



WATER EFFICIENCY PLAN TOWN OF FREDERICK

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OCTOBER 13, 2022



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PREPARED BY



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List of Abbreviations

AF	acre-feet
AFY	acre-feet per year
AMI	advanced metering infrastructure
AMR	automated meter reading
AWC	average winter consumption
AWWA	American Water Works Association
cfs	cubic feet per second
C-BT	Colorado-Big Thompson
CII	Commercial, Industrial, and Institutional
CWCB	Colorado Water Conservation Board
gpcd	gallons per capita per day
kgal	kilo gallons

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MF	multi-family
NISP	Northern Integrated Supply Project
NOAA	National Oceanic and Atmospheric Administration
QWEL	Qualified Water Efficient Landscaper
SF	single-family
WEP	Water Efficiency Plan

Acknowledgements

ELEMENT would like to thank the following Town of Frederick staff who were instrumental in the development of this Water Efficiency Plan:

- Sarah Watson
- Kevin Ash
- Jennifer Simmons
- Maureen Welsh
- Ali van Deutekom
- Sarah Troy
- Kent VanDyne
- Rusty Ribble
- Alex Tristan

Town staff and ELEMENT would also like to thank Frederick's Board of Trustees for its review and support of the Water Efficiency Plan. It is with your support that the Town of Frederick will continue to thrive and provide a safe and reliable drinking water supply to residents into the future.

- Tracie Crites, Mayor
- Adam Mahan, Trustee
- Dan March, Mayor Pro Tem
- Kevin Brown, Trustee
- Mark Lamach, Trustee
- Windi Padia, Trustee
- Rusty O'Neal, Trustee

1. INTRODUCTION

The Town of Frederick (Frederick or Town herein) is located in southern Weld County, Colorado situated along Interstate 25 (I-25) and generally north of Highway 52 (**Figure 1**). Frederick provides potable water service to residents located east of I-25 as well as raw water to customers throughout the Town's boundaries. The Town has an agreement with Left Hand Water District to supply potable water to properties located west of I-25. The water demands considered as part of this 10-Year Water Resources Plan include potable demands for customers east of I-25 and raw demands throughout the Town's entire "planning area" outlined in the Town's most recent Comprehensive Plan (2016).

Frederick was established in 1907 adjacent to the Denver Pacific Railway because local coal deposits in the "Carbon Valley" area were being used to supply fuel for locomotives. Over time, Frederick's major industry shifted from coal mining to be more diversified with manufacturing, oil and gas operations, and construction. I-25 was completed in 1969 and linked the Carbon Valley with Interstate 70 and the rest of the Front Range region, thereby expanding opportunities for industrial and suburban-styled growth and development. Frederick has been experiencing significant growth, which generally aligns with the job and population growth experienced in recent decades across the Colorado Front Range. Frederick is emerging as a sought-after community that features a high quality of life and local businesses that serve Town residents and attracting an increasing number of Boulder and Denver area commuters.

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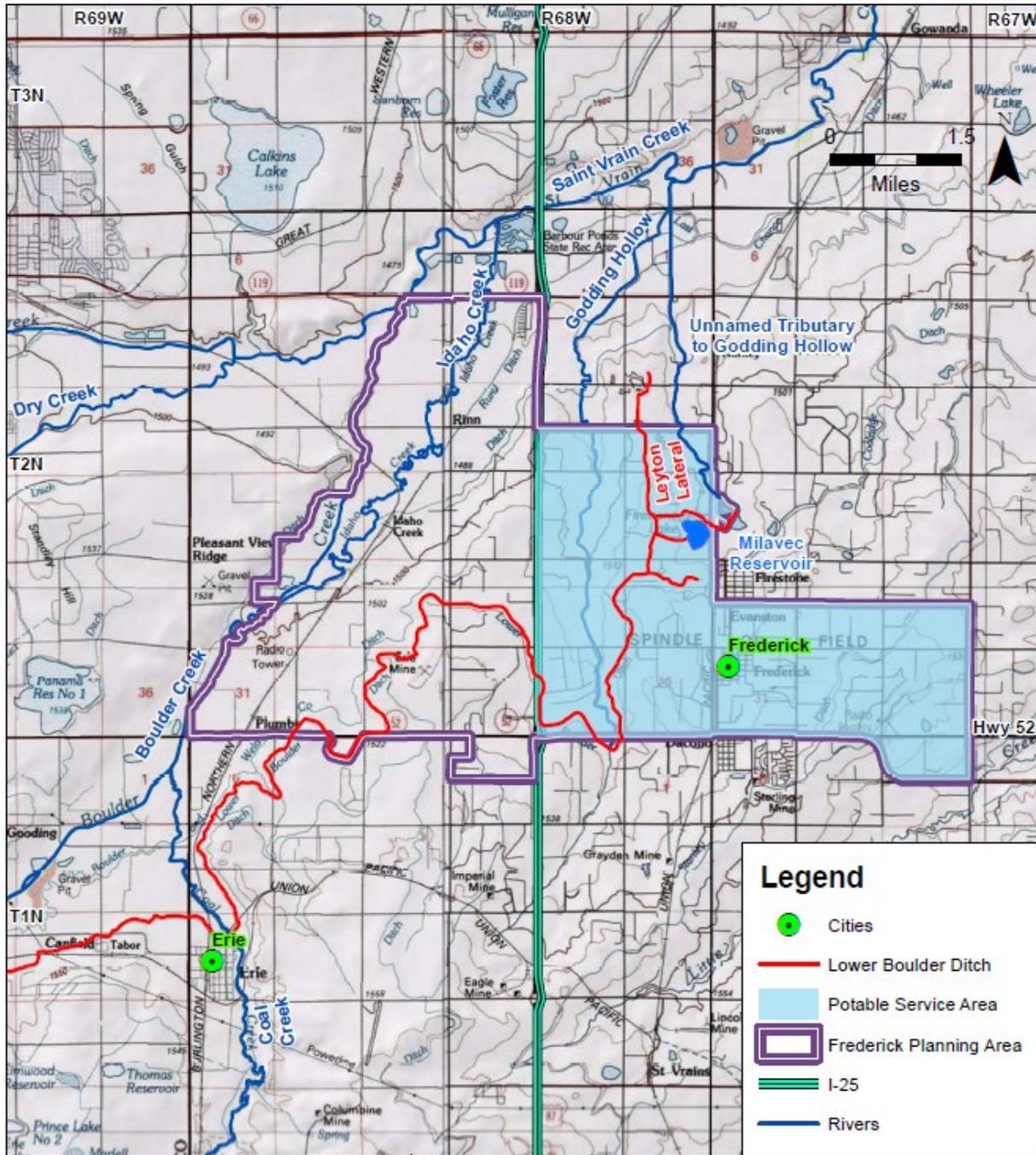


Figure 1: Town of Frederick Vicinity Map.

1.1 BACKGROUND

Frederick is a vibrant and growing community that is committed to serving a safe and reliable water supply to its customers while minimizing waste of this precious resource. The Town’s 2022 Municipal Water Efficiency Plan (WEP) provides an update to the Town’s 2011 Water Conservation Plan (2011 WCP) and will work in conjunction with other ongoing planning efforts currently being implemented by the Town. Colorado’s Water Conservation Act of 2004 requires that water providers in the State of Colorado who annually supply over 2,000 acre-feet per year (AFY) of water to retail

customers (covered entities) are required to submit a water conservation plan for review and approval to the Colorado Water Conservation Board (CWCB) at least every seven years. Although the 2011 WCP was prepared under the Water Conservation Act of 2004 guidelines, the Town only recently exceeded 2,000 AFY of potable water use. The Town has a raw water system for supplying certain irrigation demands; however, this WEP addresses potable water use and savings only. This WEP was prepared under the direction of the Town of Frederick's Engineering Department staff. Input solicited from other Town staff, the Board of Trustees, and Frederick residents was incorporated into this plan.

1.2 RELATIONSHIP WITH OTHER PLANNING EFFORTS

The Town has seen consistent growth in recent years and expects this growth to continue well into the future. In order to meet its current and future customer needs, the Town recognizes that planning for new supplies and implementing demand-side strategies and programs are both critical to provide a safe and reliable potable water supply. At the time of this plan development, the Town is also preparing the following water resources plans:

- **10-Year Water Resources Plan (10-Year Plan):** Prepared to evaluate demand-side and supply-side management options to provide a reliable water supply over the next 10 years. The 10-Year Plan is intended to provide Town residents, staff, and the Board of Trustees with an understanding of current and projected near-term conditions, and to help inform policy decisions related to future planning and development. The 10-Year Plan is based on projected potable and raw demands and water supplies that the Town presently owns or has identified as being likely to be developed over the planning period.
- **Long-Term Water Resources Plan (Long-Term Plan):** Prepared to evaluate the Town's future supply and demand conditions over the next 50 years with a range of population/development conditions, water conservation/efficiency efforts, impacts of climate change, and future supply alternatives including the Northern Integrated Supply Project (NISP). The potential demand reductions evaluated in this WEP are being integrated into the demand projections that are prepared as part of the Long-Term Plan.

Water conservation and efficient water use are critical to the Town's overall water resources toolbox in supporting a reliable water system. The Town's 10-Year Plan analyses indicate that the current reliable supply is not sufficient to meet the Town's potable demands by the end of 2030. The 10-Year Plan introduces demand management¹ as a demand-side strategy for meeting the Town's shorter-term supply needs, evaluating conservation programs alongside new supply purchases. As part of its planning, the Town believes efficiency to be a cost-effective water supply and demand solution for future water conditions. As such, the programs and measures identified in this WEP will support the projected demand reductions used to represent demand management in both the 10-Year Plan and the Long-Term Plan. Water efficiency is fundamental to the Town's integrated water resources approach to maintain a sustainable water future.

2. PROFILE OF EXISTING WATER SUPPLY SYSTEM

The Town serves both potable and non-potable irrigation customers within its service area. The following sections provide an overview of both water supply systems and the primary supply sources

¹ This report uses the terms "demand management", "water conservation", and "water efficiency" interchangeably.

serving the Town's customers. Additional detail can be found in the Town's other water resources planning documents.

2.1 OVERVIEW OF EXISTING WATER SUPPLY SYSTEM

Frederick is a growing community located in southern Weld County adjacent to Interstate 25, generally north of State Highway 52. The Town allows easy access to the Denver and northern Front Range metropolitan areas with excellent views of the Rocky Mountains from the Carbon Valley area. Frederick was established in 1907 and was named after Frederick A. Clark. The Town originally started when a group of mostly Italian immigrants chose to live in Frederick and work in the many coal mines in the area. The Town honors their memory and efforts to establish the Frederick community by celebrating Miners Day once a year. The Town residents combined their finances to purchase Milavec Reservoir at what is now the Frederick Recreational Area when they found the need for a reliable water source. Now the Town is home to thriving small businesses as its population continues to grow.²

The Town's potable water system is currently served almost exclusively by Colorado-Big Thompson (C-BT) supplies that are treated by Central Weld County Water District (Central Weld) and delivered to the Town through a series of master meters. The Town then delivers the treated water to its metered customers, serving approximately 12,030 residents as of the end of 2020. The Town currently provides potable water service to approximately 4,100 customer connections within the Town's potable service area, which is limited to the east side of Interstate 25 (see **Figure 2** below).³ Potable metered account use is read starting around the 20th of each month and billed on a monthly cycle in 1,000-gallon (kgal) increments.

² Information from the Town of Frederick website.

³ Left Hand Water District supplies potable water to residents located west of Interstate 25 through an agreement with the Town.

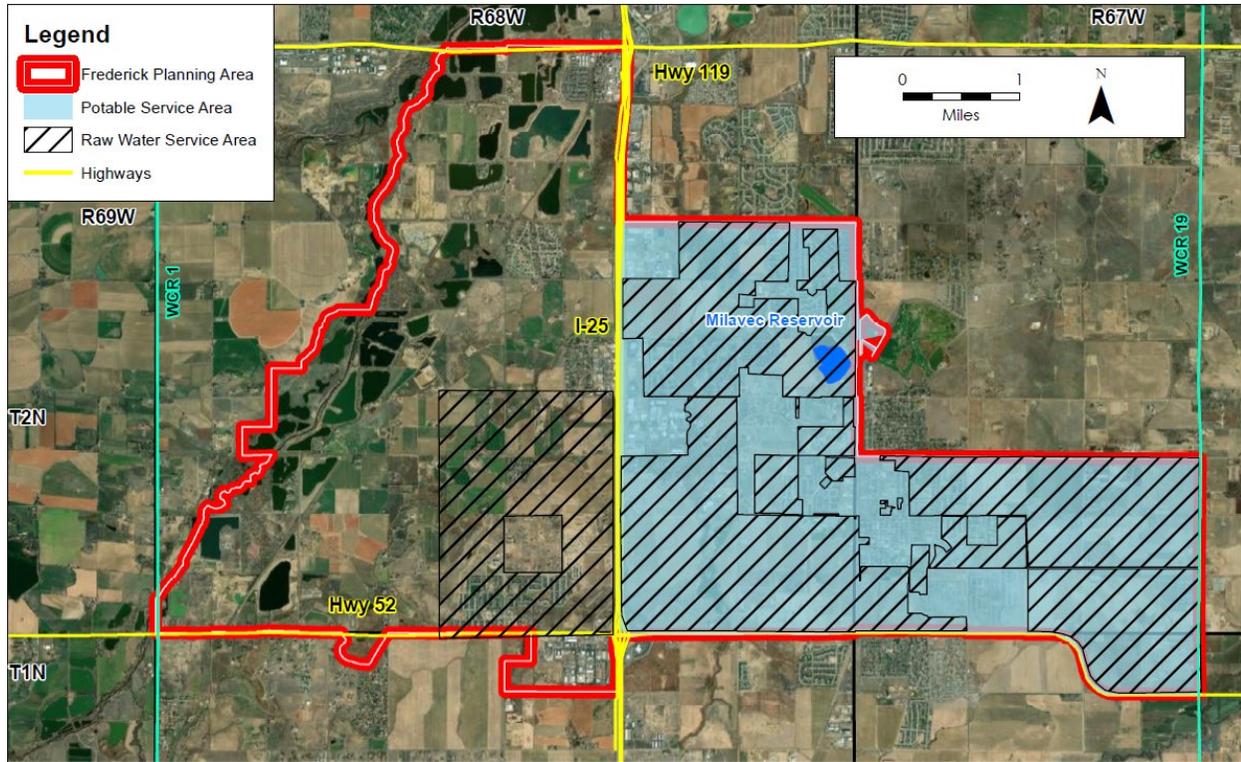


Figure 2. Town of Frederick Potable Service Area.⁴

2.2 WATER SUPPLY

As previously discussed, the Town serves potable water to residents located east of Interstate 25 as well as raw water to customers within the Town’s boundaries. Following is an overview of the Town’s potable and raw water supplies and additional detail on potential future supplies is available in the Town’s other water resources planning documents.

2.2.1 POTABLE WATER SUPPLY

The Town’s existing potable water supply is predominantly comprised of C-BT project water; however, the Town began taking delivery of untreated Windy Gap water in 2021. Both C-BT and Windy Gap supplies are treated and delivered to the Town by Central Weld. Central Weld treats the Town’s water supplies at the Carter Lake Filter Plant, which is approximately 20 miles northwest of the Town (see **Figure 3**), and then delivers water to the Town’s master meters. Under the Town’s potable water service agreement with Central Weld, Frederick must provide Central Weld with water in an amount equal to 120% of the volume delivered through the Town’s master meters, which is intended to account for system, treatment, delivery, and metering losses (Frederick-Central Weld, 1998). A schematic of the Town’s potable water system is provided on **Figure 4**.

⁴ The Town’s planning area and potable service area are based on information provided by Town staff.

