come. Elements of the City's One Water Plan should include:

- Refinement of the One Water vision, goals, and supporting actions toward achieving the goals based on input from representatives of the various City departments and divisions listed in Section 3.2.
- Development of recommendations for integrating One Water principles and practices into the City's current Organizational Culture, and the associated steps toward progressing toward organizational alignment (see Section 7.3).
- Development of a stakeholder engagement program in support of developing the One Water Plan and subsequently supporting implementation of the Plan (see Section 7.4).
- Identification of actions to develop additional "quick wins" and to advance collaboration opportunities, leveraging the stakeholder engagement program and supporting actions (see Section 7.5).
- Metrics for measuring success, progressing from the baseline indicators defined in Chapter 6 to define a suite of benchmarking indicators (see Section 7.6).

In developing its One Water Plan, the City should define a suite of actions it can take toward achieving the City's Vision and Goals for the OWAF from this Phase 1 effort. The City has initiated development of a matrix of key pressures and challenges linked to each of the five goals for One Water implementation in Fort Collins (see Appendix B for working draft matrix), which can be used as a foundation for developing the actions. The matrix details the following:

- Pressures being experienced in Fort Collins, such as limited water supply, growing demand, water quality degradation, affordability of services and other concerns and considerations regarding the urban water cycle in the community.
- Challenges associated with each of the pressures.

By linking supporting actions to each of the OWAF Goals in Phase 2, the City will have specific strategies it can use to achieve each goal. Chapter 1 (Section 1.5) of this report provides an initial starting point for defining such actions for each of the five goals.

Successfully defining and shepherding these actions can be facilitated by defining the following for each action as part of Phase 2 of the OWAF:

- Primary authority: What City department has the necessary authority to own this action and steward its progress?
- Partner entities: What other City departments or stakeholder entities will be critical partners in initiating and advancing this action toward the City's goals?
- Relative importance: How important is this action, relative to others, to help prioritize which actions to pursue in the near-term or later in advancing One Water implementation in Fort Collins to achieve the City's Vision and five goals?

7.2 Funding Needs

As evidenced by the large number of identified capital improvement projects across water supply, drinking water, water reclamation and stormwater sectors, rate increases are likely necessary to support FC Utilities planning and project implementation in Fort Collins. Future rate increases will be balanced with what the ratepayers can support.

7.3 Organizational Culture

As noted in Chapter 3, the City has made progress in establishing a One Water organization, and significant opportunities remain to strengthen its One Water culture. By fostering a culture of collaboration, innovation, and continuous improvement, the City can move forward toward establishing greater organizational alignment between City departments, its elected officials, and partner entities and organizations. In part, this will be facilitated through definition and execution of its stakeholder engagement program (see also Chapter 4 and Section 7.4 of this report).

Opportunities to advance and solidify organizational alignment (Level 2) around One Water were detailed in Chapter 3 with respect to:

- Interdepartmental coordination.
- Centralized data management.
- Refinements/changes to City's organizational chart.

By taking steps to foster its One Water organizational culture in Phase 2 of this OWAF, the City will also be advancing toward the third level for this pillar from the WRF Framework, "Inspired Organization." An inspired organization is characterized by:

- Strong and efficient interdepartmental collaboration.
- Optimization of resource allocation (both funding and staff).
- Empowerment of staff.
- Ability to adapt to change.

As part of the OWAF Phase 2, it is anticipated that the City's core leadership team will charter this effort internally, possibly guided by outside council from specialized professionals.

7.4 Stakeholder Engagement

The layered structure of stakeholder engagement levels defined in Chapter 4 of this report should be used to advance the City's One Water vision and goals. In many ways, applying this structure will not only help define and develop the One Water Plan, but it will set the foundation for successful implementation. By engaging key partners – City departments, other agencies and utilities, local businesses, developers, and NGOs, for example – in developing the Plan, the City can help establish "buy-in" to the Plan recommendations with partners ready to assist in adopting One Water principles and helping the City implement the Plan.

Chapter 4 provides preliminary definition of the recommended engagement groups, roles and responsibilities of each group, and stakeholders that should be assigned to each group. The Stakeholder Engagement Roadmap defined in Section 4.2 provides a recommended cadence for engaging each group.

Further definition in the One Water Plan regarding the members representing each group, their level of participation or impact, and the methods for engaging them in Plan development should be developed as part of Phase 2 activities. The One Water Plan should also detail stakeholder roles and engagement tactics for continuing through subsequent implementation of the Plan.

7.5 Informed Actions

In many ways, the One Water Project Opportunities are where tangible progress toward establishing Fort Collins as a leading One Water community will be made. While the actions defined in the One Water Plan will establish policy-level strategies for achieving the City's One Water vision and goals, informed actions provide the ability to put One Water into action. Whether through initiatives, programs, studies, or capital projects, One Water Project Opportunities become visible evidence of the City's commitment to One Water. Moreover, these projects provide opportunities to realize a variety of benefits of integrated management of the urban water cycle, such as water quality enhancements, minimum stream flow levels, flood risk mitigation, recreational, and sustainability benefits. One Water Project Opportunities can be public or privately led and owned, although city government typically has a better ability to incorporate One Water strategies into public-sector projects.

By their nature, One Water Project Opportunities are continuously evolving. In Phase 2 of the OWAF, the City should establish a systematic process for identifying and tracking One Water Project Opportunities in Fort Collins through a central database. This should include engaging the appropriate One Water stakeholders in defining, developing, advising, and/or implementing each of the identified One Water Project Opportunities.

In turn, the One Water Project Opportunities can be vehicles to help achieve the City's One Water vision and goals. Ideally, One Water Project Opportunities will be identified while they are at the formative stage: those that are expected to move forward in the foreseeable future but have not yet advanced to design or other stage where meaningful changes can no longer be incorporated. When executed effectively, the City and its partners can engage in One Water Project Opportunities to take advantage of the interconnected nature of the urban water cycle, align common interests and goals, and achieve multiple benefits that would otherwise not be identified or realized.

During Level 1 of the WRF Self-Assessment Framework, the focus is on quick wins, meaning projects with a near-term horizon that could likely be implemented within the next 5 years to establish support and momentum for future One Water projects, programs, or policies. During Phase 2, the focus shifts to long-term project opportunities that could be implemented in a 10-year or longer planning horizon. The ultimate goal is to integrate One Water concepts in all water management efforts where possible, which would be indicative of a long-term commitment to the One Water approach (level 3). During the OWAF Phase 2, both near- and long-term One Water project opportunities would be identified and prioritized for further development.

As the One Water Project Opportunities inherently involve multiple benefits and thereby often require collaboration of multiple city departments, divisions, or other partners, these projects are often excellent candidates to obtain grant funding. As part of the OWAP Phase 2, a special effort could be undertaken to identify grant funding opportunities and subsequently apply for grants to help implement these One Water Project Opportunities.

7.6 One Water Monitoring

Through Phase 1 activities in this OWAF, the City has established a suite of potential baseline indicators (Chapter 6). Development of the One Water Plan in Phase 2 should include refinement of these initial indicators to select meaningful, value-added baseline and benchmarking indicators. Where available, historical data should be gathered for at least the baseline indicators, which can then be summarized and analyzed. For proposed baseline and benchmarking indicators that don't have readily available information, recommendations shall be made on the methods, locations, frequencies, and responsible parties for data gathering.

The baseline indicators should be advanced to at least benchmarking indicators, and possible performance indicators, that represent the City's priorities in water management in the community. As noted in Chapter 6, the City has already established a long list of metrics that it uses to measure various aspects of the urban water cycle. These can be used as a foundation for One Water benchmarks, whether adopting them for this purpose as-is (and thereby minimizing the level of effort to measure and track progress) or by adapting them for use in this context.

APPENDIX A

DATA GAPS AND NEEDS MEMO

PROJECT MEMORANDUM

CITY OF FORT COLLINS

One Water Action Framework

Project No.: 203085
Date: November 22, 2024
Prepared By: Meg Parker and Lewis Salveson
Reviewed By: Inge Wiersema
Subject: Data Gaps and Needs Summary

1.0 INTRODUCTION

This Gaps and Needs technical memorandum (TM) summarizes the results of the documents review, information shared during project meetings, and interviews with representatives of various departments within the City of Fort Collins (City). The common observations from the interviews are structured around the five pillars of the One Water self-assessment framework published by the Water Research Foundation (WRF) in early 2024.

The City is the first organization to follow the WRF One water Cities Self-Assessment Framework for its own One Water initiative. The framework acknowledges that One Water initiatives encompass multiple action categories. As shown in Figure 1, the 5 Action Categories, which are also referred to as "Pillars," are

1. One Water Planning,
2. Organizational Culture,
3. Stakeholder Engagement,
4. Informed Actions, and
5. One Water Monitoring.

For each of these Action Categories, there is a progression from Onboarding (Level 1), to Progressing (Level 2) and ultimately Implementation (Level 3).

Figure 1 One Water Self-Assessment Framework

The progression of the levels for each of the five action categories is summarized below. A detailed description, including elements that describe key elements that are typically completed before progressing to the next level, is included in "One Water Cities: Development of Guidance Documents and Assessment, developed by the WRF as part of project number 4969 in January 2024.

1.1 One Water Planning

The One Water planning process considers the entire urban water cycle holistically as an integrated system, where interconnected water resources are managed in a coordinated, collaborative, and comprehensive manner. The development of a coherent plan for the implementation of the One Water approach in a city is a continuous process that builds upon existing plans, data, and ongoing water management efforts. The levels include:

Level 1: Information Gathering

Level 2: Plan Development

Level 3: Adaptive Implementation

1.2 Organizational Culture

The City's commitment to a One Water approach and collaborative mindset should be reflected throughout the organization's culture, from leadership to operations. Organizations with a One Water culture are inclusive with a focus on internal coordination and partnerships around a shared purpose and foster incorporation of multiple perspectives in decisions and actions. The levels include:

Level 1: Leadership Commitment

Level 2: Organizational Alignment

Level 3: Inspired Organization

1.3 Stakeholder Engagement

Since water often transitions between multiple institutional boundaries, One Water can only be successful when all stakeholders are proactively and intentionally engaged in planning, prioritization, and implementation. Stakeholder engagement can involve a wide variety of parties and perspectives, such as city departments/utilities, regional entities, regulators, elected officials, academia, non-governmental associations, and the community. The levels include:

Level 1: Institutional Collaboration

Level 2: Community Engagement

Level 3: Continuous Feedback

1.4 Informed Actions

Informed actions are based on analyses conducted as part of the One Water planning efforts, lessons learned from implementation, and feedback from stakeholders and the community. The key to informed actions is that the City remains flexible in implementation by considering evolving conditions.

Informed actions can include a combination of projects, programs, and/or policies with a focus on multi-benefit collaboration opportunities. The levels include:

Level 1: Quick Wins

Level 2: Collaboration Opportunities

Level 3: Commitment and Investment

1.5 One Water Monitoring

One Water monitoring of specific indicators is used to measure progress to achieve the City's One Water vision and objectives. Monitoring progress helps align a city's resources with implementation actions and characterize how a city changes and adapts to future challenges. Metrics provide objective evidence of progress toward achieving desired targets and outcomes. The levels include:

Level 1: Baseline Indicators

Level 2: Benchmarking Indicators

Level 3: Performance Indicators

2.0 DATA AND DOCUMENTS REVIEW

The City has prepared many plans and studies in recent years that cover water management. A full list of references in included in Appendix A of this memorandum. A total of 24 documents were reviewed to develop a comprehensive understanding of the previous and ongoing water-related studies, plans, policies, and goals. These documents in order of completion year are:

- 2012 Joint Front Range Climate Change Vulnerability Study
- 2014 Water Supply and Demand Management Policy Revision Report

- 2015 Water Use Efficiency Plan
- 2015 Water Treatment Facilities Master Plan
- 2016 Source Water Protection Plan
- 2016 State of the Poudre – A River Health Report Card
- 2018 Water Distribution and Wastewater Collection Master Plan
- 2018 Utilities Wastewater Treatment Master Plan Update
- 2018 Water Quality and Pollution Control Labs Master Plan
- 2019 Municipal Sustainability and Adaptation Plan
- 2020 Water Shortage Action Plan
- 2020 Water Treatment Residual Amendment in Stormwater Systems for Phosphorus Reduction and Waste Removal
- 2021 SCADA Master Plan
- 2021 Parks and Recreation Master Plan
- 2022 Upper Cache la Poudre River Water Quality Trends Report
- 2022 Our Climate Future Plan
- 2022 Water Resource Matters in the Fort Collins Growth Management Area
- 2023 USACE Halligan Water Supply Project EIS
- 2023 Drinking Water Quality Report – v6
- 2023 Water Equity Network Opportunities Brief
- 2023 Water Quality Services Master Plan Vision Update and Site Feasibility Assessment (HDR)
- 2023 Halligan Water Supply Project: Fish and Wildlife Mitigation & Enhancement Plan
- 2023 Water Conservation Annual Report
- 2024 Poudre River Health Assessment Framework
- 2024 Updated Land-use Code
- 2024 Fort Collins Area Ditch Companies and City Ownership Issues

The information presented in these 24 documents was cataloged into an analysis matrix to provide an easy visual on what type of information can be found in which plans. The matrix also provides insight into which water management topics are covered in multiple documents and what type of information is only documents in one or a few plans. As shown in Figure 2, the water management elements considered in this inventory are:

