
COTTONWOODMUTUALWATERCOMPANY



2020
WATER
CONSERVATION
PLAN

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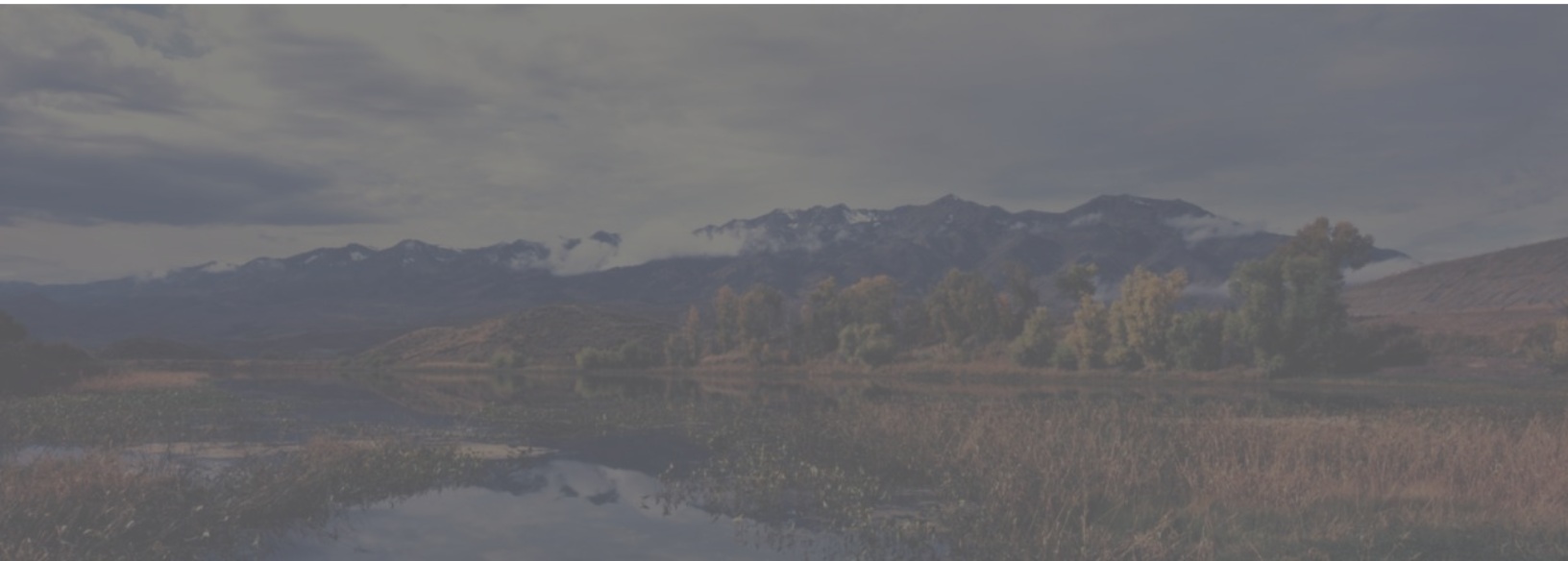
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WATER CONSERVATION PLAN

As one of the fastest growing states in the nation and having a population expected to double by 2060 it becomes incumbent upon water providers together with residential, commercial, industrial, and institutional users to do what they can to improve water use efficiencies. In response to the Water Conservation Plan Act (House Bill 71) passed and revised in the 2004 legislative session (Section 73-10-32 Utah Code Annotated) and Governor Herbert's.

Recommended State Water Strategy together with his desire to see a 25 percent reduction in water use by 2025, Cottonwood Mutual Water Company has prepared this Water Conservation Plan (WCP) to assist its customers promote greater more efficient water conservation practices. This WCP is developed to address how water conservation programs and practices will play an integral role in meeting Cottonwood Mutual Water Company's future water needs.