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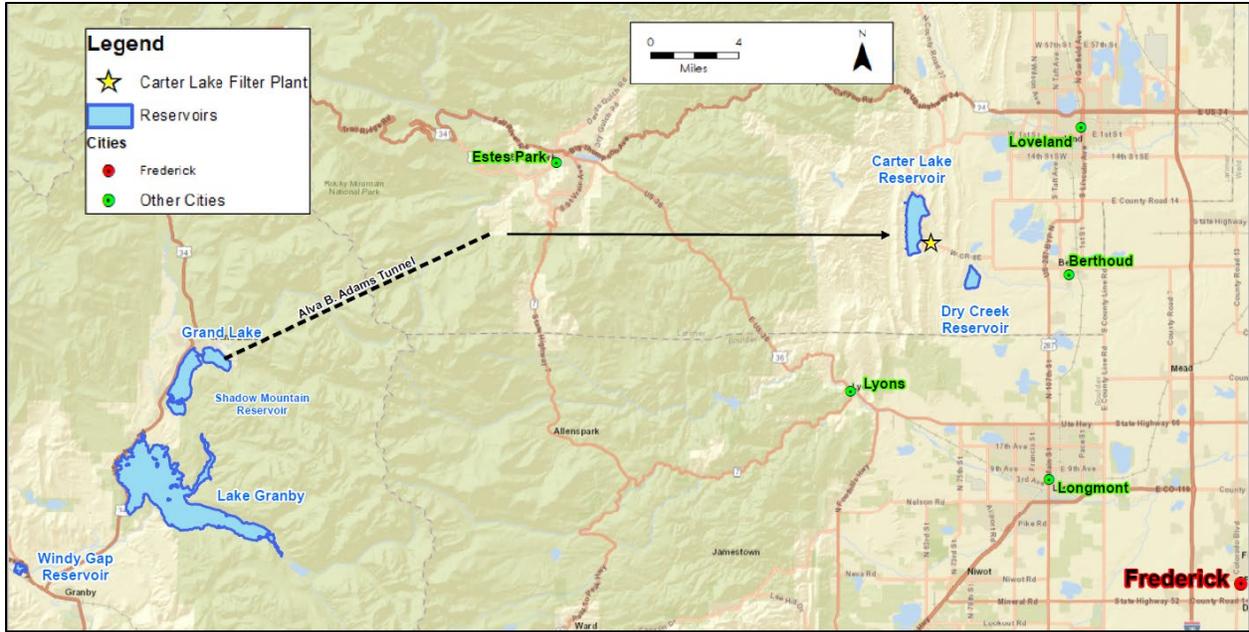


Figure 3: Potable Supply Vicinity Map.

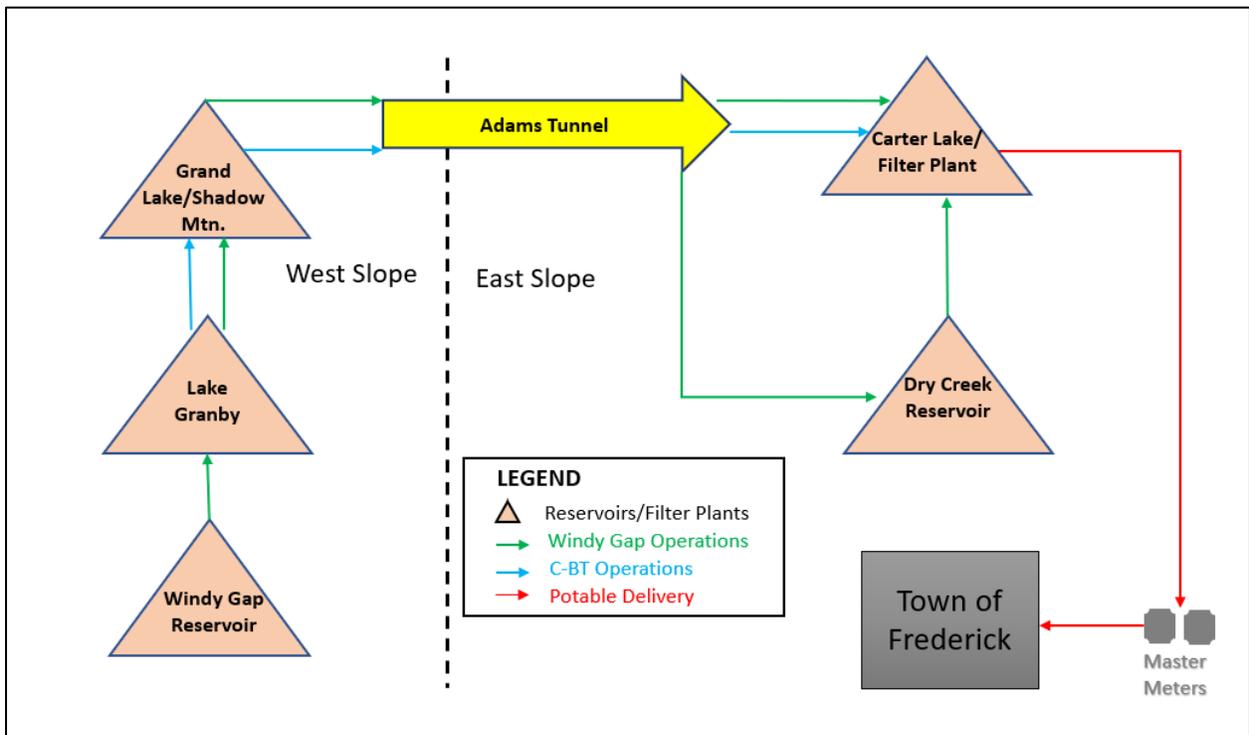


Figure 4: Potable Supply Schematic.

The C-BT project is operated and administered by Northern Colorado Water Conservancy District (Northern Water). Northern Water determines the annual “quota” of C-BT units, which has historically ranged from 0.5 to 1.0 AFY/unit with an average of 0.74 AFY/unit from 1957 – 2020 (Northern Water, 2020). The Town currently owns 4,373 C-BT units, indicating that the total annual supply can range from approximately 2,190 to 4,370 AFY depending on the annual quota and would average approximately 3,240 AFY based on historical conditions.

2.2.2 RAW WATER SUPPLY

The Town operates a raw water system for non-potable irrigation, which is currently supplied with water stored in Milavec Lake, Centennial Irrigation Pond, and Finley No. 1 and No. 2 Irrigation Ponds, and to a limited degree, directly from the Lower Boulder Ditch. Stored supplies are delivered to irrigated lands via gravity and through the Town’s pressurized system. The Town plans to expand its raw water system throughout the Town’s raw water service area for future irrigation of parks and shared open spaces within new developments (Figure 2 above).

The Town currently utilizes irrigation water rights including Lower Boulder Ditch shares, Coal Ridge Ditch shares, surplus C-BT supplies, and Milavec Reservoir storage to provide raw water supply for irrigation. Additional detail on the Town’s raw water supplies is available in the Town’s other water resources planning documents.

2.3 WATER SUPPLY RELIABILITY

The Town’s current C-BT and Windy Gap supplies are insufficient to meet the projected potable demands through 2030. As detailed in the 10-Year Plan, the Town is implementing four projects to develop a dependable supply portfolio. Two of the projects will increase the Town’s potable supplies through the acquisition of additional C-BT and Windy Gap units. The other two projects will decrease the Town’s potable demands by a) converting the irrigation supply for up to 18 properties, mostly parks, currently being served by potable water to instead be provided from raw water sources; and b) implementing water conservation and efficiency measures. Through the Long-Term Plan efforts, the Town is developing strategies to provide dependable potable and raw supplies to meet future demands.

3. HISTORICAL AND PROJECTED FUTURE WATER USE

In 2011, the Town prepared a baseline water use analysis in support of its 2011 WCP which relied on water use data through 2010. ELEMENT has prepared a revised historical potable water use analysis for the period of 2013 through 2020, summarized herein, that will be used to support ongoing planning efforts. This period of record and data relied upon is consistent with the Town’s 10-Year Plan.

3.1 KEY CHARACTERISTICS OF SERVICE AREA

The Town currently serves treated water to approximately 4,100 customer connections. The Town uses the following customer categories to classify its potable metered and billed water service accounts (“Metered Customer Categories”).

- Single-family residential (SF)
- Multi-family residential (MF) – includes mobile home parks.
- Commercial – includes Town municipal accounts.
- Irrigation-only
- Industrial
- Hydrant – hydrant meters are rented for construction and some temporary irrigation use. Water use for hydrant flushing and fire department use is not metered and is not represented in the demand analysis.

All of the Town’s customer connections are metered, allowing the water utility to bill customers based on the volume of water used. Potable metered water use is the primary focus for this water efficiency plan, as further described below.

3.2 HISTORICAL WATER USE

Metered potable water use for the period of 2013 through 2020 was evaluated using account-level data and summarized by the Metered Customer Categories. The metered water use data were used to evaluate current water use trends and to prepare representative baseline water use values and factors to support ongoing planning efforts.

Average annual metered water use by Metered Customer Category is shown on **Figure 5** below. SF water use accounts for approximately 75% of the Town’s total annual potable water use, followed by commercial at about 11%. Each of the other Metered Customer Categories account for less than 5% of total use.

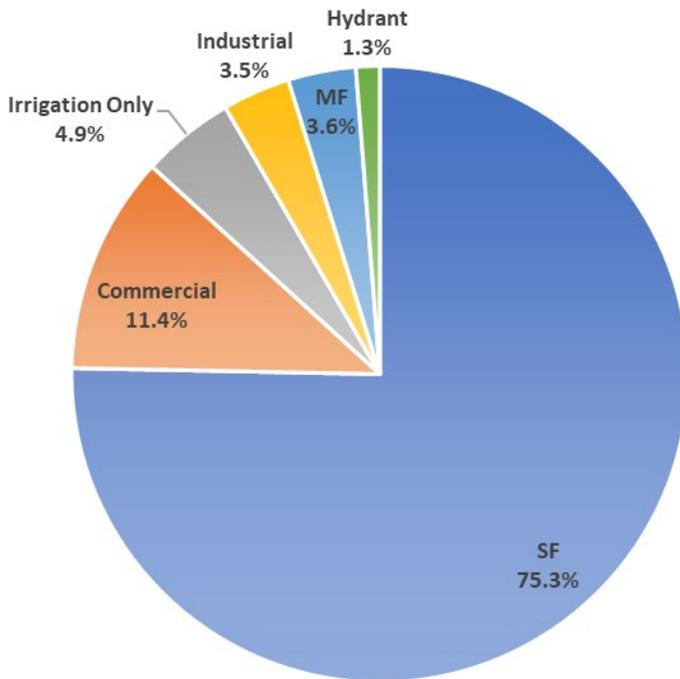


Figure 5. Avg. Annual Water Use Distribution by Metered Customer Category, 2013 – 2020.

The Town’s service area population has grown at an average rate of 4% from 2013 – 2020.⁵ Over the same period, potable metered water use has been increasing similarly, except in 2019 when water use dropped before increasing again in 2020 (**Figure 6**).⁶

⁵ Average population growth rate in the Town’s service area has been calculated based on the number of homes served as provided by the Town, assuming 2.9 people per home.

⁶ The WEP was prepared with the focus on water savings to potable metered water use because the Town receives its treated water supply through master meters owned and operated by Central Weld.

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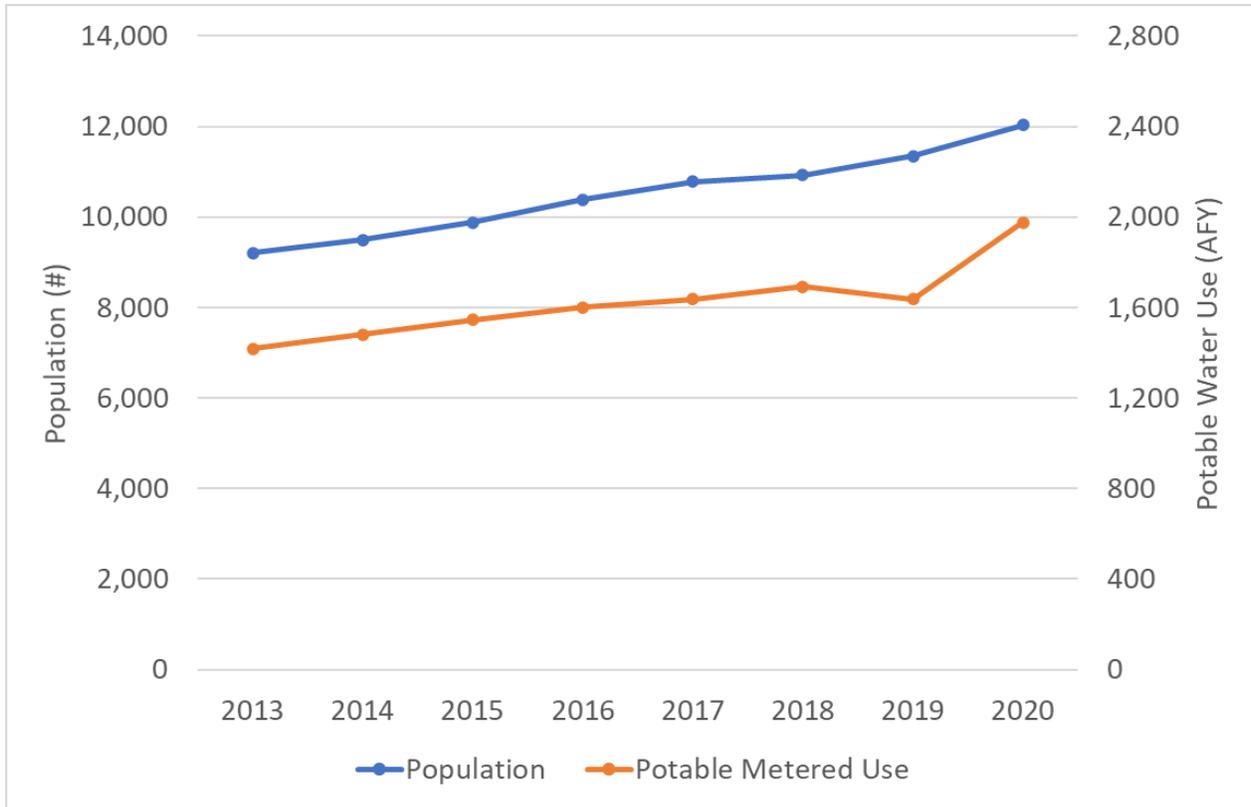


Figure 6: Frederick’s Historical Population for Potable Service Area and Potable Use, 2013-2020.

The total potable metered water use for Frederick’s system has averaged approximately 1,624 AFY over the analysis period, as shown in **Table 1** below. Total potable water use has generally increased each year over the study period, as would be expected due to population growth. In 2019, the total water use decreased as compared to the prior year, then increased again in 2020. This trend was investigated alongside temperature and precipitation data and was also reviewed with Town staff; however, no clear explanation was identified. Total water use was 1,976 AFY in 2020, which indicates the Town likely has or will soon exceed the threshold of 2,000 AFY to be classified as a “covered entity.”⁷ The Town’s total water demand including a 20% surcharge to Central Weld has the Town already exceeding this threshold.

⁷ A covered entity is defined in §37-60-126 C.R.S. as a municipality, agency, utility, including any privately owned utility, or other publicly owned with a legal obligation to supply, distribute, or otherwise provide water at retail to domestic, commercial, industrial, or public facility customers, and that has a total demand for such customers of 2,000 acre-feet or more. Colorado’s Water Conservation Act of 2004 (HB04-1365) requires all covered entities to have a state approved water efficiency plan containing certain required minimum plan elements.

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Table 1. Annual Metered Potable Water Use by Metered Customer Category, AFY.

Customer Type	SF	Commercial	Irrigation Only	Industrial	MF	Hydrant	Total Metered Use
2013	1,086	142	114	47	10	20	1,419
2014	1,115	157	78	55	65	11	1,481
2015	1,177	158	73	53	72	13	1,546
2016	1,224	163	73	57	70	15	1,601
2017	1,254	169	78	62	70	4	1,637
2018	1,272	218	69	64	58	11	1,692
2019	1,181	214	62	63	55	63	1,637
2020	1,474	265	89	61	64	25	1,976
2013-2020 Avg.	1,223	186	79	58	58	20	1,624

3.2.1 INDOOR AND OUTDOOR WATER USE

Indoor and outdoor water use was estimated based on the average winter consumption (AWC) methodology for each Metered Customer Category over the study period. Representative monthly indoor water use was calculated as the average monthly water use for December, January, and February of each year, which assumes that all water use during these months is attributable to indoor uses. As such, actual metered use for December through February was used to represent indoor use for that month and the lesser of the actual monthly metered use and the calculated AWC was used to represent indoor use for all other months. Outdoor monthly water use was then calculated as the total monthly metered water use minus the monthly indoor water use. Note that all potable water use under the irrigation-only and hydrant accounts was assumed to be outdoor use. **Figure 7** shows the average annual indoor and outdoor water use by Metered Customer Category as a percent of the total annual water use. On average, single-family residential had the highest indoor use proportion (43% of total annual water use). As SF is the highest water use Metered Customer Category and outdoor use makes up more than half of that, targeting outdoor SF use presents the largest opportunity for water savings. About 62% of the Town’s total potable water use is attributable to outdoor uses (**Table 2**).

