

WATER CONSERVATION PLAN
FOR
CEDAR CITY, UTAH



NOVEMBER 2019

Prepared by the
Cedar City
Engineering Department

**CEDAR CITY, UTAH
2019 WATER CONSERVATION PLAN**

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**CEDAR CITY, UTAH
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I. INTRODUCTION

Cedar City, Utah is located in Iron County in the southwest part of the State of Utah. Reliable water service has always been a high priority for Cedar City citizens and leaders. This water conservation plan is written to address current and long-term issues relating to water use and conservation in Cedar City. This plan is also written to comply with the Utah Water Conservation Plan Act (73-10-32, UCA). Concerns over the future cost and availability of potable water have given rise to increased awareness of the importance of water conservation. This report will assess the current state of the City's water system, discuss future water needs, and provide recommendations for water conservation measures.

Water conservation is an idea that most people in the western United States understand and accept as something that is worthwhile. Utah is the second driest state in the country with very little rainfall. This lack of rainfall causes high water use during the summer months to grow crops and to keep lawns green.

In Cedar City, water is used to maintain and enhance the beauty of the community, not only to tourists, but also to our friends and neighbors. Water is used to keep our lawns, ball fields, parks, school campuses, and recreation areas green and inviting for public and private use. These amenities enhance the lifestyle of those in the community and provide a pleasant place to raise families.

Unfortunately, the use of water to enhance and beautify the community comes at a price. Water is not free - water infrastructure, acquiring water rights, and maintaining the distribution system are all costly endeavors. Customers are billed for their water use to fund expenditures from the City's water enterprise fund.

Water resources in the Cedar City area are not limitless. Every year there are more pressures on the area's water supply as the population grows and more water is needed to meet the high demand of turf irrigation in the summertime. Currently, Cedar City obtains culinary and pressurized irrigation water from ten (10) active wells, three (3) major spring sources, and one (1) surface water pump station in the Cedar City area.

Cedar City can reduce water usage in two ways:

1. Reduce peak day demand;
2. Reduce overall usage.

A water system, much like an urban highway, must be designed to handle the peak loading. The water sources, storage, and piping must all be designed and constructed to handle that single day during the year when the demand is the highest. The "peak day" occurs during the summer irrigation season when a majority of the customers are watering their lawns. The cost to supply water for irrigation is much higher than it is to supply water for indoor usage that occurs every day of the year. Therefore, any reduction that can be made in peak day water usage translates directly into significant savings in capital costs. By reducing the peak day demand, the system has already saved money because fewer pumps, less storage, and smaller piping is needed. In

addition, reduction in peak day usage results in less strain on the system and ensures that each customer will be served without interruption.

Reduction in overall water usage provides several benefits. Since Cedar City relies on groundwater resources for its supply, groundwater recharge is a very important issue. Groundwater is replenished by precipitation, rainfall, and snowmelt. Currently, water users in Cedar Valley are mining the groundwater in the aquifer. “Groundwater mining” means that water is being pumped out the ground faster than it can be recharged. In the future, groundwater levels may rise if there is an extremely wet year, however, we do not know if or when a wet year may occur. In the meantime, we must live with the fact that our resource is in decline.

One particular problem that Cedar City faces is that there is a perched aquifer of poor quality water that may have begun to mix with the aquifer of good quality water. Heavy pumping of good quality water has compounded this problem. This has caused the differential to decrease such that co-mingling may occur between the two in the future. By reducing the overall culinary water usage, we may be able to preserve the resources of good quality water, minimize groundwater mining, and slow down the process of co-mingling between the good and poor quality water. In addition, a reduction in water usage will result in reduced operation and maintenance costs (i.e. lower pumping costs, etc.). It also may help in deferring capital costs, although not as much as decreasing peak day demand will help.

In addition to the perched aquifer, there is a problem with the overall decline of the Cedar Valley aquifer. Over the past several years the water table in the aquifer has been declining by about 3 feet per year. The aquifer decline is very concerning because it leads to increased electrical costs for pumping and increased capital costs for installation of pump equipment at lower depths. Cedar City has begun working with the Central Iron County Water Conservancy District (CICWCD) to try and find solutions that will help to stabilize the aquifer through aquifer recharge projects. Water conservation can be key component of this effort to restore the aquifer to its proper balance.

II. DESCRIPTION OF CEDAR CITY’S WATER SYSTEM

According to the State of Utah (Tax Commission), the population of Cedar City was 33,055 in August 2019. Providing good quality water to all residents of Cedar City has always been a top priority for the City government. As a result, the City’s water system is well maintained and operated to provide water when and where it is needed. In 2019, the City provides water to 8,843 active water connections.

Cedar City residents and officials place a high value on open space. Consequently, approximately 150 acres of land within the city limits has been set-aside as parks, a golf course, and a cemetery. Landscaped areas around churches, schools, and major industries occupy approximately another 160 acres of land. This open space, while inviting and healthy for the community, puts a strain on the City’s water system during the summer months.

As Iron County’s largest city, Cedar City sees a significant portion of the county’s residential, commercial, and industrial growth. Through careful planning and proper utilization of this precious resource, the increased demand for water will be adequately met.

III. SYSTEM PROFILE

A. Map of Current Service Area

Refer to the Figure 1 of Cedar City’s current service area in Appendix A.

B. Number of M&I Water Connections

The following table lists the number of Municipal and Industrial (M&I) water connections within the service area of Cedar City.

Table 1: Number of M&I Water Connections

Type of Water Connection	Number of Connections
Residential/Domestic	7,786
Commercial	814
Institutional	195
Industrial	44
Unmetered	4
Total	8,843

C. Cedar City Population

The following table shows historical population for Cedar City based on information reported to the Utah Division of Water Rights. Historical population is shown going back to the year 2000.

Table 2: Cedar City Historical Population

Year	Population
2018	30,990
2017	30,980
2016	30,184
2015	29,483
2014	29,162
2013	29,118
2012	29,213
2011	28,950
2010	28,875
2009	28,847
2008	27,786 (est.)
2007	27,144
2006	27,000
2005	24,000
2004	22,400
2003	23,000
2002	23,000
2001	25,000
2000	25,000

IV. SUPPLY

A. Current Water Supply

The following table shows the current water supply for Cedar City, categorized by water source.

Table 3: Current Water Supply

Source	Annual Volume (acre-feet)	Annual Volume (million gallons)
Wells	19,840	6,465
Springs	1,532	499
Surface	1,074	350
Purchased	0	0
Exchanged	0	0
Total	22,446	7,314

B. Groundwater Depletion, Aquifer Recharge, and Storage & Recovery

The Cedar Valley aquifer is currently being overdrawn. The Utah Division of Water Rights has published information stating that the aquifer is currently being overdrawn by approximately 7,000 acre-feet per year. The Division of Water Rights has determined that the safe yield of the aquifer is 21,000 acre-feet; while the average annual withdrawal from the aquifer is 28,000 acre-feet. Over the past several years the water table in the aquifer has been declining by about 3 feet per year.

