

ORDINANCE NO. 2022-22

AN ORDINANCE ADOPTING A WATER CONSERVATION PLAN.

PREAMBLE

WHEREAS, the Utah State Legislature passed a Water Conservation Plan Act, (§73-10-32, Utah Code Annotated) to address the rapid growth occurring throughout the State of Utah; and

WHEREAS, Richfield City operates a culinary water system; and

WHEREAS, the City Council understands the pressing need to use water more efficiently to allow for future sustained growth of the community; NOW, THEREFORE;

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF RICHFIELD, SEVIER COUNTY, STATE OF UTAH:

Section 1. Preamble. The recitals in the Preamble are enacted to be deemed a part of this Ordinance and are hereby declared to express the intent hereof.

Section 2. Establishment of a Water Conservation Plan. There hereby is established and approved, a Water Conservation Plan for Richfield City as defined and included in Subsection 73-10-32, Utah Code Annotated, as amended.

Section 3. Effective Date. This Ordinance shall become effective upon posting of a Summary on the Public Meeting Notice website www.pmn.utah.gov, the City's website www.richfieldcity.com and in 4 public places.

PASSED AND APPROVED this 26th day of July 2022.

CITY OF RICHFIELD

By _____
Bryan L. Burrows, Mayor

ATTEST:

Michele H. Jolley, City Recorder

(SEAL)

Councilmember Brayden Gardner
Councilmember Todd Gleave
Councilmember Kip Hansen
Councilmember Elaine Street
Councilmember Tanner Thompson

AYE:

NAY:

RICHFIELD CITY



WATER CONSERVATION PLAN - 2022



July 13, 2022

Project #: 2201-004

Prepared by:



**Jones & DeMille
Engineering**

www.jonesanddemille.com
1.800.748.5275

TABLE OF CONTENTS

1.	Introduction	3
2.	Water Use	4
2.1.	Irrigation	4
2.2.	Culinary Use	5
3.	System Profile.....	6
3.1.	Service Area	6
3.2.	Population Projection	6
3.3.	Water Connections	7
3.4.	ERC projections	7
3.5.	Current Water Supply	8
3.5.1.	Existing Water Right Capacity	8
3.5.2.	Water Sources and Safe Yield capacity	9
3.6.	Supply vs. Use Comparison 2005-2021	10
4.	System Water Loss Control.....	11
4.1.	Leak detection and repair methods.....	11
4.2.	Water loss	11
4.3.	Current Water Measurement Methods	11
5.	Billing	12
6.	Conservation Practices	12
6.1.	Current Conservation Goals & Progress	12
6.2.	Current Conservation Practices	13
7.	Additional Conservation Measures – 5 years.....	14
7.1.	New BMPs that will be implemented over the next five years	14
8.	Implementing and Updating Water Conservation Plan	16
8.1.	Contact Information	16
Appendix A. System Map		A-1
Appendix B. Certification of Adoption and Meeting Minutes.....		B-1

FIGURES

Figure 1 - Regional Water Conservation Goals	3
Figure 2 - Irrigation Draw From Sources	4
Figure 3 - Water Usage Per Capita Per Day.....	6
Figure 4 -- Population Projection	7
Figure 5 - Projected ERC Growth	8
Figure 6 - Water Supply vs Demand Comparison	10

TABLES

Table 1 - Irrigated Acreage by Year	4
Table 2 - Water Usage.....	5
Table 3 -Connections	7
Table 4 - Water Rights, Sources, and Volumes	9
Table 5 - Source Safe Yield Capacity	10
Table 6 - Water and Revenue Losses	11
Table 7 - Price / Rate Structure.....	12
Table 8-Previous Vs. Current Block Rate.....	13
Table 9 - Utah DWRe BMPS	15

1. INTRODUCTION

Utah set a statewide water conservation goal from 2000 to 2025 of 25%. Statewide programs have been utilized to achieve water use reduction goals. Recently, the Division of Water Resources (DWR) has established regional conservation goals that reflect local conditions including climate, population, and water use category. Utah's Regional Municipal and Industrial Water Conservation Goal for Sevier County is 321 gallons per capita per day (gpcd), a 20% reduction from 2015. Richfield City has adopted this regional goal, and in 2021 the city's water use was 314 gpcd.