	Components of Document				Water Management Elements Covered																
Document	Study or Plan	Formal Policies (enforceable)	Goals, Vision, Strategies, Guidance (unenforceable)	Criteria / Specs	Floodplain Management / Waterways	Land Use	Water Quality	Water Supply	Climate Change Impacts (Water Supply / Demand)	Water Treatment	Wastewater Collection / Treatment	Stormwater Management	Ecosystem Restoration	Watershed Stewardship	Recreation	Indoor Water Efficiency	Outdoor Water Efficiency	Water Reuse	Graywater	Emergency Response and Preparedness	Drought Response	Affordability
Joint Front Range Climate Change Vulnerability Study - 2012	●		●					●	●													
2014 Water Supply and Demand Management Policy Revision Report (AMEC)	●	●					●	●	●				●	●	●	●	●				●	
2016 Source Water Protection Plan	●						●			●				●								
2016 State of the Poudre - A River Health Report Card	●				●	●	●						●	●								
2019 Municipal Sustainability and Adaptation Plan	●		●									●	●	●	●	●	●					
2020 Water Shortage Action Plan	●	●	●					●												●	●	
2022 Upper Cache la Poudre River Water Quality Trends Report	●						●		●	●												
2023 USACE Halligan Water Supply Project EIS	●							●														
2023 Drinking Water Quality Report - v6	●						●			●												
2015 Water Use Efficiency Plan	●															●	●					
2024 Poudre River Health Assessment Framework	●				●	●	●						●	●								
2022 Our Climate Future Plan	●															●	●					
Water Equity Network Opportunities Brief 2023			●		●		●	●		●						●	●	●				●
2015 Water Treatment Facilities Master Plan (CH2M)	●						●	●	●	●			●									
2018 Water Distribution and Wastewater Collection Master Plan (Ditesco)	●									●	●											
2018 Utilities Wastewater Treatment Master Plan Update (Carollo)	●										●											
2018 Water Quality and Pollution Control Labs Master Plan (CH2M)	●						●			●	●											
2021 SCADA Master Plan (Carollo)	●								●	●	●											
2023 Water Quality Services Master Plan Vision Update and Site Feasibility Assessment	●							●		●	●											
(Presentation) Fort Collins 2023 Halligan Water Supply Project: Fish and Wildlife	●				●	●		●					●		●							
2023 Halligan Water Supply Project: Fish and Wildlife Mitigation & Enhancement Plan	●				●	●	●	●					●		●							
2023 Water Conservation Annual Report			●			●			●							●	●					
Updated Land-use Code		●				●											●					
Parks and Recreation Master Plan	●					●						●			●							
Water Treatment Residual Amendment in Stormwater Systems for Phosphorus	●						●			●		●										
Water Resource Matters in the Fort Collins Growth Management Area: Study Report	●						●														●	
Fort Collins Area Ditch Companies and City Ownership Issues		●					●					●		●								
Count:	*24*	*4*	*5*	*0*	*5*	*7*	*13*	*9*	*6*	*10*	*5*	*5*	*7*	*6*	*5*	*6*	*7*	*1*	*0*	*1*	*3*	*1*

Figure 2 Document Analysis Matrix

Notes:
Documents not listed in chronological order as in 1.2.1

- Floodplain Management / Waterways
- Land Use
- Water Quality
- Water Supply
- Climate Change Impacts (Water Supply / Demand)
- Water Treatment
- Wastewater Collection / Treatment
- Stormwater Management
- Ecosystem Restoration
- Watershed Stewardship
- Recreation
- Indoor Water Efficiency
- Outdoor Water Efficiency
- Water Reuse
- Graywater
- Emergency Response and Preparedness
- Drought Response
- Affordability

The 26 reviewed documents generated 94 total water management element entries. The categorized elements were then examined to identify occurrence trends, providing a quantitative overview of the prevalence of each topic in the City's water management documents. The number of observed occurrences for each element is shown in Figure 3.

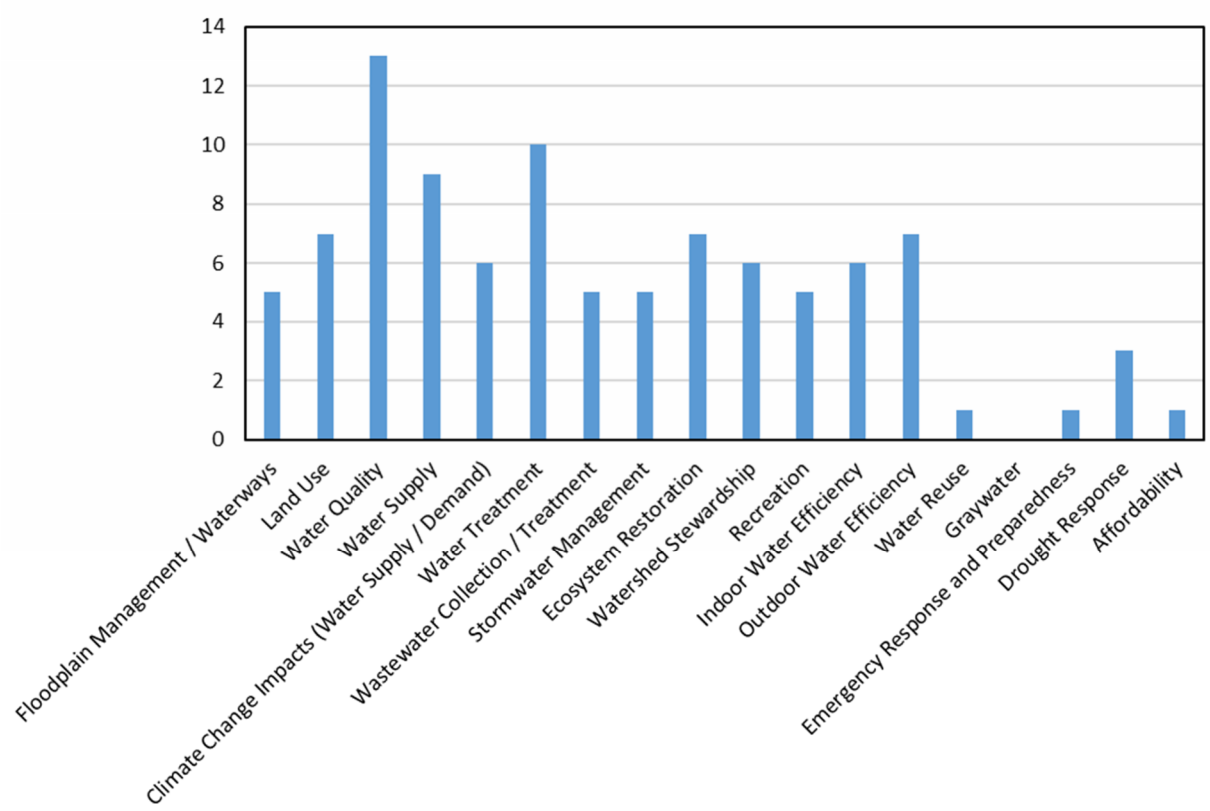


Figure 3 Document Analysis Results

As shown in Figure 3, the only topic that was defined before the inventory that was not found in any of the 26 documents reviews is graywater systems. It should be noted that the City may have other documents or policies regarding graywater that were not captured in this initial data review. Similarly, only one of the documents reviewed included information regarding affordability, emergency response and preparedness, and water reuse. It can also be observed that topics that are covered in 5 or more documents include water quality, water supply, water treatment, and water stewardship.

3.0 INTERVIEWS

To supplement the document review, interviews were conducted with senior City staff in a variety of departments to get a comprehensive understanding of the challenges and opportunities related to water management. This TM presents the key takeaways of a comprehensive interview process conducted with 14 City of Fort Collins staff. Interview participants are listed in Table 1.

.

Table 1 List of Interview Participants

Name	Title/Role	Interview Date
Kirk Longstein	Environmental Planning	July 9, 2024
Donnie Dustin	Water Rights and Supply Planning	July 11, 2024
Jeremy Woolf	Wastewater & Drinking Water Treatment operations, Technology Systems	July 15, 2024
Katy McLaren / Honoré Depew	Municipal Sustainability / Climate Resiliency/ Our Climate Future Plan	July 15, 2024
Ted Bender	Stormwater Master Planning	July 16, 2024
Mariel Miller / Alice Conovitz	Water Conservation / Water Efficiency Planning / Xeriscape Program	July 16, 2024
Julia Feder	Natural Areas Planning / Poudre River	July 18, 2024
Matt Fater	Capital Project Delivery & Utilities Systems Engineering	July 25, 2024
Mike Calhoon / Jill Wuertz	Parks Department	July 29, 2024
Andrew Gingerich	Water Distribution & Wastewater Collection System	July 30, 2024
Jill Oropeza	Sr. Director, Integrated Science & Planning	August 7, 2024

The 17 questions listed below were posed to each participant to gather insights into the current state of One Water planning, implementation, and challenges. Each interview consisted of three parts. During the first part, participants were asked a few introductory questions related to their role in the City's organization, to provide background and context for their answers. The next set of questions follow the five pillars of the WRF One Water self-assessment framework: Planning, Organizational Culture, Stakeholder Engagement, Informed Actions, and One Water Monitoring. The interviews were concluded with a few questions around the benefits and vision for One Water for the City of Fort Collins.

1. Please state your name and role in the organization
2. How long have you worked for the City of Fort Collins? How much of that time has that been in your current role?
3. Which elements of the water cycle do you and/or your team manage in your position?
4. How would you define One Water based on your current knowledge?
5. Looking at the three levels, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?
6. One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?
7. What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?
8. Looking at the three levels, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?
9. What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?

10. Looking at the three levels, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?
11. Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?
12. Looking at the three levels, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?
13. Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?
14. Looking at the three levels, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?
15. In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?
16. From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?
17. What does One Water success look like to you?

A summary of interview feedback is provided in Appendix B. To assess overall One Water progress, a spider plot was developed for each of the five pillars (Figure 4).

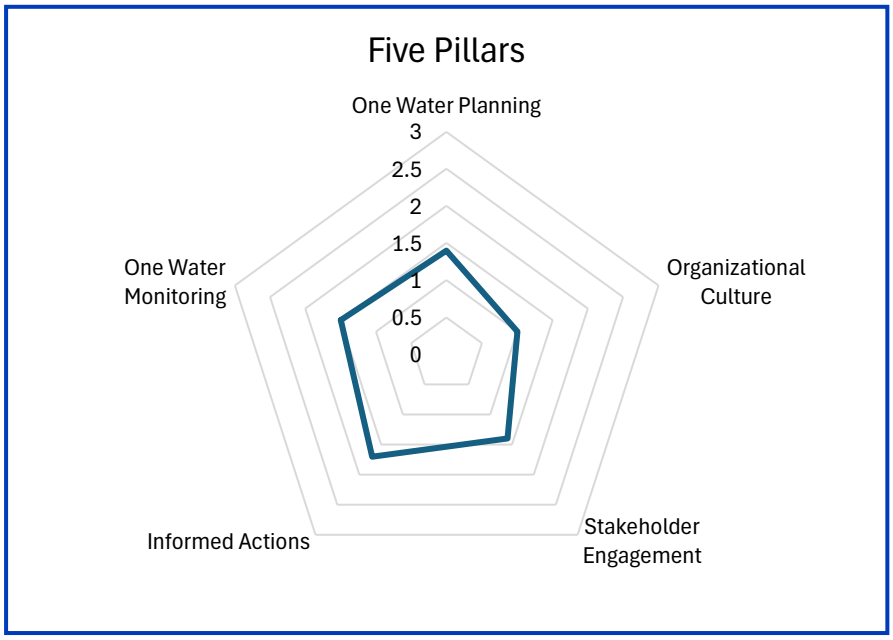


Figure 4 Spider Plot of One Water Progress for the Five Pillars

The following sections provide an analysis of each pillar, drawing on the interview responses and spider plot feedback.

3.1 Pillar 1: One Water Planning

The definition of this pillar was introduced, including the three progression levels as summarized in Section 1.1.

Question 5: Looking at the three levels, where do you think the City of Fort Collins is on the **progression of One Water Planning**? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?

- The City's One Water Planning progression falls between Levels 1 and 2. The level of integration varies across departments. While numerous plans exist, a cohesive One Water strategy is still undeveloped. The One Water process the City is currently undergoing is compiling information on existing departmental initiatives to inform a unified approach.

Question 6: One Water Plans inherently build upon existing data and documents. Where do you think the City's **main data gaps** are to develop a comprehensive One Water Plan?

- The interviewees identified several data gaps that need to be addressed to develop a comprehensive One Water Plan. The most frequently mentioned gap is the lack of integration and connection between existing data and plans across different City departments. The interviewees also highlighted the need for better data management systems and tools, including the possibility of implementing a new industry-standard system and improving asset management and GIS connections. Other data gaps mentioned include the need for more comprehensive data on water use and water loss, as well as the need for better demographic data and land cover mapping. A key challenge lies in the disconnect between land use planning, environmental planning, and water management. While these domains acknowledge each other's existence, there is currently no way to ensure they are consistently evaluated together. The interviewees also emphasized the importance of setting specific goals and defining metrics for success in order to effectively monitor progress and measure the impact of the One Water Plan.

Question 7: What **type of information** would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?