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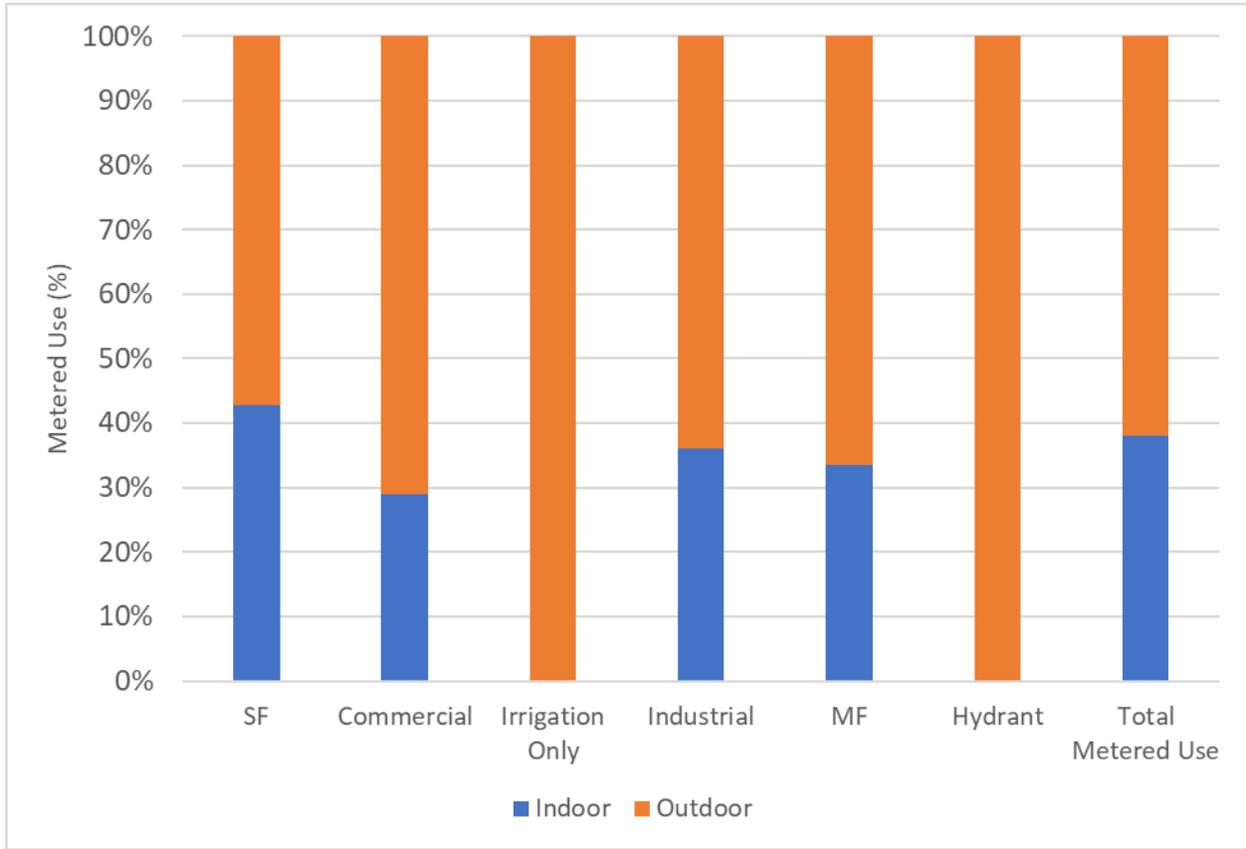


Figure 7. Average Indoor and Outdoor Water Use by Metered Customer Category, 2013 - 2020.

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Table 2: Annual Indoor and Outdoor Potable Water Use by Metered Customer Category, AFY.

Year	SF		Commercial		Irrigation Only		Industrial		MF		Hydrant		Total Potable			
	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	% Indoor	% Outdoor
2013	473	612	45	98	-	114	15	32	8	2	-	20	540	879	38%	62%
2014	482	634	46	111	-	78	16	39	16	49	-	11	559	921	38%	62%
2015	497	680	44	114	-	73	19	34	23	49	-	13	583	963	38%	62%
2016	526	697	48	115	-	73	20	37	25	44	-	15	620	981	39%	61%
2017	523	731	48	122	-	78	20	41	24	45	-	4	615	1,021	38%	62%
2018	545	727	60	158	-	69	25	40	19	38	-	11	649	1,043	38%	62%
2019	548	633	69	145	-	62	28	35	19	36	-	63	664	974	41%	59%
2020	588	886	71	193	-	89	24	37	20	44	-	25	703	1,273	36%	64%
Avg.	523	700	54	132	-	79	21	37	19	38	-	20	617	1,007	38%	62%
Avg. %	43%	57%	29%	71%	0%	100%	36%	64%	33%	67%	0%	100%	38%	62%		

As with most municipalities in Colorado, the Town’s water use is higher during summer months due to outdoor water use. **Figure 8** shows the average monthly metered treated water use over the period of 2013 – 2020 by Metered Customer Category versus the mean monthly temperature (NOAA Brighton Climate Station USC00050950). As a result of outdoor water use, water usage for all Metered Customer Categories increases during summer months from May through October. Single-family residential customers have by far the largest volumetric use.

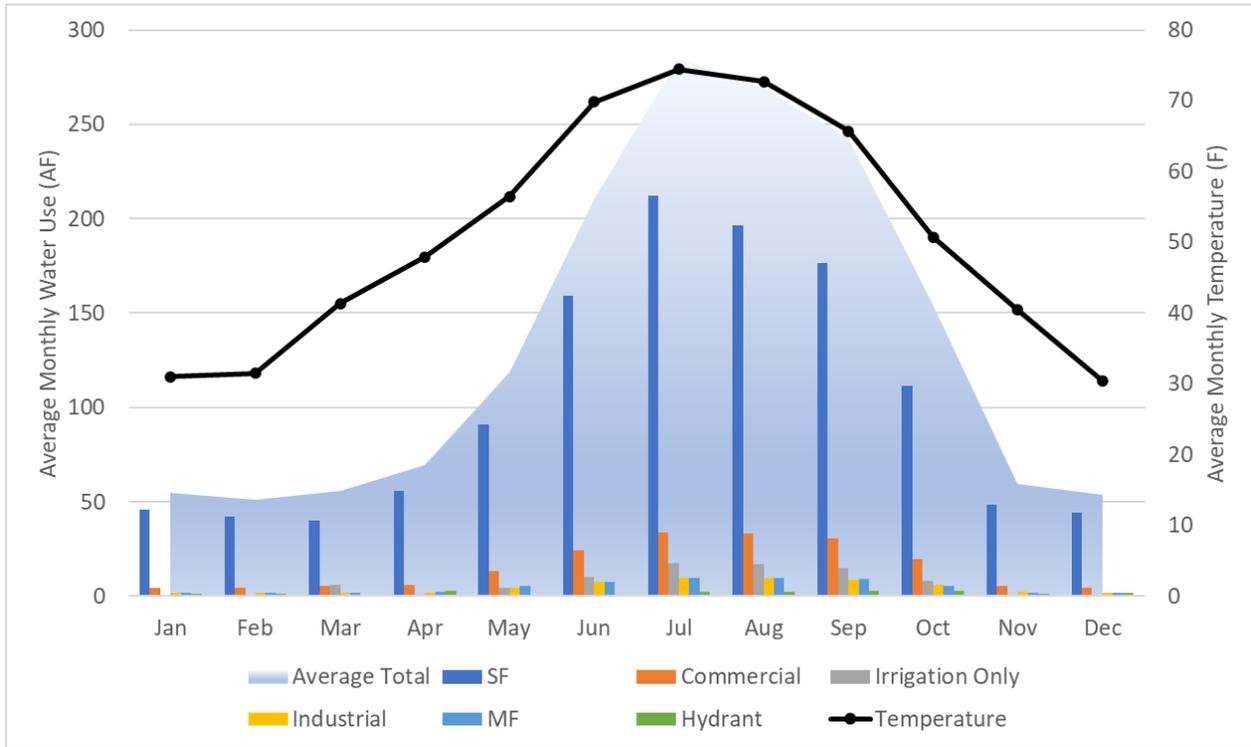


Figure 8: Average Monthly Metered Potable Water Use by Customer Category from 2013 - 2020.

3.2.2 UNITIZED WATER USE BY CUSTOMER TYPE

Water use data, particularly for the residential sector, are often normalized by a defined unit, typically population, to determine unitized (e.g., per capita) water usage rates for comparison purposes including against water efficiency benchmarks. For example, indoor residential sector efficiency benchmarks are commonly expressed in terms of gallons per capita per day (gpcd). This is particularly beneficial for a water provider like Frederick that is experiencing continued population growth to evaluate unit water use as opposed to only total system use. Normalized water use data also allows for an evaluation of trends over time without the influence of growth.

3.2.2.1 RESIDENTIAL WATER USE

Residential water use was evaluated in two ways. First, total residential per capita water use was calculated as the total annual SF water use plus total annual MF water use divided by the total service area population for each year. Second, SF per capita water use was calculated as the total annual SF water use divided by the estimated SF population, which was derived using the total number of

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accounts per year and the assumption that there are 2.9 people per SF account.⁸ Indoor, outdoor, and total per capita water use for both the total residential and SF categories are shown in **Table 3** below.

Multi-family water use represents only about 4% of the total residential water use (Table 1), so SF water use accounts for most of the total residential per capita values. Over the study period, both total residential and SF per capita water use varied little between years, except in 2019 when per capita water use was about 10% lower than in 2018 and the study period average. Again, this is driven primarily by the SF water use trend for that year. Because of this and the potential for discrepancies in estimating SF versus MF population, total residential water use is used to represent these Metered Customer Categories.

Indoor residential per capita water use benchmarks are often referenced in water use planning to evaluate indoor water use efficiency. The Colorado Water Plan Technical Update (Technical Update) relied upon end use studies of existing homes and water efficiency benchmarks to prepare municipal residential indoor water use projections under five planning scenarios in the year 2050. These end use studies identified a range between 30 and 45 gpcd for future residential indoor water use depending on the efficiency assumptions for a given planning scenario. An indoor residential use of 42.4 gpcd represents a “current efficiency benchmark” based on 247 retrofit homes equipped with high efficiency fixtures and appliances which generally meet or exceed the EPA WaterSense specifications and was used to represent indoor residential water use under three of the five projection scenarios for the Technical Update. The Town’s total indoor residential water use has averaged 46 gpcd since 2013, or about 8% above the current efficiency benchmark of 42.4 gpcd. Older homes in the Town are likely increasing the average as compared to the benchmark, as newer homes are expected to be close to the benchmark. Outdoor per capita water use varies slightly more than the indoor per capita use, but generally the trends in annual residential water use vary less than 10% from the average.

Table 3: Residential Per Capita Water Use, 2013 – 2020, gpcd.

Year	Total Residential (SF + MF)			Single-Family Residential		
	Indoor	Outdoor	Total	Indoor	Outdoor	Total
2013	47	60	106	49	63	112
2014	47	64	111	48	63	111
2015	47	66	113	48	65	113
2016	47	64	111	48	64	112
2017	45	64	110	46	64	110
2018	46	63	109	47	63	110
2019	45	53	97	46	54	100
2020	45	69	114	47	71	118
2013-2020 Max	47	69	114	49	71	118
2013-2020 Avg.	46	63	109	47	63	111

3.2.2.2 NON-RESIDENTIAL WATER USE

The Town’s current non-residential water use was evaluated as the annual water use divided by the number of active accounts for each Metered Customer Category, as shown in **Table 4** below. These

⁸ Based on email correspondence with Jennifer Simmons, Town Planning Director.

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normalized values reflect the annual trends within each category. Note that because each Metered Customer Category is being evaluated based on the number of sector-specific accounts, efficiency cannot be assessed by comparing the normalized values across categories. This is shown as indoor, outdoor, and total water use for all non-residential water use categories. The results show that hydrant use has more interannual variability than other categories, which is likely explained by variable construction activities and temporary irrigation use. Irrigation-only has higher variability over the last few years. Commercial and industrial uses have both generally increased over time, with 2020 representing the highest water use per account for commercial accounts.

Table 4: Non-Residential Per Account Water Use, 2013 – 2020, AFY/account.

Year	Commercial			Irrigation Only			Industrial			Hydrant		
	Indoor	Outdoor	Total	Indoor	Outdoor	Total	Indoor	Outdoor	Total	Indoor	Outdoor	Total
2013	0.67	1.46	2.12	-	5.71	5.71	0.46	1.00	1.46	-	20.47	20.47
2014	0.65	1.59	2.24	-	3.70	3.70	0.47	1.16	1.62	-	10.51	10.51
2015	0.60	1.54	2.14	-	3.30	3.30	0.56	0.99	1.55	-	3.32	3.32
2016	0.63	1.52	2.15	-	3.30	3.30	0.58	1.09	1.67	-	1.89	1.89
2017	0.60	1.54	2.14	-	3.56	3.56	0.59	1.22	1.81	-	0.60	0.60
2018	0.75	1.98	2.73	-	3.00	3.00	0.71	1.13	1.83	-	0.94	0.94
2019	0.80	1.68	2.48	-	2.80	2.80	0.81	1.00	1.80	-	4.85	4.85
2020	0.78	2.12	2.91	-	4.22	4.22	0.70	1.08	1.78	-	2.53	2.53
2013-2020 Avg.	0.69	1.68	2.36	-	3.70	3.70	0.61	1.08	1.69	-	5.64	5.64

3.2.3 POTABLE WATER DELIVERIES

The Town’s potable water supplies are treated by Central Weld at the Carter Lake Filter Plant and then delivered through an underground pipe network to the Town’s master meters. Central Weld has 75 master meters that are assigned to the Town. Some of the Town’s customers receive deliveries directly from Central Weld; these connections are classified by Central Weld as being a Town master meter. The Town is charged by Central Weld for this water use, and the costs are then passed through to the customer. These customers do not have separate agreements with Central Weld for their service connections. Because these deliveries are recorded as part of the total delivery to the Town, and the Town subsequently meters and bills the end-user, it is appropriate to include the usage in the Town’s water use analysis. Annual deliveries from Central Weld and the Town’s total metered billed water use are compared on **Figure 9** below. Data for 2017 through 2019 shows a lower volume of Central Weld potable water deliveries than what was billed by the Town. Per Town staff, it is unclear how frequently Central Weld tests or calibrates its master meters, making it difficult to assess the accuracy of the delivery data. The Town’s residential meters have all been tested within the last five years, which reported no significant issues. Additionally, the Town is on a 15-to-20-year replacement schedule for all residential meters. Accordingly, the Town’s metered water use data was deemed to be the more accurate source for determining baseline factors.

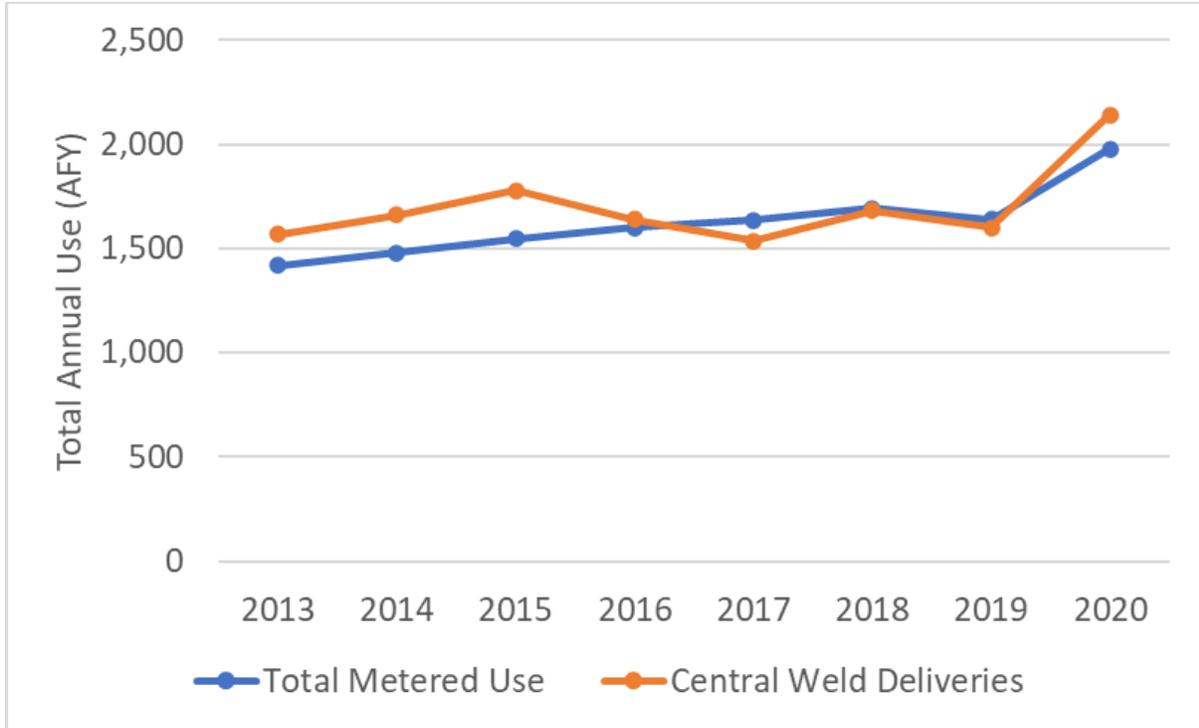


Figure 9: Total Annual Metered Use and Treated Water Deliveries, 2013 – 2020.