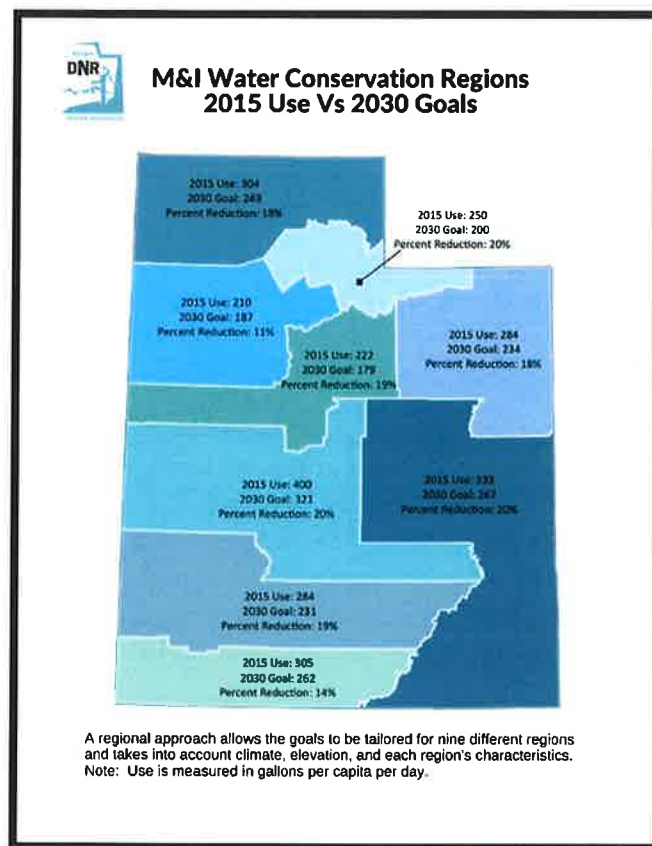


Figure 1 - Regional Water Conservation Goals

Providing an adequate supply of culinary water to users is paramount for Richfield City and its residents. Water conservation practices are vital in ensuring the City's ability to provide water to users of the system while also maintaining high water quality. This Water Conservation Plan is being implemented to ensure that current and future water demands may be provided for.

The Richfield City 2022 Water Conservation Plan has been prepared to comply with the Utah Water Conservation Plan Act of 1998 amended in 2004 with House Bill 71 Section 73-10-32. The act requires water conservancy districts and water retailers to file a water conservation plan with the Utah Board of Water Resources and ensure that it is updated every five years. This update outlines Richfield City's current water conservation efforts and presents current conservation goals.

2. WATER USE

2.1. IRRIGATION

Irrigation use in Richfield is primarily associated with the golf course. Most residential properties use culinary water for irrigation purposes. The total number of irrigated acres is shown in Table 1. Irrigation water is unmetered and data on sources goes back to 2016.

Table 1 - Irrigated Acreage by Year

Year	Acres
2021	170
2020	170
2019	170
2018	170
2017	170
2016	150

The annual irrigated acreage has been constant for the previous five years, an increase or decrease in the annual irrigated acreage is not anticipated. Richfield received irrigation water from the Golf Course Well, Richfield Canal and Sevier Valley Canal. The water produced from each source, dating back to 2017, is displayed in Figure 2.

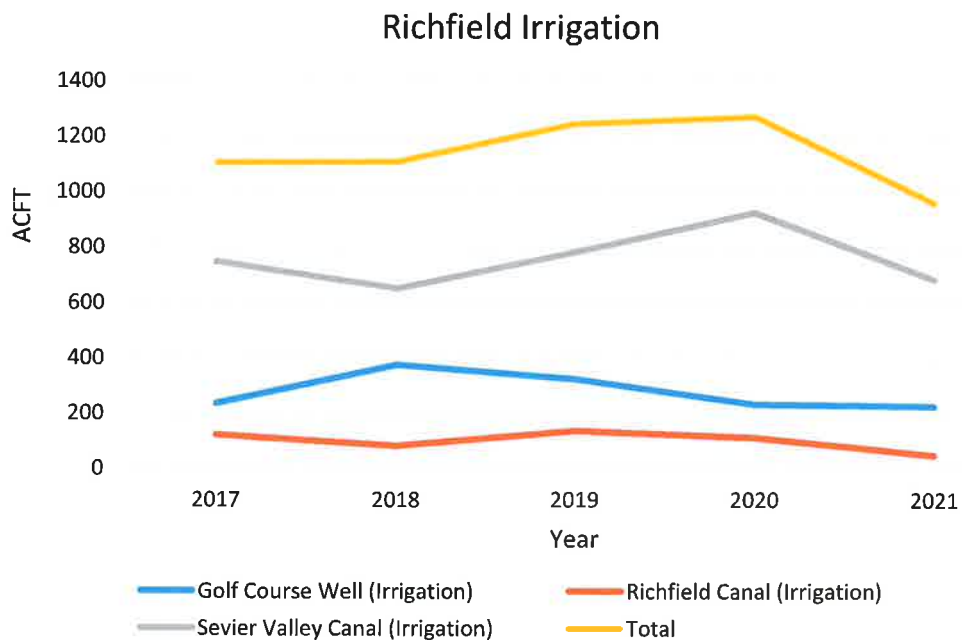


Figure 2 - Irrigation Draw From Sources

The Sevier Valley Canal produces the bulk of the irrigation water followed by the Golf Course Well and the Richfield Canal.