- The interviewees expressed a desire for the One Water Plan to serve as a comprehensive, guiding framework that facilitates collaboration, communication, and informed decision-making. The plan should clearly define the roles and responsibilities of different departments and stakeholders, promote transparency and community engagement, and provide guidance on identifying and implementing multi-benefit projects. Including, coordinating investments in water infrastructure and projects across departments to maximize impact and efficiency.
- The interviewees also emphasized the importance of data-driven decision-making, including the need for data tracking, reporting, and analysis. The plan should also address community education and outreach, ensuring that residents understand the value of water and the importance of sustainable water management practices. Additionally, the interviewees highlighted the need for the plan to address workforce development, regulatory constraints, regulatory options, and long-term water resource planning. The plan should also include specific strategies and actions to achieve the City's One Water goals and objectives, ensuring that the plan is not just a theoretical document but a practical roadmap for implementation.

3.2 Pillar 2: Organizational Culture

The definition of this pillar was introduced, including the three progression levels as summarized in 1.2.

Question 8: Looking at the three levels, where do you think the City of Fort Collins is on the **progression of a One Water Culture**? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?

- There was a strong consensus that the Organizational Culture is at a Level 1. There may be some leadership that is aligned, but with the current vacancy in the One Water Director position and without and a plan to implement one water, it has been hard to get leadership commitment.

Question 9: What are, in your opinion, some of the **key characteristics** of an organization that embraces a One Water culture?

- The interviewees identified several key characteristics of an organization that embraces a One Water culture. The most frequently mentioned characteristic is collaboration and the breaking down of silos between departments. The interviewees also emphasized the importance of leadership commitment and a shared understanding of the One Water approach. Other key characteristics mentioned include clear communication, accountability, and an empowered and inspired workforce. The interviewees also highlighted the need for organizational alignment and the optimization of business processes and structures to support One Water implementation. Some interviewees also mentioned the importance of community engagement and education, as well as advocacy and lobbying efforts to promote One Water policies and regulations.

3.3 Pillar 3: Stakeholder Engagement

The definition of this pillar was introduced, including the three progression levels as summarized in 1.3.

Question 10: Looking at the three levels, where do you think the City of Fort Collins is on the **progression of Stakeholder Engagement**? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?

- Most interviewees assessed the City's One Water collaboration as primarily in the institutional collaboration phase, placing it at a Level 1. However, one interviewee suggested a Level 3, citing strong community involvement. It is worth noting that community engagement around One Water was not specifically mentioned by that interviewee. While there's a broad consensus on strong community engagement efforts, particularly through Utilities' customer connections, targeting these efforts towards One Water is an area for improvement.

Question 11: Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?

The responses to this question are summarized in Table 2.

Table 2 List of Potential Stakeholders by Category

Category	Potential Stakeholders
Governmental Agencies	• Federal Agencies (e.g., FEMA, USFS), • State Agencies (e.g., Colorado Water Conservation Board (CWCB)), • Local Agencies (e.g., Northern Water, City of Fort Collins, Larimer County, City of Fort Collins City Council, City of Fort Collins Water Commission, City of Wellington, City of Greeley, City of Loveland, City of Fort Collins Natural Resources Advisory Board, City of Fort Collins Planning and Zoning Commission, City of Fort Collins Land Conservation and Stewardship Board)
City Departments	• Utilities (i.e., Operations Services), • Natural Areas, • Parks (i.e., Forestry), • Community Services, • Communications and Public Information Office, • Finance, • Social Sustainability, • Community Connections, • Equity and Inclusion Office, • Real Estate Services, • Environmental Services, • Recreation, • Transportation
Non-Governmental Organizations	▪ Environmental Groups (e.g., Save the Poudre, Sierra Club, Coalition for the Poudre River Watershed), ▪ Charitable Organizations (e.g., Gates Foundation, Poudre Landmarks Foundation)
Educational Institutions	▪ CSU, ▪ CSU - Colorado Water Center, ▪ Poudre School District, ▪ High Schools, ▪ Community Colleges
Local Businesses	▪ Hewlett Packer (HP), ▪ Woodward Company, ▪ Fort Collins Area Chamber of Commerce, ▪ Design Firms, ▪ Breweries, ▪ Distilleries, ▪ Burying Section of Business Community, ▪ Local Construction Sector
Community Groups	▪ HOAs, ▪ Ratepayers, ▪ Residents, ▪ Private Landowners, ▪ Climate Equity Community
Other	▪ Developers, ▪ Agricultural community, ▪ One Water Leaders (e.g., Jared Heath, Richard Thorn), ▪ Katherine Marko (Environmental Regulations), ▪ Eric Potyondy (City's Water Resource Attorney), ▪ Irrigation Companies

Category	Potential Stakeholders
Water Districts	▪ Collection Districts (e.g., Box Elder Sanitation Districts and South Fort Collins Sanitation District), ▪ Ditch Companies, ▪ Tri-Districts / Water Districts (e.g., East Larimer County (ELCO) Water District, Fort Collins-Loveland Water District, North Weld County Water District), ▪ NISP (Northern Integrated Supply Project)

3.4 Pillar 4: Informed Actions

The definition of this pillar was introduced, including the three progression levels as summarized in 1.4.

Question 12: Looking at the three levels, where do you think the City of Fort Collins is on the **progression of Informed Actions**? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?

- The City's Informed Actions are around the collaboration opportunities level, Level 2. The City has identified multi-benefit water projects, and is completing them, a more intentional and coordinated approach is necessary to fully realize the benefits of a One Water system.

Question 13: Which of the City's past, ongoing, or planned projects do you think would be the best **role model projects** to showcase the City's commitment to a One Water approach and mindset?

The responses to this question are summarized in Table 3.

Table 3 List of One Water Project examples.

Project Name	Status	Notes
Acquisition of Meadow Springs Ranch.	Past	
Active Modes Plan	Past	
Employee that has the following responsibilities: bridges information between Parks, Natural Areas, and Utilities, procurement of water, data tracking/reporting for the use of water.	Past	Employee is hired. 1/3 funding for the employee from the Parks general fund, 1/3 from Park planning from impact fees, and 1/3 funding from Natural Areas from the natural areas tax. The position lives in Utilities, but reports to a different department, they are not a Utilities employee.
Green corridor / Spring Creek Trail	Past	Taft Hill to College Avenue. Flood protection project.
Homestead Natural Area	Past	
Our Climate Future Plan	Past	
Parks and Recreation Master Plan	Past	Adopted in 2021
Red Fox Meadows	Past	
Rigden Reservoir	Past	
Water loss audit	Past	Annual Project. This may be referring to the 2023 Water Conservation Annual Report.
Water shortage action plan	Past	
Fort Collins 2024 Water Use Efficiency Plan	Ongoing	
Halligan Reservoir / Halligan Water Supply Project.	Ongoing	
Hickory Basin	Ongoing	
Lake Canal Project	Ongoing	
Oak Street Project	Ongoing	
Poudre Flows Project	Ongoing	

Project Name	Status	Notes
River Health Assessment Framework	Ongoing	
Stanton Creek Project	Ongoing	Construction Document Phase
Urban Forest Strategic Plan	Ongoing	
Water Supply Requirement update.	Ongoing	
Water Treatment Residual Project	Ongoing	Plan/Pilot is completed. Application is waiting for State approval.
Direct Potable Reuse (DPR)	Planned	Community buy-in and capital investment would demonstrate a level of commitment to One Water.
Dry Creek in the Mulberry corridor	Planned	Potential project identified in Stormwater Master Plan.
Meadow Springs Ranch Collaboration with City of Greeley	Planned	Collaboration with the City of Greeley on biosolids application.
Meadow Springs Ranch Conservation Easement.	Planned	
One Water Laboratory	Planned	
One Water Learning Center / The 1883 Water Works	Planned	The water utility owns the original treatment plant (1883 Water Works), potential site for future One Water Learning Center.
One Water Operator	Planned	
West Mine Flash Soldier Creek Project	Planned	Stormwater project focused on a tributary to the river.

3.5 Pillar 5: One Water Monitoring

The definition of this pillar was introduced, including the three progression levels as summarized in 1.5.

Question 14: Looking at the three levels, where do you think the City of Fort Collins is on **the progression of One Water Monitoring**? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?

- The City's One Water Monitoring progression falls between Levels 1 and 2. The level of integration varies across departments. While individual departments have established metrics, a unified One Water approach to benchmarking is absent. This lack of coordination hinders the establishment of clear, achievable performance goals.

Question 15: In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as **important One Water goals** for the City of Fort Collins?

- The interviewees identified a range of important One Water goals for the City of Fort Collins, with a focus on efficiency, resilience, collaboration. The interviewees emphasized the importance of improving collaboration and communication between departments, as well as promoting equity and accessibility in water management. Other goals mentioned include investing in green infrastructure and natural systems, addressing basin-scale water issues, aligning water planning with smart growth and development, and strengthening relationships with water rights holders. The interviewees also highlighted the need to establish performance indicators and metrics to track progress and measure success in achieving these goals. The goals should be specific to the health of the Poudre River, and reflect a long-term vision, ensuring that the City's water resources are managed sustainably for future generations.

4.0 DATA GAPS AND NEEDS

Observations of the combination of documents review and interviews.

1) Areas with significant good information already
2) Topics that are important for the One Water Plan
3) Areas of potential data gaps

Recommendations of what additional information should be gathered or developed in Phase 2.

4.1 Data and Document Review Findings

Outlined in Section 1.3.1, the interviewees identified several data gaps that need to be addressed to develop a comprehensive One Water Plan. The most frequently mentioned gap is the lack of integration and connection between existing data and plans across different City departments.

For the data and documents review, the prevalence of a water management element being covered is not inherently linked to the overall quality of coverage (i.e. drought response is only observed three times in the analysis, but the 2014 Water Supply and Demand Management Policy Revision Report, and the 2020 Water Shortage Action Plan thoroughly cover that topic). The prevalence is just one tool to analyze existing one water-related data and documentation.

4.1.1 Prevalent Water Management Elements

The most prevalent water management elements covered in the analyzed documents were:

- Water Quality
- Water Treatment
- Water Supply

Throughout the documents examined, there was a large emphasis on continuing to provide clean and safe water and waterways. The documents regularly addressed challenges with climate change and its impacts on water systems, actively planning for an uncertain future. Elements such as watershed stewardship, ecosystem restoration, water conservation and efficiency improvements, climate change impacts, and wastewater collection/treatment were present to a slightly lesser extent but still aptly detailed.

4.1.2 Gaps in Water Management Elements

Several water management elements from the matrix analysis were identified as areas where additional future projects could focus and expand:

- Graywater
- Water Reuse
- Affordability

Graywater was not cited in the analyzed documents, while water reuse and affordability were observed in just one document. Graywater, per CDPHE Regulation 86, can be beneficially used for subsurface irrigation and toilet flushing with stipulations, where approved by local authorities and where water rights constraints allow its use. To the degree the City has reuseable water rights, graywater and/or an expansion

of its limited water reuse program (whether non-potable or potable reuse) could serve as a valuable future tool for the City, encompassing numerous water management elements. Affordability, described in the 2023 Water Equity Network Opportunities Brief, is a crucial water management element for the community, and should continue to be included in future water planning efforts. Future efforts by the City might consider evaluating and addressing these less utilized water management elements.

In addition to the matrix analysis, the age of each document was examined to provide suggestions on plan updates. In many cases, planning studies should be updated every 5-10 years, ensuring up to date comprehension and analysis of the City's water management system and needs. The following documents appear to be of a vintage where updates would be beneficial:

- 2015 Water Treatment Facilities Master Plan
- 2016 Source Water Protection Plan
- 2016 State of the Poudre – A River Health Report Card
- 2018 Utilities Wastewater Treatment Master Plan Update

ATTACHMENT A

REFERENCES LIST

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(BG, 2022) Brendle Group, *Water Resource Matters in the Fort Collins Growth Management Areas: Study Report*, September 2022.

(Carollo, 2018) Carollo, *Wastewater Treatment Master Plan Update*, Prepared for the City of Fort Collins, July 2018.

(Carollo, 2021) Carollo, *SCADA Master Plan*, Prepared for the City of Fort Collins, March 2021.

(CH2M, 2015) CH2M, *Water Treatment Facilities 2015 Master Plan,* Prepared for the City of Fort Collins, 2015.

(CH2M, 2018) CH2M, *Water Quality & Pollution Control Labs Master Planning Study,* Prepared for the City of Fort Collins, February 2018.

(CPR, 2024) Coalition for the Poudre River Watershed, *River Health Assessment Framework*, 2024.

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(FC, 2016a) City of Fort Collins, *Source Water Protection Plan*, 2016.

(FC, 2016b) City of Fort Collins, *State of the Poudre – A River Health Report Card*, 2016.

(FC, 2019) City of Fort Collins, *2019 Municipal Sustainability and Adaptation Plan*, 2019.

(FC, 2020) City of Fort Collins, *Water Shortage Action Plan*, April 2020.

(FC, 2021) City of Fort Collins, *Parks and Recreation Master Plan*, 2021.

(FC, 2022a) City of Fort Collins, *Our Climate Future*, 2022.

(FC, 2022b) City of Fort Collins, *Upper Cache la Poudre Watershed Collaborative Water Quality Monitoring Program*, 2022.

(FC, 2023a) City of Fort Collins, *Halligan Water Supply Project–Fish and Wildlife Mitigation and Enhancement Plan*, June 2023.