Cedar City has been doing aquifer recharge for more than a decade. The recharge is done at gravel pits near the Cedar City airport. The City has recently been partnering with the CICWCD to construct additional recharge projects in the Cedar Valley. The following table provides a list of the recharge projects:

Table 4: Cedar Valley Recharge Projects

Location	Recharge Amount Water Year 2018-19 (acre-feet)	Potential Recharge Capacity (ac-ft/year)	Year Constructed
Schmidt Pit	520	2,000 – 4,000	2017
Airport Runway	1,719	1,500 – 2,000	2005
Horse Alley	719	1,000>	2018
Western Rock	6,000	6,000>	2017
Enoch	932	500 – 1,500	2016
Quichapa	100	100>	2017
Quichapa Creek	Future	1,000	2019 – 2021
Total	9,990		

Cedar City does not currently have any official “storage and recovery” projects. However, the City is looking at the possibility of these types of projects in the future.

C. Water Supply and Use

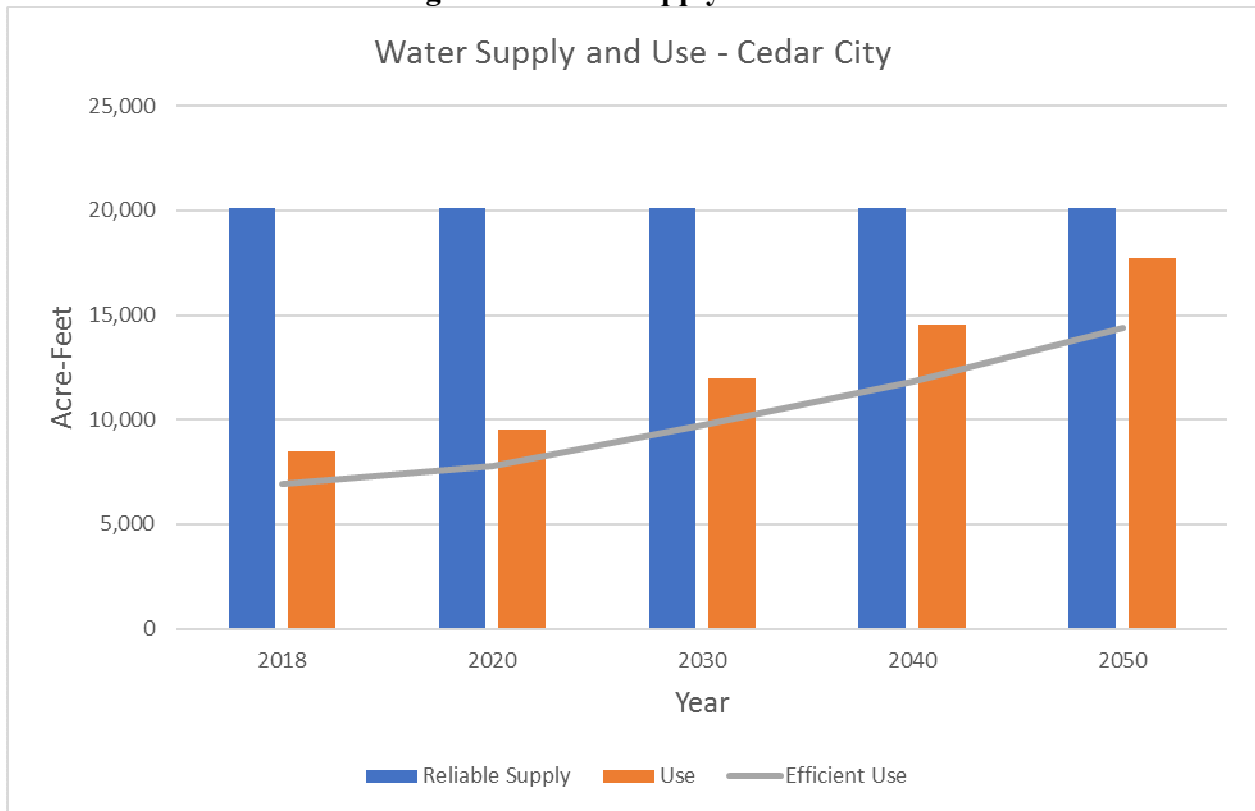
The following table and graph show the following items regarding Cedar City’s anticipated water supply and water use through the year 2050. Based on the proposed regional water conservation goals prepared by the Utah Division of Water Resources, it is assumed that the goal of a 19% reduction is achieved. The “efficient water use” for Cedar City has been determined based on a 19% reduction in water use.

Cedar City’s current reliable water supply is 20,911 acre-feet annually from available water sources. However, the City currently owns 20,089 acre-feet of water rights. Therefore, the City’s available water rights will be the limiting factor in terms of reliable water supply. Figure 2 reflects this lower amount for the reliable water supply. In the year 2050, the reliable water supply is adequate to meet the water use demands. It has been assumed that the number of water rights will remain the same; however, the City actively pursuing purchasing new water rights and acquiring water rights with development. This number is conservative because the number of water rights owned by the City will likely increase over time.

Table 5: Water Supply and Use

Year	Reliable Water Supply (acre-feet)	Water Rights (acre-feet)	Water Use (acre-feet)	Efficient Water Use 19% Reduction (acre-feet)
2018	20,911	20,089	8,504	6,912
2020	20,911	20,089	9,548	7,751
2030	20,911	20,089	11,997	9,738
2040	20,911	20,089	14,577	11,832
2050	20,911	20,089	17,705	14,372

Figure 2: Water Supply and Use



V. WATER MEASUREMENT AND BILLING

A. Universal Metering and Measuring

The following information is provided for Cedar City’s water system regarding its’ current water measurement methods and practices. The following table describes the status of the best practices in the City’s water system.

Table 6: Universal Metering and Measuring

Foundation Best Practices	Best Management Requirements	Is the Best Practice implemented in Cedar City’s water system?	Status of Best Practices
Basic	Source Water Meters	Yes	All water sources are metered at the source.
	Meter all Sectors & Connections	Yes	All customer connections are metered. (except for 4 City irrigation connections) Sectors of the system are not metered.
	Read Meters	Yes	All source meters and customer meters are read by City personnel.
Intermediate	Fixed Interval Meter Reading	Yes	All water meters are read on a fixed interval by City personnel as follows: <ul style="list-style-type: none"> - Source meters are read <u>daily</u>. - Customer meters are read <u>monthly</u>.
	Meter Accuracy Analysis	Yes	Meters are tested for accuracy, if a customer calls and requests for their meter to be tested.
Advanced	Test, Calibrate, Repair, & Replace	Yes	Meters are tested for accuracy upon customer request. Meters are replaced when they stop working. Meters are repaired, as needed.

1. Percent of Metered Connections by Type:

The following table lists the percentage of metered connections by type in the Cedar City water system.