2.2. CULINARY USE

The City reports water usage each year to the Division of Water Rights, see Table 2. Water users are not supplied with a secondary water source and therefore the usage amounts in Table 2 show indoor and outdoor water usage.

Table 2 - Water Usage

Year	Population	Residential Use ACFT	Commercial Use ACFT	Industrial Use ACFT	Institutional Use ACFT	Secondary Use ACFT	Total Use ACFT	From Sources ACFT
2021	8,360	1,426	395	0	377	0	2,198	2,938
2020	8,525	1,707	362	0	457	0	2,526	3,385
2019	8,390	1,399	392	0	305	0	2,095	2,659
2018	7,950	1,496	402	0	324	0	2,222	2,923
2017	7,920	1,406	415	0	354	0	2,175	2,774
2016	7,600	1,416	386	0	274	0	2,076	2,993
2015	7,860	1,362	372	0	220	0	1,953	2,906
2014	7,555	1,415	387	0	204	206	2,213	2,670
2013	7,551	1,345	363	0	552	172	2,432	2,747
2012	7,551	1,499	415	0	284	104	2,302	2,675

As of 2021, total metered usage is up from 2015. Population has increased 6.4% While metered Usage is up 12.5%. To better understand water usage, it is useful to calculate the demand on a capita basis which is displayed in Figure 3 as Gallons per Capita Per Day gpcd, It is differentiated to include metered use as well as system water loss.

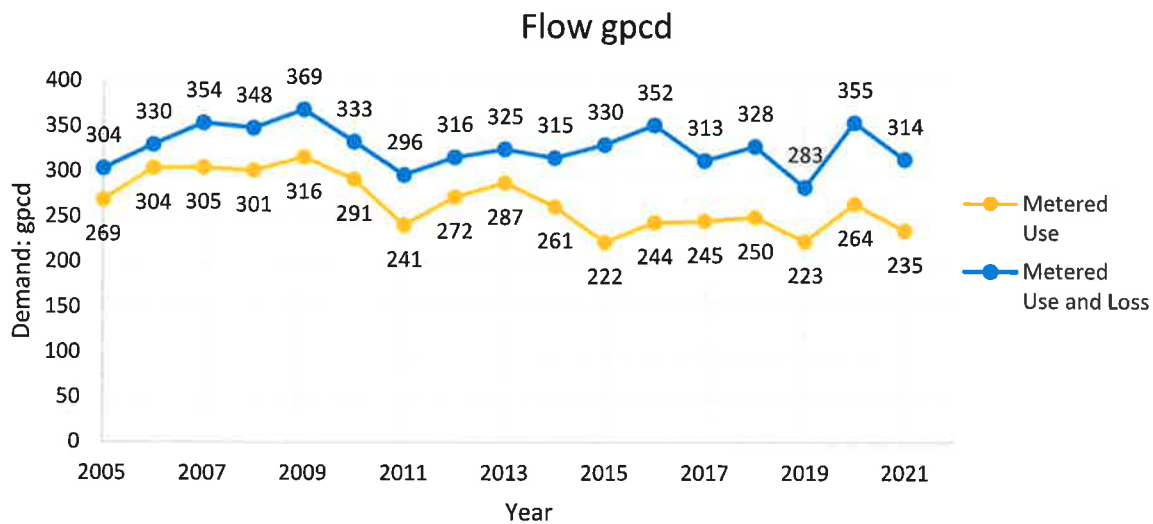


Figure 3 - Water Usage Per Capita Per Day

Based on water usage from 2012 to 2021, the average water metered usage per capita per day is approximately 250 gallons or about 0.624 acre-feet per ERC per year. When system water loss is factored in, water usage is 323 gpcd during the same period. Total water usage per capita is 314 gpcd in 2021, which is down from 330 gpcd in 2015. Since 2015, the city has hit the region’s water conservation goal most years.

3. SYSTEM PROFILE

3.1. SERVICE AREA

Richfield City provides culinary water to customers within its service area, which includes residences and business within and near the City boundaries. Richfield is located in western Sevier County, Utah. The City is located along the I-70 corridor. The City’s service area can be seen on Exhibit 1 in Appendix A. Annual precipitation for Richfield averages about 8.12 inches/yr.¹

3.2. POPULATION PROJECTION

Growth projections were obtained from census data and population projects provided by the Kem Gardner Institute². The Institute analyzes and produces population projections for the Utah State Legislature and Office of the Governor.

¹ <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?utrich>

² <https://gardner.utah.edu/demographics/population-projections/>

Richfield has experienced steady growth from 1980 to 2020. The City population is anticipated to grow at the same rate as Sevier County. The annual growth rate is variable and will vary between 0.3 and 1.1% over the next 40 years. By 2060, The City's population is projected to grow to approximately 8,995, Figure 4.