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(FC, 2023c) City of Fort Collins, *Water Quality Report*, 2023.

(FC, 2024) City of Fort Collins, *Fort Collins Area Ditch Companies and City Ownership Issues*, June 2024.

(FC, 2024) City of Fort Collins, *Land Use Code*, May 2024.

(HDR, 2023) HDR, *Water Quality Services Master Plan Vision Update and Site Feasibility Assessment,* Prepared for the City of Fort Collins, January 2023.

(USACE, 2023) US Army Corps of Engineers, *Final Environmental Impact Statement – Halligan Water Supply Project*, October 2023.

(USWA, 2023) US Water Alliance, *Water Equity Network Opportunities Brief*, Prepared for the City of Fort Collins, January 2023.

(WRF, 2012) Water Research Foundation, *Joint Front Range Climate Change Vulnerability Study*, 2012.

ATTACHMENT B INTERVIEW SUMMARIES

This appendix includes the 11 summaries of interviews that were conducted between July 9 and August 7, 2024. The interview summaries are organized alphabetically by last name as follows:

- Ted Bender (Stormwater Master Planning).
- Mike Calhoon and Jill Wuertz (Parks Department).
- Alice Conovitz and Mariel Miller (Water Conservation).
- Honoré Depew and Katy McLaren (Municipal Sustainability and Climate Resiliency).
- Donnie Dustin (Water Rights and Supply Planning).
- Matt Fater (Capital Project Delivery).
- Julia Feder (Natural Areas Planning).
- Andrew Gingerich (Water Distribution & Wastewater Collection System).
- Kirk Longstein (Department of Environmental Planning).
- Jill Oropeza (Integrated Science and Planning).
- Jeremey Woolf (Wastewater & Drinking Water Treatment Operations).

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 16, 2024 at 10:00 AM
Interview Candidate:	Theodore Bender, Stormwater Engineering Team Manager (City's Utilities Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc., Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Theodore Bender, manages the City's stormwater engineering team. His focus is stormwater and he's in charge of the stormwater master plan, floodplain management program, rainfall data, runoff data, hydraulic data. He's been with the City for five years, and in his current role for two years.

1. **Please state your name and role in the organization.**
   - Theodore Bender is the Stormwater Engineering Team Manager with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - Five years at the city, two years in current role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Stormwater, including, stormwater master plan, floodplain management program, rainfall data, runoff data, hydraulic data.
4. **How would you define One Water based on your current knowledge?**
   - Holistic way to manage water to manage water as a collective resource for the entire community.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions	X		
Pillar #5: One Water Monitoring		X	

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**

   Level 1. Trending towards Level 2. Hard to plan with no One Water director (at this time) but planned for the fall 2024.

6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**

   - There are no data gaps in the data the stormwater group needs for the stormwater master planning program. They use LIDAR, rainfall data, land use, hydraulic and hydraulic models.

7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**

   - Translate technical modeling and engineering process information into layman's language to explain technical data with actionable insights for residents, businesses, and other stakeholders.

8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**

   - Level 1. The City Manager's office is firmly committed to a one water perspective, upper leadership is committed to the culture, but the mission and values are still trickling down through the organization. The City is transitioning into Level 2.

9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**

   - Cross collaboration.

- Removing silos.

10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. Engagement does not have any specific messaging around One Water. However, Utilities has a dedicated group called customer connections. Stormwater group hold meetings and puts out signage. Floodplain management program participates in community rating system.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Everybody (that is impacted by stormwater infrastructure)
    - City Departments
    - Regulatory Agencies:
        - FEMA (Flood Management Class 2)
        - State of Colorado
        - CWCB
    - Customer connections / private organizations
        - Hewlett Packer (HP)
        - Woodward Company. Modified the floodplain (with a letter of map revision).
        - CSU
    - HOAs/Residents
    - Developers (not for stormwater, but for development review perspective)
12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 1. Not yet at the quick wins level, we're not looking at current projects with a One Water focus.
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Oak Street Project. Ongoing, starts July 2024. Part of the Downtown Stormwater improvement Program. There's significant flooding, not a defined channel. The collaboration includes a large stormwater outfall and upgrading another water line.
    - One Water Learning Center. Completed in 2019. Owned by CSU. City owns water right through Poudre River. $5M to rehab a section of the river and install a diversion structure. Partnerships with utilities (stormwater), Natural Areas, CSU.
    - River Health Assessment Framework. Completed. Partnership between Coalition for the Poudre River, Utilities, Natural Areas. Look at how the Poudre River impacts the public, how we can manage the health of the river, and what the indicators are.
    - Poudre Flows Project. Ongoing (early in the planning phase). Area along Poudre, west of College Avenue. Implementing stormwater capital project on new development north of the river. Plans to improve Lee Martinez Park for recreational benefits while simultaneously moving flood waters.

Collaboration between Natural Areas (they own land to the north of the river), City Manager's office, Utilities (capital project group), and Parks.

14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 2. Firmly in benchmark indicating level even if we're not specifically measuring one water goals and not gathering information for performance indicators.
    - We know the number of structures that are threatened, number of roads that are overtopped, we have water quality capture volumes, we know the volume of ponds we currently have, how many detention ponds we manage.
    - We're starting to look at socio-economic indicators with stormwater master planning to help us make decision with spending stormwater dollars.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - No ideas at this time regarding One Water project specific goals.
16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Cross departmental collaboration with plan development. A huge efficiency is lost in planning and messaging the projects when planning isn't coordinated.
    - A look into the future.
    - Rainfall data is from 1999 but in the next 5-10 years do we need to revisit the data? Instead of taking a snapshot of where we are, we'll know where we will be and can plan for 5-10 years out.
17. **What does One Water success look like to you?**
    - Aligning with one water principals that have already been acknowledged in previous plans, even if they weren't called One Water.
    - A strong commitment from leadership teams (e.g., utilities, other departments and city manager's office).
    - Messaging. Needs to be messaged throughout the rest of the organization.
    - Actions (ongoing): Identifying areas where we can grow into One Water methodology.
    - Properly identifying indicators and metrics.
    - Clarity on the term "One Water" as it can be confusing.

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 29, 2024 at 9:00 AM
Interview Candidate:	Mike Calhoon, Director (City's Parks Department)
	Jill Wuertz, Senior Manager (City's Parks Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Mike Calhoon has worked for the City of Fort Collins Parks Department for 35 years, serving as its Director for the past nine years. Overseeing five divisions encompassing parks, maintenance, operations, cemeteries, golf, forestry and planning, Mike is also an active member of several raw water irrigation company boards.

Jill Wuertz, a landscape architect, leads the Park Planning and Development team as the senior manager. With over 10 years of experience working at the City of Fort Collins, including a previous role in parks infrastructure replacement, Jill develops plans for new trails and parks, as well as renovation of existing park systems. Prior to her work at Fort Collins, she worked on the City and County of Denver's water conservation program for 9 years.

1. **Please state your name and role in the organization**
    - Mike Calhoon is the Director of the City Parks Department.
    - Jill Wuertz is a Senior Manager with the City Parks Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
    - Mike has worked with the City for 35 years, nine years in this role.
    - Jill has worked with the City for ten years, all years in this role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
    - Potable and raw water systems, with approximately 80% of Parks' property irrigation relying on raw water.
    - Parks maintain streetscapes along major roadways, which primarily use potable water.
    - Parks' development work encompasses stormwater, potable water, sanitary sewer, and floodplain considerations.
    - Parks operations integrate natural systems into park design, emphasizing floodplains and LID.
4. **How would you define One Water based on your current knowledge?**
    - Integrated approach with water focus.
    - Aligning all the ways we interact with water throughout what we do. Aligning wastewater, stormwater, potable water, ditch company water, so we get the best use of the water.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning		X	
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions	X		
Pillar #5: One Water Monitoring		X	

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
   - Level 2. Current conversation is informing. City has a Municipal Sustainability and Adaption Plan. Several planning efforts have been happening for a while, even though they may not be called One Water.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
   - Every department has their own Plan(s). Jill Wuertz noted that she looks forward to high level strategic plans, linking plans, crossing goals and objectives. Overarching goal setting.
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
   - Knowing where all the various Plans overlap.
   - Data tracking an/or reporting the use of water.
   - Real estate coordination between departments. For example, we have only had a meeting with the Natural Areas Department one or two times a year. More coordination is needed to better understand where everyone is buying land and/or land needs are.
   - Define the staffing level to get us to where we need to get to (benchmarking with other utilities).

8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1. People don't understand what One Water is yet. It's a new term, so we're at level 1 (leadership commitment) when applying the term One Water only.
    - However, we're an inspired organization (Level 3) if you take away the term One Water. We have the spirit of One Water all the way down to operations staff in the field, they understand the value of water.
    - The raw water world is nervous when they hear One Water because they think their water rights may be infringed on. There is an elaborate ditch system that conveys raw water and not all raw water is served by Fort Collins Utilities (some raw water is served by ELCO and Loveland Water District). There are also 5-7 providers of potable water in Fort Collins.
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Integration with all our water systems (raw water, potable water, wastewater, stormwater, river water, etc.).
    - Budgeting for outcomes, setting strategic objectives for the different water systems.
    - Transparency. People can grasp the why behind what you're doing.
    - Leadership commitment.
    - Accountability. When we say we're going to be a one water city, we mean it.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. We have collaboration and cooperation.
    - Coordination with the Poudre School District (PSD) and private companies that are shareholders in the raw water companies is important.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Water touches everyone that lives here, who wouldn't you involve? Stakeholder engagement should extend beyond political and institutional boundaries. One Water engagement needs to reflect watershed boundaries.
    - Poudre School District because 1) PSD owns a lot of property, and 2) they're the educators for our customers, citizens, and the next generation.
    - Governmental agencies
    - Private sector/companies
    - Brewing companies in our business community (water intensive business)
    - CSU
    - Agriculture. We should be thinking in watersheds instead of other boundaries.
    - Tracy Ochsner from Operations Services
    - Eric Potyondy, the City's water resources attorney.

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 1. All three levels are recognized, however Level 1 is denoted because quick wins are easily identified and it is hard to get long term financial commitment.
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Halligan Reservoir.
    - Rigden Reservoir
    - Stanton Creek project. *Ongoing (*construction document phase). This project is part of the Stream Rehabilitation Program (complete several reaches annually). They worked on Fossil Creek along Fossil Creek Park. The level of engagement opportunities for park projects depends on where they're located.
    - Oak Street Stormwater Project. *Starting construction*. This stormwater project has multiple community benefits (flood risk mitigation, better transportation because roadway isn't conveying all water, aesthetics of steetscapes, LID in streetscapes).
    - LID is implemented into larger Park projects.
    - Parks and Recreation Master Plan. *Adopted in 2021*. This Document guides the future of the Parks and Recreation departments.
    - Hired an employee with 1/3 funding from the Parks general Fund, 1/3 from Park planning from impact fees, and 1/3 funding from Natural Areas from the natural areas tax. The person in this position is located in utilities but is not a utility employee and reports to a different department. Resources were combined to fill this need/gap. The current position bridges information between Parks, Natural Areas, and Utilities.
14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 2. This is a topic that is interesting to Mike because when we are setting broad goals (i.e., we have to reduce our gpcd), but we're not talking about the appropriate use of the resource, just talking about lowering gallons of water used per day. We need to judge by other metrics (i.e., are the trees staying alive? Is the turf holding up to the use its getting? Are we protecting the living infrastructure that we need to provide for the benefit to the community?)
    - We need to be careful with how we set goals so we can meet them (attainable and predictable). We're not just water users, we're trying to achieve other goals. We're not zoomed out enough to reflect the overall goals.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Resilient landscapes
    - Resilient infrastructure
    - Questions that may require monitoring to be answered are:

- Is our infrastructure hyper zoned?
- Can we respond to a drought and protect our long lives plant material?
- Are we converting landscapes where appropriate to lower water usage?
- Are we planting native plant material?
- How are we preparing for the future, considering growth, climate resilience, and emergency preparedness?
- Do we have the resources to achieve our goals? We haven't had the resources up to this point, but we're in a different place with our new 2050 tax.

16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Alignment of resources
    - Having a Plan that has the buy in of our City Council and executive staff
    - A Roadmap that can be used to align our resources to achieve it
    - A Plan focused on the big picture for water. The City is very focused on reducing greenhouse gas emissions and water has very low greenhouse gas emissions. As a result, water has kind of been pushed to the sideline a little bit to focus on energy reduction, transportation, energy reduction and/or energy efficiency. We need to zoom out when determining metrics for water management.
17. **What does One Water success look like to you?**
    - Built projects. If we're implementing and executing on the ground, that means we have alignment with the different groups – because we passed that phase already.

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 16, 2024 at 1:00 PM
Interview Candidate:	Mariel Miller, Water Conservation Manager (City's Utilities Department) Alice Conovitz, Water Conservation Specialist (City's Utilities Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Mariel Miller is the water conservation manager. She has worked in water conservation for the City for seven years and as a manager in her current role for 2.5 years. Mariel oversees six full time staff, including Alice Conovitz, a water conservation specialist who is leading the Water Efficiency Plan update with objectives around having a One Water perspective. Alice has been with the City for five years and in her current role for three years. The water conservation team manages end water uses and is solely focused on potable water demand management.