Table 7: Percentage of Metered Connections

Type of Water Connection	Number of Connections	Number of Metered Connections	Percentage of Metered Connections
Residential/Domestic	7,786	7,786	100%
Commercial	814	814	100%
Institutional	199	195	97.99%
Industrial	44	44	100%
Total	8,843	8,839	99.95%

2. Meter Reading Frequency:

All water meters at customer connections within the service area of Cedar City are read and billed on a fixed interval basis. All water meters are read on a monthly basis. Utility bills are also sent out to customers on a monthly basis.

All water meters at City water sources are read on a daily basis and logged on data sheets.

3. Meter Calibration Schedule:

There is no set meter calibration schedule. However, if a customer calls and requests for their meter to be tested, then the City Water Division has a meter set up so that they can run the same amount of water through two meters and compare the readings.

4. New Development Laws:

All new developments within the service area of Cedar City require a meter setter to be installed at the time the subdivision is constructed. A water meter is required to be installed when a building is actually constructed. All meters must be purchased directly from the City. The water meters remain the property of Cedar City. It is against City ordinance for anyone to tamper with water meters. Only City personnel are allowed to work on the meters.

5. Meter Replacement Schedule:

Cedar City replaces water meters when they stop working.

B. System Water Loss Control

The following information is provided for Cedar City’s water system regarding its’ current system water loss control methods and practices. Cedar City has an active water loss control program. The following table describes the status of the best practices in the City’s water system.

Table 8: System Water Loss Control

Foundation Best Practices	Best Management Requirements	Is the Best Practice implemented in Cedar City’s water system?	Status of Best Practices
Basic	Repair Known Leaks	Yes	The Cedar City Water Division repairs known leaks in the water system as promptly as possible.
	Infrastructure Maintenance	Yes	The Cedar City Water Division properly operates and maintains all infrastructure in the City water system. The City also has an on-going annual program to replace sections of older waterlines that are known to have significant leakage problems or that are undersized.
Intermediate	Water System Audit	Yes	As part of Cedar City’s annual Water Report, a water system audit is performed to determine the percentage of leakage and unaccounted-for water.
	Leak Detection & Repair	No	Cedar City has done leak detection in the past; but the City does not currently have an active leak detection program in place.
	Automated Sensors/ Telemetry	No	Cedar City does not currently use automated sensors or telemetry for leak detection.
Advanced	Loss Prevention Program	No	Cedar City does not currently have an official loss prevention program in place. However, if any illegal connections are found then the problem is promptly addressed by the City Water Division.

1. Water and Revenue Losses:

The following table lists the water losses in the City’s culinary water system during previous 5 years. Revenue loss is assumed based on an average rate of \$1.00 per 1,000 gallons.

Table 9: Water and Revenue Losses

Year	Water Produced (million gallons)	Metered Water Use (million gallons)	Water Loss (million gallons)	Revenue Loss (dollars)
2014	2,300	2,002	298	\$298,000
2015	2,234	1,938	296	\$296,000
2016	2,365	2,070	295	\$295,000
2017	2,393	2,265	128	\$128,000
2018	2,523	2,390	133	\$133,000

2. Water Loss Control Practices:

The following is a list of practices currently implemented by Cedar City to control water loss and revenue loss to minimize both.

- Repair known leaks – leaks are repaired by the Cedar City Water Division in a timely manner.
- Infrastructure maintenance – The Cedar City Water Division properly operates and maintains the water system in order to make sure that it is running as efficiently as possible.
- Water system audit – As part of its’ annual Water Report, Cedar City performs a water audit to determine the percentage of leakage and total water loss in the system.

C. Increasing Rate Structure

The following information is provided for Cedar City’s water system regarding its’ current inclining-block water rate structure. Cedar City has a water rate structure that encourages water conservation. The following table describes the status of the best practices in the City’s water system.

Table 10: Increasing Rate Structure

Foundation Best Practices	Best Management Requirements	Is the Best Practice implemented in Cedar City's water system?	Status of Best Practices
Basic	Metered Rates	Yes	Cedar City has metered water rates established.
	Cost of Service Billing & User Charges	Yes	Cedar City's water rates cover the cost of service.
	Understandable Water Bill	Yes	The water bill provides information concerning volume of water used and the applicable charges.
Intermediate	Water-Budget Based Billing	Yes	The residential rate is based on a water budget for an inclining block rate structure. The first tier allows for indoor use. The second tier allows for average outdoor use. The third and fourth tiers are for excessive outdoor use.
	Informative Water Bill	Yes	Information on water conservation is periodically included in the monthly newsletter that is sent out with the water bill.
	Educational Inserts	Yes	Educational information on water conservation is periodically included in the monthly newsletter that is sent out with the water bill.
Advanced	Advanced Pricing Methods	No	Advanced pricing methods are not currently used, except for the inclining-block rate structure.

1. Tiered Pricing Structure:

The following is current tiered pricing structure that has been adopted by the City Council for single-family residential customers.

- 1-month period base rate = \$17.00
- 0 – 8,000 gallons = \$0.90/1,000 gallons
- 8 – 20,000 gallons = \$1.00/1,000 gallons
- 20 – 35,000 gallons = \$2.00/1,000 gallons
- Over 35,000 gallons = \$2.16/1,000 gallons

VI. WATER USE

A. Potable and Non-potable Water Deliveries

The following table lists the current total potable and non-potable water deliveries by volume for calendar year 2018.

Table 11: Potable and Non-potable Water Use Deliveries

Year	Residential/ Domestic (acre-feet)	Commercial (acre-feet)	Industrial (acre-feet)	Institutional (acre-feet)
2018	4,779.23	1,457.96	128.48	1,407.54

B. Per Capita Water Use

The following table lists the current per capita water use in gallons per capita per day (GPCD) by type and use for calendar year 2018.

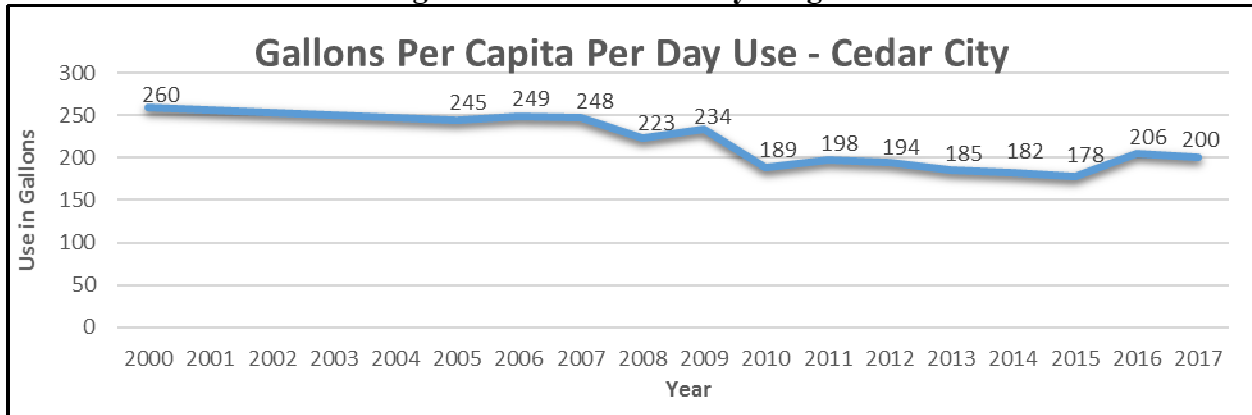
Table 12: Per Capita Water Use for 2018

Type	Potable (Drinking Water) (gpcd)	Non-Potable (Secondary) (gpcd)	Total (gpcd)
Residential	138	0	137.68
Commercial	42	0	42.00
Institutional	19	22	40.55
Industrial	4	0	3.70
Total	203	22	225

C. Water Efficiency Progress

The following figure shows the water efficiency progress for Cedar City since the year 2000. This chart was developed using the Conservation Goal Calculator and Graph on the Division of Water Resources' website.