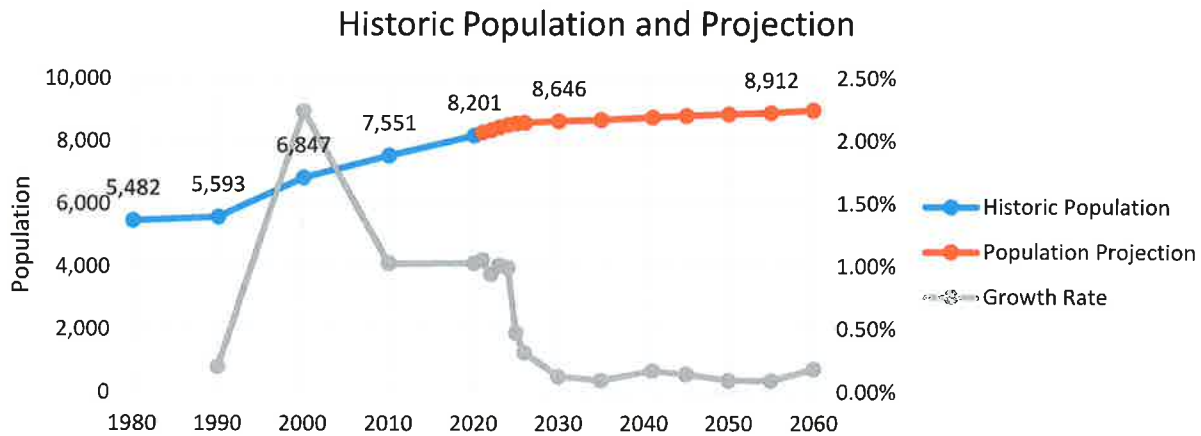


Figure 4 -- Population Projection

3.3. WATER CONNECTIONS

Water connections are categorized as residential, commercial, industrial, and institutional. Table 3 below displays the current connections, as of 2021, to the system and a 20-year projection of connections.

Table 3 -Connections

Connection Type	2021	2041
Residential	2,464	2,609
Commercial	368	390
Industrial	0	0
Institutional	98	104

Most of Richfield's water connections are residential, followed by commercial, and institutional connections, there were no industrial connections as of 2021.

3.4. ERC PROJECTIONS

To project future water demands, it was assumed that the system ERCs would grow at the same rate as the population. This assumes that the residential, institutional, and commercial connections would grow proportional to population growth. Figure 5 shows the projected number of ERCs through 2060.

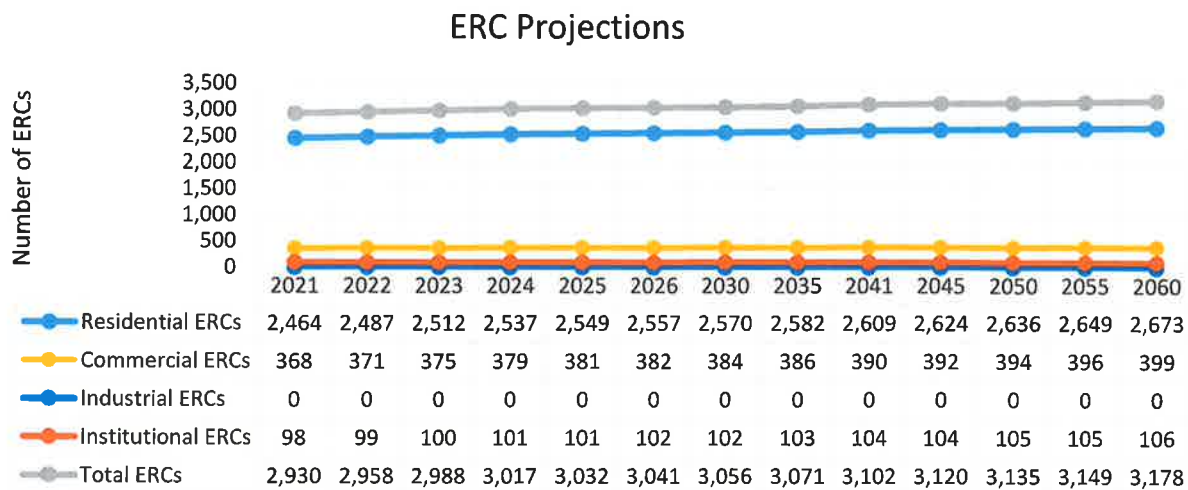


Figure 5 - Projected ERC Growth

3.5. CURRENT WATER SUPPLY

3.5.1. EXISTING WATER RIGHT CAPACITY

Water for Richfield City comes from Richfield Spring (WS001) the spring water is supplemented by water from three underground wells. The wells that contribute water into the Richfield culinary network are Commercial Park Well (WS006), Cemetery Well (WS002), and Shop Deep Well (WS005). The water rights, sources, volumes, and associated change application are displayed in Table 4.