1. **Please state your name and role in the organization**
    - Mariel Miller is a Water Conservation Manager with the City Utilities Department.
    - Alice Conovitz is a Water Conservation Specialist with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
    - Mariel Miller has worked seven years at the City and 2.5 years in the current role.
    - Alice Conovitz has worked five years at the City and three years in the current role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
    - End water uses, mainly potable water.
4. **How would you define One Water based on your current knowledge?**
    - Collaborative approach to manage the entire full water cycle as a connected system.
    - Ensuring clean and affordable water for all, particularly underserved communities.
    - Coordinating and leveraging opportunities with all water stakeholders.
    - Understanding the value of water, specifically through an equity lens.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions	X		
Pillar #5: One Water Monitoring	X		

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
   - Level 1.5. This department is between level 1 and level 2. In updating the Water Efficiency Plan, some need more guidance on the One Water framework.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
   - The City doesn't have data on water use on City-owned property.
   - Lacking data or feel confident with the data for the water loss audit.
   - Demographic related data gaps because the Utilities' service area boundary does not coincide with the City boundary.
   - Data gaps related to water use metering of certain housing types. specifically rental and multi-family units.
   - Misalignment with census population data boundaries (transient (student) population and group housing).
   - Data gaps related to supply and demand forecasting. Need to know the supply forecast and understand the inputs.
   - Need for land cover mapping (impervious and non-impervious areas, and vegetation types).
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
   - How Fort Collins defines One Water.

- Guiding document/framework to streamline planning efforts, specifically between land use and water planning.
- Water Use Efficiency Strategies on how to conserve water (call out existing and new strategies that have benefits to operations and to conservation benefits).
- Asset management program that prioritizes reducing water loss.
- Better connecting those dots and identifying win wins.

8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1.
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Collaboration. Identifying opportunities to leverage each other's work to create more co-benefits opportunities.
    - Plan alignment.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. Community engagement is happening but these efforts are isolated to a particular part of the water cycle (e.g. water conservation). Community engagement has not started yet around One Water
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Businesses
    - Nonprofits
    - Poudre river specific groups
    - CSU
    - Colorado water center
    - HOAs
    - Other big water users
    - Underserved community groups
    - Climate Equity Committee (CEC) is a new group that has been around less than a year.
        - Made up of community members
        - City's equity and inclusion office
        - Water Conservation's stakeholder list that they developed for the Water Efficiency Plan (could share the list)
12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**

- Level 1.5. Somewhere between level 1 and level 2.

13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Water Efficiency Plan. Ongoing. First plan that has brought in one water. Team is made up of interdisciplinary folks.
    - Water Supply Requirement update. Ongoing. Pairing the water supply increase with assigning allotments. Assigning allotments to approximately 3,000 commercial users that don't have a prior allotment (1/3 of users because they were developed before 1984). Water resources needed to evaluate water supply requirements, methodology for cost per acre foot. Collaboration between water resources, planning (development), utilities finance, and water conservation.
    - 2023 Water Conservation Annual Report. Water loss audit. Completed (annually).
    - Water shortage action plan. Completed. Collaboration when there's a declared water shortage.
    - Rates. Sometimes inclusive depending on what is being funded. Ongoing.
14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 1. Noted that the level is dependent on the type of metric.
    - Th City is measuring and tracking performance on a programmatic level and on a more macro GPCD level (evaluating quarterly and breakdown between commercial and residential).
    - The only City Council approved goal is a single comprehensive of total water use (GPCD) for the entire service area only.
    - Performance indicators could refine water use metrics for commercial and residential use separately.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Water efficiency goals
    - Collaborative goals between departments, e.g. water resources and water conservation
    - Frequency and severity of water shortage
    - Goals around water equity, such as minimizing shutoffs and ability to provide a certain amount of water for everyone (for life needs)
16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Improve collaboration.
    - Improve understanding of One Water.
    - Something utilized with new projects and plans (guidance document).
17. **What does One Water success look like to you?**
    - Having insight into other groups/department goals and work.
    - Develop knowledge and understanding across water utility.
    - No silos.

- Better structures and processes to make decisions around balancing human water needed, environmental justice and ecological health.
- Community understands the value of water.

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 15, 2024 at 1:00 PM
Interview Candidate:	Katy McLaren, Lead Climate Specialist City's Utilities Department) Honoré Depew, Senior Manager with Environmental Sustainability (City's Utilities Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Katy McLaren has served the City for 18 years, with the last 6 years in her current role as Lead Climate Specialist. In this role, she acts as a bridge to promote sustainability within the City.

Honoré Depe, a Senior Manager with Environmental Sustainability, has been with the City for 9 years, holding his current role for the past 3 years. He brings a strategic perspective, focusing on achieving greater sustainability for the entire community. However, he is encountering challenges in integrating water management into the City's Out Climate Future Plan/Framework.

It's worth noting that both Katy and Honoré's positions are financed in part by Utilities. Neither position manages water services or resources. They interface with water through climate work, including climate impacts on source water to effluent (the whole cycle). Katy participates in strategic planning and represents the role of water if it's not there, as well as promotes efficiency and water conservation work, and disaster preparedness and mitigation at the strategic level.

1. **Please state your name and role in the organization.**
   - Katy McLaren is the Lead Climate Specialist with the City Utilities Department.
   - Honoré Depew is the Senior Manager with Environmental Sustainability with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - Katy McLaren has worked at the City for 18 years, 6 years in the current role.
   - Honoré Depew has worked at the City for 9 years, 3 years in the current role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Both Katy and Honoré's positions are financed in part by Utilities. Neither position manages water services or resources. They interface with water through climate work, including climate impacts on source water to effluent (the whole cycle).
4. **How would you define One Water based on your current knowledge?**
   - How water is used, where it goes after use, and the holistic integrated approach. One Water is about the relationship between water use and other environmental factors.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning		X	
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions		X	
Pillar #5: One Water Monitoring		X	

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
    - Level 2. Not in the heart of plan development. There are still groups that need to be brought onboard.
    - The equity part has been underemphasized.
    - People don't know what One Water means in practice and they don't know who oversees leading the efforts. The City is moving towards a unified vision.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
    - Limited data collection capabilities:
    - The City currently lacks comprehensive data on water use within the community and its own operations to make decisions.
    - Examples include inadequate metering infrastructure to measure water loss, insufficient data management systems, and resource constraints. This hinders effective planning and implementation of new water management strategies.
    - Practices across departments are not shared.

7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
    - Get to a place where role and responsibility can be suspended so we can collaborate.
    - Remove the silos and territorialism between departments and between water districts.
    - Define roles and responsibilities.
    - More collaboration to plan water holistically -> Possibility thinking. Not focusing on what we can't do as an organization. Think beyond boundaries.
    - Be careful and mindful that the approach is not Utilities driven (as Utilities only serves a portion of the community).
    - We're driven from the benefit to rate payers. There is language in the charter that dictates how the enterprise fund can be used.
8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1. There is some leadership commitment and inspired people, but it's not deep. No full-time director (at this moment).
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Leader that's deeply committed, full on champion. Willing to work with everyone that's involved speaks to it. Speaks about it often, always keeping an eye on it
    - Silo busting. All the teams that are fully integrated across organization. Thinking for the greater good before thinking of your department.
    - Action, money follows, fully resourced.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. Haven't seen outreach of One Water outside of the organization.
    - A lot of turnover. If we must go forward, let's go together. The water people are the most passionate, so she thinks we will be able to move forward when everyone gets on the same page.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Utilities
    - Private landowners
    - Residents
    - Federal government
    - Water Users
        - Big Water users in the city (people that run buildings)
        - Parks and Recreation
        - Natural Areas
        - Forestry

    - Businesses / industrial process users – breweries, distilleries (businesses that rely on high quality water), HP, Avago and Broadcom
    - CSU (they have their own water rights)
- Ops services
- Underrepresented groups
    - Equity and inclusion office
    - Communications and public information office (CPIO)
    - Plan ambassadors aka climate future community consultants aka "Our Climate future framework" network
        - Stick with the best practices that they've developed as an organization for reciprocal relationships in engagement efforts with the Development of Climate Framework Future. Focus on moving up that ladder of participation towards transferring power and decision making. Great opportunity to re-engage Network.
    - Loose network of people that are engaged (quarterly meetings)
    - Consider compensating participation in engagement
- Other water districts
    - City of Fort Collins only services a portion of the city. There is a great relationship between ELCO Water District (East Larimer County Water District) and the Fort Collins Loveland Water District.

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 2. Integrated approach has been used for decades, but it's not intentional.
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Homestead Natural Area. Completed. Restoration of an old golf course. The 31-acre property was conveyed to the City by Woodward Company as part of the development agreement. Collaboration extends to Natural Areas and Parks because of the trail.
    - Oak Street Project. Ongoing, starts in July 2024. Part of the Downtown Stormwater Improvement Program.
    - Active Modes Plan. Completed. Combine pedestrian, bike and trails plans. Articulated long term goals and outcomes.
    - Urban Forestry Strategic Plan. Ongoing. Parks Department and forestry division.
    - Our Climate Future Plan. Completed in 2021. When Our Climate Future (OCF) Plan was adopted, we committed to check in every two years and update the community through a more inclusive approach with OCF. OCF progress is documented through Big Moves and Next Moves.
        - Big Moves describes transformational outcomes which connect specific goals.
        - Next Moves are the specific strategies and tactics that lead to outcomes of the Big Moves.
    - Fort Collins 2024 Water Use Efficiency Plan. Ongoing. Utilities.
    - Water Efficiency Plan Update
    - Water quality monitoring project. Led by Jared Heath with the OWL group.

14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 2. The level depends on the topic. Utilities may be further behind in the equity space but have baseline indicators.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Integration. Integrated across the organization and community.
    - Integrated across planning efforts.
    - Another plan is not necessarily a great idea, where are the touchpoints with existing plans?
    - Equitable and accessible.
    - Emphasizing climate impacts (not just mitigation, but also adaptation. Centers resilience and adaptation for the purpose of how and why we manage we water and as a key driver for all the choices we make.
    - Long-term perspective, looking out 5-10-30 years.
16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Strengthening an overall sense of commitment to managing water responsibly, equitably and with habitat and environment in mind.
    - By integrating and reducing silos better communication can be achieved.
    - To help staff and community partners understand how best to incorporate potential impacts and integrate thinking about water into the project.
    - Thinking about water needs beyond human needs, but also ecosystems.
17. **What does One Water success look like to you?**
    - Having a model that can demonstrate long range thinking in an unpredictable future. So, our community (plants, animals and people) can have the best chance of thriving and surviving.

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 11, 2024 at 9:00 AM
Interview Candidate:	Donnie Dustin, Water Resources Engineer II (City's Utilities Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Donnie Dustin is a Water Resources Engineer II. He has been with the City for 26 years, 10 years as a Water Resources Manager and 16 years as a Water Resources Engineer. His main role is securing sufficient water supply to the treatment plants. Most of his work deals with water supply for treated water (i.e., water rights, water law (water court proceedings for the River Commissioner), planning (what do we charge new developments for water), managing reservoir storage (accounting of Horsetooth). The City owns most of the shares of ditches that run through the City, and 20 percent of Donnie's time is spent working with ditch companies (City owns most of the shared of ditches that run through town and there is a desire to put trails next to ditches).

1. **Please state your name and role in the organization**
   - Donnie Dustin is a Water Resources Engineer II with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - 26 years at the City, 16 years in this role. 10 years as a Water Resources Manager.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Raw water supply including reservoir storage and water rights.
4. **How would you define One Water based on your current knowledge?**
   - Water touches everything, because of that, there needs to be communication among departments.
   - Tools such as the Water Resources Vulnerability Study should be shared among departments.
   - Climate Change impacts

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions			X
Pillar #5: One Water Monitoring	X		

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
    - Level 1. Due to recent staffing changes (loss of One Water Director and Executive Director) there may need to be additional info gathering.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
    - Lack of understanding on what information has been gathered outside of the Water Resources department.
    - Not aware of any specific data gaps. However, the City needs to connect the dots between the departments and improve create a protocol on how to do so.
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
    - Better connections with Water Treatment Plant and how they blend supplies and how that impacts water quality.
    - Better connections with Watershed Group. For example, Information on how fire impacts supply and potential gaps in Water Resources' modeling.
    - Water Conservation department and Water Supply department need to have a connection. They are intertwined however they live in different Customer Connections groups, which creates a barrier for information sharing.
8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment),**

Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?

- Level 1. There is no executive One Water Director at this time.

9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Communication and accepting feedback are critical at developing a good culture.
    - Connection between departments.
    - Leadership needs to understand the connection between multiple departments and understand how actions impact each program.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. Externally the City does a good job with engagement. Internally, better coordination and cross collaboration is needed. People don't know to make connections between departments.
        - Engineering put in medians that require irrigation without understanding that they have to pay for the water.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - One Water Leaders (e.g., Jared Heath, Richard Thorn)
    - City Departments (e.g., Parks, Natural Areas, Community Services, Planning (growth, land use codes), Utilities)
    - Environmental organizations (e.g., Save the Poudre) even if they are at odds with the City.
    - Other water districts that supply water to other parts of Fort Collins
        - Council members want regionalization
    - Ditch companies even if they are at odds with the City.
    - Chamber of Commerce. They support development and business interests.
    - Developers
    - Customers
12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 3. All three levels are happening at the same time around different topics. City has long history of being in long term commitment phase (e.g., Maximo, a developed CIP, Halligan Water Supply Project).
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Halligan Water Supply Project. Ongoing. Permitting began 18 years ago. Project will have multiple benefits including providing environmental flows.