COTTONWOOD MUTUAL WATER COMPANY

Located in Morgan County, and in the second driest state in the nation, Cottonwood Mutual Water Company serves approximately 2,553 residents. Providing water to meet the needs of its customers has always been a top priority of Company leaders. As a result, a well-maintained and operated water system provide customers with water when and where needed. Currently, the water system provides

water to 740-residential, 19-commercial, 1-industrial, and 12-institutional connections. Cottonwood Mutual Water Company is presently receiving a majority of the county's residential growth. This growth is causing changes in the way the land is being utilized. Through careful planning and efficient utilization of available water supplies these increased needs can and will be met.



INVENTORY OF WATER RESOURCES

Where we stand

308.80

ACRE-FEET ANNUALLY

On average, Cottonwood Mutual Water Company has been withdrawing 308.80 acre-feet of water on average annually from an underlying aquifer through wells between 2016 and 2019.

5

WELLS

Potable water for future connections will come from the Company. For planning purposes, the source water of the company comes from five wells. The maximum safe yield amount of the five wells is 1,375 acre-feet (assuming each well pump 24/7).

690.91

ACRE-FEET ANNUALLY

Under current water rights the company is entitled to withdraw 690.91 acre-feet annually from its water sources. As mentioned previously, the safe yield of these sources is approximately 1,375 acre-feet.

INVENTORY OF WATER RESOURCES

Continued

Meter & Water Use Information

Meter Connections by Type

	Number of Connections	Number of Metered Connections	Read Frequency	Any Unmetered Connections?
Residential	740	740	Monthly	No
Commercial	19	19	Monthly	No
Institutional	12	12	Monthly	No
Industrial	1	1	Monthly	No
Total	772	772	Monthly	No

Table Data based upon counts on December 26, 2019

WATER BUDGET

How much are we losing

Average losses from the system are just over 10 percent for the last four years of record. Water loss is the difference between gallons pumped versus gallons sold.



PRESENT WATER USE AND FUTURE NEEDS

114.6

GALLONS PER CAPITA PER DAY

The average total gallons per capita per day water consumption for the years 2016 through 2019 is 114.6 GPCD. This is compared to the statewide average of 242 GPCD and 134 GPCD nationally.

2580

ADDITIONAL PEOPLE

The current population of the Cottonwood Mutual Water Company service area is approximately 2553 people. Projected growth increases the population by 2580 people based upon 748 housing units, a hundred-unit hotel, retail space including restaurants, and office space. The absorption rate for this growth is anticipated at 30 to 40 housing units per year occurring over the next fifteen to twenty years.

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ADDITIONAL WELLS

Cottonwood Mutual is anticipating the increased growth through the recent construction of a 1.0 million-gallon water tank and the development of three additional wells. It is unclear how future growth will ultimately affect the Company, but the availability of water will play a major component to future growth and development.

Per Capita Water Use by Type

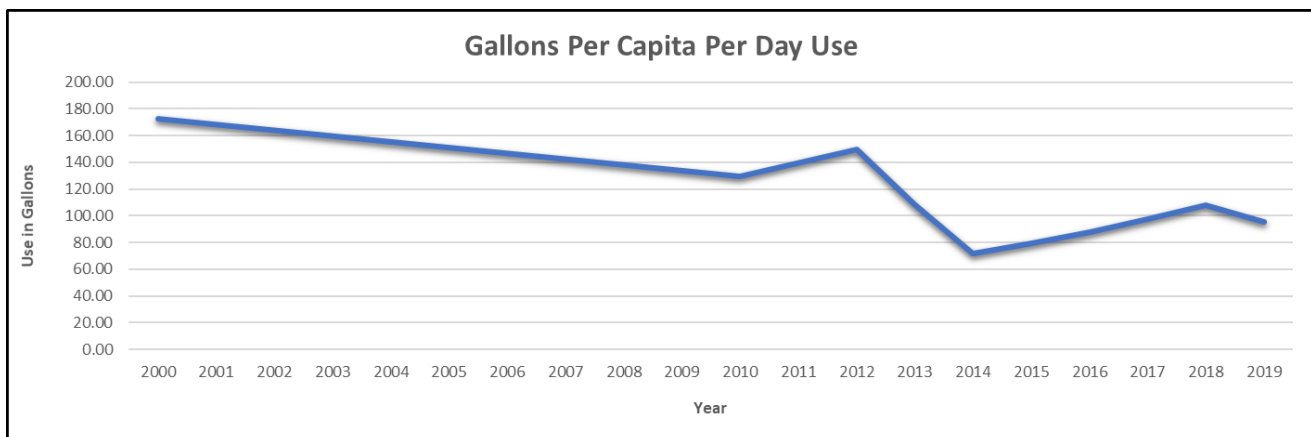
GPCD Water Use Population Estimate 2,553				
<i>Data based upon 2019 use</i>	Indoor	Outdoor Potable	Non-Potable (Secondary)	TOTAL
Residential	54.3	35.7	N/A	90.0
Commercial	1.0	1.2	N/A	2.2
Institutional	1.6	1.9	N/A	3.5
Industrial	0.02	0.01	N/A	0.03
TOTAL	56.9	38.8	N/A	95.7