Figure 3: Water Efficiency Progress



VII. CONSERVATION PRACTICES

A. Overall Water Conservation Goal for Cedar City

The overall conservation goal for Cedar City will be the regional water conservation goal once it is finalized. The Utah Division of Water Resources is currently working on establishing regional water conservation goals for nine different regions around the state. Cedar City is located within the “Lower Colorado River North” region.

B. Conservation Coordinator, Staff, and Committee

The following table lists information regarding the names and contact of information of those within the City who are responsible for water conservation.

Table 13: Conservation Coordinator, Staff, & Committee

Foundation Best Practices	Best Management Requirements	Is the Best Practice implemented in Cedar City's water system?	Names and Contact Information
Basic	Staff assigned to Conservation Efforts	Yes	Robbie Mitchell, Water Superintendent Phone #435-865-4507 mrobbie@cedarcity.org Jonathan Stathis, Senior Engineer Phone #435-865-5120 jstathis@cedarcity.org
	Conservation Advisory Committee	No	Cedar City does not currently have a Conservation Advisory Committee. (See Note below)
Intermediate	Conservation Coordinator sole responsibility	No	Cedar City does not currently have a designated Conservation Coordinator with sole responsibility. (See Note below)
Advanced	Conservation Coordinator with additional staff	No	Cedar City does not currently have a Conservation Coordinator with additional staff. (See Note below)

NOTE: The CICWCD and the local USU Extension Office provide support and staffing for water conservation education and programs that are utilized by the residents of Cedar City.

C. New Best Management Practices

The following water conservation best management practices have been identified in the City's Water System Master Plan and included in the City's original water conservation plan. Refer to Appendix F for the water conservation information that was included in the City's 2009 water master plan update.

Table 14: Suggested or Possible Water Conservation Measures

Item No.	Description of Water Conservation Measures
1	Water Surveys for Single-family and Multi-family Residential Customers
2	Residential Plumbing Retrofit
3	System Water Audits, Leak Detection, and Repair
4	Landscape Ordinance for New Commercial Development
5	Large Landscape Conservation Programs and Incentives
6	High-efficiency Appliance Promotion Programs
7	Public Information Programs
8	School Education Programs
9	Conservation Programs for Commercial and Industrial Customers
10	Updated Water Rates
11	Water Conservation Coordinator
12	Water Waste Prohibition
13	Residential Ultra Low Flush Toilet Replacement
14	Non-residential Ultra Low Flush Toilet Replacement

The Cedar City Water System Master Plan identifies these 14 items as the recommended Best Management Practices (BMPs) for water conservation. The following descriptions have been adapted to best meet the needs of the City and for ease of implementation. Some of these items have already begun to be implemented into the City’s water conservation program. As money and resources permit, the City could begin to implement other BMPs.

1. Water Survey Program for Residential Customers

Cedar City could offer an indoor and outdoor water survey to approximately 20 percent of existing single-family homes.

Specific activities for each indoor survey could include:

- Check for leaks at all toilets and faucets, and at the meter.
- Check flow rates of showerheads and faucets. Offer to replace with low flow models as appropriate.
- Check toilet flow rates and offer to install a displacement device. Replace leaking toilet flappers, as necessary.

Specific activities for each outdoor survey could include:

- Check irrigation system and timers.
- Measure the landscaped area.
- Review or develop customer irrigation schedule in minutes of watering time per week for spring, summer, and fall.
- Provide recommendations on the amount of water that should be used each month for irrigation.

Customers could be provided with an evaluation report and water conservation recommendations.

2. Residential Plumbing Retrofit

Cedar City could identify residential buildings constructed prior to 1992 in order to target buildings that do not have low flow plumbing devices. The City could then develop a strategy to distribute or directly install low-flow showerheads, toilet displacement devices (as needed), toilet flappers (as needed), and faucet aerators. This could be done through the distribution of retrofit kits that homeowners could install themselves or the City, with permission, could install the devices. The City could keep track of the number of retrofit devices installed and the program costs.

The State currently has a toilet rebate program that is available statewide. To qualify, homes must be built before January 1, 1994 and have a toilet that uses 1.6+ gpf. Up to \$100 can be rebated, with a maximum of two toilet rebates per home (potential of getting \$200 back). This is done through the website, “utahwatersavers.com”. The State is also funding smart controller rebates for 50% rebates up to \$150. These are items that can be included in the City’s monthly newsletter to inform customers of available rebate programs.

3. System Water Audits, Leak Detection, and Repair

Cedar City currently conducts an annual water audit to track unaccounted-for water (UAW) and leakage during the previous year. The results of each water audit are included in the City’s annual water report. A leak detection and repair program could help to reduce losses due to leakage and save revenue that is expended to pump and distribute this excess water.

4. Landscape Ordinance for Non-residential New Development

Cedar City could establish a landscape conservation ordinance to encourage water conservation in new developments. Principal features of the ordinance could include:

- Plants could be selected from a list of xeriscape plants.
- Landscape could be designed to use water within a budget that is based on a percentage (less than 100) of the water required by turf grass.
- The landscape design could be reviewed by the City building department and suggestions given for conserving water.
- New landscapes could include an appropriate and efficient irrigation system.
- Landscape/irrigation plans could include an irrigation schedule.

5. Large Landscape Conservation Programs and Incentives

Cedar City has improved its secondary irrigation system by constructing the Lake at the Hills. This system currently provides irrigation water to the following customers: Cedar Ridge Golf Course, the Cedar City Cemetery, Bicentennial Park, Cedar City High School, Canyon View High School, Canyon View Middle School, and Southern Utah University. The City plans to encourage additional customers to connect to the

pressurized irrigation system including: Cedar Middle School, North Elementary, South Elementary, Fiddlers Elementary, the Iron County Jail, Cedar City Hospital, and possibly other customers. The incentive for these large users to switch to the secondary system is that they will see a significant decrease in their water bill each month. In order to recognize the full benefit of the Lake at the Hills, the distribution system will need to be expanded to serve the additional customers, and additional storage capacity will need to be added on the north end of the system.

Large irrigation users that use culinary water have been given a water budget amount for each month of the year. If the customer exceeds their allotment for the month then all water used in excess of the allotment is charge at the peak rate of \$2.00/1,000 gallons. This provides an incentive to stay within the established allotment where water is charged at the rate of \$1.00/1,000 gallons. However, those that switch to the secondary irrigation system would see their rate drop to \$0.68/1,000 gallons.