14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 1. Specific goals for being a One Water City have not been developed. The division struggles with developing indicators. However, Utilities is familiar with the Clear Point Strategies (dashboard open to the public).
    - The City's doesn't have many performance indicators.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Establish a One Water culture. Measure how many times does leadership communicate with everyone.
    - What are the connections that are being made that maybe weren't there before?
    - Is there a plan to make cross-departmental connections?
    - How often do you check in on whether those connections are working, does the process need to change?
    - Is the water supply resilient?
    - Is everyone up to speed on what their role is (e.g., understanding the complex water supply model)?
16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Divisions/Departments working better together.
    - Framework provides a more connected utility that there is a feeling of a single purpose, not individually siloed purposes.
    - A more streamlined process on how and when to connect with other departments, resulting in efficiencies for labor and cost.
    - Acquiring the Halligan Projects for long-term resilience.
    - Getting the water resources department up to speed on complex water supply model.
17. **What does One Water success look like to you?**
    - Success is tied to collaboration and better alignment in the organization.
        - Working together when departments are working in the same area to save on mobilization costs.
        - Better coordination with the water treatment plant to maximize water sources, especially in drought.
        - Finding efficiencies through streamlined process and organization.

CITY OF FORT COLLINS

One Water Action Framework

Project No.: 203085
Date: July 25, 2024 at 2:00 PM
Attendees: Matt Fater, Director of Engineering (City's Utilities Department)
Other Attendees: Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject: One Water Action Framework – Phase 1 Interview

Interview Summary

Matt Fater is the Director of Engineering, specifically for capital projects. He manages a team of project managers that do design and construciton projects for all three water utilities. Matt's been with the City for 29 years. He started his career in the stormwater utility. He's been in his current role for five years.

1. **Please state your name and role in the organization**
   - Matt Fater is the Director of Engineering with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - 29 years at the City and five years in this role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**

Touch the whole water cycle except for watersheds, and the City has no groundwater supplies. Including:

- Source water (raw water lines to the treatment plant)
- Distribution and collection work
- Work at the water reclamation facility
- Stream restoration projects with stormwater
- Large storm sewer project happening downtown with detention ponds
- Reservoirs (the Utilities Department is supporting a gate replacement project on the Halligan Reservoir because Halligan is managed outside of capital group. Darren Parkin is the Halligan Water Supply Project Manager).

4. **How would you define One Water based on your current knowledge?**
   - Managing water as a resource.
   - Look for ways to meet basic needs and collaborate on shared values within the City and environment.
   - Adopt a holistic view of water management beyond simply delivering water to the tap.
   - Treat/value stormwater as a natural resource.
   - Implement water management practices through the One Water approach (e.g., spending money on vegetation, trails and amenities).
   - Focus on the value of water for both human and ecosystem needs.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement		X	
Pillar #4: Informed Actions	X		
Pillar #5: One Water Monitoring	X		

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
   - Level 1 because we still have a lot of work in the planning area, especially if we're talking about water potential scope around community and ecosystem needs. Data still needs to be gathered (e.g., asset management).
   - Overall (beyond One Water), the City is somewhere between level 1 and level 2. We've completed various Mater Plans (e.g., water reclamation facility, distribution systems, stormwater). Some plans are outdated and the connection between all plans is missing.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
   - Asset management (e.g., assessing condition and estimating useful life, risk of failure).
   - Definition of success in the ecosystem enhancement area
   - Setting specific goals to know what One Water success looks like.
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**

- Crossover with three different Utilities (water, wastewater, and stormwater) and Natural Areas Departments.
- Some guidance on how we identify opportunities and risks associated with multi-benefit projects. Guide the planning efforts.
- Some communication and outreach around where Fort Collins is headed and what One Water means for the community (e.g., how is this approach different from what we are currently doing).
- Clarifying terminology.
- Defining responsibilities and how a One Water approach will be implemented.
- Community input on the definition of One Water.
- Community input on One Water goals and priorities.

8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1, but overall moving between level 1 and level 2. Not consistent because we're going through a leadership transition right now.
    - Level 3 (inspired organization) is also present in some areas, but there is a gap between Level 1 and Level 3.
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Empowered workforce.
    - Trust.
    - Willingness to partner with other city departments.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 2.5. Level 2 transitioning to level 3. While current efforts, including surveys and outreach, have yielded positive results, there's potential to enhance our feedback information collection process.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Irrigation companies
    - Natural Areas Department
    - Parks Department
    - Northern Water
    - Potentially the surrounding water districts
    - Potentially other collection districts (e.g., Box Elder Sanitation Districts and South Fort Collins Sanitation District)
    - Environmental Groups (e.g., Sierra Club, Save the Poudre)
    - Developer side needs to be included if the environmental groups are included

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 1. Overall, there is some level 1, some level 2 because the progression for this pillar is not all sequential.
    - We've identified some quick wins but are unsure how to fund or prioritize quick wins against more basic operational needs. We've identified some collaboration opportunities but haven't identified all of them.
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Red Fox Meadows. *Completed*. Stormwater project with Natural Areas Department. Completed 15 years ago.
    - West Mine at Soldier Creek Project. Stormwater project focused on a tributary to the river.
    - Lake Canal Project. *Still in the feasibility stage*. Flood risk, mitigation benefits, supply, environmental habitat. Working on a feasibility study for removing an irrigation canal.
    - Every budget cycle we do a stream rehabilitation project in our tributaries for stormwater. These projects have multi benefits.
14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 1. All kinds of indicators are tracked by different groups
    - For example: The City tracks water use, miles of stream restoration, metrics around distribution system (number of leaks, fire hydrants, fire flows). However, there is still work to be done on baseline indicators.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Stream rehabilitation (e.g., miles of stream yet to be rehabilitated)
    - Public safety – structures at risk
    - Acres of floodplain in open space
    - Greenhouse gas emissions at the water treatment plant
    - Resource reclamation for biosolids and water
    - Drought resilience for water supply
    - Measure how much wastewater gets back to the river. Currently, not all wastewater is returned to the river. One of the wastewater treatment plants, which may be decommissioned, does discharge effluent directly into the river. At the other wastewater treatment plant, treated wastewater effluent is discharged to Fossil Creek Reservoir, but there is the capability to discharge directly to the river through an existing outfall. Although the reservoir approach is currently considered less risky, returning treated wastewater effluent directly to the river is a long-term goal.

16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Clarifying what the utility's role is in meeting the community's values.
    - Improve flexibility to share funds to make it easier to implement multi-benefits projects and change our thinking around how we manage those funds. He doesn't see us combining enterprise funds.
17. **What does One Water success look like to you?**
    - Internally people are collaborating and inspired because they know they contribute to the overall water cycle.
    - The City of Fort Collins is recognized externally as a leader in water treatment and delivery. Not only for providing essential services but also for implementing innovative approaches to water connectivity.

CITY OF FORT COLLINS

One Water Action Framework

Project No.: 203085
Date: July 18, 2024 at 9:00 AM
Attendees: Julia Feder, Environmental Planning Manager (City's Natural Areas Department)
Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject: One Water Action Framework – Phase 1 Interview

Interview Summary

Julia Feder is the Environmental Planning Manager for the City of Fort Collins Natural Areas Department. She has held this position for five years, overseeing a portfolio of 55,000 acres of conserved land, including significant acreage along the middle reach of the Poudre River. As the City is a major riparian landowner, her team focuses on river restoration projects and manages associated water rights. The Natural Areas Department distinguishes itself from the Parks Department by prioritizing wildlife habitat preservation while still offering recreation opportunities.

1. **Please state your name and role in the organization**
   - Julia Feder is an Environmental Planning Manager with the City Natural Areas Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - Five years at the City, and also five years in this role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Raw water, focusing on river restoration projects and managing water rights.
4. **How would you define One Water based on your current knowledge?**
   - A synergy.
   - We all may have different goals but we a take common action to make progress towards the goals as they relate to water supply, water resources and water as part of the natural environment.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement		X	
Pillar #4: Informed Actions		X	
Pillar #5: One Water Monitoring		X	

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
   - Level 1 moving towards level 2.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
   - Data is scattered across different systems. Consolidate information into a centralized database, transitioning from data gathering to data organization and analysis.
   - There needs to be more connectivity between the data systems.
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
   - Adopt a citywide and holistic perspective on water resources, considering all departments involved in water use and management.
   - Coordinate investments in water infrastructure and projects across departments to maximize impact and efficiency.
   - Utilize data analysis to inform water management decisions and prioritize investments.
   - Establish a strong, long-term commitment to river health as a core component of the city's identity and well-being. While City's Strategic Plan and Council priorities offer valuable direction, their three-year cycles limit ability to establish long-term water management goals. One Water Plan should provide a more enduring framework.
   - Investigate legal and regulatory options to increase river flows and protect water resources by keeping more water in the river.

- Foster public engagement and transparency around water issues, emphasizing the river's role in community life and economic vitality.
- Develop a dedicated long-term water management plan to complement existing strategic plans and council priorities.
- Ensure the water plan aligns with broader city objectives and addresses community concerns.
- Leverage public support for river health to influence decision-making and resource allocation.

8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1. Organizational alignment has moved forward without leadership commitment because of turnover.
    - The current (August 2024) recruitment of a One Water Director demonstrates the City's long-term commitment to organizational alignment.
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Different ways of budgeting One Water, including a dedicated bucket of money going towards One Water.
        - Natural Areas invest resources into river health and are continually questioned if that's their responsibility. Like Utilities, Natural Areas has a dedicated funding source that is outside of the City's general fund to invest in water (two separate sales taxes that feed Natural Areas operations).
    - Clear guidelines and budget priorities that align with the One Water approach.
    - A dedicated cross-organizational team. One Water has been Utilities led thus far. However, One Water should have a broader focus, beyond Utilities.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 2. The river is part of the City's identity. Utilities' Community Engagement team is recognized for their work.
    - The community is extremely committed and engaged to the extend of reaching stakeholder fatigue.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - City departments as most of the departments have a touchpoint to water:
        - Utilities department (water, wastewater, stormwater)
        - Parks
            - Different divisions that need to be represented
        - Natural Areas (City is major landowner in the floodplain)
        - Community development and neighborhood services

        - Water Efficiency
        - Transportation
        - Operation services
        - Community connections – water efficiency
        - Sustainability
        - City's attorney's office
    - City Council
    - Traditionally underrepresented audiences (e.g., the next generation)
    - Ratepayers
    - Regional water issue
        - NISP (Northern integrated supply project. They have adaptive management and planning requirements.
            - Esther Vincent – Project director
            - Sean Henry – Environmental Manager
    - Advisory boards and Commissioning
        - Natural resources advisory board
    - Coalition for the Poudre River watershed

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 2. We do quick wins very well (e.g., stream restoration, buy properties together, working together on very tangible projects).
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Poudre Flows Program. *Ongoing*. Cross jurisdictional effort led by Natural Areas Department to increase flows in the Poudre River. Faces legal and funding challenges, with unclear city commitment and staffing.
    - Lake Canal. *Planned*. Long-term project to restore river flow by closing a diversion canal with a medium level (20-30 cfs) diversion. Offers potential floor mitigation and park improvement opportunities.
    - 2024 Poudre River Health Assessment Framework. *Ongoing*. Collaborative project to assess river health and inform future restoration areas (Utilities, Natural Areas, Coalition for the Poudre River Watershed, CSU). City needs to actively participate in data analysis and implementation findings.
14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 2. Use baseline indicators with the River Assessment Framework. We have established targets to progress and track progress of programmatic goals, but the current target is not very

ambitious, achieving an overall health grade of a C or higher. There's space to rethink the desired targets.

15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Health of the River. Set more specific goals for the next 20 years (e.g., grade of flow in the river, seasonal objectives).
    - How do we move to more naturalized landscape to provide safety from flood risk as the City is a major landowner in flood conditions.
    - How to we have healthy water at the heart of this community? (e.g., water quality, water quantity)
    - The Water Use Efficiency Plan is a state mandate and focusses on treated water only. Outdoor water use per capita (residential and commercial), including raw water use and turf landscaping policies. Where can we incentivize water practices if we can't change water law?
16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Defining roles and responsibilities across departments to facilitate effective collaboration
    - Commit to sustained funding and long-term investments.
    - Realign budget allocations to support holistic water needs rather than departmental divisions
17. **What does One Water success look like to you?**
    - Establish clear communication channels among stakeholders. Aligning individual department missions with overarching goals, promoting cross-department collaboration.
    - Implement impactful, multidisciplinary projects that deliver tangible community benefits withing a reasonable timeframe (5-10 years).
    - Prioritize visible projects that demonstrate progress and generate community support.
    - Ensure the One Water Plan includes mechanisms for adaptability by pointing to other plans to accommodate evolving community, organizational, and planning changes. Without the commitment to One Water changing.

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 30, 2024 at 11:00 AM
Interview Candidate:	Andrew Gingerich, Director of Water Field Operations (City Utilities Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Andrew Gingerich is the Director of Water Field Operations. He's been with Fort Collins for 12 years, in utilities for 10 years, and in this director role for the last 5 years. The Water Field Operations team handles everything in the field between water production plant and wastewater collection plant, including water transmission, distribution pipes, wastewater collection pipes, stormwater collection pipes, and water meters. The linear asset team has a small in-house construction team that is responsible replacement of pipelines. His team is not responsible for pump stations (handled by water production team) and there are no wastewater lift stations in the system as the sewer collection system is entirely gravity fed.