Gallons per Capita per Day (GPCD) by Type

Calculator: Water use in Gallons per Capita per Day
Enter data in blue and green cells in the table below.

325851.43 365

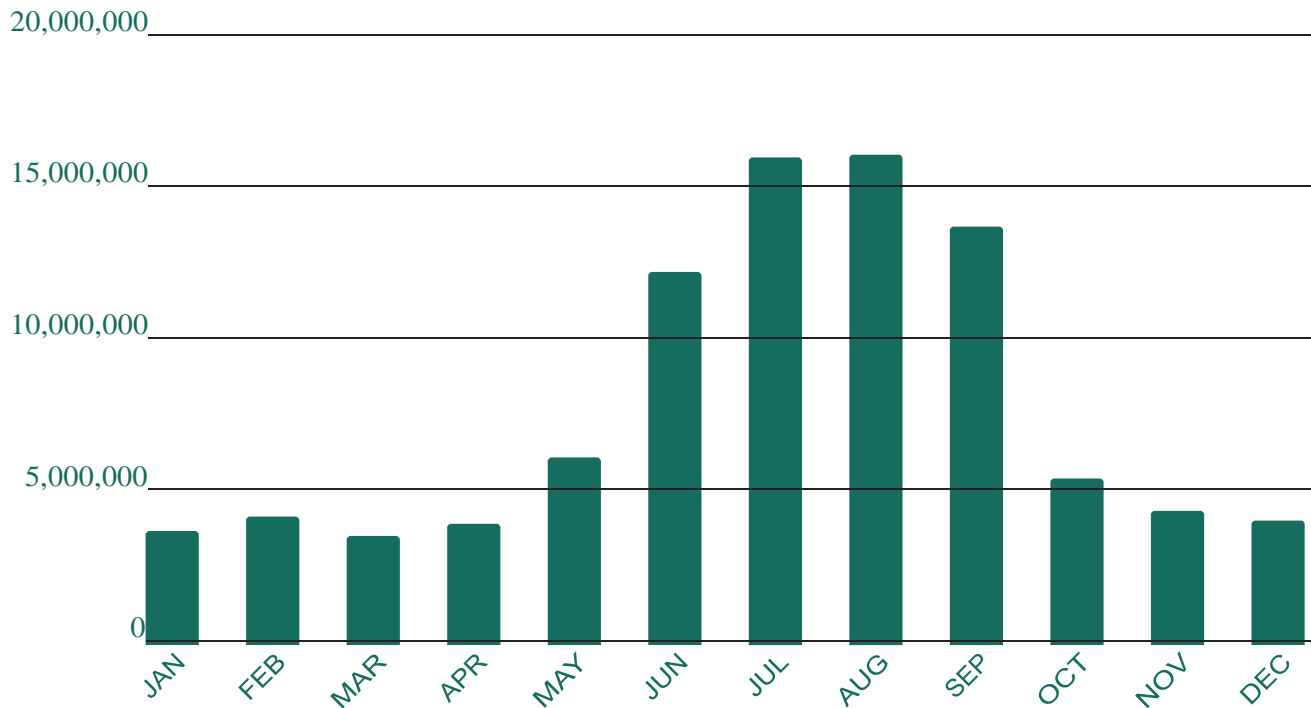
Data reported to Utah Division of Water Rights on the annual Water Use Form http://waterrights.utah.gov/wateruse/WaterUseList.asp						Data collected by system	Sum residential, commercial, industrial, institutional, and secondary use	Multiply acre-feet by 325851.43 to change to gallons	Divide by 365 to change from year to day	Divide use in gallons per day by population
Year	Population	Residential Use (acre-feet/year)	Commercial Use (acre-feet/year)	Industrial Use (acre-feet/year)	Institutional Use (acre-feet/year)	Secondary Use (not reported to Water Rights) (acre-feet/year)	Total Use (acre-feet/year)	Convert from acre-feet to Gallons	Convert from Year to Day	Calculate gpcd
2019	2553	257.28	6.28	0.06	10.05		273.67	89175761	244,317.15	95.70
2018	2430	278.22	7.66	8.13	0.04		294.05	95816613	262,511.27	108.03
2017	2415	253.92	3.17	6.92	0.04		264.05	86041070	235,728.96	97.61
2016	2700	249.14	1.94	14.20	0.05		265.33	86458160	236,871.67	87.73
2015	2415	205.59	2.21	0.00	6.90		214.70	69960302	191,672.06	79.37
2014	2700	195.54	3.94	0.01	16.86		216.35	70497957	193,145.09	71.54
2013	1900	219.25	4.16	0.14	7.36		230.91	75242354	206,143.43	108.50
2012	1400	223.17	3.70	0.00	7.85		234.72	76483848	209,544.79	149.67
2010	1200	169.89	0.38	3.96	0.00		174.23	56773095	155,542.73	129.62
2000	840	160.66	2.07	0.00	0.00		162.73	53025803	145,276.17	172.95