6. High Efficiency Appliance Promotion Programs

Cedar City could encourage customers to purchase high-efficiency washing machines, low water use dishwashers, and point-of-use water heaters. Promotions could include: an in-store appliance labeling program, advertisements, or other activities. Where cost-effective, the City could offer rebates to customers who purchase high-efficiency appliances to help offset the purchase price.

7. Public Information Campaign

The City has begun a public information campaign to inform the public about the City's water conservation ordinance and provide conservation tips. The water conservation ordinance states that no outside watering is allowed between the hours of 8:00 AM and 6:00 PM daily. A reminder about this ordinance is included in the City's monthly newsletter that is sent out with the water bill. A reminder can also be printed on the bill itself. Periodically, conservation tips are included in the monthly newsletter. In addition, water conservation leaflets and pamphlets are available at the City Offices. Cedar City also provides water conservation tips on the City website.

Additional items that could be done to promote public awareness of water conservation include the following:

- T-shirt design contests.
- Poster contests.
- Radio and newspaper advertisements.
- Printed educational material distributed with the water bill and available at other public facilities such as the City library.
- Providing water use information on customers' bills showing water use for the last billing period compared to the same period the year before.
- Coordinating with other government agencies.
- Presentations to school, civic, and religious groups.

- Programs promoted by the CICWCD.

In order for the City to formally establish a water conservation campaign, the following items could be performed:

- Develop a clean and persuasive statement of purpose.
- Choose an appropriate theme.
- Identify key target groups.
- Select members for a water conservation committee.
- Identify communication paths, resource materials, and volunteers.
- Design and implement specific campaigns.
- Ensure effective coordination and follow-through to make sure that the conservation campaigns are implemented.

Implementation Goal: Cedar City’s implementation goal for the next five years will be as follows:

- Cedar City will continue to include water conservation tips in the monthly newsletter that is sent out each month with the City’s utility bill.
- Cedar City will include information regarding water conservation websites such as “www.conservewater.utah.gov” and “www.slowtheflow.org”.
- Cedar City will promote the “Free Water Check” program that is provided by USU Extension and CICWCD. The free water checks will be promoted in the monthly utility bill and on the City’s website.
- Cedar City will promote free rebates that are available statewide. The free rebates will be promoted in the monthly utility bill and on the City’s website.

Implementation Timeline: Cedar City will implement this goal based on the following timeline:

- Newsletter every month during the irrigation season – Provide a reminder about daytime water restrictions. Provide information regarding water conservation websites such as “www.conservewater.utah.gov” and “www.slowtheflow.org”.
- January newsletter of each year – Include information on free rebates that are available for changing out old fixtures. Provide water conservation tips for indoor water use.
- April newsletter of each year – Include water conservation tips for the upcoming irrigation season.
- June newsletter of each year – Include information about Free Water Checks that are available through the USU Extension and CICWCD. Encourage customers to have their sprinkler systems checked as the peak of the irrigation season begins.

- August newsletter of each year – Provide another reminder about rebates and water conservation tips.
- October newsletter of each year – Provide information on winterizing sprinkler systems in order to prevent broken pipes.

8. School Education Programs

Long-term results to eliminate wasteful water-use habits are best achieved by educating young people. By teaching children to respect the value of water, they will grow up into responsible adults. In addition, children may pass information on to their parents who can then implement the suggestions on their own property.

New school programs could be organized as follows:

- Obtain approval for the education program from the school superintendent.
- Obtain relevant teaching materials and establish a curriculum that can be used by teachers in the local school district.
- Coordinate teacher training.
- Estimate the number of participants, including teachers, in the water conservation education program.
- Distribute curriculum materials to teachers.
- Monitor and follow the success of the program, making adjustments as necessary to maximize student learning.

The CICWCD currently does a school education program for 4th grade students from schools located in Cedar City.

9. Conservation Program for Commercial, Industrial, and Institutional Customers

Cedar City could develop a program targeted at the high water users in these classes. The program could consist of the following:

- Identify these customers by type and rank according to use.
- Offer water use surveys and customer incentives to at least the top 10% of users.
- Implement programs to reduce water use by 10%.

Water use surveys could consist of a site visit, an evaluation of existing water using appliances and processes, and a customer report identifying recommended efficiency measures, their expected payback, and available incentives. Cedar City could provide periodic follow-up and track water savings achieved.

10. Non-promotional Water Pricing Programs

Cedar City has an inclining block water rate structure. This rate structure was developed to encourage customers to reduce their water usage, especially on outside watering. The current rate structure for single-family residential customers was presented in Section V of this report. The water rate structure should be reviewed periodically to ensure that revenues are covering necessary expenditures and to make sure that the rates are providing incentive for conservation.

Implementation Goal: Cedar City's implementation goal for the next five years will be as follows:

- If approved by the City Council, Cedar City will perform a water rate study within the next five years to review the City's water rates.
- Anticipated outcomes could be as follows (specific outcomes will need to be reviewed and approved by the City Council):

Determine if an inclining block rate structure would be feasible for non-residential customers.

Review the inclining block rate structure for residential customers.
Determine whether additional water conservation could be achieved by adjusting the rate blocks or adjusting the pricing.

Implementation Timeline: Cedar City will implement this goal based on the following timeline:

- The most recent water rate study was completed in 2012. Based on a 10-year interval for completing a rate study, it is anticipated that the next rate study would be performed in 2022 (subject to approval by the City Council).

11. Water Conservation Coordinator

Several larger cities in Utah have hired a full-time water conservation coordinator. However, due to Cedar City's relatively small size this is probably not practical. A more appropriate approach could be to assign one person already on staff to be responsible for the City's water conservation activities. The duties of this person could be as follows:

- Coordination and oversight of conservation programs and BMP implementation.
- Liaison with the public and media.
- Preparation of progress reports.
- Communication and promotion of water conservation issues with other departments and preparation of budgets.
- Preparation of water conservation plan updates.

12. Water Waste Prohibition

Cedar City has enacted an ordinance that prohibits outside watering between the hours of 8:00 AM and 6:00 PM. The reasoning behind this ordinance is that much of the water applied during these daytime hours is lost due to evaporation. During the past year this ordinance has been more aggressively enforced by the City Water Division. This ordinance has helped to reduce consumption during the heat of the day and aided in reducing the wasteful use of water.

Cedar City could enact and enforce other measures prohibiting single-pass cooling systems in new connections, non-recirculating systems in a new conveyor car wash and commercial laundry systems. Cedar City could also encourage replacement of inefficient home water softeners.

Implementation Goal: Cedar City's implementation goal for the next five years will be as follows:

- Cedar City will increase public awareness about the City's water waste ordinance.
- Cedar City will continue to proactively enforce this ordinance.

Implementation Timeline: Cedar City will implement this goal based on the following timeline:

- Newsletter every month during the irrigation season – Provide a reminder about daytime water restrictions in the City's monthly newsletter.