(Remainder of page intentionally left blank)

Table 4 - Water Rights, Sources, and Volumes

Water Rights	Source	Change Application	ACFT-YR	Notes
63-763	Well	a35118	97.0	
63-4595	Well	a35119	8.0	
63-874, 63-879, 63-880, 63-881, 63-882, 63-883, 63-884, 63-885, 63-886, 63-887, 63-88, 63-889, 63-890, 63-891, 63-892, 63-893, 63-894	Well	a36787	266.5	
63-510, 63-511, 63-512, 63-513, 63-514, 63-515, 63-516, 63-517, 63-518, 63-519, 63-520, 63-521, 63-522	Well	a39394	78.0	
61-3009	Well	a39493	41.3	
63-875	Well	a39600	283.7	
63-314	Well	a39779	10.9	
63-4809	Well	a44852	10.0	
63-187	Well	a46451	7.4	
63-4851	Well	a47013	93.1	
63-1081	Well	a6131	90.5	
63-3160	Spring	-	1,447.9	
63-1083	Well	-	90.5	
63-1082	Well	-	90.5	
63-1081	Well	-	90.5	
63-3161	Spring	-	1,447.9	Supplemental
Total			4,153.6	

Richfield has rights to a total of 4,154 ACFT of water per year from all sources. Many of the water rights are shared among the three wells, the most recent change application should be viewed to understand the latest information regarding the specific water right.

3.5.2. WATER SOURCES AND SAFE YIELD CAPACITY

Richfield has rights to all the water from the Richfield City Springs. Wells supply a substantial amount of culinary water for the City. The safe yield capacity was calculated for the spring and underground water sources which are displayed in Table 5.

Table 5 - Source Safe Yield Capacity

Source	Safe Yield (ACFT-YR)
Richfield Spring (WS001)	9,55
Cemetery Well (WS002)	1,371
Shop Deep Well (WS005)	3,226
Commercial Park Well (WS006)	1,613
Combined	7,165

Richfield has access to water sources with a substantial supply of water that is in excess of the available water rights owned by the City.

3.6. SUPPLY VS. USE COMPARISON 2005-2021

Given that sources are capable of sustained flows equal to the granted water rights, Richfield should have sufficient water to keep running through 2060 at current and projected usage trends. Richfield used around an average of 325 gpcd, of water since 2015. The regional goal is 321 gpcd by 2030 and Richfield is on track to meet that goal. The available water, water rights, and projected water demands are shown in Figure 6.

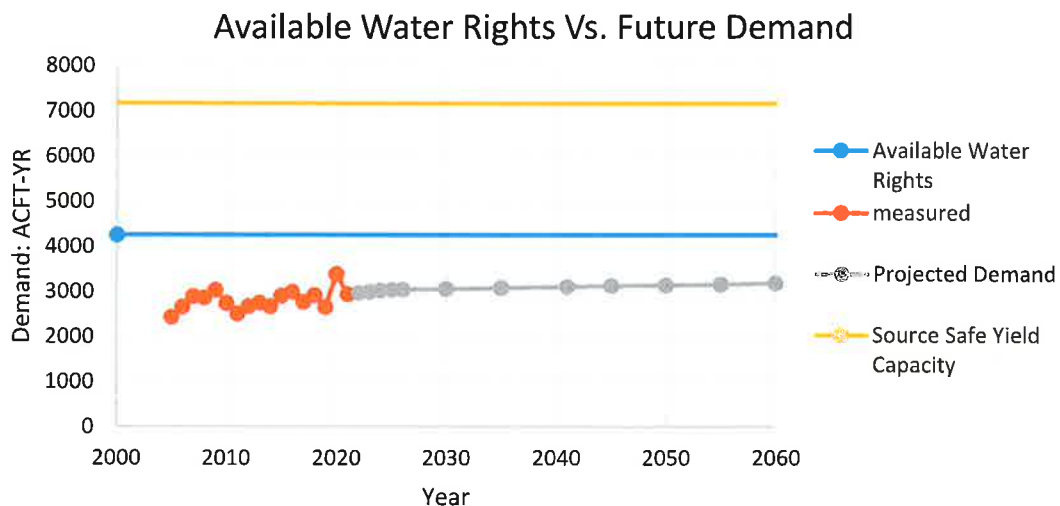


Figure 6 - Water Supply vs Demand Comparison

Richfield City has ample water supply available for current and projected demands. However, to ensure efficient water usage and ensure future availability of water for future population increase, reducing water waste and improving efficiency will help Richfield and Sevier County meet water conservation goals.

4. SYSTEM WATER LOSS CONTROL

4.1. LEAK DETECTION AND REPAIR METHODS

Currently, there is no leak detection other than the knowledge that not all water from sources enters metered connections. There are many old sections of cast iron pipe in the distribution network which have exhausted their service life and should be replaced, where feasible, to reduce water loss. Implementing plans to locate compromised pipe sections and fittings would provide valuable information and help the City plan localized repairs to reduce water loss.