MONTHLY TOTAL USE

*the chart below shows total monthly
use as of 2018*

2018	
Month	Gallons
January	3,731,970
February	4,208,850
March	3,568,860
April	3,973,430
May	6,161,190
June	12,284,470
July	16,068,480
August	16,158,500
September	13,785,960
October	5,466,350
November	4,400,220
December	4,078,170



WATER ISSUES IDENTIFIED

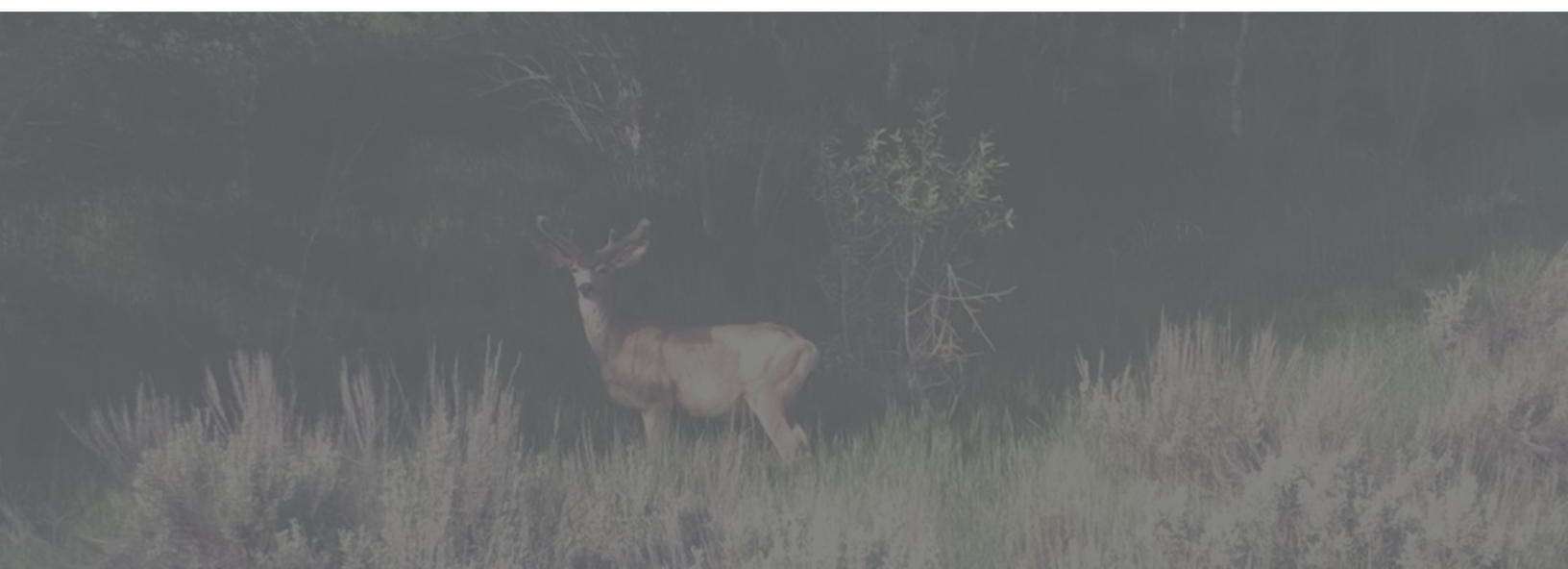
The Water Conservation Committee, in its recent report, identified and prioritized several issues during the investigative phase of their work:

- The current water pricing and billing system, while adequate to cover expenses in the water enterprise account, lacks incentives and sufficient information for customers to use water more efficiently.
- Customers lack information and understanding of landscaping water requirements and efficient water-use habits and practices: Very few customers know how much water is required to maintain healthy landscaped areas and how to consistently use water efficiently indoors. Most customers' irrigation and indoor practices are based on convenience rather than on sound conservation practices and water supply considerations.
- Customers have landscapes with large areas of grass and other water intensive landscaping. As shown in the following chart, these irrigation needs usually create a water use peak in the months of July and August straining the existing water delivery system and necessitating constant monitoring of main delivery lines and reservoir capacities.
- Existing meters may provide inaccurate data due to age and obsolescence.
- Rate increases need to be regularly updated to keep up with inflation and promote greater water conservation.

Each challenge listed represents an opportunity. Aside from the replacement of meters and high water-use landscaping, the opportunity exists to solve the above challenges through a well-thought-out water pricing program.