13. Residential ULF Toilet Replacement Programs

Cedar City could implement a toilet replacement program offering incentives to existing residential customers who replace their high water-use toilets with ultra low-flush (ULF) toilets. ULF toilets reduce toilet-flushing water to about 1.6 gallons per flush (gpf). This is a significant savings from an average 5-7 gpf for regular toilets, and from 3.5 gpf for low-water-use toilets.

14. Non-Residential ULF Toilet Replacement Programs

Cedar City could implement a toilet replacement program offering incentives to existing non-residential customers who replace their high water-use toilets with ultra low-flush (ULF) toilets. ULF toilets reduce toilet-flushing water to about 1.6 gallons per flush (gpf). This is a significant savings from an average 5-7 gpf for regular toilets, and from 3.5 gpf for low-water-use toilets.

D. Implementation Plans

The following are specific tasks that could be done to implement some of the water conservation best management practices.

In order to implement the best management practices, appropriate tasks must be determined, responsibility fixed with the appropriate personnel or department, and a time frame set for completion of each task.

BMP: Continue to add customers to the City's secondary irrigation system and maximize the use of the 200 North Pump Station.

1. Currently there are several customers who use secondary water for irrigation purposes; they are the Golf Course, the Cemetery, the Fields at the Hills, Cedar High School, Bicentennial Park, Canyon View High School, Canyon View Middle School, and Southern Utah University.
2. The master plan includes the expansion of the secondary irrigation system to serve other customers such as Cedar Middle School, North Elementary, South Elementary, Fiddlers Elementary, the Iron County Jail, Cedar City Hospital, and other large irrigation users.
3. The 200 North Pump Station could be better utilized during the summer months to pump irrigation water up to the Lake at the Hills. The water that flows to the 200 North Pump Station is the tailwater that comes off the City's ditch system. Any water that flows past the pump station is being wasted because it just flows down to Quichapa Lake where it sits and evaporates.

BMP: Begin an annual leak detection and repair program.

1. The City Water Division will continue to maintain the water distribution system by fixing leaks promptly.
2. Sections of pipe that are known to break frequently should be replaced. Currently, the City has an on-going pipe replacement program to replace old, undersized water lines each year. It is recommended that this program be accelerated to replace more than one section of pipe each year.
3. All City-owned properties should be metered. City meters should be read on a monthly basis. City departments could be held accountable for their water usage by paying the same user fees as other customers.
4. Areas of possible high leakage should be identified. Specialized leak detection equipment can either be purchased or rented to locate leakage points. In addition, a contractor could be hired to come in and locate leakage areas for the City. Once

leakage points have been identified, the City could then dig up and repair the leaks.

5. All water leaks repaired by the City should be documented in a report format. The report should include information on the cause of the leak, pipe material, pipe size, location of leak, type of leak, cost to repair, soil type, method of repair, and any other pertinent information. Data on leaks should be reviewed quarterly to determine where time and resources should be focused to achieve the maximum benefit for the system.

E. Conservation Public Awareness, Education, and Rebates

The following table describes the status of the conservation public information, education/training programs, and rebates/incentives/rewards that have been implemented by Cedar City.

Table 15: Public Information and Education Programs

Foundation Best Practices	Best Management Requirements	Is the Best Practice implemented in Cedar City's water system?	Names and Contact Information
Basic	Information Available	Yes	Cedar City provides water conservation information periodically in the City's monthly newsletter that is sent out with the utility bill. Some water conservation information is also provided on the City website. Other websites, such as "slowtheflow.org" are available to find information about water conservation.
	School Program	Yes (provided by other local agencies)	Cedar City does not currently operate a school education program. However, the Central Iron County Water Conservancy District (CICWCD) hosts an annual 4 th Grade Water Fair for schools in Iron County, which includes schools located in Cedar City.
Intermediate	Public Education Program	Yes	Cedar City provides educational information periodically in the City's monthly newsletter that is sent out with the utility bill.
	Landscape Efficiency	Yes (provided by other local agencies)	Cedar City does not provide landscape efficiency audits. However, the CICWCD and USU Extension Office have partnered to provide landscape audits to residents living in the City and surrounding areas.
	Booths	Yes (provided by other local agencies)	Cedar City does not currently run booths at public events. However, the CICWCD organizes a water conservation fair at the Main Street Park in Cedar City each year with booths and information for the public.
Advanced	Workshops, Classes, Events	Yes (provided by other local agencies)	Cedar City does not currently run any classes, workshops, or events. However, the CICWCD and USU Extension Office do provide water conservation educational opportunities.
	Audits	Yes	The Cedar City Water Division will assist customers, as needed, when problems or leaks are identified on the customer's side of the meter.
	Rebates/ Incentives/ Rewards	No	Cedar City does not currently provide any rebates, financial incentives, or rewards to customers for implementing water conservation measures.

F. Conservation Ordinances and Standards/City Codes

The following water conservation ordinances and standards are currently implemented by Cedar City.

1. Water Waste Prohibition:

Cedar City has enacted an ordinance (Section 37-7-1) that prohibits outside watering between the hours of 8:00 AM and 6:00 PM. The reasoning behind this ordinance is that much of the water applied during these daytime hours is lost due to evaporation. This ordinance is actively enforced by the Cedar City Water Division. This ordinance has helped to reduce consumption during the heat of the day and aided in reducing the wasteful use of water.

A copy of the “Time-of-Day Watering Parameters” ordinance is included in Appendix G.

2. Water Shortage Plan:

Cedar City has enacted an ordinance (Section 37-14) regarding times of water shortage within the City’s service area.

A copy of the “Scarcity of Water” ordinance is included in Appendix G.

3. City Codes:

All new buildings constructed within Cedar City must comply with the current adopted versions of the International Building Code, International Residential Code, International Plumbing Code, and other codes as applicable.

VIII. CONCLUSION

This water conservation plan was placed on the November 13, 2019 City Council action agenda and adopted by the City Council. The Mayor of Cedar City is Maile Wilson-Edwards. The City Council of Cedar City is comprised of the following members:

- a. Ronald R. Adams
- b. Paul Cozzens
- c. Terri W. Hartley
- d. Craig E. Isom
- e. R. Scott Phillips