3.2.3.1 NON-REVENUE WATER

Within the potable water distribution system, there are generally two categories of water: revenue water, which includes all billed consumption, and non-revenue water, which includes all unbilled authorized consumption and all water losses. Water losses can be categorized further as real or apparent water losses. Apparent losses include customer meter inaccuracies, unauthorized consumption, and data handling errors. Real losses include physical leaks in transmission lines, storage facilities, and service connections (AWWA, 2016). Non-revenue water is calculated as the difference between the amount of water supplied and billed water use. **Figure 10** below shows the water balance components as defined by the American Water Works Association (AWWA, 2006).

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Volume From Own Sources (corrected for known errors)	System Input Volume	Water Exported (corrected for known errors)	Billed Water Exported				Revenue Water
		Water Supplied	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption		Revenue Water
Water Losses	Real Losses			Unbilled Authorized Consumption	Unbilled Metered Consumption		Non-Revenue Water
		Apparent Losses	Unbilled Unmetered Consumption				
Real Losses			Customer Metering Inaccuracies				
		Unauthorized Consumption					
Real Losses		Systematic Data Handling Errors					
		Leakage on Transmission and Distribution Mains					
Water Imported (corrected for known errors)	System Input Volume	Water Supplied	Water Losses	Leakage and Overflows at Utility's Storage Tanks		Non-Revenue Water	
				Leakage on Service Connections up to the Point of Customer Metering			

Note: All data in volume for the period of reference, typically one year.

Figure 10: AWWA Water Balance Components.

Table 5 below shows the Town’s estimated non-revenue water by year, calculated as the Central Weld deliveries minus billed metered water use.⁹ As discussed above, the Central Weld deliveries for 2017, 2018, and 2019 were lower than the billed metered water use, which resulted in negative calculated non-revenue values.

Table 5: Non-Revenue Water by Year, 2013 - 2020, AFY.

Customer Type	2013	2014	2015	2016	2017	2018	2019	2020
Central Weld Deliveries	1,567	1,661	1,778	1,639	1,536	1,682	1,601	2,142
Total Metered Use	1,419	1,481	1,546	1,601	1,637	1,692	1,637	1,976
Total Non-Revenue Water	149	180	232	38	(100)	(10)	(36)	166

While the Town completes annual AWWA M36 audits using the Central Weld master meter delivery data, there have been observed discrepancies and the reliability of this data is unclear. Current master meter data and system maintenance above the master meters is managed by Central Weld. For the Town to further evaluate local losses, meter testing and system audits at the master meters are required. As such, further evaluation of the Town’s local losses is not included in this WEP. The WEP includes recommendations to pursue programs that target improvement of the Town’s potable water delivery data and represents future water use in terms of metered use rather than produced water or water deliveries.

3.2.4 BASELINE WATER USE

Baseline potable water use factors were developed for each of the Metered Customer Categories to be used for projecting the Town’s future water use. Total residential demands, representing single-family (SF) plus multi-family (MF), were projected using baseline per capita water use in combination

⁹ There is no billed unmetered usage per the Town.

with future population projections provided by the Town’s Planning Department. Non-residential demands were projected using baseline annual per account water use in combination with non-residential growth rates provided by the Town’s Planning Department. For all Metered Customer Categories, the baseline indoor use is represented as the average over the study period. Baseline outdoor use was evaluated using both the average and the maximum over the study period because outdoor water use is more susceptible to annual variability in response to changes in weather conditions. The Town currently has very little potable water storage and the annual supply is closely tied to the C-BT quota. Therefore, the Town is largely basing its water planning on the adequacy of supplies to meet outdoor demands in a hot and dry year determined using the maximum factors. The baseline water use values for each Metered Customer Category are presented in **Table 6**.

Table 6: Baseline Water Use Factors by Metered Customer Category, 2013 - 2020.

Year	Avg. Indoor	Avg. Outdoor	Max Outdoor
Total Residential, gpcd	46	63	69
SF Residential, gpcd	47	63	71
Commercial, AFY/account	0.69	1.68	2.12
Irrigation Only, AFY/account	-	3.70	5.71
Industrial, AFY/account	0.61	1.08	1.22
Hydrant, AFY/account	-	5.64	20.47

3.2.5 ANNUAL PEAK DAY DEMANDS

Because the Town receives treated water through an agreement with Central Weld and does not operate its own water treatment facility, peak day demands are not monitored or managed by the Town at this time.

3.3 PAST AND CURRENT CONSERVATION ACTIVITIES AND IMPACTS TO WATER USE

The Town prepared a water savings analysis for the 2011 WCP based on historical water use for 2005 through 2010 and projected annual water use through 2021. Program savings were estimated based on the 23 selected water conservation programs and measures. The Town’s goal was to reduce residential usage from 142 to 114 gpcd, or 20%. On a systemwide basis (total use divided by total population), the goal was to reduce usage from 194 to 158 gpcd, or 18.4%. Comparing the 2010 historical use represented in the 2011 WCP to the 2020 actual metered water use shows that the Town has achieved both of these reduction goals (see **Table 7**). While the Town has not implemented all of the programs selected under the 2011 WCP, those programs that have been actively managed have worked together to achieve the targeted water use reductions. Note that the Metered Customer Category designations have changed since the 2011 WCP, so there cannot be a direct comparison across all current Metered Customer Categories. Losses shown below are calculated as the difference between water provided by Central Weld and metered water use; the 2011 Plan calculated this to be 13% of the water deliveries from Central Weld.

Table 7: 2011 WCP Projected Water Use Savings vs. Actual Water Use Savings.

Water Use Type	2010 Use 2011 WCP		2012 – 2021 Water Use Projection 2011 WCP				2020 Actual Metered Water Use			
	Water Use	Capita 7,509	Water Use	Reduction		Capita 9,206	Water Use	Reduction		Capita 12,029
	AF	gpcd	AF	%	AF	gpcd	AF	%	AF	gpcd
Residential	1,198	142	1,469	20%	294	114	1,538	20%	305	114
Commercial & Industrial	132	16	162	5%	8	15	326	-54%	-177	24
Public	88	10	108	5%	5	10	na	na	na	na
Irrigation Only	na	na	na	na	na	na	89	na	na	7
Hydrant	na	na	na	na	Na	na	25	na	na	2
Losses	212	25	260	23%	60	19	166	51%	85	12
Total	1,630	194	1,999	18.4%	367	158	2,144	18%	384	159

*See Table 5.2 from 2011 WEP.

The following is an overview of the Town’s current water conservation activities. The Town plans to continue all of these programs into the future.

- Meter testing and replacement: The Town currently tracks the age of customer meters and tests those meters that are about 10-years old. Meters are sent to a controlled testing site and are rebuilt or replaced using a systematic approach. Generally, the meters that require replacement tend to be residential meters.
- Efficiency-oriented water rates: The Town bills customers using an increasing block rate structure based on monthly volume used. This assigns a higher rate for the higher use tiers, incentivizing customers to use water more efficiently to remain in the lower billing tiers.
- Utility maintenance: Utility maintenance is an ongoing part of the Town’s due diligence in keeping the water system in good working order. The Town will continue to perform maintenance such as valve exercising, flushing and repairs. Water lines are repaired or replaced through a reactive leak identification program.
- Model indoor efficiency at Town buildings: The Town plans to continue to upgrade its facilities by replacing older toilets, fixtures, and appliances with higher efficiency models.
- Garden in a Box and Slow the Flow partner: The Town plans to continue to be an active partner in these outdoor-focused incentive programs. These currently target residential customers.
- Temporary Irrigation of Native Landscaping: The Town installs irrigation taps at newly developed parks and open spaces to temporarily irrigate native landscaping. This allows for establishment of native landscaping over the first couple years. Once established, the developer ceases irrigation of native landscaping and maintains the new meters to irrigate trees and shrubs.
- Customer outreach and education: The Town provides the following education and outreach resources to its customers:
 - Three to four bill inserts or Frederick Flash email blasts each month during the irrigation season focusing on outdoor water use.
 - Periodic website updates.
 - Utility staff have been representing the Town at the Farmer's Market Town's booth with information available about water and informed staff available to answer questions.

- During Engineer's Week, Town staff gives a presentation on engineering that includes an overview of the Town's water at local schools. To date, the presentation was mostly given to 4th grade classes, but the Town hopes to expand to more grade levels as available. This is in the format of a larger group presentation for a single grade level with water-related activities for students.
- Annual tree sale, at which the Town sells locally appropriate trees to customers.
- Town manages a low-use demonstration garden at one of the Town's parks.

3.4 WATER USE PROJECTIONS

Annual water use projections were developed using the historical potable water use analysis presented in Section 3.2 above. The projections were calculated based on per capita water use for total residential customers and per account water use for non-residential customers.

3.4.1 FUTURE RESIDENTIAL GROWTH

Based on information from the Town's Planning Director, the future population was projected to grow at 2.5% annually. The current population in 2021 is estimated to be 12,330 and is projected to be approximately 15,400 people in 2030 (see **Figure 11**).

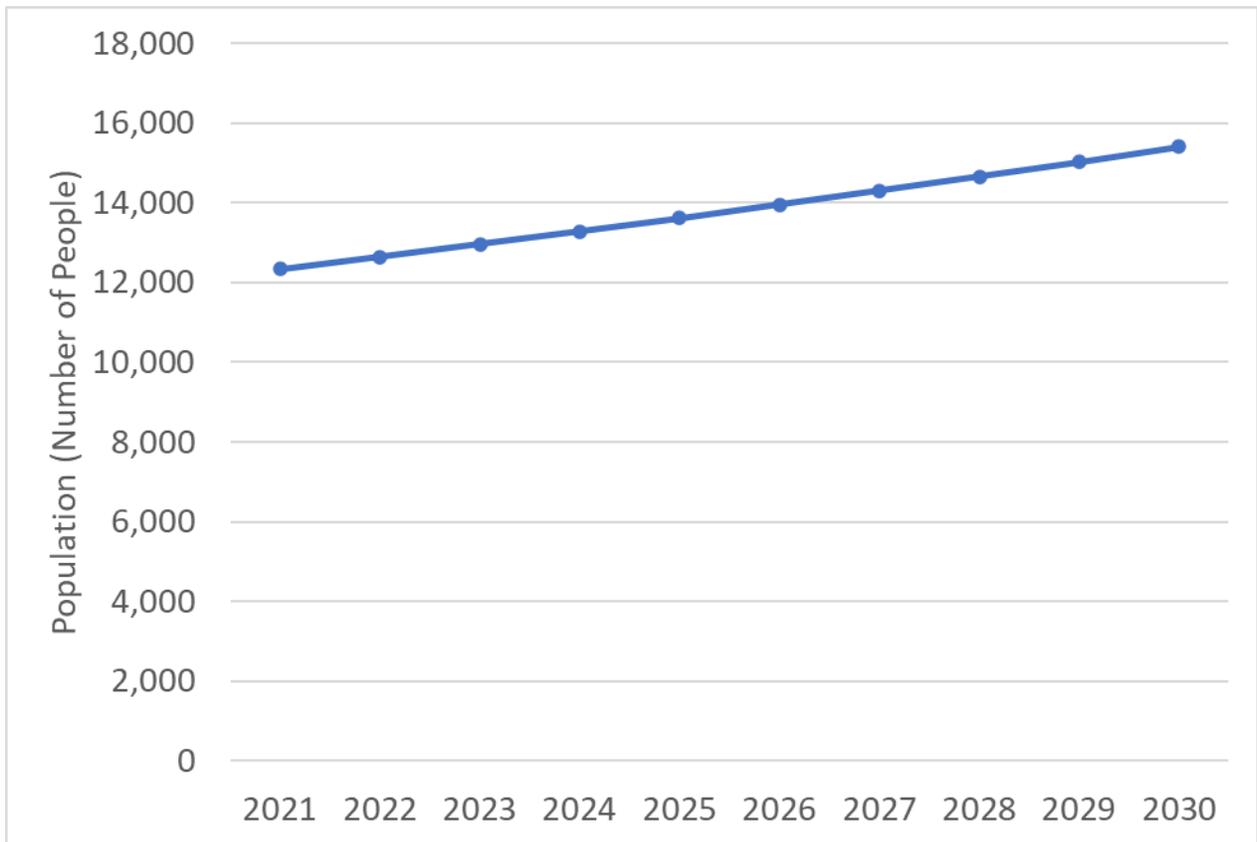


Figure 11: Estimated Future Population for Frederick's Potable Service Area, 2021 - 2030.

3.4.2 FUTURE NON-RESIDENTIAL GROWTH

Based on direction from the Town’s Planning Director, the number of non-residential accounts is also estimated to increase by 2.5% per year over the projection period, as shown in **Table 8**. Note that hydrant demands are assumed to remain static in the future. Potable demands attributable to non-residential irrigation-only accounts are expected to decrease significantly over the next ten years as a result of converting selected properties to use raw water supplies. Therefore, these two non-residential customer categories are not shown in the table below.

Table 8: Town Service Area Commercial and Industrial Account Growth Projection.

Year	Commercial, Number of Accounts	Industrial, Number of Accounts
2021	94	35
2022	97	36
2023	100	37
2024	103	38
2025	106	39
2026	109	40
2027	112	41
2028	115	43
2029	118	45
2030	121	47

3.4.3 WATER USE PROJECTIONS

To support the water efficiency planning process, three separate potable water use projections were prepared:

1. Future baseline without additional conservation
2. Passive savings
3. Passive plus active conservation

Each projection uses the baseline water use factors to represent current conditions. Current baseline use is disaggregated by indoor and outdoor use for each customer category.¹⁰ This disaggregation allows the impacts of specific water efficiency programs and measures to be considered in preparing forecasts. Because the Town does not own or operate the water treatment plant associated with its supplies, all projections represent water use rather than production and do not include the Central Weld surcharge/loss estimates.

Under each scenario, the following growth assumptions at 2030 were applied: projected population of 15,400, 121 projected commercial accounts, and 47 projected industrial accounts. The following variable assumptions were applied for each of the three water use projections:

¹⁰ Baseline potable demand factors from the historical metered use were paired with the current service area population and number of non-residential accounts to prepare current demands based on higher outdoor usage observed during a hot/dry year. In order to develop a dependable water supply, it has been assumed that a high use year may occur at times when the available supply is low. This approach is consistent with the Town’s potable water use projections developed for the 10-Year Plan.

Future growth, baseline without additional conservation

- Represents future water use assuming no change in current per capita residential use and no change in current per account non-residential use.
- Assumes that current conservation activities continue under current conditions with no change in annual savings.
- All customer categories assume current normalized demand levels with anticipated population and account growth through 2030.
- Baseline projection is used to monitor and track water savings and demand reductions from implementation of this WEP.
- Assumes no conversion of properties to use raw supplies for irrigation instead of potable.
- Projected water use in 2030 of approximately 2,670 AFY.

Future growth, passive savings

- Represents future water use assuming some savings from maintenance of existing conservation activities and passive savings from natural replacement of inefficient fixture and equipment typically associated with indoor residential per capita use.
- Assumes that current conservation activities continue under current conditions.
- Assumes that all new population will move into newer, more efficient homes and that 10%¹¹ of the existing population will replace older fixtures and appliances with more efficient models over the planning period. The new and retrofitted population has an applied indoor water use of 42.4 gpcd¹² while the remaining population has an applied indoor water use at the current per capita rate.
- Assumes that there are no reductions to outdoor uses, including no conversion of properties to use raw supplies for irrigation instead of potable.
- Projected water use in 2030 of approximately 2,655 AFY.

Future growth, passive savings plus active conservation

- Represents future water use assuming annual reductions from new and ongoing conservation activities selected in this WEP.
- Assumes that current conservation activities continue under current conditions and that passive savings described above are achieved.
- Assumes additional water use reductions to reflect savings from new conservation programs.
- Assumes full conversion of parcels identified to change from potable irrigation to raw supplies by 2030.
- Projected water use in 2030 of approximately 2,495 AFY.

Water use projections that represent the average annual demand in 2030 for each of the three projections are shown in **Figure 12** below. For purposes of this WEP, water use reductions or savings are calculated as the difference between the future growth with baseline conditions and the future growth with passive savings and active conservation. Using this approach, passive savings are approximately 15 AFY, potable water use reductions from potable irrigation conversions are approximately 75 AFY, and estimated savings from conservation programs selected under this WEP are approximately 85 AFY by 2030.¹³

¹¹ Technical Update assumed a 40% adoption rate over a 35-year projection period to 42.4 gpcd under the “Weak Economy” scenario. Prorating this to a 10-year period results in approximately 10% adoption.

¹² 42.4 gpcd represents a “current efficiency benchmark” for indoor residential use.

¹³ The active conservation water use savings of 85 AFY translates to roughly 100 AFY of water demand savings when accounting for Central Weld surcharges and estimated local losses, as described in the 10-Year Plan.