4.2. WATER LOSS

Water loss was calculated by taking the difference from the total amount of water measured from sources and reported retail use then dividing by the total water from sources. In 2021, Richfield lost 740.5 ACFT of water which was about 25% of the overall water intended for distribution. Revenue losses were calculated based on average use per metered connection and the rate schedule in Table 7.

Table 6 - Water and Revenue Losses

Year	Water Loss ACFT- YR	Estimated Water Loss %	Revenue Loss
2021	740.46	25%	\$ 367,117.49
2020	859.37	25%	\$ 426,072.65
2019	564.36	21%	\$ 279,807.72
2018	701.02	24%	\$ 347,563.27
2017	598.38	22%	\$ 296,674.72
2016	916.97	31%	\$ 454,630.53
2015	953.22	33%	\$ 472,603.15
2014	457.26	17%	\$ 226,707.91
2013	315.43	11%	\$ 156,389.10
2012	372.96	14%	\$ 184,912.27

Searching for visible losses and repairing known leaks will benefit the system efficiency. Some water is used for firefighting demand and hydrant tests meaning that water loss can never be completely reduced, however, there is much improvement that can be made to reduce losses from damaged pipes, fittings, and connections. The money saved by mitigating losses can be used for required system improvements or savings passed on to the end user by providing cheaper water.

4.3. CURRENT WATER MEASUREMENT METHODS

All culinary connections in the system are metered and are read electronically. Electronic readings make data collection efficient and practical and provide information on where water is being used most heavily.

5. BILLING

The current pricing structure for users of the Richfield Water system is shown in Table 7. Water has a base charge for the connection up to 4,000 gallons and an increasing rate structure to encourage conservation practice. Users who use excessive amounts of water will be charged more on a gallon per gallon basis than those who employ better conservation practice. Water Rates are up about 18% from the previous rate schedule to account for inflation, rising cost of service, and budget for future upgrades and repairs for the system.

Table 7 - Price / Rate Structure

Type:	Block Rate (2022)
Base Charge:	\$21.00/month
Base Allocation:	4 Kgal/month
Amount of Water	Rate
4 to 10 Kgal	\$0.60/Kgal
10 to 20 Kgal	\$0.70/Kgal
20 to 40 Kgal	\$0.80/Kgal
40+ Kgal	\$0.90/Kgal

6. CONSERVATION PRACTICES

Utah's Regional Municipal and Industrial Water Conservation Goal for Sevier County is 20% reduction from 400 gpcd (2015) to 321 gpcd (2030). In 2015 water usage in Richfield City was 330 gpcd and by 2021 water usage was down to 314 gpcd. Currently, the City is hitting the region's water usage goal, routine maintenance and careful system monitoring will ensure that the City continues to meet water conservation standards.

6.1. CURRENT CONSERVATION GOALS & PROGRESS

From the previous water conservation plan, Richfield City has outlined several measures as goals to help promote conservation and help to solve problems identified with the System.

- **Goal #1: Maintain a financially viable water system.** The water rate schedule should encourage customers to reduce use without creating a revenue shortfall.
 - The new rate schedule promotes water conservation practice by charging water users more who use excessive amounts of water. Connections that use less water will be charged less on a gallon per gallon basis. Richfield has raised water rates by 20% from the previous rate schedule to have funds available to maintain the system and make repairs.

Table 8-Previous Vs. Current Block Rate

Type:	Block Rate (2022)	Prior Rate 2017
Base Charge:	\$21.00/month	\$17.50/month
Base Allocation:	4 Kgal/month	4 Kgal/month
Amount of Water	Rate	Rate
4 to 10 Kgal	\$0.60/Kgal	\$0.50/Kgal
10 to 20 Kgal	\$0.70/Kgal	\$0.60/Kgal
20 to 40 Kgal	\$0.80/Kgal	\$0.70/Kgal
40+ Kgal	\$0.90/Kgal	\$0.80/Kgal

- **Goal #2: Establish a system to more accurately measure water delivered to secondary system.**
By accounting for the water delivered to the secondary system the City can clearly identify future water conservation measures.
 - Some progress has been made toward this goal as unmetered water has not left the culinary system since 2014, however secondary connections are unmetered at this time. Understanding specifics on secondary water use will provide valuable data to help in planning efforts moving forward.
- **Goal #3: Encourage future commercial/industrial developments to employ water-wise landscapes and irrigation systems.**
 - The use of plant types that are more easily maintained with less water requirements will not only help reduce the water usage rate in the City but will also help these developments maintain their sites with minimal effort. The use of water-wise irrigation systems, like drip irrigation and sprinkling systems that limit the time of watering to the period of the day when evaporation is considerably less, will also help reduce water usage by these developments.