1. **Please state your name and role in the organization.**
   - Andrew Gingrich is the Director of Water Field Operations with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - 12 years at the City, 5 years in the current role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Potable water distribution pipes
   - Wastewater collection pipes
   - Stormwater collection pipes
4. **How would you define One Water based on your current knowledge?**
   - We all have a part to play in managing this limited resource getting it from rain fall/storage/snowpack to provide clean water to the community and then return it back to nature/river.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions		X	
Pillar #5: One Water Monitoring	X		

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
    - Level 1.5. But somewhere in between level 1 and level 2. Some departments are moving to plan development, but not all.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
    - The City utilizes multiple work order systems, which creates a barrier to information sharing.
    - ArcGIS systems and GIS data are not shared. Natural areas and Parks are not in our mapping system at all.
    - Mr. Gingerich's team has robust mapping with all linear assets, however it was noted that the water treatment plant's assets are not documented within the same system.
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
    - Community education. The community needs a better understanding of what it takes to collect, treat, and deliver water to reduce the tension with raising rates.
    - Workforce information. The City's human resources department needs to better understand regional/national best practices, compensation, and have job descriptions for water operators and other positions to recruit and retain a good workforce.
    - Benchmarking of successful utilities. Capacity and workforce needed for a successful One Water utility. Need industry standard.
8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment),**

Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?

- Level 1. There may be some leadership that is in the level 2, but city managers are still in the onboarding phase. Without a plan to implement so it has been hard to get leadership commitment.

9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Overall understanding of what everyone's role in the organization is.
        - More flexibility for folks to find a path without a 4-year degree to progress in their career.
        - High level understanding so you can job shadow or step up in an emergency.
    - One Water culture would have less hurdles and more trust. Reduce the hurdles between changing career paths within the City.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. No other stakeholders other than CSU (that Andrew knows about) that are working on One Water or recognition that he City of Fort Collins has declared itself as a s One Water organization.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Surrounding water districts that we have interconnects with, share water with, or have customers in that district but are City of Fort Collins residents.
    - US Forest Service (current wildfire).
    - Downstream communities where the Poudre River passes through
    - Northern water
    - Natural Areas Department
    - Larimer County
    - Save the Poudre (NGO)
    - City of Fort Collins Water Commission
    - Large breweries because they care very much about the water quality. There is a brewers' group that can be tapped into.
    - Chamber of Commerce – good water quality is one of the selling points of Fort Collins. Infrastructure improvements affect businesses downtown.
    - Local construction sector. Contracting and changing purchasing practices changes have hurt us.
12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 2 (when looking at all types of projects).
    - As a utility we are doing things at level 2 and level 3, however projects that have been branded as One Water are still within the quick wins.

13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**

- One Water operator. This is a HR/personnel project. The City's Budget Office created a One Water operator position (operators at the same level of compensation, cross training for water and wastewater, will bring up the pay of field operators).
- Halligan project. Ongoing.
- Oak Street Stormwater Project downtown. 2-year long project. Involved a coordinated approach to water, wastewater, stormwater, parks and forestry as the project includes relocating wastewater pipes, installing water lines, implementing LID practices such as rain gardens to manage stormwater runoff.
- Red Fox Meadows project. Matt Fater was the project manager. Turned into a natural area.

14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**

- Level 1. We don't have a One Water benchmarking strategy, we're all in different areas, doing different things for individual departments.
- However, the City really hits all three levels. Level 1 to level 2, with pockets sitting in level 3. For example, with Water leaks monitoring we are in level 2 and level 3 because we know where most leaks occur and why. With stormwater we're at level 1, transitioning into level 2 benchmarking, likely because it's the youngest utility. Wastewater monitoring is more at level 2 to level 3, because we're beginning to look at AI predictive modeling.

15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**

- Water conservation – gpcd
- Protecting non-revenue water usage
- Preventing leaks
- Performance indicators for turnovers, tenure for water operators. Are we doing what we can to have the best training and best staffing to serve our community?
- Water resource reliability and resilience. Fort Collins has good water rights, other communities outside don't have it as good. There will likely be a time when we have to take a more regional role in water deliveries once there's enough political pressure before we have to share water with other Districts that don't have the necessary resources
- One Water CIP with a longer planning horizon commitment. Currently we aim for a 10-year outlook, but it's revised every two years.

16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**

- One Water operator concept (cross-training and equal pay for water/wastewater operators based on experience, not utility)
- Getting a workforce that we can get trained and retain
- Finding a way for our boots on the ground staff to buy into the One Water

- A One Water CIP Plan. Currently, capital improvements and rate projects are still in the short cycle and not focused on a unified vision and longer planning horizon/commitment.

17. **What does One Water success look like to you?**
    - We have a good outlook on how to continue to continue to store provide, collect our water
    - Feel confident that we have the finances to do this
    - Trained workforce to do this

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 9, 2024, 2:00 PM
Interview Candidate:	Kirk Longstein, Senior Environmental Planner (City's Planning Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interviews

Interview Summary

Kirk Longstein is a Senior Environmental Planner with the City Planning Department. He has worked at the City for eight years, the past two years in his current role on the development review and planning team. In this role, he oversees all development applications going through the city. His primary focus is on land development and land use code. Within this area, his work on water centers on water quality, with most of his day-to-day activities involving stormwater (MS4 compliance), natural buffer zones, urban runoff, and irrigation in naturalized areas and temporary irrigation on development sites.

1. **Please state your name and role in the organization**
   - Kirk Longstein is a Senior Environmental Planner with the City Planning Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - 8 years at the City and 2 years in the current role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Stormwater and urban runoff, incl. water quality
   - Irrigation of natural areas and temporary irrigation for development sites
4. **How would you define One Water based on your current knowledge?**
   - Nature based solutions and wetlands.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning		X	
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		X
Pillar #4: Informed Actions		X	
Pillar #5: One Water Monitoring	X		

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**

   … Level 2. The City is great at developing plans and policies but struggles with implementation & adaptation.

   - Supply and demand management policy doesn't support desired housing goals (density).
   - Water rates and water supply requirements discourage/provide no economic incentive for development to install non-potable systems and reduce potable water usage.
   - The stormwater design manual does not have criteria that helps incentivize Developers.

6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**

   … Data is not readily accessible due to barriers for data sharing.

   - The City has failed to house a centrally managed data warehouse across groups. Data is siloed across functional groups or departments (e.g., utilities and city infrastructure have individual data warehouses).
   - Information gathering tends to be relationship based, not readily accessible.

- Stormwater basin plans managed by the City outside of regulatory floodplain are difficult to obtain, they are not on a website and are not readily available in GIS layers.

7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
   - … Alignment between One Water Plan and the updated land-use code (ongoing) focusing on the 15-minute city (City Council's priority).
   - … Solutions for balancing water quality and stormwater management with the needs of infill development (force mains, site constraints).
   - … Strategies for capturing stormwater runoff and achieving water management goals in a dense urban environment.
   - … Recognizing the shift in perspective from a greenfield type of community to an urban city.
8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
   - … Level 1. Management is unaligned with staff. Inspired staff start projects, but because they don't know who is responsible for owning outcomes, the projects fizzle out.
   - … The staff is also inspired around One Water at a grass roots level (Level 3) and work well horizontally.
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
   - … Inspired organization that keeps forward moving momentum.
   - … Group mentality. Require an influencer to move the needle and get the group aligned.
   - … Empowering. Provide people opportunities to step up and be a leader.
   - … Analytical. Better equipped at decision-making when there are examples and data.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - … Level 3. The community is extremely involved. Utilities has dedicated staff to develop and implement community engagement programs.
    - … However, it depends on the topic. For demand management there is more community involvement than for water supply projects and ditch management.
    - … [Community engagement around One Water was not specifically mentioned.]
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - … The Community's "usual suspects". Mention was made of avoiding stakeholder fatigue.
    - … Design firms.
      - They submit applications for land entitlements and represent property owners.
    - … Environment groups that have vested interests in the Poudre River.

- Natural Areas (City department) already have relationships with these groups.
- Not the Sierra Club.
- No climate groups.

... Business organizations, including the Fort Collins Chamber of Commerce.

... Water Commission.

... Planning and Zoning Commission.

... Land Conservation and Stewardship Board.

... Cross function between City Departments (e.g., Parks, Natural Areas Department, Real Estate Services, Planning, Environmental Services and their climate equity group's cultural ambassadors).

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**

... Level 2. Organizationally, the intent is always to have multi-beneficial projects, but when it comes to investment these additional benefits often get value engineered out of the project.

... Matt Fater has a list of all the capital projects that the City has deferred because of funding.

13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**

... Red Fox Meadows Natural Area. Past project.

... Hickory Basin. Ongoing project. Planning and Stormwater Departments recently drafted a memo around Hickory basin to have constructed wetlands, trails and signage. The project is a collaboration with private development. The developer will get this project to 80% design and then the City will take over for design completion and final grading.

... Green corridor / Spring Creek Trail. Past project. Taft Hill to College Avenue. Flood protection project

... Dry Creek in the Mulberry corridor. Potential project identified in stormwater master plan. The annexation plan for that area could be a connecting bike trail.

14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**

... Level 1. From Kirk's perspective there is a need on the stormwater side for more data. When private developers are paying and designing the project and then the City assumes the infrastructure, the data is well captured.

... However, this depends on which part of the utility. Supply and demand management has great data.

15. **In order to measure success and monitor progress towards implementing a One Water frameworks, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**

- More wetlands. This may be difficult due to prior appropriation. The current system is designed to move water downstream. Keep water inside the City for environmental benefits and natural features.
- Track groundwater recharge.

16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Stretching water to its full potential. Recognizing the value and investment that the City has already made in water.
17. **What does One Water success look like to you?**
    - A thriving community
    - A community that recognizes the value of water and puts water on the forefront.
    - A community that understands that they live in a semi-arid environment.
    - Reconnecting water's role in the City's history.

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	August 7, 2024 at 3:00 PM
Interview Candidate:	Jill Oropeza, Senior Director for Sciences and Planning (City's Utility Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Jill Oropeza is the Senior Director for Sciences and Planning. Jill has been with the City for 17 years, and in her current role for 18 months. Jill focuses on the non-operations side and touches all elements of the water cycle.

1. **Please state your name and role in the organization**
   - Jill Oropeza is the Senior Director for Sciences and Planning with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - 17 years at the City and 18 months in the current role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - All elements of the water cycle.
4. **How would you define One Water based on your current knowledge?**
   - Water system and operations are integrated to make the highest and best use of resources.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions		X	
Pillar #5: One Water Monitoring		X	

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
    - Level 1. We are currently in the information gathering phase. We have disparate plans and don't have strategic alignment in terms of being able to take action that furthers each of the sets of objectives.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
    - Disconnect between land use planning, environmental planning, and water. We acknowledge the existence of each other, but there is no repeatable way to ensure we're consistently evaluating opportunities together. For example, we are often in conflict when building stormwater detention ponds.
    - Current climate planning efforts are focused on greenhouse gas emissions. There is a big gap around resilience, and that is where water comes to play. We need to advance our conversations around climate resilience to include community resilience and adaptation to include water.
    - We are not thoughtful enough around green infrastructure programs in stormwater. We're not systematic how we do it, some happens through existing capital planning, but it is always an ad hoc process. We can explore how to tie into programs like nutrient trading and carbon markets and leverage these concepts and pilot programs with our stormwater planning.
7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
    - Identify the biggest community vulnerabilities.
    - Define action areas based on current conditions.

- Develop strategies to address identified needs.
- Create a focused action plan.
- Develop a utility-centric community service map.
- Align operation work plans with strategic plans.
- Communicate the value of water to the community.
- Create a sense of urgency around water issues.
- Enhance understanding of water system's value.
- Balance economic development with affordability.
- Explain "the why" of cost increases to the community and weave in the environment.
- Clearly communicate the City's ongoing work and initiatives.

8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1.5. The City is strong in level 1 and on the cusp of going to level 2.
    - There isn't shared understanding yet of what One Water is throughout all organizational levels.
    - We have a council priority that is set form that is very much One Water. There is leadership commitment and willingness, but we don't know what we're committed to (yet).
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - Common understanding of how One Water principles are applied to the City's mission.
    - Enhanced inter-agency collaboration within the basin.
    - Able to identify additional benefits and opportunities.
    - Shared understanding of project connections and synergies.
    - One Water mindset and questioning lens.
    - Ready to optimize existing business processes and structures.
    - Organizational structure for the water utilities and business processes
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**
    - Level 1. We cannot talk about One Water internally with shared understanding. We're not messaging and engaging the community and projects specifically as it related to One Water.
    - However, if you remove One Water, we'd be a level 3. There is a feedback loop happening, and active community engagement around many other (water) topics.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - CSU
    - Tri-Districts: East Larimer County (ELCO) Water District, Fort Collins-Loveland Water District, and. North Weld County Water District.

- Northern Water
- Neighboring communities – Wellington, Greeley, Loveland
- Chamber of commerce
- Local watershed coalition
- Larimer County. They're currently developing a water plan.