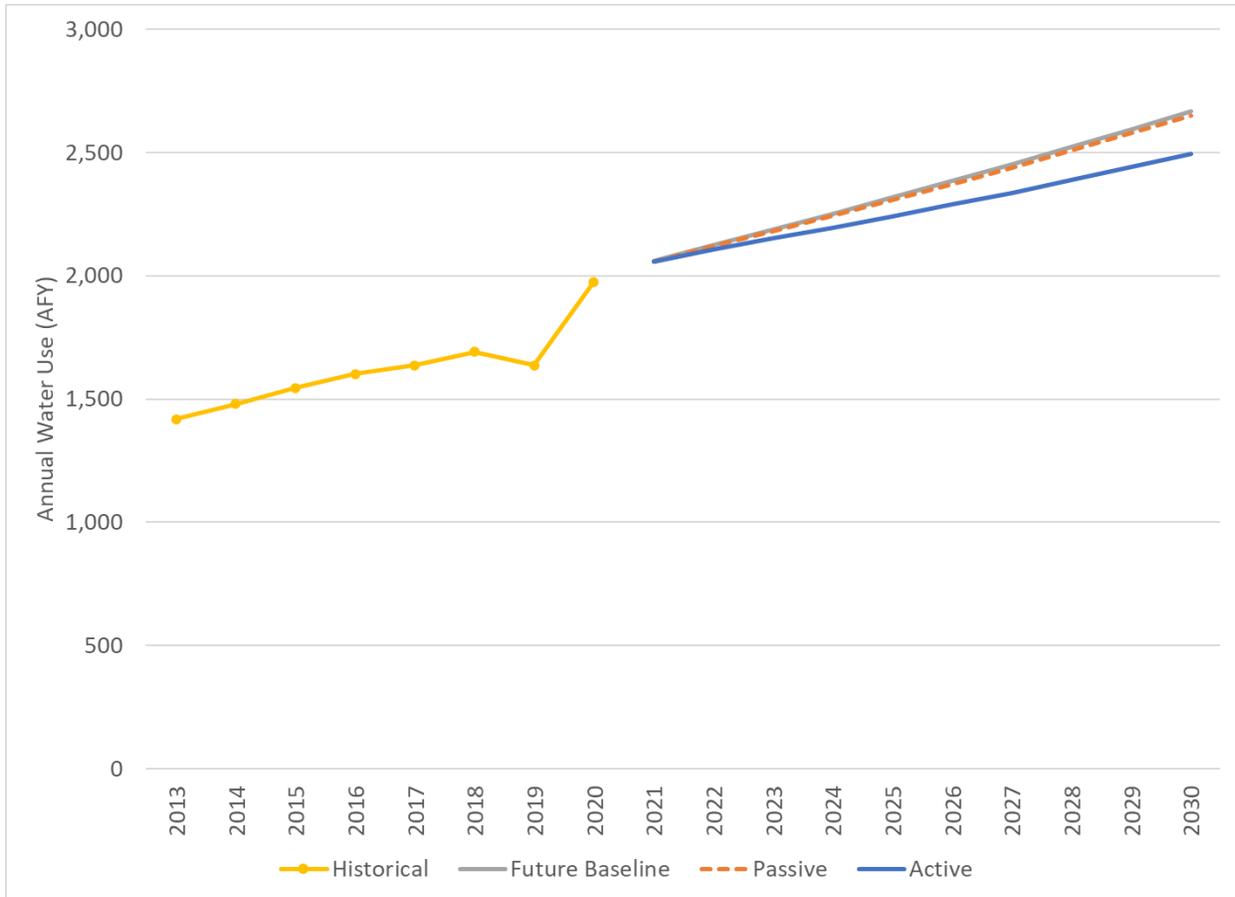


Figure 12: Water Demand Projections for 2030.

4. SAVINGS GOALS AND SELECTION OF WATER EFFICIENCY ACTIVITIES

The Town has demonstrated a long-term commitment to be a wise water steward. The Town recognizes that water is a precious resource and strives to meet its responsibility to use water efficiently. Water use reductions through conservation and efficiency programs not only support the Town’s future water supply and demand reliability, they also help the Town mitigate impacts to customers during a drought, potentially allowing the Town to postpone implementing water use restrictions. This section further elaborates on the Town’s water savings goals and provides an overview of the selected water efficiency activities designed to achieve those goals.

4.1 WATER EFFICIENCY GOALS

The Town has developed the following 2030 water conservation goals:

1. Decrease average annual indoor water use by approximately 15 AFY through natural replacement of old fixtures and appliances as well as installation of high efficiency fixtures and appliances through new development.
2. Decrease average annual outdoor water use by approximately 75 AFY through the conversion of selected properties to use raw water instead of potable supplies.

3. Further decrease average annual water use by approximately 85 AFY through conservation measures and programs predominantly targeting outdoor use reductions.
4. Continue to evaluate the program costs and associated water savings to inform the operation and maintenance of conservation programs.

4.2 SUMMARY OF THE SELECTION PROCESS

The Town implemented a tiered screening process for evaluating and selecting water efficiency activities. Existing activities were included in the list of efficiency programs and measures evaluated and are expected to continue under the ongoing water conservation program.

Initial Screening: An initial screening was prepared in close coordination with Town staff using the CWCB screening and evaluation worksheets (CWCB, 2012) and the *Guidebook of Best Practices for Municipal Water Conservation in Colorado* (CWW, 2010). Initial program recommendations were compiled for further evaluation.

Secondary Screening: Town staff representing the Engineering, Public Works, and Planning departments reviewed the initial programs list and discussed potential program effectiveness, limitations, and implementation strategies.

Final Screening: The final level of screening and selection of water efficiency activities was completed by Engineering staff. Input from the joint department meeting was processed and used to direct recommendations for program selection and implementation. Selected activities were used to estimate the anticipated water use savings to develop the water use projections with conservation described in Section 3.4.

4.3 WATER EFFICIENCY ACTIVITIES

Table 9 below presents the new and updated water efficiency programs and activities that were selected under this Water Efficiency Plan (WEP). Key activities are further described in the sections below. Many of these activities are designed to work in conjunction with other programs to support overall water use savings. By design, it is not possible to accurately assign a direct savings influenced by an individual activity, but rather as a collective program. For example, customer outreach and education alone may not result in a direct reduction in water use, however, informed and engaged customers are critical to the success of many programs such as a water budget-based billing structure. Implementation of the conservation program described below has an estimated potable water use reduction of about 160 acre-feet per year (AFY) by 2030, including raw water conversions.

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Table 9: New and Updated Water Efficiency Activities and Water Savings Estimates.

Selected Water Efficiency Activity	Sectors Impacted	Activity Status	Program Description	Projected Water Use Savings by 2030 (AFY)
Foundational Activities				
Automatic Meter Reading Installation and Operations	All	New	Budgeted and plan to implement starting in 2022	30
Water Budget Billing Structure	All	New	Complete rate study and further evaluate new billing software for compatibility following any landscaping code revisions	
System-Wide AWWA Water Audit	All	Ongoing	Coordinate with Central Weld to improve annual audits	Will not result in water use reduction – potential to reduce local system losses
Supply Meter Testing	All	New	Partner with Central Weld and others to fund production and master meter testing effort	
Hire Water Conservation Coordinator		New	Plan to fill position in early 2023.	
Hire Parks and Open Space Director		New	Hired Parks and Open Space Director in early 2022	
Targeted Technical Assistance and Incentives				
Garden in a Box Partner	SF	Ongoing		2.6
Slow the Flow Partner	Residential	Ongoing		7.7
Efficient Irrigation Equipment Rebates	Residential	New	Develop rebate program for smart irrigation controllers	5.4
Turf Replacement Incentives Program	SF	New		8.3
Conversion of Targeted Potable Irrigation Accounts to Raw Supplies		New		76.6
Park Irrigation Efficiency Upgrades		Ongoing /New	Irrigation of Town parks are actively managed and potential to remove or replace turf in some areas and install smart controllers. Full development and implementation after new Parks Manager is hired.	4.9
Indoor Efficient Appliance Rebates	SF & MF	New	Annual rebate program to offer rebates for replacing older, less efficient fixtures and appliances with new EPA WaterSense compliant fixtures and appliances	3.6
Ordinances and Regulations				
Efficient Landscape Design/Installation Standards	All	New	Updates to existing landscape revisions standards and the associated code	20
Water Budget Design Criteria for New Construction		New	Updates to existing landscape standards and the associated code	
Professional Landscaper Certification		New	Consider under the updates to the Landscape Standards	
Public Education and Information				
Farmers' Market	All	Ongoing	Plan to expand Town's participation; invite landscaping and water efficiency contractors and businesses to the farmers market to have booths.	
Xeriscape Demonstration Gardens	All	Ongoing	Plan to expand	
Customer Water Use Workshops	SF	New		

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Selected Water Efficiency Activity	Sectors Impacted	Activity Status	Program Description	Projected Water Use Savings by 2030 (AFY)
Public Information and Outreach Messaging Campaign	All	New		
Annual Tree Sale Event	SF	Ongoing	100 trees annually	
Messaging Partnership with NCWCD		Ongoing		
Land Use Activities				
Internal Coordination between Town Departments		Ongoing	Planning, Parks, Public Works, and Engineering departments will continue to coordinate on code updates and implementation strategies	
Require Smart Controllers for New Development through Demand Analysis		New	Demand analysis completed for dual systems for reduced dedication requirement. Requires code amendment.	
TOTAL ESTIMATED SAVINGS				159.1

4.3.1 FOUNDATIONAL ACTIVITIES

Foundational activities represent programs and measures that should be in place to support additional advanced conservation measures. According to CWCB guidance, these activities focus on system operations and efficiencies, are under the utility’s direct control, and can significantly improve the effectiveness of the overall water efficiency program.

4.3.1.1 METERING

High quality metered water use data is critical to the management of a water delivery system and to the success of other water conservation efforts. Colorado statute requires all water providers to meter customer water use and bill based on metered deliveries. The Town is 100% metered with the exception of fire and hydrant flushing uses. The Town’s potable system currently relies on a radio-read system, which requires a person to physically drive past each customer’s water meter to complete the radio read each month. The Town is budgeted to convert all potable customer meters to include advanced metering infrastructure technology, or “AMI”, starting in 2022. AMI technology enables two-way communication between customer water meters and the utility, automatically transmitting metered water use to the utility without requiring anyone to collect the data. AMI conversion will allow the Town to monitor near real-time water use and that data will be available to customers on a more frequent basis than the current monthly billing allows. This will support all conservation activities moving forward and will provide customers with tools to better understand their water use patterns and how that relates to their water bills. AMI can influence higher customer engagement and more real-time reactions to water use, faster identification of meter issues, improved leak detection, and faster targeted outreach for the highest water users. Implementation of a customer water use portal supports an informed, engaged, and incentivized public, motivating a behavioral change in customer water usage. The Town’s raw water delivery system is already using AMI technology for all meters.

4.3.1.2 WATER BUDGET BILLING STRUCTURE

Following the Town's AMI conversion project, the Town will complete a rate study and evaluate the potential to transition its billing structure to a water budget basis. A water budget rate structure is a form of increasing block rates administered by water providers where the amount of water that is billed within the first block(s) and at the lowest rate(s) is based on the estimated efficient water needs of the individual customer (AWWA, 2017). Under this structure, the water provider assigns each customer a water allotment based on customer-specific characteristics (e.g. housing type, number of residents, irrigated area, lot size, and landscaping type) and defined water use efficiency standards. Water budget rate structures are intended to encourage long-term conservation and to support drought management and response. If selected, the Town will proceed with this potential transition systematically in order to successfully educate and navigate a new billing structure with its customers. This will include a rate study, evaluation of billing software compatibility, landscaping use investigation, account-level irrigated area assessments, and customer education campaigns.

Estimated savings of approximately 30 AFY are attributable to the Town's full transition to AMI in conjunction with applying a water budget-based billing structure.¹⁴ This assumes that customers will actively manage outdoor water use to meet their individually assigned water budget and will utilize AMI water use data to inform their water use behavior in near-real-time.

4.3.1.3 SUPPLY METER TESTING AND AWWA WATER AUDITS

The Town receives treated water from Central Weld through a series of master meters. The Town currently completes an annual internal AWWA M36 water loss audit, however, the potable delivery data read at the master delivery meters used in the audit is provided by Central Weld. The Town does not own the treatment facility, nor does it own or maintain the master meters; therefore, the quality of this data is unknown. This means that the Town is unclear to what level they may be experiencing real or apparent losses within its potable system. The Town, in partnership with Central Weld and potentially others being served by Central Weld, will pursue funding opportunities to complete physical meter testing on Central Weld's water treatment plant production meter and the Town's master meters. Testing and calibrating these meters will likely improve the reliability and accuracy of the Town's delivered water data and in turn improve its annual audit. Findings from the improved audits may result in recommendations for the Town to pursue advanced water loss programs, which the Town will consider at that time. While these activities will not reduce metered water use, they will help the Town quantify potential system losses and build targeted water loss programs to reduce the Town's water delivery needs.

4.3.1.4 STAFFING

The Town has support from its Board of Trustees to hire a Conservation Specialist in 2022. This is a new position for the Town and will create capacity to focus on conservation and efficiency programs that had previously fallen under the responsibility of Engineering and Public Works staff. While this plan outlines specific recommendations for programs and the implementation of those programs, it is anticipated that this new staff member will have additional recommendations for how to implement and manage a robust conservation program into the future. This provides great opportunity for the Town to significantly grow its current conservation program.

The Town has approval to create a new Parks Department, previously covered under Public Works. In early 2022, the Town hired a new Parks and Open Space Director. The Parks and Open Space

¹⁴ Estimated savings based on end-user studies (CWW, 2010).

Director has approval to hire additional staff to fill this new department through the end of 2022. This will greatly increase the staff capacity to design and implement programs targeting the Town's irrigation and management of parks. The Town will give the Parks and Open Space Director the opportunity to develop these and other programs through 2022 for implementation in subsequent years, so additional detail for those programs is not included herein.

4.3.2 TARGETED TECHNICAL ASSISTANCE AND INCENTIVES

The Town plans to continue its focus on technical assistance and incentives on outdoor programs, which will be managed by the Town's new Conservation Specialist.

4.3.2.1 OUTDOOR INCENTIVES

The Town plans to continue and potentially expand the following ongoing programs:

- Garden in a Box
- Estimated savings of about 2.6 AFY over the lifetime of the gardens, assuming 17 gardens annually and assuming adequate maintenance.
- Slow the Flow
- Estimated savings of about 7.7 AFY assuming 16 audits annually. Savings estimated based on annual Resource Central reports.

In addition to these programs, the Town plans to add the following outdoor-targeted incentives programs:

- Turf replacement (aka "cash for grass"): The Town will develop a program where customers are incentivized to remove turf and replace with low water use landscaping or hardscape. Rebates of \$2 per square-foot of turf removed up to 1,000 sq-ft per customer is recommended, however, the Town will evaluate this rate and other programs like Resource Central's Grass to Garden turf replacement program. Estimated savings of about 8.3 AFY assuming 15 rebates annually and assuming ongoing maintenance.
- Efficient irrigation equipment rebates: The Town will develop a rebate program for residential customers to install smart irrigation controllers and potentially for rain shutoff sensors. Rebates of \$75 per smart irrigation controller or \$50 per rain sensor is recommended. Estimated savings of up to 5.4 AFY assuming 30 total rebates annually.

The new Conservation Specialist will work with other Town staff to prepare an annual proposed budget and define annual targets for these rebate programs.

4.3.2.2 INDOOR INCENTIVES

The Town plans to develop an indoor efficient fixture and appliance rebate program that will target the replacement of older, less efficient fixtures and appliances with WaterSense compliant models. The primary focus will be the replacement of toilets, but the Town will also consider rebates for dishwashers and clothes washing machines. Rebates of \$100 per qualified fixture or appliance is recommended. An estimated savings of about 3.6 AFY assumes 25 toilet rebates per year going from an average use of 2.0 gallons per flush to an average use of 1.1 gallons per flush. The Town will target the oldest residential areas within the service area.

4.3.2.3 OUTDOOR WATER USE MANAGEMENT OF TOWN PROPERTIES

The Town has identified 18 properties that are currently served by potable supplies that can physically and legally be supplied with raw water for irrigation purposes. Conversion of these properties, most of which are parks, will begin in 2022 and are expected to be completed by 2030. Based on historical metered use for these accounts, a reduction in potable water use of about 76.6 AFY is expected. Note that some of these properties are not owned by the Town.

The Town currently maintains a xeriscape demonstration garden at one of its parks. Over the coming years, the Town will install additional xeriscape demonstration gardens throughout its parks with the intent to replace irrigated turf with low water use landscapes and as an educational tool for customers.

Irrigation of the Town's parks is actively managed and current Public Works staff have identified the potential to remove or replace turf in some areas that are not actively used by the public. Staff has also identified opportunities to install smart controllers at public parks. Full development and implementation of a Town parks efficiency program will be managed by the Parks and Open Space Director. It is estimated that up to about 4.9 AFY of water could be saved through these efforts

4.3.3 ORDINANCES AND REGULATIONS

Local ordinances and regulations serve to support water efficiency programs through policies and enforcement mechanisms. The Town's Municipal Code currently includes Waste of Water and Water Shortage sections. The Town's Land Use Code includes requirements for landscape design and the Town's Design Standards and Specifications include both landscape and irrigation design standards.