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

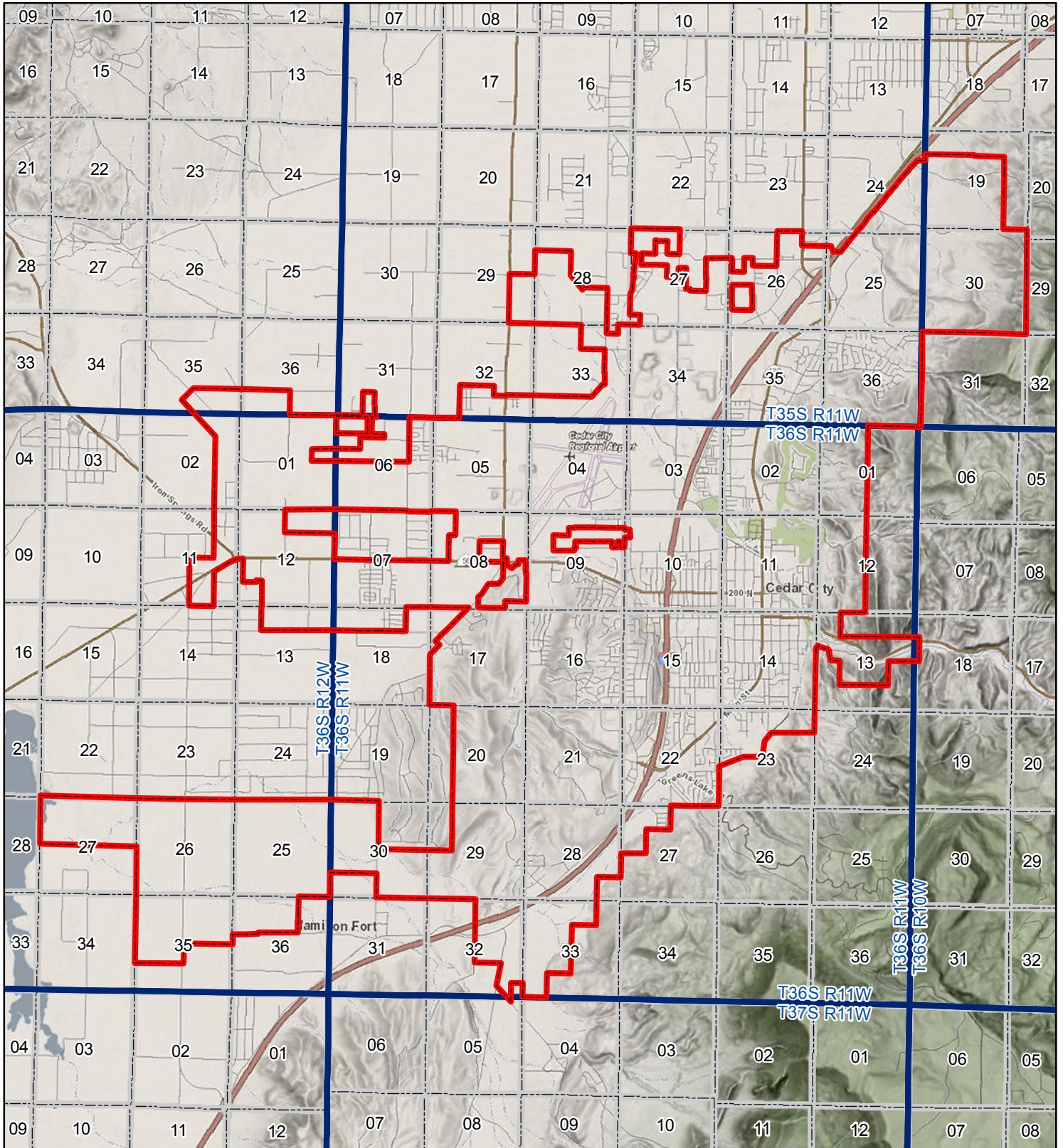
Resources no less frequently than every five (5) years, as required by Utah Code 73-10-32. The City Council resolution for the water conservation plan is included in Appendix C.

APPENDIX A




CEDAR CITY CURRENT SERVICE AREA MAP

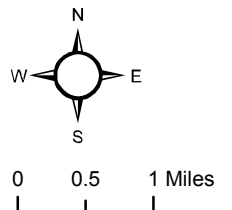
Figure 1 - Cedar City Current Water Service Area

Map Created September 6, 2019



Legend

-  Cedar City Limits
-  Township Line
-  Section Line



A north arrow is located in the bottom right corner, pointing North (N), South (S), East (E), and West (W). Below the north arrow is a scale bar showing 0, 0.5, and 1 mile.

APPENDIX B

COPY OF PUBLIC NOTIFICATION

***PROOF OF
PUBLICATION
Iron County
Today***

United States of America
State of Utah §
County of Iron

On this day of October 25, 2019, I,
Rebecca Jamieson, certify that the
attached document, is an unaltered
copy

PUBLIC HEARING NOTICE

The Cedar City Council will hold a public hearing during its November 6, 2019, City Council Work Meeting to consider a resolution to approve and adopt the Cedar City Water Conservation Plan. The City Council meeting will begin at 5:30 p.m. and be held in the City Council Chambers located at 10 North Main Street, Cedar City, Utah. The public is encouraged to attend.

Published October 23, 2019
Iron County Today • ICT #0189

Notice of Public Hearing

and was published in the Iron County
Today, and that to the best of my
knowledge, the document is neither a
public record nor a publicly recorded
document.

This notice was first published on
Wednesday, October 23, 2019, and was
published on Wednesday in the
issue of said newspaper for 0 weeks
thereafter, the full period of 1 insertion
dated October 23, 2019.

Witness my hand and official seal.



Rebecca Jamieson

Notary Public
Residing at Bountiful, Utah
Commission expires April 19, 2022

Entity: Cedar City

Body: City Council

Subject:	Other
Notice Title:	Public Hearing Notice
Meeting Location:	10 North Main Cedar City 84720
Event Date & Time:	November 6, 2019 November 6, 2019 05:30 PM
Description/Agenda:	PUBLIC HEARING NOTICE The Cedar City Council will hold a public hearing during its November 6, 2019, City Council Work Meeting to consider a resolution to approve and adopt the Cedar City Water Conservation Plan. The City Council meeting will begin at 5:30 p.m. and be held in the City Council Chambers located at 10 North Main Street, Cedar City, Utah. The public is encouraged to attend.
Notice of Special Accommodations:	Cedar City Corporation does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services. If you are planning to attend this public meeting and, due to a disability, need assistance in accessing, understanding or participating in the meeting, please notify the City not later than the day before the meeting and we will try to provide whatever assistance may be required.
Notice of Electronic or telephone participation:	NA
Other information:	
Contact Information:	Renon Savage 4355862950 srenon@cedarcity.org
Posted on:	October 18, 2019 12:34 PM
Last edited on:	October 18, 2019 12:34 PM

Printed from Utah's Public Notice Website (<http://pmn.utah.gov/>)

APPENDIX C

**CITY COUNCIL RESOLUTION AND
ADOPTION SIGNATURES**

CEDAR CITY CORPORATION

RESOLUTION NO. 19-1113

A RESOLUTION TO APPROVE AND ADOPT THE CEDAR CITY WATER CONSERVATION PLAN

WHEREAS, Cedar City Corporation operates a culinary water system; and

WHEREAS, the City Council understands the pressing need to use water in a more efficient manner to allow for future sustained growth of the community;

NOW THEREFORE, BE IT RESOLVED by the Cedar City Council, County of Iron, State of Utah:

The water conservation plan of Cedar City, originally submitted to the Utah Division of Water Resources in July 1999, and revised on this 13th day of November 2019, is hereby approved and adopted. Said water conservation plan is attached hereto and incorporated herein as Exhibit "A". The water conservation plan will be amended no less than every five years and will continue to play a vital role in the future development of Cedar City, Utah.