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 2 (when averaging all projects). We complete capital planning and water supply planning on longer timescales, with long term budgeting. Those are sequenced with other departments around the city, there is coordination.
    - Other projects are more opportunistic, quick wins (Level 1).
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Lake Canal Project – Project involves the removal of an old diversion dam and improves habitat on the river, improves safety, improves recreational opportunities and increases flows. *Ongoing*. Four city departments, Northern Water, ditch companies. Could tie into Northern Water's mitigation and operations work.
    - River Health Assessment Framework. *Ongoing*. Collaborative watershed basin project
    - Water Treatment Residual Project. *Approval Stage*. Recycling water treatment residuals in stormwater detention basins. Benefits are waste diversion and nutrient improvement. Working on permit with the State. The State of Colorado gave permission to pilot and now we're waiting for CDPHE to approve this practice.
    - One Water consolidated laboratory. *Planning*. Water wastewater laboratory. Looking for stormwater function and benefit. Looking for community partnership.
14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 2. As an organization we're good at identifying meaningful metrics and tracking and collecting data and revising them.
    - Operationally we're not as strong. We don't have specific One Water goals (yet).
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - Define clear water efficiency goals.
    - Resolve conflicting objectives (e.g. heat island effect and tree canopy).
    - Identify and address complex community-wide water challenges.
    - Develop a long-term water vision for the region.
    - Improve stakeholder engagement (agriculture, neighbors).
    - Address basin-scale water issues (leasing, keeping water in the basin).

- Align water planning with smart growth and development.
- Strengthen relationships with water rights holders (collaboration with ditch companies).
- Integrate water considerations into city-wide planning.
- Define how to use green stormwater infrastructure (GSI) for flood risk mitigation and/or natural watershed resilience.

16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Long term road map to tackle the City's biggest challenges with a 20-50-year horizon.
    - Foundation to develop an operational plan
17. **What does One Water success look like to you?**
    - A communication platform we can use internally and externally.
    - More organizational alignment and strategic direction.
    - Regional communications to remove silos between institutions/departments

CITY OF FORT COLLINS

One Water Action Framework

Project No.:	203085
Date:	July 15, 2024 at 9:00 AM
Interview Candidate:	Jeremy Woolf, Senior Director (City Utilities Department)
Other Attendees:	Inge Wiersema, Meg Parker (Carollo Engineers, Inc.)
Subject:	One Water Action Framework – Phase 1 Interview

Interview Summary

Jeremy Woolf is a Senior Director with Integrated Water Operations. He's worked for the City for 18 months. In his role, he works on potable water distribution, water and wastewater treatment, the collections and distribution system, and some recycled water for cooling.

1. **Please state your name and role in the organization.**
   - Jeremy Woolf is a Senior Director with Integrated Water Operations with the City Utilities Department.
2. **How long have you worked for the City of Fort Collins? How much of that time has been in your current role?**
   - 18 months at the City and in this role.
3. **Which elements of the water cycle do you and/or your team manage in your position?**
   - Potable water distribution and treatment.
   - Wastewater collections, distribution, and treatment.
   - Some recycled water for cooling.
4. **How would you define One Water based on your current knowledge?**
   - The removing of silos for traditionally compartmentalized water cycle.

The following ten questions revolved around the five pillars of the One Water Self-Assessment Framework shown below). The interview candidate's assessment on the City's progression for each of the five pillars (or Action Categories) across the three levels is summarized in the table and elaborated in the answers to questions 5, 8, 10, 12, and 14.

Action Category	Level 1	Level 2	Level 3
Pillar #1: One Water Planning	X		
Pillar #2: Organizational Culture	X		
Pillar #3: Stakeholder Engagement	X		
Pillar #4: Informed Actions	X		
Pillar #5: One Water Monitoring	X		

5. **Looking at the three levels of Pillar #1: One Water Planning, where do you think the City of Fort Collins is on the progression of One Water Planning? Level 1 (Information Gathering), Level 2 (Plan Development), or Level 3 (Active Implementation)? And can you briefly explain why?**
   - Level 1. City has developed numerous plans but lacks a cohesive One Water strategy.
   - The City is gathering information on existing department initiatives and exploring ways to leverage them for a unified approach.
6. **One Water Plans inherently build upon existing data and documents. Where do you think the City's main data gaps are to develop a comprehensive One Water Plan?**
   - The City has very good asset management and laboratory data.
   - Data Systems Improvement:
     - Evaluate and propose an industry-standard system to replace Data Splice for better support and functionality.
     - Poor integration of data systems within the City.
     - Improve asset management and GIS connection (migrate to industry standard).
   - Laboratory Data Accessibility: Develop an interface to improve operational access to lab data, enhancing usability for operators.
   - Data Visualization Tools: Implement Power BI (big lift) for consolidating data and improving visualization tools across departments.
   - Digital Twins: Create a roadmap for implementing digital twins in water treatment, collections and distributions to improve system wide understanding.
   - Historical data is ongoing, but real-time data is also needed.

7. **What type of information would you like to be included in the City's One Water Plan to make it beneficial for you in your current role, and for the community at large?**
    - Regulatory constraints: compile a list of regulatory constraints hindering the transition to One Water and develop a strategy to address these.
    - Water quality trading: Engage with state officials to clarify and potentially utilize the water quality trading policy for environmental and economic benefits.
        - Economic benefits of investing in green infrastructure over gray infrastructure, comparing capital and operational investments.
    - The resources needed to implement One Water approaches.
8. **Looking at the three levels of Pillar #2: Organizational Culture, where do you think the City of Fort Collins is on the progression of a One Water Culture? Level 1 (Leadership Commitment), Level 2 (Organizational Alignment), or Level 3 (Inspired Organization)? And can you briefly explain why?**
    - Level 1. We're just beginning to understand the benefits of One Water and the resources required to accomplish one water. Need greater understanding of the resources required for full City leadership support.
9. **What are, in your opinion, some of the key characteristics of an organization that embraces a One Water culture?**
    - A strategically designed organizational structure that supports One Water.
    - Filling key positions with individuals who actively advocate for and lead the One Water transition.
    - Robust communication strategy that goes beyond traditional media. Should include engaging community outreach initiatives like a One Water Center where residents can learn about the program, attend conferences, and explore career opportunities in the water sector.
    - Dedicated lobbying efforts to influence regulations towards policies that support one water implementation.
10. **Looking at the three levels of Pillar #3: Stakeholder Engagement, where do you think the City of Fort Collins is on the progression of Stakeholder Engagement? Level 1 (Institutional Collaboration), Level 2 (Community Engagement) or Level 3 (Continuous Feedback)? And can you briefly explain why?**

    Level 1. The City is at the early stage of institutional collaboration and has communicated the idea of One Water, but needs to improve how we explain what it means in practice.
11. **Which stakeholders do you think should be involved to some degree during the Fort Collins' One Water Plan development process?**
    - Katherine Marko – environmental regulations
    - Natural Areas and Parks Department
    - Funding entities
        - Internal finance department
        - Charitable organizations (e.g., Gates Foundation, Poudre Landmarks Foundation (manages the 1883 Water Works))
        - Philanthropic individuals with environmental missions.
    - City of Greely (could collaborate on the use of Meadow Springs Ranch for biosolids application)

- Communications department – need to communicate the progress (internal and external communication)
    - Communication focus on City Council and Water Commission
- CSU
    - Resources/students/Internships
    - Wide knowledge base and the city to inform the plan
    - City-base
- High schools and community colleges
    - Workforce recruitment

12. **Looking at the three levels of Pillar #4: Informed Actions, where do you think the City of Fort Collins is on the progression of Informed Actions? Level 1 (Quick Wins), Level 2 (Collaboration Opportunities) or Level 3 (Commitment and Investment)? And can you briefly explain why?**
    - Level 1. City has identified multi-benefit water projects, but further collaboration is needed.
13. **Which of the City's past, ongoing, or planned projects do you think would be the best role model projects to showcase the City's commitment to a One Water approach and mindset?**
    - Acquisition of Meadow Springs Ranch. Completed. City has control of everything. This site provides an area to pilot ideas (land application, stormwater runoff, crop uptake).
    - Water Treatment Residual Amendment in Stormwater Systems for Phosphorus Reduction and Waste Removal.
    - Use of water residuals for Stormwater Plan. Completed in 2020. Inter-departmental. Use of water residuals to treat stormwater and reduce nutrient discharges for detention basins. Jeremy doesn't want to incorporate this until the State buys into water quality trading.
    - Meadow Springs Ranch Conservation Easement. Planned. Interdepartmental with Natural Areas and Parks and City of Greely (biosolids application).
    - Meadow Springs Ranch collaboration with City of Greely on biosolids application.
    - The 1883 Water Works. Internal conversations. The water utility owns the original treatment plant, but opportunities to engage Natural Areas and Parks to develop areas around for recreation and One Water Learning Center.
    - Direct Potable Reuse (DPR). Planned. Community buy-in and capital investment would demonstrate a level of commitment to One Water.
14. **Looking at the three levels of Pillar #5: One Water Monitoring, where do you think the City of Fort Collins is on the progression of One Water Monitoring? Level 1 (Baseline Indicators), Level 2 (Benchmarking Indicators) or Level 3 (Performance Indicators)? And can you briefly explain why?**
    - Level 1. Baseline indicators are there but are still compartmentalized to each department.
15. **In order to measure success and monitor progress towards implementing a One Water framework, the first is to establish One Water goals. What do you see as important One Water goals for the City of Fort Collins?**
    - DPR or IPR
    - Significant level of watershed investment (in green infrastructure)
    - Water quality trading
    - Economic efficiencies from source protection.

- Compare capital investment versus operational investment.
- How does pH impact water treatment and wastewater treatment operations. Impacts of Cameron Peak Fire changed the incoming pH and made the source water easier to treat.

16. **From the perspective of your role in the organization, what would be the most important benefits of developing a One Water Action Framework or Plan for the City of Fort Collins?**
    - Higher visibility on the value of water for the community and City (outside of water)
    - High level of green infrastructure investment (another visibility to the community) they need to understand the value of water and the benefits that they see from water and clean water
    - Higher probability of acquiring funds (internally and externally) because of a Communications Plan, and now the City can justify the value of water.
    - Greater efficiency in how the City uses water (e.g., less evaporation).
    - Significant benefits in regulatory compliance with DPR (i.e., because discharge limits are more stringent than drinking water requirements).
17. **What does One Water success look like to you?**
    - One Water Learning Center (Cleveland example)
    - DPR
    - More green stormwater infrastructure
    - The One Water Plan is a roadmap, actionable, to have benchmarks, and outlines what we can execute to move the City forward and to have benchmarks.
    - Shared knowledge bases between all the different areas like field operations and wastewater treatment operations and water operations as they get to know each one of those areas.

APPENDIX B

ONE WATER PRESSURES AND CHALLENGES

PRESSURES AND CHALLENGES MATRIX

Key Pressures	Challenges for Fort Collins
Technology Deficit	▪ Cost and time for system replacement ▪ Shifting skillset needed for the future ▪ Cross-departmental management of shared data systems ▪ Inadequate internal IT/OT support ▪ Project Management needs for implementation ▪ General lack of knowledge about new tools ▪ Too many software applications ▪ Increasing cyber security needs
Limited Water Supply & Growing Demands	▪ Scarcity / overallocation ▪ Rising cost of water ▪ Decreasing flows in river & tributaries ▪ Changing timing of availability ▪ Increasing outdoor demands due to increasing temperatures ▪ Colorado River compact negotiation uncertainties ▪ Dedicating more water to Cache la Poudre River / competition for streamflow ▪ Lack of an Integrated Resource Plan ▪ Landscape irrigation demands with climate change
Water Quality and Ecosystems Degradation	▪ Nutrients ▪ Temperature ▪ Algae/HABs ▪ Erosion and sediment loading ▪ CECs and pathogens
Climate Changes & Extreme Events	▪ Wildfires ▪ Floods ▪ Droughts ▪ Increasing Temperature and Evaporation ▪ Air Quality events ▪ Extreme Windstorms ▪ Snowstorms ▪ Poudre Flow Consolidation ▪ Increasing temperature and evapotranspiration
Population Growth / Densification	▪ Multiple water districts ▪ Hard to develop areas ▪ Stormwater design criteria/LID ▪ Right-of-way construction ▪ Ditch company conflicts of interest ▪ Railroad engagement

Key Pressures	Challenges for Fort Collins
Culture & Workforce	▪ Talent development of existing staff ▪ Recruitment/talent pool development ▪ Career path development (existing and new) ▪ Organizational Structure and coordination/alignment ▪ Compensation issues ▪ City Leadership
Equity & Environmental Justice	▪ Gentrification ▪ Capital project planning ▪ Lack of representation in water issues ▪ Affordability and access to programs, resources, and services
Rising Cost of Infrastructure & Resource Constraints	▪ Aging infrastructure ▪ Service affordability ▪ Outdated stormwater master plans ▪ Inadequate revenue ▪ Outdated financial strategic plan ▪ Limited access to alternative funding sources; uncertainty regarding federal financial resources ▪ Increasingly stringent and uncertain water quality regulations ▪ Uncertainties in Halligan Water Supply Project permitting process ▪ Aging infrastructure ▪ Escalating operational costs
Political and Social Considerations	▪ Council priorities that change over time ▪ Fluctuations in economic conditions ▪ Potential hiring freezes ▪ Political lack of understanding of water ▪ Integrated CDPHE permitting for river protection and management ▪ Need for regulatory incentives (e.g. Green Infrastructure)