4.3.3.1 WATER EFFICIENT LANDSCAPING AND IRRIGATION STANDARDS

The Town currently has a comprehensive set of landscaping and irrigation design standards that support efficient water use. These standards are supported through the Town's Land Use Code with the primary focus of preserving the Town's character and integrating new development into the community by promoting quality landscape design. The Town will audit its current design standards to expand requirements to further target efficient water use focusing on new development with the intent to establish procedures for the design, installation, and maintenance of water efficient landscape and irrigation systems. Integration with HOAs will be evaluated as part of this review process.

A key planned addition to the Town's landscape design standards is the application of a landscape water budget for new development permit applications. Landscape designs would be required to stay within a maximum allowed water budget. The allowable water budget will be calculated based upon the local reference evapotranspiration and adjusted using plant factors for specific types of plant materials and the irrigation efficiency. Areas containing plants with similar water needs and within the same irrigation application type are referred to as "hydrozones". Water needs using a specified irrigation efficiency will be summarized by hydrozone and summed to determine the water demand for the full landscaped area. Introduction of the landscape water budget design requirement for new development will support future efforts by the Town to apply a water budget-based billing system.

Another potential addition to the landscaping and irrigation standards is the requirement for landscape and irrigation designers and installers to obtain and maintain a professional certification through an accepted program. The Town will evaluate potential certification programs such as the Qualified Water Efficient Landscaper (QWEL) and those offered by the Irrigation Association. The

Town will also evaluate opportunities to collaborate with neighboring water providers and Northern Water to develop a regional certification program. Upon implementation, selected Town staff with landscape and irrigation management responsibilities will also likely pursue certification. Contractor certification has unmeasured water saving benefits alone but will support savings estimated through the landscape standard revisions.

The Town will consider requiring landscape irrigation audits to be conducted by a third-party certified landscape irrigation auditor. The irrigation audit may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule, including configuring irrigation controllers with application rates, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming. Land Use Code revisions necessary to enforce landscape and irrigation standards will be reviewed and applied as needed. Up to 20 AFY of water savings is estimated by 2030 assuming standards are updated for all new development. Additional savings may be realized if standards also include requirements for redevelopment.

4.3.4 PUBLIC EDUCATION AND INFORMATION

Public education and information are a vital component to many of the Town's conservation programs. An informed and engaged public will more actively participate in adjusting behaviors with efficiency in mind. The Town plans to expand its current education and outreach programs to include additional customer water use workshops and pursue a messaging partnership with Northern Water. The Town will continue to have staff presence at the local Farmers' Market and will expand its printed resources for distribution through that event. The Town will also invite local contractors and businesses to the Farmers' Market to set up booths to provide the public with water use information. This may include landscaping, irrigation, or other professionals that support the efficient use of water. The Town will also organize a separate educational event with contractors and professionals to provide landscaping, irrigation, and water efficiency resources to the public. The planned new low water use and xeriscape gardens throughout the Town will potentially be used as a meeting location for public landscaping and efficient irrigation workshops. The Town sponsors an annual tree sale event, selling around 100 drought-tolerant trees to customers. The Town will consider how to expand this voucher program to include xeric plants. This provides another opportunity for expanded messaging and outreach. The new Conservation Specialist will work closely with the Town's Communications department to advance its conservation and efficiency messaging campaign and formalize an annual messaging schedule. This will include expanding efficiency messaging and resources through the Town's website. While conservation messaging programs help to support a water-wise culture and local stewardship, these programs typically do not result in water savings on their own, but rather support the entire suite of local conservation and efficiency measures.

4.3.5 INTEGRATION OF LAND USE EFFORTS

The Town is fortunate to have land use jurisdiction throughout its water service area. The Town intends to formalize arrangements for sharing data and information between departments that impact its management of water resources including Planning, Engineering, Public Works, and the newly formed Parks department. Regular communication between these departments is foundational to the integration between water and land use planning. These departments will also coordinate on code updates and associated implementation strategies, including the review and revision of the Town's landscape and irrigation standards.

The Town's current Municipal Code allows for a "demand analysis" to be completed when a development project has a dual water system with separate infrastructure that enables potable

supplies to be used for domestic demands and raw supplies to be used for outdoor irrigation. The demand analysis typically results in a reduced water dedication requirement as compared to not having a dual water system. Given the strong incentive of a reduced water dedication amount, the Town will be evaluating additional land use requirements to qualify for the program such as the installation of smart controllers and abiding by lower water budgets. This example is provided to showcase the unique measures available to the Town given its land use jurisdiction throughout its water service area.

5. IMPLEMENTATION AND MONITORING PLAN

To date, the Town's Engineering department has largely been responsible for implementation of water conservation programs. A key component for this WEP is the addition of a new staff position to focus primarily on the implementation of this plan and to further grow the Town's conservation activities. The Town will continue to include an annual budget for conservation activities and may pursue CWCB conservation and land use planning grants to further achieve its water efficiency goals.

5.1 IMPLEMENTATION PLAN

The following sections outline the Town's implementation plan for year 1, year 2, and then beyond.

5.1.1 YEAR 1 ACTIVITIES

The primary conservation focus for the Town in 2022 will be the successful transition for all customer meters to AMI. This will include all meter upgrades and communications system installations. Staff will learn the new associated software and a public messaging campaign will be developed and rolled out during the transition.

Staff will begin discussions with Central Weld on their interest in pursuing funding opportunities to get all master meters and the production meter tested. If there is interest, staff may also start evaluating funding opportunities including CWCB conservation and land use planning grants. Depending on funding availability, the Town may prepare grant applications in 2022 to begin testing work in 2023.

In early 2022, staff will evaluate how best to proceed with a thorough review of the existing landscape and irrigation standards as well as the associated code revisions necessary to make any recommended modifications. Departments will coordinate internally to review recommendations for revisions, either from internal review or from external support, and propose draft revisions to the Town Board by the end of 2022. If possible, revisions to the associated standards and code will be complete and adopted by the end of 2022.

The Town will begin implementing new rebate programs (e.g., efficient irrigation equipment and turf replacement, indoor toilet and appliance rebates) in 2022 if funding can be made available. There is potential to partner with an existing organization like Resource Central or for the Town to develop and manage these programs in-house. All existing programs will continue operating under current conditions.

In 2022, the Town will hire a new Conservation Specialist. This new staff member will likely need this first year to learn about the Town's current programs and water use characteristics and can begin to develop recommended programs and implementation strategies for the coming year. The Town hired a new Parks and Open Space Director in early 2022. The Parks and Open Space Director

is expected to hire additional staff throughout the year but may operate during the summer of 2022 based on current staffing.

5.1.2 YEAR 2 ACTIVITIES

Town staff will work with Central Weld to post a Request for Proposal to support testing of the Central Weld production and master meters with the goal to complete testing over the year. Once complete, the selected contractor can help the Town with a revised AWWA M36 audit based on the testing results. Any recommended water loss programs or further system audits should be considered by the Town.

If not complete by the end of 2022, any landscape and irrigation standards and associated code revisions will be adopted and implemented. Staff will coordinate enforcement responsibilities and prepare a plan to monitor and evaluate the effectiveness of these revisions. If revisions include professional landscaper certification, the Town will either select a local certification program (e.g. QWEL) or will develop its own certification program. Trainings will need to be offered by the second half of 2023 or within the timeframe designated in the revised code.

The Town will begin the systematic conversion of identified potable irrigation accounts to use raw water supplies. This will include infrastructure modifications on both the potable and raw systems. This will continue through 2030 for full conversion. Turf areas that are not actively used by the public will be considered for turf removal and/or Parks Department staff will prepare recommendations for these areas to be replaced with native vegetation or hardscapes. The Parks Department will also begin installing smart controllers and new xeriscape gardens at certain public parks. These efforts will be tied in with the Town's communications campaign to provide a public-facing example of how the Town is an active steward of wise water use.

The Conservation Specialist will work closely with the Town's Communications Department to implement messaging strategies that support new and ongoing conservation programs to further educate customers and support other programs. Town presence will be intentional at public events like the Farmers' Market and through new efficient water use workshops.

Following the completion of the AMI conversion, staff will begin to evaluate the new water use data and begin recommendations for a water rate study focused on evaluating a water budget rate structure. As early as 2023, staff may develop a Request for Proposal for the rate study and begin internal investigations on potential benefits of a water budget.

5.1.3 YEAR 3 AND BEYOND

The Town will complete a rate study in 2024 to review the feasibility and potential benefits to implementing a water budget billing structure. If selected, the plan for transitioning to a new billing structure will be developed during 2024 and can proceed as appropriate. Data collected through the development of water budgets for the landscape and irrigation standards can be utilized along with AMI water use data to support this effort. A strong public campaign will be necessary for this transition over multiple years. Achieving water use reductions through a water budget billing structure hinges on having an informed and engaged customer base.

As the Town completes more annual AWWA M36 audits, there may be opportunity to better characterize local water loss and develop management strategies to reduce system losses. This information should be closely monitored.

5.2 MONITORING PLAN

The Town will review and update this WEP at least every seven years, or as needed. The Town will continue to monitor water use by customer category on a regular basis and will continue to maintain and analyze metered water use records. Progress towards meeting the conservation goal can be evaluated annually through the Town's CWCB reporting requirements for covered entities¹⁵ and more formally when the WEP is next updated. Ongoing tracking of water use trends versus water use goals will help determine any additional conservation program measures necessary to help the Town meet its stated goal by 2030. Continuous monitoring and evaluation of water use may also support modification to the Town's water savings goal or support recommendations for modifying any of the Town's active conservation programs.

The Town's monitoring plan is represented in **Table 10**. Data will be collected and tracked by the Town's Conservation Specialist at least annually, with ongoing evaluations of water savings, costs, and effectiveness of each identified program. Annual summaries for each program, where appropriate, will be communicated with the Engineering department and an annual recommendation for program modifications and anticipated budget impacts will be provided. Modifications to rebate program specifications will be made as advancements in technology occur.

¹⁵ HB10-1051 requires that all covered entities submit annual water use and conservation data by June 30 of each year to be used for statewide water supply planning.

Table 10: Conservation Program Monitoring.

Selected Water Efficiency Activity	Data Collection Description
Foundational Activities	
Automatic Meter Reading Installation and Operations	Billed water use data
Water Budget Billing Structure	
Supply Meter Testing	Master supply meter testing results and recommendations
System-Wide AWWA Water Audit	Revised AWWA audits incorporating meter testing results
Targeted Technical Assistance and Incentives	
Garden in a Box Partner	Number of claimed gardens, costs
Slow the Flow Partner	Number of evaluations, who received, when received, estimate of impacted landscaping area, costs
Efficient Irrigation Equipment Rebates	Number of rebates, costs
Turf Replacement Incentives Program	Number of rebates and reduced turf areas, costs
Conversion of Targeted Potable Irrigation Accounts to Raw Water Supplies	Number of accounts converted to raw water supply system
Systematic Replacement or Removal of Turf in Low Traffic Public Spaces	Internal tracking of smart meters installed and area of turf removed
Ordinances and Regulations	
Efficient Landscape Design/Installation Standards	Data collection opportunities will be identified as part of the landscape ordinance preparation (e.g. tracking information about landscapes installed under the new ordinance)
Professional Landscaper Certification	
Water Budget Design Criteria for New Construction	
Education Activities	
Town Booth at Farmers' Market	Number of events
Xeriscape Demonstration Gardens	Number of new xeriscape gardens constructed, estimate of annual visitors or presentations
Customer Water Use Workshops	Number of workshops and number of participants
Public Information and Outreach Messaging Campaign	Estimate/document number of educational materials developed and distributed
Annual Tree Sale Event	Number of trees sold
Messaging Partnership with NCWCD	Data collection opportunities will be identified as part of the partnership program development
Land Use Activities	
Internal Coordination between Town Departments	Data collection opportunities will be identified as appropriate
Require Smart Controllers for New Development through Demand Analysis	Number of controllers installed

6. ADOPTION OF NEW POLICY, PUBLIC REVIEW, AND FORMAL APPROVAL

6.1 PUBLIC REVIEW

Public participation and action are critical to the success of the Town's water efficiency efforts as many of the measures and programs rely on residents to utilize programs and modify water use

behaviors. The Town posted a draft copy of the 2022 WEP on its website on December 17, 2021, followed by a 60-day public review and comment period through February 15, 2022. All public comments that were received have been reviewed and responses are included as Appendix A.

A public review process of no less than sixty days after the date on which the draft plan is made publicly available is required for all CWCB-approved plans per C.R.S. 37-60-126 (5). The public review process is described in Appendix A of this report.

6.2 WATER EFFICIENCY PLAN ADOPTION

The Town of Frederick Engineering and Public Works staff have reviewed this WEP and provided comments, after which the Public Review period began. The Plan was initially presented to the Town Board of Trustees (Town Board) on November 30, 2021 prior to publishing for public review and comment. On March 22, 2022, the Town Board adopted the Water Efficiency Plan (see Appendix B).

6.3 WATER EFFICIENCY PLAN APPROVAL

A draft of this WEP was submitted to the CWCB on July 8, 2022. CWCB comments were addressed and are reflected in this report. The Town received notification that this WEP was fully approved on October 11, 2022 (see Appendix C).

7. COMPLIANCE WITH STATE PLANNING REQUIREMENTS

C.R.S. Section 37-60-126 requires a covered entity to develop, adopt, make publicly available, and implement a water conservation plan that will encourage its domestic, commercial, industrial, and public facility customers to use water more efficiently. According to the statute, a “covered entity” is a “municipality, agency, utility, including any privately owned utility, or other publicly owned entity with a legal obligation to supply, distribute, or otherwise provide water at retail to domestic, commercial, industrial, or public facility customers, and that has a total annual demand for such customers of two thousand acre-feet or more.”

Key elements that must be fully evaluated through the plan development are listed below:

- A. Water-saving measures and programs including:
 - 1. Water-efficient fixtures and appliances;
 - 2. Low water use landscapes, drought-resistant vegetation, removal of phreatophytes, and efficient irrigation;
 - 3. Water-efficient industrial and commercial water-using processes;
 - 4. Water reuse systems;
 - 5. Distribution system leak identification and repair;
 - 6. Information and education;
 - 7. Conservation-oriented rate structures and billing systems;
 - 8. Regulatory measures designed to encourage water conservation;
 - 9. Incentives to implement water conservation techniques including rebates.
- B. Role of conservation in entity’s supply planning.
- C. Plan implementation, monitoring, review, and revision.
- D. Future review of plan within seven years.
- E. Estimated savings from previous conservation efforts as well as estimates from implementation of current plan and new plan.

- F. Best management practices for water demand management, water efficiency, and water conservation that may be implemented through land use planning efforts.
- G. A 60-day minimum public comment period (or other time period based on local ordinance).

7.1 TOWN OF FREDERICK WATER EFFICIENCY PLAN COMPLIANCE

The Town of Frederick developed the 2022 WEP in order to comply with C.R.S. Section 37-60-126. Each element of compliance is documented below.

A. **Consideration of specific water efficiency measures.**

1. Fixtures and appliances: The Town will continue to support efficient indoor water use through replacement of older, less efficient fixtures and appliances. All new development will install new efficient fixtures and appliances. Because much of the Town's development is newer, many customers already have higher efficiency fixtures and appliances.
2. Outdoor water efficiency: The Town intends to actively promote water wise landscaping practices through its participation in the "Slow the Flow" and "Garden in a Box" programs. Additional outdoor rebate programs will be offered to support customer outdoor efficiency. These programs provide outdoor water efficiency opportunities and resources to homeowners at no or discounted costs to customers. The Town is also actively implementing programs to reduce potable irrigation at parks and other public spaces.
3. Commercial, Industrial, and Institutional (CII) measures: The Town promotes commercial and industrial water efficiency through its base conservation education efforts and conservation-oriented rate structure. The new Conservation Specialist will evaluate offering audits to commercial and industrial customers.
4. Water reuse systems: The Town currently does not have a non-potable reuse program. As the Town integrates the use of reusable supplies into its potable system (e.g Windy Gap), the Town will evaluate opportunities to reuse supplies that are discharged to St. Vrain Creek after treatment by Saint Vrain Sanitation District. Future reuse may include raw water irrigation throughout the Town.
5. Water loss and system leakage reduction: The Town currently completes an annual AWWA M36 audit of its system, however, the Town does not own, operate, or maintain its master supply meters and the quality of this data is unknown. The Town will pursue meter testing with Central Weld and update its AWWA M36 audit with corrected master meter data if possible. The Town currently reactively repairs identified leaks throughout its system. A more systematic and proactive leak detection program could be implemented to find and repair smaller, less obvious leaks based on findings from future audits.
6. Information and public education: The Town has active public education programs including email blasts, conservation updates to the Town's website, staff representation at the Farmers' Market with water-usage related information, and Town staff presentations on water at local schools.
7. Water rate structure: The Town's customer accounts are charged monthly based on metered water usage. The water customers pay water fees based on a Fee Schedule that is regularly updated. The Town plans to complete a rate study to consider transitioning to a water budget-based billing structure based on feasibility and recommendations from the study.