6.2. CURRENT CONSERVATION PRACTICES

Richfield City has always taken an active role in conserving and providing high quality drinking water to their residents. There have been many conservation measures implemented over the past decade. See the list below for discussion on some of the implemented conservation methods:

- Richfield City's current water conservation program is directed primarily at encouraging residential conservation through education, an increasing block rate for water usage has been adopted. The transition to electronic metering makes it possible to maintain better records of water usage throughout the City.
- The bill statements that the City mails each month to each water user depict the monthly water usage. This encourages users to think about the amount of water they use. These bills also

periodically contain conservation tips for the user to consider. The billing structure is set up to encourage conservation with increasing water charges depending on water usage each month.

- Richfield has installed electronic meters which make water usage much more trackable
- Many of the City properties have been converted to xeriscaping or utilized secondary water.
- New ditches installed to convey unused secondary water to other areas for use.

7. ADDITIONAL CONSERVATION MEASURES – 5 YEARS

- Richfield City is in the process of analyzing and pursuing revisions to the Capital Facilities Plan. Possible revisions to impact fees, hook-up fees and water user rates may be made. An emphasis on promoting water conservation will be made in the analysis of the revised fees and rates.
- Richfield City will also complete an evaluation of the water system operations including computer modeling that incorporates recent water use records. This model will not only look at current water system operations but will also evaluate the long-term storage, source, water right and distribution capacities for the projected population increase.
- Richfield City will also consider budgeting for depreciation in future culinary water system improvement projects. This will help reduce future bonding costs.
- Richfield City will share customized water use feedback with high water users to help them understand their water usage.
- The Richfield City Council will consider updating the Richfield City Code to encourage more xeriscaping in future commercial/industrial developments as well as within the City's street rights-of-way.
- Richfield City will consider improving their secondary irrigation system to reduce outside watering with culinary water system.
- Richfield City will post water conservation tips on their website and include with monthly water bills. The City website will also include links to other websites with water conservation measures, including <http://www.conservewater.utah.gov/>.
- Richfield City Council will continue to evaluate the rate structure to determine if there is a feasible structure that would incentivize more efficient water use for all users.
- Richfield City plans to begin using text, email, and other forms of direct communication to share water use information with residents. Messages will be sent based on monthly billing information and will help create greater awareness for residents about their water use.
- Beginning in 2022, Richfield City plans to target its highest water users with specific conservation recommendations using the Yoppify communication platform. Examples of messaging include invitations to participate in statewide rebate programs and links to the state's weekly watering recommendations.

7.1. NEW BMPS THAT WILL BE IMPLEMENTED OVER THE NEXT FIVE YEARS

The Utah Division of Water Resources (DWRe) has published a list of Best Management Practices (BMPs) for water providers to help promote Water Conservation, which are listed in Table 9. These BMPS help water providers in conservation practices.

Table 9 - Utah DWRe BMPS

BMP	Progress since 2017	Proposed Progress 2022-2027	Timeline
Water Conservation Coordinator, Committee or Team	-	Designate a Water Conservation Coordinator	3 years
Water Conservation Plan (WCP)	Updated Plan in 2017	This plan to be adopted 2022 and new plan created for 2027	5 years
Public Awareness and Public Outreach	-	Post water conservation tips to Richfield City Website. Share water conservation recommendations with high water users using text and email messaging.	1 year
Education & Training	-	Provide contact info to future water conservation coordinator who will provide water conservation tips	3 years
Rebates Incentives Rewards	Tiered water pricing	Continue with tiered water pricing to make water cost cheaper for those who use less per gallon. Promote state rebate programs to residents using the Yoppify platform.	Review Rates Annually
Public Involvement	-	Hold one conservation seminar per year and invite public to attend	Annually
Ordinances & Standards	-	Recommend with each statement that watering occur between 10pm and 6am to reduce loss	1 Year
Water Pricing	Ensure pricing keeps up with system maintenance costs	Pricing schedule updated 2022 Ensure that pricing includes funds for repairs and upgrades moving forward	Review Pricing Annually
Physical System	Install electronic metering	Complete leak detection test and replace worst sections of pipe/fittings to avoid loss	5 Years

8. IMPLEMENTING AND UPDATING WATER CONSERVATION PLAN

This Water Conservation Plan will be adopted by the Richfield City Council, who will have the responsibility to coordinate and carryout the water conservation program measures. The meeting minutes adopting the water conservation plan is attached as Appendix B.

The water conservation plan will be revised and updated as required to meet changing conditions and needs. This plan will also be updated and resubmitted to the Utah Division of Water Resources in 2027.

Annual evaluation and review of the Water Management and Conservation Plan will occur as water meter reading provides the Company with good consumptive use data. This will require field checks on users that are using large amounts of water to determine the cause of excess usage. These users will need to be periodically informed of their usage and educated about appropriate conservation measures.