In addition to a new pricing and billing system, the opportunity exists to prepare a new generation of wise-water users. This can be accomplished through a strong sustained water education program in the public and private schools.

Additional opportunities can be found in resolving the two remaining issues. Old meters may provide an opportunity for the company to begin a program to replace old meters with modern meters including AMR technologies that allow a water user to access their water use on an almost real-time basis which has the potential of creating substantial savings. Water-wise plants found on <https://cwel.usu.edu/water-wise-plants> could provide for additional opportunities for water savings. Landscaping along existing and future roads in the community could be more easily maintained if low water-use shrubs and mulches were used instead of traditional lawns. All this will help mitigate the challenges identified by reducing peak demands and the need for expensive water system upgrades.



STRATEGIES TO CONSERVE WATER

In pursuit of solutions to the issues identified previously, and in light of the variety of conservation measures available to solve these issues, the following goals have been identified:

Goal #1 – Reduce the company's per capita water use rate by at least 25 percent by 2025. The water-use rate is currently 114.6 gallons of treated water per capita per day (GPCD). The goal is to bring this down to 85.95 GPCD. To help facilitate increased water conservation the following resources can prove helpful:

- www.slowtheflow.org
- www.utahwatersavers.com
- www.conservewater.utah.gov

Goal #2 – Maintain a financially viable water system. The water pricing system should encourage customers to reduce use without creating a revenue shortfall.