8. Regulatory measures: The Town's water customers are subject to several regulatory measures that encourage water efficiency. The Town's Municipal Code includes restrictions in the event of a drought or other water shortage emergency and encourages the reduction of excessive water use. Revisions to the Town's Landscape and Irrigation Standards will be prepared, and all necessary code revisions will be completed to support the revised standards.
 9. Incentives: The Town intends to offer several incentives to implement water use efficiency techniques including rebates for turf replacement programs and efficient irrigation water use. As part of the future conservation program, the Town may evaluate opportunities for other rebates and incentives targeted towards outdoor water use.
- B. Role of conservation in the Town's supply planning.** The 2022 WEP is designed to provide a comprehensive description of current and recommended water efficiency efforts that will be integrated with the Town's water supply planning. Conservation is being treated as a critical future water management solution (both short-term and long-term) at the same level of consideration as development of new/alternative supply options.
 - C. Plan implementation, monitoring, review, and revision.** The Town monitors water use on a regular basis and will continue to do so. The Town intends to produce water use/demand reports periodically for each customer class and system-wide, closely tracking the water usage. The Town will provide annual water demand reporting to the CWCB as required under House Bill 10-1051 going forward.
 - D. Future review of plan within seven years.** The Town plans to review and update its WEP every seven years, or as needed. During this review, progress towards achieving the stated conservation goal will be evaluated.
 - E. Estimated savings from previous conservation efforts and current plan.** The Town's 2011 WEP set a goal to reduce the residential usage from 142 to 114 gpcd, or 20%. On a systemwide basis (total use divided by total population), the goal was to reduce usage from 194 to 158 gpcd, or 18.4%. Comparing the 2010 historical use represented in the 2011 WCP to the 2020 actual metered water use shows that the Town has achieved both of these reduction goals.
 - F. Water efficiency and conservation that may be implemented through land use planning.** The Town is fortunate to have land use jurisdiction throughout its water service area. The Town intends to formalize arrangements for sharing data and information between departments that impact its management of water resources including Planning, Engineering, Public Works, and the newly formed Parks department. Regular communication between these departments is foundational to the integration between water and land use planning. The Town will be evaluating additional land use requirements for new development to qualify for dual water system such as the installation of smart controllers and abiding by lower water budgets.
 - G. Public comment period.** A 60-day public review process was held from December 17, 2021 through February 15, 2022 as described herein.

8. REFERENCES

- 2011 WCP. Town of Frederick Water Conservation Plan. Prepared for the Town of Frederick by Civil Resources, LLC. July, 2011.
- AWWA 2006. Water Conservation Programs – A Planning Manual (Manual of Water Supply Practices M52), 1st edition. Prepared by the American Water Works Association. 2006.
- AWWA 2017. American Water Works Association (AWWA). Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices – M1, Seventh Edition. 2017.
- CWCB 2012. Municipal Water Efficiency Plan Guidance Document. Prepared for Colorado Water Conservation Board by AMEC Environment & Infrastructure. July 2012.
- CWCB 2019. Best Practices for Implementing Water Conservation and Demand Management Through Land Use Planning Efforts Addendum to 2012 Guidance Document. Prepared for Colorado Water Conservation Board by Getches-Wilkinson Center and Babbitt Center for Land and Water Policy. January 2019.
- CWCB TU. Analysis & Technical Update to the Colorado Water Plan. Colorado Water Conservation Board.
- CWW BMPs. Guidebook of Best Practices for Municipal Water Conservation in Colorado. Prepared for Colorado Water Wise by Aquacraft Water Engineering & Management, Inc. August 2010.
- Frederick, 2019. Town of Frederick Municipal Code, Chapter 13, Article II Water Utility. October 22, 2019.
- Frederick, 2020. Town of Frederick – Fee Schedule, Chapter 13: Municipal Utilities. December 2020.
- Frederick-Central Weld, 1998. Agreement between Frederick and Central Weld County Water District Concerning Domestic Potable Water Service. October 1988.
- Historical Precipitation and Temperature Data at NOAA Brighton Climate Station USC00050950. Colorado Decision Support System.
- Northern Water, 2020. Colorado-Big Thompson Quota Declarations, 1957 – 2020.
- Simmons, 2021. Email correspondence with Jennifer Simmons, Town Planning Director, dated July 1 and 12, 2021.
- Town of Frederick C-BT Usage for Parks for 2012 – 2019 as provided by the Town of Frederick staff on February 22, 2021.
- Town of Frederick Fee Schedule. Chapter 2 – Administration. December 2020.
- Water Research Foundation, 2016. Residential End Uses of Water, Version 2 Executive Report. Prepared by Water Research Foundation. Published April 2016.

APPENDIX A

Public Notice and Public Comments

A-1. Public Notice Announcement

A Public Notice was published on December 17, 2021 on the Town of Frederick website (<https://www.frederickco.gov/923/2021-Water-Efficiency-Plan?fbclid=IwAR2bqcLfNpTueVoyEReCdp-bRB0s8XzOH-thNdbgMXdRHFfzsixHxXFgEfQ>) and on the Town's Facebook page. Online posts with Public Notice of the plan and requests for feedback are shown below. Public comments on the Municipal Water Efficiency Plan for the Town of Frederick were requested through an online survey form and were accepted through February 15, 2022.

2021 Water Efficiency Plan



2021 Water Efficiency Plan Update

[Draft 2021 Water Efficiency Plan](#)

We would love to get your input!

[Please fill out our comment form](#) - Comments need to be sent by February 15, 2022.

 **Town of Frederick, CO - Government** January 5

We want your feedback (quick online survey) about a "water efficiency plan"!

We are focused on water - conservation, efficiency, and the future! Our Civil engineer has been working on a new water efficiency plan and needs your input. Using water efficiently is more important than ever as the population grows and water availability is more limited. The Town is committed to implementing a robust water efficiency program to help serve our customers with a safe and resilient water supply into the future.

Water Your Thoughts? Would you please take a look at the "Draft 2021 Water Efficiency Plan" and fill out the online comment form by February 15?
<https://www.frederickco.gov/923/2021-Water-Efficiency-Plan>



 **Town of Frederick, CO - Government** February 4 at 5:07 PM

Did you know that I-25 was completed in 1969 and linked the Carbon Valley with Interstate 70 and the rest of the Front Range region, expanding industrial and suburban-style growth and development opportunities?

It's no secret that Frederick is emerging as a sought-after community with a high quality of life, attracting an increasing number of commuters. Therefore, it is vital to focus on our current and future water demands!

WE NEED YOUR INPUT by February 15 on our draft Water Efficiency Plan. If the social media team can read it and pull out fascinating facts, you will too.
<https://www.frederickco.gov/923/2021-Water-Efficiency-Plan>

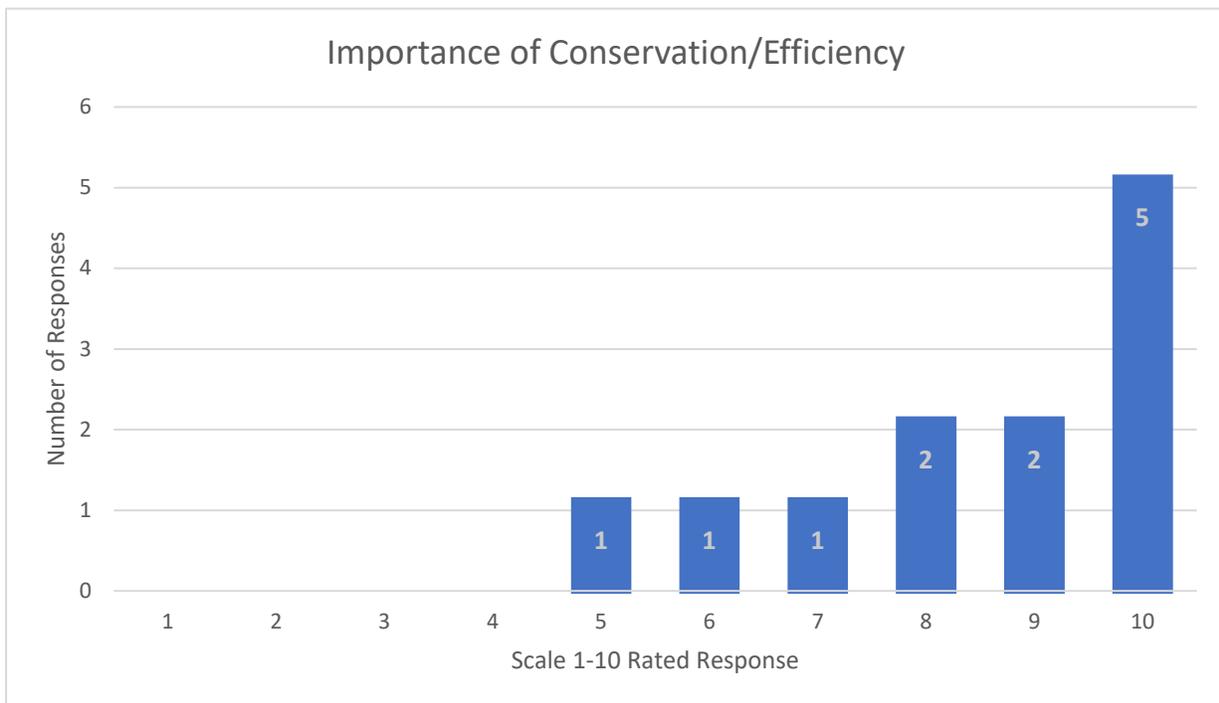


A-2. Public Comments

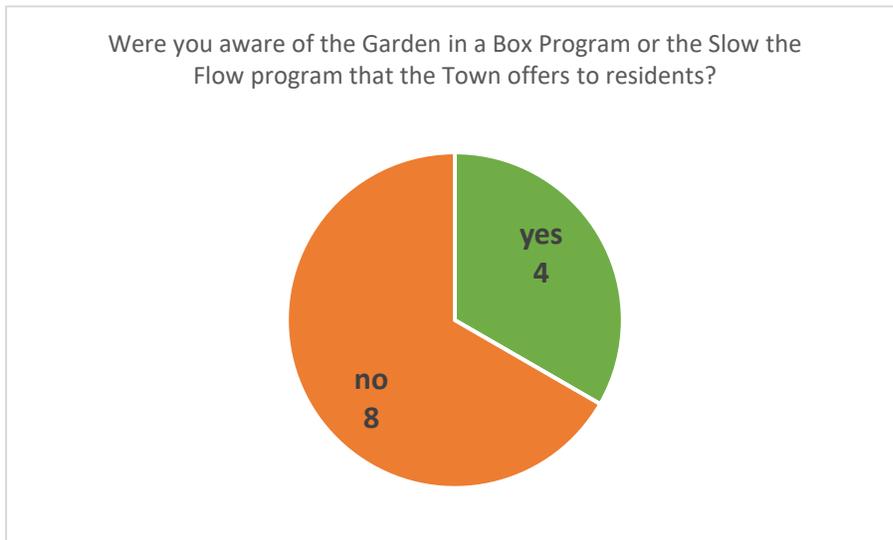
The 60-day public review process was held from December 17, 2021 through February 15, 2022. During this period, the Town received twelve (12) comments through the survey portal and one (1) via Facebook. The survey portal requested the following information:

1. Please let us know how you feel about the proposed plan document.
2. How important is water conservation/efficiency to you on a scale of 1-10.
3. Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?

The chart below provides an overview of public replies to prompt 2 above, showing the number of public responses for each scale value from 1 to 10.



The chart below provides an overview of public replies to prompt 3 above, showing the number of responders who were aware of the Garden in a Box/Slow the Flow programs and those who were not aware of these programs.



Comments provided in response to prompt 1 above are summarized below with responses from the Town and are attached as A-3. Note that not all responders completed this field.

Public Comment #1: The first thing the town needs to do is stop watering needless grass. For example, the grass that runs along Colorado Blvd is ridiculously over-watered, it's mainly weeds and rocks. It is watered so much that there is standing water along the path even on the hottest days in the summer. Stop allowing builders (home and business) to install sidewalk grass and landscaping that needs excess water. The town waters grass EVERY day. Nothing needs to be watered every day unless it is newly planted. Please review you building guidelines for landscaping needs. Possibly using xeriscape instead of grass.

The Town has hired a full-time Parks and Open Space Director in January of 2022, which will increase the Town's internal capacity to evaluate irrigation practices and more actively manage the irrigation and landscaping in public parks and common spaces. The Town has identified the potential to develop a program to remove or replace turf in some public spaces and to install smart controllers to help manage irrigation. This program is included in Table 9 and will be further developed and implemented by the new Parks and Open Space Director.

Public Comment #2: I agree with the proposed plan document because water is necessary but if we do not get enough snow pack each year it can become sparse.

Thank you for your comment. No response needed.

Public Comment #3: Table 9 has a section, potentially requiring landscapers to carry a certification, this seems like it could potentially hurt small business. I do not see how any potential benefit could outweigh this.

Many common certification programs for landscape and irrigation professionals, particularly those sponsored by utilities, are offered free of charge for those seeking certification. These programs may present local information that can help certified professionals in design and application of professional services to achieve higher water efficiency based on local conditions. Earning a locally recognized certification can help small businesses win more work and provides a training opportunity for professionals to increase their knowledge of local challenges and to present efficient irrigation and landscaping best practices.

Public Comment #4: I believe growth should pay its own way. If we are truly running out of water, how can you ask us to reduce consumption and ignore the fact that we are issuing new building permits? The best water efficiency plan reduces additional users.

The Town of Frederick's Municipal Code currently requires developers to dedicate C-BT units to the Town for new residential development and new commercial developments may pay for water units or dedicate C-BT units to the Town. While reducing users can reduce the volume of water used, this does not impact how efficiently water is being used. Using water more efficiently has many additional benefits including reducing water waste, protecting quality of life, preparing for changing climate futures, delaying the need for capital improvement projects, and mitigating impacts from drought.

Public Comment #5: Like most documents of this kind, it's fairly thorough, informative and done with good intentions. The problem lies with execution. Don't bother to have ordinances and regulations unless we are willing to enforce them. That means having staff to do that. Don't hire new staff (Parks Director, Conservation Specialist) unless they are respected across the water-wise industry and use land-grant university researched information. Don't just reward residents and businesses for making changes, but make them PAY when this ultra-valuable resource is wasted. EDUCATE. Have tips and "did you know" facts about things we take for granted and waste. Tap into your volunteer network for ideas.

The Plan describes a general strategy for implementation in Section 5 of the report. Details for implementing each program or measure will be developed by the new staff members described in Section 4.3.1.4 of the WEP (Conservation Specialist and Parks and Open Space Director). A large part of the conservation program enforcement will be occur through customer water use price signals. The planned water rate study and the subsequent advancement of billing rate structure recommendations will target more efficient water use through higher rates at higher water use levels, incentivizing more efficient water use. This is paired with outreach and education efforts, as described in Section 4.3.4 of the Plan, which are developed to help support customers with informational and instructional resources and through Town-sponsored programs. The Town will conduct a competitive application and interview process to select the best candidates for each of the two identified positions.

Public Comment #6: I think a lot of the ideas in the Efficiency Plan are great. Although I do like the idea of "cash for grass" turf replacement, I also know there aren't enough studies done on the effects of artificial turf. Are there PFAs? Will chemicals run off

run the turf? Etc. I would propose a "cash for xeriscaping" or something like that if people replace their turfgrass with that. Also, perhaps I missed this in the plan, but I think another way to conserve water would be to ensure that no HOA's within the Town of Frederick are allowed to force the homeowners put in grass (Kentucky Blue Grass, most likely). If the homeowner wants to - fine, but if they choose xeriscaping or a garden in their yard, that should be allowed. Not only is water important to conserve, but there are many other environmental factors that go into the water efficiency plan. Overall, thank you for caring about water efficiency and conservation. It's important to our future!

The intention for the Town's proposed turf replacement program is to replace existing turf with low water use landscaping (e.g. xeric plant materials, native landscaping) or no water use landscaping (e.g. hardscape, mulch). This could also include artificial turf, however, this is not the recommended focus for the program (see Section 4.3.2.1). The Town does not have the authority over HOA covenants beyond the Town's minimum standards. Integration with HOAs will be evaluated as part of the Town's water efficient landscaping and irrigation standards audit (see Section 4.3.3.1).

Public Comment #7: I think it's vital to Frederick and all of the residents, present and future, considering the present and future issues concerning the availability of water on the Front Range.

Thank you for your comment. No response needed.