8.1. CONTACT INFORMATION

Those involved with the adoption and implementation of this plan are:

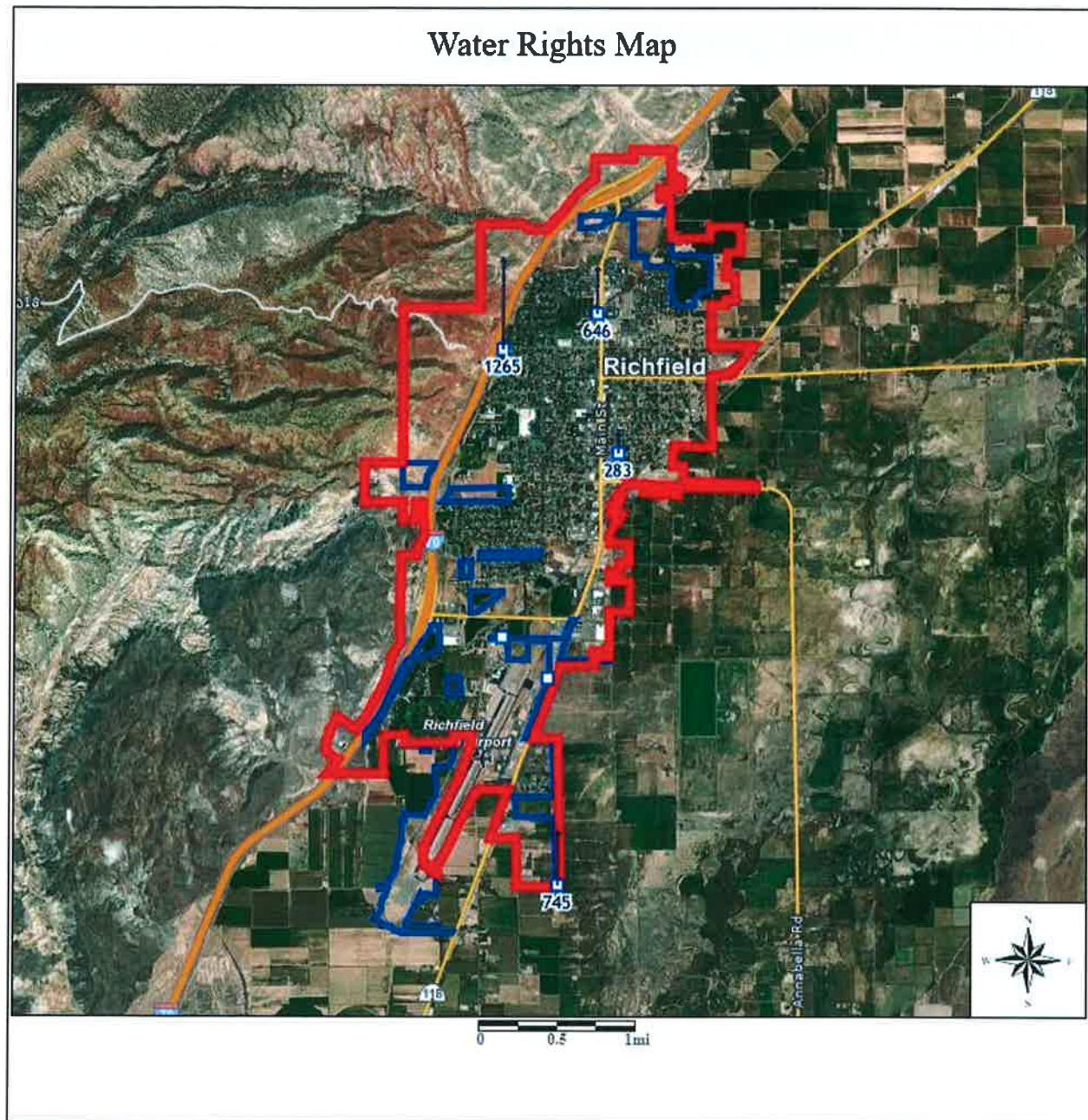
Keith Mogan, Public Works Director keith@richfieldCity.com

Tyson Hansen, Finance Director tyson@richfieldCity.com

Bryan L. Burrows, Mayor bryanl.burrows@gmail.com

The Finance Director, Public Works Director, and Mayor will meet on an annual basis to discuss system needs, pricing, and the implementation of this plan. They will measure progress and ensure that the goals are met.

APPENDIX A. SYSTEM MAP



APPENDIX B. CERTIFICATION OF ADOPTION AND MEETING MINUTES

I, Brian Burrows, the Mayor of Richfield City, hereby certify that the attached Water Conservation Plan – 2022 has been established and adopted by the City on the date listed below.

Brian Burrows, Mayor

Date