WHAT WE ARE CURRENTLY DOING

Currently Cottonwood Mutual Water Company does have an emergency action plan in the event of a water shortage but does not have a formal water conservation plan. Current education efforts consist of the company publishing a newsletter in the spring which includes resources on how to reduce water usage and the water board adopting an increased rate tier structure to promote water conservation.



WHAT WE CHARGE

Access to Secondary Water		No Secondary Water	
BASE	\$49.60	BASE	\$49.60
0 – 6000 Gallons	Included in Base	0 – 6000 Gallons	Included in Base
6001 – 12000 Gallons	\$2.43/1000 gallons	6001 – 12000 Gallons	\$2.43/1000 gallons
>12001	\$3.25/1000 gallons	12001 – 37000 Gallons	\$2.50/1000 gallons
		37001 – 87000 Gallons	\$2.65/1000 gallons
		>87001 Gallons	3.25/1000 gallons

Designing an appropriate rate schedule can be a daunting task. However, establishing an effective rate, in simplistic terms, is a process of matching the operating costs of the water system coupled with understanding the unique economic, political and social environments in which the company is located. The cost of delivering the service must also be evaluated and understood. Each water system has unique assets and constraints. Based on the characteristics of the system, and past capital and operating costs, revenue requirements can be determined and effective rates established.

HOW TO CONSERVE MORE

In order to effectively meet future water needs and solve all the water issues identified, additional wells and more specific water conservation measures will be required. Conservation measures can include further refinements to the tier based water rate fee structure, ongoing meter replacement, continued leak detection and repair, and continued customer education.

Staff will continue to monitor water usage, income and expenses, and promote water conservation, and to maintain revenues with the consequent decrease in consumption due to conservation. Constant adjustments to the rate structure may be necessary to meet operating costs as conservation takes hold.

Below are pricing structures considered during our most recent rate increase.



ALTERNATIVES

*3 pricing strategies to reduce
consumption while maintaining
revenue*

Alternative 1		
User Type	Base Rate (original)	New Base Rate
W01	\$ 44.50	\$ 48.63
W02	\$ 44.50	\$ 48.85
W03	\$ 34.50	\$ 38.51
W04	\$ 34.50	\$ 38.50
W10	\$ 44.50	\$ 48.50
WCR	\$ 311.50	\$ 315.50
WSR	\$ 311.50	\$ 315.50

Alternative 2				
User Type	Tier 1 cost per 1000 gallons	New Tier 1 Rate	Tier 2 cost per 1000 gallons	New Tier 2 Rate
W01	\$ 2.10	\$ 2.43	\$ 2.40	\$ 4.09
W02	\$ 2.10	\$ 2.20	\$ 2.95	\$ 3.05
W03	\$ 2.10	\$ 2.15	\$ 2.40	\$ 2.58
W04	\$ 2.10	\$ 2.11	\$ 2.95	\$ 3.05
W10	\$ 2.10	\$ 2.10	\$ 2.40	\$ 2.40
WCR	\$ 2.10	\$ 2.10	\$ 2.95	\$ 2.95
WSR	\$ 2.10	\$ 2.10	\$ 2.95	\$ 2.95

Alternative 3						
User Type	Base Rate (original)	New Base Rate	Tier 1 cost per 1000 gallons	New Tier 1 Rate	Tier 2 cost per 1000 gallons	New Tier 2 Rate
W01	\$ 44.50	\$ 47.50	\$ 2.10	\$ 2.20	\$ 2.40	\$ 2.93
W02	\$ 44.50	\$ 47.50	\$ 2.10	\$ 2.13	\$ 2.95	\$ 2.98
W03	\$ 34.50	\$ 35.98	\$ 2.10	\$ 2.11	\$ 2.40	\$ 2.45
W04	\$ 34.50	\$ 34.71	\$ 2.10	\$ 2.10	\$ 2.95	\$ 2.98
W10	\$ 44.50	\$ 44.51	\$ 2.10	\$ 2.10	\$ 2.40	\$ 2.40
WCR	\$ 311.50	\$ 311.88	\$ 2.10	\$ 2.10	\$ 2.95	\$ 2.95
WSR	\$ 311.50	\$ 311.88	\$ 2.10	\$ 2.10	\$ 2.95	\$ 2.95