Public Comment #8: The incentives look interesting. Have you looked at alternative water sources like Greely did with the Terry Ranch aquifer for long-term water supply that is not dependent on the scarce CBT water units? Also, did you consider the use of Siemens powered dual-water meter system for homes, which accounts separately for outdoor and indoor usage in new SF homes to reduce the water requirements for new developments?

The Town is evaluating alternative water sources including non-potable reuse of supplies through its Long-Range Water Supply Plan, currently under development. The Town will convert all potable water customer meters to include advanced metering infrastructure technology (AMI). This will allow the Town to monitor near real-time water use and that data will be available to customers on a more frequent basis than the current monthly billing allows. This will support all conservation activities moving forward and will provide customers with tools to better understand their water use patterns and how that relates to their water bills. For reference, indoor and outdoor water use is reasonably estimated using methodology described in Section 3.2.1 of this plan. While exploring the water use outdoors vs. indoors will help to target efficiency programs, retrofitting homes onto a dual-meter system is potentially cost-prohibitive. The Town may consider dual water meter systems on new development; however, this may create complications within the Town's billing system.

Public Comment #9: Thank you for your work on this. Frederick may also need to consider additional incentives for xeriscaping and create a marketing plan for new residential developments to appeal to those who would embrace the use of less water

and allow the town to be more efficient with its water requirements to allow for more economic development.

The Plan describes some specific technical assistance and incentives programs in Section 4.3.2. These will be implemented and further advanced over time based on observations, evaluations, and recommendations from staff, specifically the new Conservation Specialist. The Conservation Specialist will work closely with other Town staff to develop and execute a public messaging campaign to support the Town's conservation programs.

Public Comment #10 (Facebook): This looks like a certification requirement for landscapers. How is that beneficial and not going to hurt small business?

See response to Comment #3 above.

Sarah Watson

From: noreply@civicplus.com
Sent: Tuesday, January 11, 2022 10:32 AM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

CAUTION: This email originated from outside of the Town of Frederick.
Do not click links or open attachments unless you can confirm the sender and content is

Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.

The first thing the town needs to do is stop watering needless grass. For example, the grass that runs along Colorado Blvd is ridiculously over-watered, it's mainly weeds and rocks. It is watered so much that there is standing water along the path even on the hottest days in the summer. Stop allowing builders (home and business) to install sidewalk grass and landscaping that needs excess water. The town waters grass EVERY day. Nothing needs to be watered every day unless it is newly planted. Please review you building guidelines for landscaping needs. Possibly using xeriscape instead of grass.

How important is water conservation/efficiency to you on a scale of 1-10?

10 (Highest)

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?

No

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Friday, January 7, 2022 10:31 AM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document. *Field not completed.*

How important is water conservation/efficiency to you on a scale of 1-10? 10 (Highest)

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents? No

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Thursday, January 6, 2022 6:29 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document. *Field not completed.*

How important is water conservation/efficiency to you on a scale of 1-10? 5

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents? No

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

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Sarah Watson

From: noreply@civicplus.com
Sent: Thursday, January 6, 2022 5:15 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.	I agree with the proposed plan document because water is necessary but if we do not get enough snow pack each year it can become sparse.
---	--

How important is water conservation/efficiency to you on a scale of 1-10?	8
---	---

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?	No
---	----

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Thursday, January 6, 2022 10:35 AM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document. *Field not completed.*

How important is water conservation/efficiency to you on a scale of 1-10? 9

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents? Yes

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Wednesday, January 5, 2022 8:29 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

Follow Up Flag: Follow up
Flag Status: Completed

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.	Table 9 has a section, potentially requiring landscapers to carry a certification, this seems like it could potentially hurt small business. I do not see how any potential benefit could outweigh this.
---	--

How important is water conservation/efficiency to you on a scale of 1-10?	6
---	---

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?	Yes
---	-----

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Wednesday, January 5, 2022 6:19 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

Follow Up Flag: Follow up
Flag Status: Completed

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.	I believe growth should pay its own way. If we are truly running out of water, how can you ask us to reduce consumption and ignore the fact that we are issuing new building permits? The best water efficiency plan reduces additional users.
---	--

How important is water conservation/efficiency to you on a scale of 1-10?	7
---	---

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?	Yes
---	-----

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Tuesday, February 15, 2022 4:42 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.

Like most documents of this kind, it's fairly thorough, informative and done with good intentions. The problem lies with execution. Don't bother to have ordinances and regulations unless we are willing to enforce them. That means having staff to do that. Don't hire new staff (Parks Director, Conservation Specialist) unless they are respected across the water-wise industry and use land-grant university researched information. Don't just reward residents and businesses for making changes, but make them PAY when this ultra-valuable resource is wasted. EDUCATE. Have tips and "did you know" facts about things we take for granted and waste. Tap into your volunteer network for ideas.

How important is water conservation/efficiency to you on a scale of 1-10?

8

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?

Yes

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Sunday, February 6, 2022 5:01 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

CAUTION: This email originated from outside of the Town of Frederick.
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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.

I think a lot of the ideas in the Efficiency Plan are great. Although I do like the idea of "cash for grass" turf replacement, I also know there aren't enough studies done on the effects of artificial turf. Are there PFAs? Will chemicals run off run the turf? Etc. I would propose a "cash for xeriscaping" or something like that if people replace their turfgrass with that. Also, perhaps I missed this in the plan, but I think another way to conserve water would be to ensure that no HOA's within the Town of Frederick are allowed to force the homeowners put in grass (Kentucky Blue Grass, most likely). If the homeowner wants to - fine, but if they choose xeriscaping or a garden in their yard, that should be allowed. Not only is water important to conserve, but there are many other environmental factors that go into the water efficiency plan.

Overall, thank you for caring about water efficiency and conservation. It's important to our future!

How important is water conservation/efficiency to you on a scale of 1-10?	10 (Highest)
---	--------------

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?	No
---	----

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Friday, February 4, 2022 8:47 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.	I think it's vital to Frederick and all of the residents, present and future, considering the present and future issues concerning the availability of water on the Front Range.
---	--

How important is water conservation/efficiency to you on a scale of 1-10?	10 (Highest)
---	--------------

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?	No
---	----

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Tuesday, January 25, 2022 1:35 PM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.

The incentives look interesting. Have you looked at alternative water sources like Greely did with the Terry Ranch aquifer for long-term water supply that is not dependent on the scarce C-BT water units? Also, did you consider the use of Siemens-powered dual-water meter system for homes, which accounts separately for outdoor and indoor usage in new SF homes to reduce the water requirements for new developments?

How important is water conservation/efficiency to you on a scale of 1-10?

9

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?

No

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: noreply@civicplus.com
Sent: Tuesday, January 25, 2022 6:51 AM
To: Sarah Watson
Subject: Online Form Submittal: Water Efficiency Plan Comment Form

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Water Efficiency Plan Comment Form

Water Efficiency Plan Comment Form

Please let us know how you feel about the proposed plan document.

Thank you for your work on this. Frederick may also need to consider additional incentives for zeroscaping and create a marketing plan for new residential developments to appeal to those who would embrace the use of less water and allow the town to be more efficient with its water requirements to allow for more economic development.

How important is water conservation/efficiency to you on a scale of 1-10?

10 (Highest)

Were you aware of the Garden in a Box Program or the Slow the Flow program that the Town offers to residents?

No

Additional questions please contact Sarah Watson, Swatson@Frederickco.gov or 720-382-5603

Thank you for your input!

Email not displaying correctly? [View it in your browser.](#)

Sarah Watson

From: Angela Wilson
Sent: Tuesday, January 11, 2022 9:53 AM
To: Sarah Watson
Subject: FB comments on Water Efficiency Plan post

FB comments on Water Efficiency Plan post on 1/5/2022



Town of Frederick, CO - Government



Frederick, CO - Official website

Like · Reply · Remove Preview · 5d



Jason Datray

Town of Frederick, CO - Government This looks like a certification requirement for landscapers. How is that beneficial and not going to hurt small business?



Like · Reply · Hide · Send Message · 5d



Author

Town of Frederick, CO - Government ✓
Jason Datray great example of a comment for the online form that will go directly on our Civil Engineer. FB comments just stay here so we sure hope you fill out the comment form. Thanks!

Like · Reply · 5d



Rusty O'Neal

Jason Datray Please give me a call directly 7205047368. That was not my understanding when it was presented to the board. Trustee O'Neal.

Like · Reply · Hide · Send Message · 3d · Edited

Write a comment...

Angela Wilson | Communications & Engagement Manager
Town of Frederick | 720-382-5513
AWilson@FrederickCO.gov | FrederickCO.gov



APPENDIX B
Official Plan Adoption Resolution

B. Official Plan Adoption Resolution

The Town of Frederick Engineering and Public Works staff have reviewed this Water Efficiency Plan and provided comments, after which the Public Review period began. The Plan was initially presented to the Town Board of Trustees on November 30, 2021. On March 22, 2022, the Town Board adopted the Water Efficiency Plan. A copy of Resolution 22-R-26 adopting the Water Efficiency Plan is attached.



TOWN OF FREDERICK BOARD OF TRUSTEES ACTION MEMORANDUM

Tracie Crites, Mayor

Dan March, Mayor Pro Tem
Mark Lamach, Trustee
Adam Mahan, Trustee

Rusty O'Neal, Trustee
Kevin Brown, Trustee
Windi Padia, Trustee

2022 Water Efficiency Plan Adoption

Agenda Date: Town Board Meeting – March 22, 2022

Attachments:

- a. 2022 Water Efficiency Plan
- b. Resolution 22-R-26
- c. Letter to Colorado Water Conservation Board

Finance Review: _____
Administrative Services

Submitted by: Sarah Watson
Civil Engineer I

Approved for Presentation: 
Town Manager

Quasi-Judicial Legislative Administrative

Strategic Plan Alignment:

This request aligns with the Town’s Strategic, Reliable & Sustainable Infrastructure Goal by identifying programs, opportunities, and strategies to reduce the Town’s water demands through water conservation and efficiency. This demand reduction was identified as an element of the Town’s 10-Year Water Resources Plan and information from the Water Efficiency Plan has been included in the draft 50-Year Water Resources Plan.

Summary Statement:

The 2022 Water Efficiency Plan presented at a work session November 30th, 2021 is ready for consideration for adoption by the Board. The 60-day public input period has been completed and input has been incorporated into the final plan as necessary. Staff is seeking approval of the Board to adopt the plan.

Detail of Issue/Request:

It is important for the Town to prepare various planning documents and update them as necessary to be good stewards of its water rights. These documents identify plans and programs that the Town should pursue to continue to meet the demands of our customers at a high level of service. Staff recommends for the Town to have Water Resource Plans like the 10-year Plan, Water Efficiency Plan, and 50-year Plan which are complemented by infrastructure plans for both the potable and raw water systems.

The 10-year Water Resources Plan identifies water efficiency, a.k.a. water conservation, as one method to reduce the Town's demands. The water saved through water efficiency can then be used to extend our current portfolio to meet new demands. Staff has proposed to prepare a Potable Water Master Plan in 2022 and an update to the Raw Water Master Plan will follow. After all of these plans are complete staff will monitor the status of implementation of the projects and programs identified within them. As plans and programs are implemented additional staff and resources will be required.

Colorado Revised Statutes Section 37-60-126(1)(b) defines a "covered entity" as one which has a demand of 2,000 AF or more from its customers. Covered entities are required by the Water Conservation Act of 2004 to have an approved Water Efficiency Plan (WEP). In past the Town has rarely provided 2,000 AF of potable water annually. With the increasing number of Town customers, the water delivered will likely be at or above 2,000 AF annually in the future. Covered entities must update their WEP at least every seven (7) years to meet State requirements and they must submit water use and conservation data to the state annually.

The Town prepared a Water Conservation Plan in 2011. The Water Efficiency Plan (WEP) prepared by Element will update and replace the previous plan. The Town has met the conservation goal identified in the 2011 program according to Elements analysis by reducing the Town's metered usage by 18%. This new document identifies programs that staff and our consultant feels should be continued from the 2011 plan and pursued as future programs to implement and provide to customers as good stewards of water.

By maintaining a WEP the Town will meet the covered entity State requirements. Information from the WEP has been incorporated into the 50-year Water Plan document that is under preparation now. Once the Town's WEP is approved and the Town is a covered entity, the Town is able to apply for Water Efficiency Implementation Grants. These grants make funding available to covered entities to help implement the goals and programs identified in the WEP.

The WEP prepared by Element includes a description of the Town, the water system and existing demands in sections 1-3. Section 4 of the plan describes the projected 2030 water savings goals and includes a list of possible water efficiency programs. The goals of the plan are to reduce the indoor demands by 18 AF through fixture replacements and high efficiency appliance use in existing and new development, decrease outdoor water use by 77 AF through conversion of existing service areas to raw water, and decrease water use by an additional 98 AF through other conservation measures and programs targeted at outdoor use. The last goal of the plan is to continue to evaluate programs by cost and water savings to guide how staff operates and maintains conservation programs. The water efficiency programs identified in the plan were discussed by Engineering, Public Works, and Planning staff.

Section 5 includes an implementation and monitoring plan. The implementation plan is broken into year 1, year 2, and year 3+. One new position that will be filled in the future that is important to implementing the programs and managing the plan is a conservation specialist. Another position that is

important to the success of this plan is the Parks and Open Space Director which was filled earlier this year. As staff implements the programs requests will be brought to the Board for funding of the proposed positions and programs for approval. Year 1 includes much of the foundational work that is needed to revise the Town's Codes and Standards to support some of the outdoor conservation programs identified in Section 4 and hiring the new Parks and Open Space Director. Staff will also work towards implementing the programs that can be managed with our current resources like the conversion to AMI water meters, offering rebates, and continuing the Garden in a Box and Slow the Flow audits through partnership with Resource Central. Year 2 includes hiring a water conservation specialist which will continue to progress the implementation of the programs identified in Section 4. This position will also be responsible for maintenance of the WEP. In year 3 the Town will prepare a rate study to analyze the potential and feasibility of changing the water billing structure to a budget billing structure. This is a big change from the existing tiered billing structure and will require much communication and customer engagement prior to and after implementation. This program is projected to save 30 AF which is a significant portion of the total goal. The monitoring plan identifies methods and metrics for the Town to track to identify how successful the project implementation is.

Section 6 of the plan describes the adoption, public review process, and will include the Colorado Water Conservation Board (CWCB) approval of the plan.

Section 7 of the plan describes the State required elements of the plan and how the WEP plan meets those requirements as presented.

This plan was published on the Town's website to collect comments on the plan for 60 days as required by the State. Input from the community was incorporated as Appendix A of the plan. After the Plan is adopted Section 6.2 of the plan will be updated to reflect the adoption and Section 6.3 will be updated with the CWCB approval.

Legal Comments:

The Town is required to have an approved WEP once it provides 2,000 AF or more to our customers annually by the Water Conservation Act of 2004. This plan will be submitted to the Colorado Water Conservation Board for review and approval.

Alternatives/Options:

The Town Board may provide feedback on the proposed plan.

Financial Considerations:

The funds budgeted for this planning effort supports the 10-year plan document and information from the WEP has been included in the draft 50-year Water Plan. Staff will request funding for programs as they are proposed to be implemented.

Staff Recommendation:

Staff recommends the Town Board approve Resolution 22-R-26 adopting the plan and authorizing the Mayor to sign the letter that will be provided to the CWCB with the final Water Efficiency Plan for approval.

APPENDIX C

Colorado Water Conservation Board Approval



COLORADO

Colorado Water Conservation Board

Department of Natural Resources
1313 Sherman Street, Room 718
Denver, CO 80203

October 11, 2022

Sarah Watson
Town of Frederick
P.O. Box 435
Frederick, CO 80539

Dear Sarah Watson:

The Colorado Water Conservation Board (CWCB) received a locally adopted Water Efficiency Plan from the Town of Frederick for review and approval. The CWCB has determined the Plan to be in accordance with §37-60-126 and the CWCB's Guidelines for the Office to Review Water Conservation Plans Submitted by Covered Entities. The Plan is hereby approved and Town of Frederick may proceed with its implementation.

The Plan will be kept on file at the CWCB and shall be accessible to the public through our website and the Water Resource Information Center. The Plan will also be made available to the Colorado Water Resources & Power Development Authority and the Finance section within the CWCB should you apply for a loan from either agency. *This Plan will expire October 11, 2029.*

As Town of Frederick begins implementing the efficiency measures outlined in the Plan, please know that the CWCB staff will be available to provide technical and financial assistance.

Thank you again for all your efforts in developing a Water Efficiency Plan. Should you have any questions or need additional assistance, please feel free to contact Sam Stein at sam.stein@state.co.us.

Sincerely,

Rebecca Mitchell
CWCB Director

cc: Matt Stearns, CWCB Finance Section
Jim Griffiths, Colorado Water Resources & Power Development Authority
Logan Burba, ELEMENT Water Consulting