When first evaluating rates, staff recommend that the board go with Alternative 3. However, as the goals and objectives of the company were further evaluated a fourth alternative was developed to better meet both conservation goals and operating objectives including capital repair and replacement of the company. A key component of the rate structure adopted a more progressive tier structure to promote greater water conservation.

Alternative 4								
User Type	Base Rate (original)	New Base Rate	Tier 1 Cost per 1000 gallons	New Tier 1 Rate (6001 to 12000 gallons)	Tier 2 Cost per 1000 gallons	New Tier 2 Rate (12001 to 37000 gallons)	New Tier 3 Rate (37001 to 87000 gallons)	New Tier 4 Rate (> 87001 gallons)
W01*	\$ 44.50	\$ 49.60	\$ 2.10	\$ 2.43	\$ 2.40	\$ 2.50	\$ 2.65	\$ 3.25
W02	\$ 44.50	\$ 49.60	\$ 2.10	\$ 2.43	\$ 2.95	\$ 3.25	\$ 3.25	\$ 3.25
W03*	\$ 34.50	\$ 39.60	\$ 2.10	\$ 2.43	\$ 2.40	\$ 2.50	\$ 2.65	\$ 3.25
W04	\$ 34.50	\$ 39.60	\$ 2.10	\$ 2.43	\$ 2.95	\$ 3.25	\$ 3.25	\$ 3.25
W10*	\$ 44.50	\$ 49.60	\$ 2.10	\$ 2.43	\$ 2.40	\$ 2.50	\$ 2.65	\$ 3.25
WCR	\$ 311.50	\$ 347.20	\$ 2.10	\$ 2.43	\$ 2.95	\$ 3.25	\$ 3.25	\$ 3.25
WSR	\$ 311.50	\$ 347.20	\$ 2.10	\$ 2.34	\$ 2.95	\$ 3.25	\$ 3.25	\$ 3.25
WMS		\$ 992.00		\$ 2.43		\$ 3.25	\$ 3.25	\$ 3.25

* = No Secondary Water

METER REPLACEMENT AND LEAK REPAIR

Over time, all meters become less accurate in recording actual flows. This leads to lost revenue and inaccurate water use data. Meter replacement has the potential of capturing revenue from water loss and improving leak detection capabilities.

Other programs are available to water systems to reduce unbilled water. It is incumbent upon Cottonwood Mutual Water to be proactive in utilizing these systems to reduce overall water loss.



EDUCATION

Educating water users, be they residential or business customers, is imperative. The greatest potential for water savings is educating on proper landscape water use. Doing so will enhance the likelihood that our water use goals will be met.

There are opportunities to increase water use

efficiencies indoors through encouraging turning off the water while brushing teeth, shaving, limiting shower run times; promoting the use of low flow shower heads, low flush toilets, running only full loads of laundry and dishes. Implementing any or all can lead to significant water savings.



Cottonwood Mutual Water Company will strive to reduce the per capita water use by at least 25 percent by 2025. However, when compared to the State average GPCD Cottonwood Mutual has already achieved the goal. Nevertheless, reducing the community's per capita use rate is something that can always be improved upon. Therefore, Cottonwood Mutual Water Company will strive to reduce per capita consumption by an additional 25 percent by 2025.

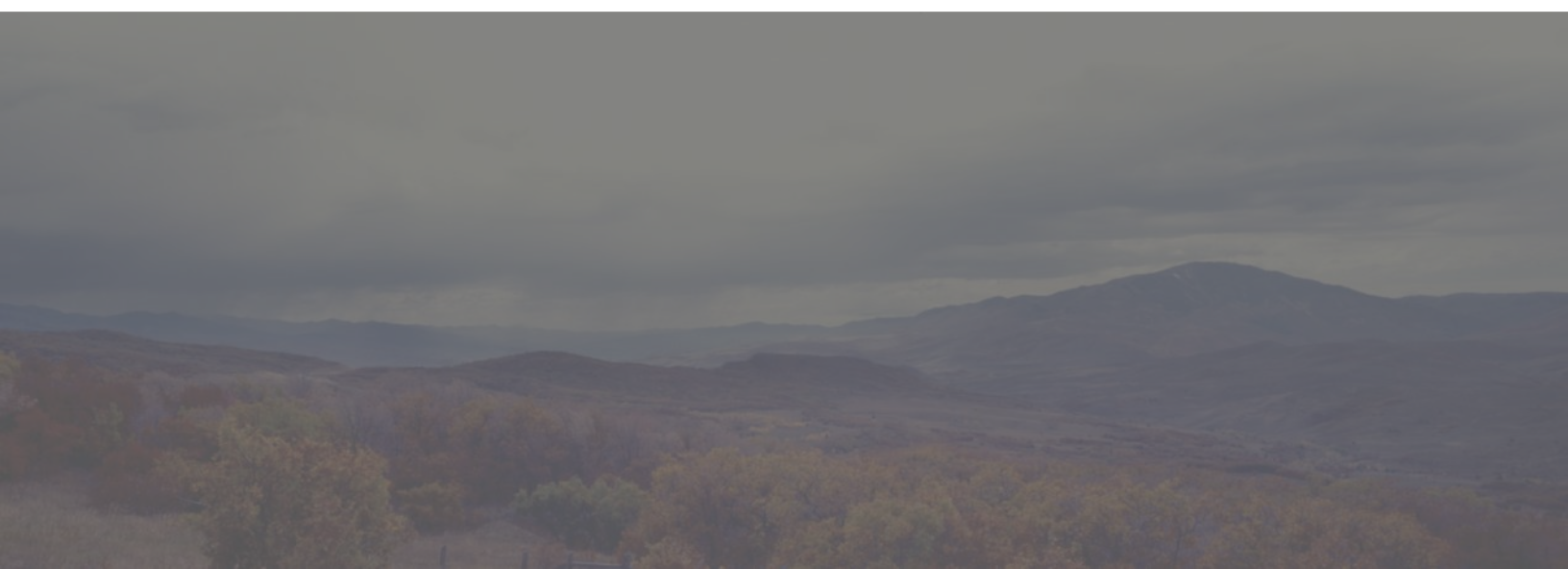
Benefit of Reducing Consumption (Meeting goal #1)

Benefits are measured as the savings accruing to the community due to reduced pumping costs and water leases from the Weber Basin Water Conservancy District over the upcoming years. It is anticipated that the new rate schedule coupled

with continued education will result in improved water savings. It is hoped that through periodic rate adjustments, continued use of ascending tiers, and effective education will provide the incentive needed to reduce the current 114.6 GPCD water use rate to 85.95 GPCD through 2025 and beyond.

Cost of Reaching Goal #1

Costs are anticipated for educational materials, meeting presentations, and water audits etc. The cost of replacing water meters is not counted in the cost of conservation because it is a standard operational procedure and not solely a conservation measure.



IMPLEMENTATION

To insure the goals outlined above are reached, appropriate tasks must be determined, responsibility fixed with the logical person, and a time line set for completion of each task. The Company President and staff will be responsible, under the supervision of the board, to carry out the necessary tasks within the appropriate time constraints.

This WCP will be placed on an upcoming board agenda. The board is comprised of:

- Brent Flamm
- Doug Dingman
- James Collins
- Taylor Nielsen
- Devin Miller

The WCP 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 2020. The ordaining ordinance for the WCP is attached as Appendix A.