This resolution is considered with full knowledge of any and all disclosures as required by the laws of the State of Utah concerning any actual or potential conflicts of interest.

This resolution, assigned No. 19-1113 shall take effect on the 14th day of November, 2019.

This resolution was made, voted and passed by the Cedar City Council at its regular meeting on the 13th day of November 2019, by the following vote of its members:

AYES: 5

NAYS: 0

ABSTAINED: 0

DATED this 14th day of November, 2019.

[Corporate Seal]



ATTEST:

Maile L. Wilson-Edwards
MAILE L. WILSON-EDWARDS, MAYOR

Renon Savage
RENON SAVAGE, CITY RECORDER

APPENDIX D

CITY COUNCIL MEETING MINUTES



Cedar City

10 North Main Street • Cedar City, UT 84720

435-586-2950 • FAX 435-586-4362

www.cedarcity.org

CITY COUNCIL WORK MEETING

NOVEMBER 6, 2019

5:30 P.M.

Mayor

Maile Wilson-Edwards

Council Members

Ronald R. Adams

Paul Cozzens

Terri W. Hartley

Craig E. Isom

R. Scott Phillips

City Manager

Paul Bittmenn

The City Council meeting will be held in the Council Chambers at the City Office, 10 North Main, Cedar City, Utah. The agenda will consist of the following items:

- I. Call to Order
 - Appoint a Mayor Pro Tem
- II. Agenda Order Approval
- III. Administration Agenda
 - a. Mayor and Council Business
 - b. Staff Comment
 - Introduce Kent Kowallis, guest artist. Steve Decker
 - Updated SkyWest Schedule. Nick Holt
- IV. Public Agenda
 - Public Comments
- V. Business Agenda
 - Public
 1. Consider final plat approval for the Blackstone PUD, Phase 1. 3 Peaks Engineering/Tyler Romeril
 2. Consider a gravel mining lease. Blackburn Family Partnership/Ryan Marshall
 3. Consider vicinity plan for the Blackstone PUD Phase 3. 3 Peaks Engineering/Don Boudreau
 4. Consider vicinity plan for Crescent Heights Phase 3. Go Civil/Don Boudreau
 5. Public Hearing to consider a General Land Use change from Municipal Uses to Central Commercial for property located at approximately 1325 N. Northfield Road. Go Civil/Tyler Romeril
 6. Public Hearing to consider a Zone change from R-3-M to CC for property located at approximately 1325 N. Northfield Road. Go Civil/Tyler Romeril
 7. Public Hearing to consider a General Land Use change from Low Density Residential to Medium Density Residential for property located at approximately 130 N. 2800 W. Go Civil/Tyler Romeril
 8. Public Hearing to consider a Zone change from R-1 to R-2-1 and R-2-1 to R-2-2 for property located at approximately 130 N. 2800 W. Go Civil/Tyler Romeril
 9. Consider whether to accept the petition to annex 40.74 acres located in the vicinity of 1850 N. 3500 W. Go Civil/Tyler Romeril
 10. Public Hearing to consider abandoning a 20-foot-wide easement located at approximately 200 E. 1600 N. Go Civil/Kit Wareham
 11. Consider an ordinance approving the request to amend the plat of the Towne Center Condominiums located at 96 N. Main St. Go Civil/Tyler Romeril

Administration
586-2953

Airport
867-9408

Building and Zoning
865-4519

Economic Development
586-2770

City Engineer
586-2963

Parks & Recreation
865-9223

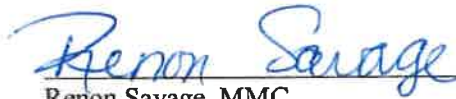
Public Works
586-2912

12. Public Hearing to consider granting a public utility easement to Rocky Mountain Power across the City's Golf Course. Jonathan Stathis
13. Public Hearing to consider an ordinance redefining the term "family" as it pertains to rentals in the R-2-2, R-3-M and SHD zones. Tyler Romeril
14. Consider renewing Staheli Rec. Management's lease to operate their ice rink on the northeast corner behind the City's Aquatic Center. Dallin Staheli/Tyler Romeril
15. Public Hearing to consider entering a lease with Staheli Rec. Management for the use of City property located at approximately 2214 W. Royal Hunte Drive. Dallin Staheli/Tyler Romeril
16. Public hearing to consider a resolution for the adoption of the Cedar City Water Conservation Plan. Jonathan Stathis.
17. Public Hearing to consider an ordinance amending the City's Trail Master Plan by extending a trail from 100 W to 300 W along the railroad. Kit Wareham
18. Public Hearing to consider an ordinance amending the City's Transportation Master Plan by removing a master planned street parallel to the I-15 from 400 North to Kittyhawk Drive. Kit Wareham

Staff

19. Consider bids for the Fleet Facility maintenance building remodel project. Jonathan Stathis
20. Consider an ordinance amending the definition of a site obscuring fence. Kit Wareham
21. Discuss recycling program. Ryan Marshall

Dated this 4th day of November, 2019



Renon Savage, MMC
Cedar City Recorder

CERTIFICATE OF DELIVERY:

The undersigned duly appointed and acting recorder for the municipality of Cedar City, Utah, hereby certifies that a copy of the foregoing Notice of Agenda was delivered to the Daily News, and each member of the governing body this 4th day of November, 2019.



Renon Savage, MMC
Cedar City Recorder

Cedar City Corporation does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services.

If you are planning to attend this public meeting and, due to a disability, need assistance in accessing, understanding or participating in the meeting, please notify the City not later than the day before the meeting and we will try to provide whatever assistance may be required.

say they are going to do it also. We need to have a partnership, we need to make sure our operations are programming outside what Staheli Rec is doing. If we have a Friday night dance and they want to do it better, we are wasting money. We need some partnership. We don't want to harm you financially because that harms us. We need to figure language to program not redundantly. Phillips – I think Tyler is on the right track, maybe not January 10, but we need to do something. Dallin – write it in a broad way that is not binding. Tyler – then why write it. Dallin – we can discuss and make every reasonable effort. Tyler – both parties work together in good faith. Do you think 2 meetings a year? Dallin – I would say quarterly, we offer a 3-week program and see how it goes. Phillips – after 3 or 4 years you will have a good idea. Dallin – in time our schedule will calm down. We don't know what we want to do in the summer. If we work in good faith it is agreeable. Tyler – I will work on the suggestions and email it out to all parties. Hartley – can you designate a draft number, so we are on the same draft.

Ken Nielsen, Leisure Services – I have talked with Jen and we will have a working relationship. We don't want to take over football, soccer or other things run by other groups. We will work with Dallin and come up with things they do, and we do and work together. Cozzens – we don't want to compete with the private market. Ken – it is all for the community and we will work it out.

Mayor Pro Tem Adams opened the public hearing. Carter Wilkey – one question, since the dollar amount is discussed, does the building go out through the normal bidding process. Tyler – it is ownership, since they will maintain ownership, they can do it how they choose. Hartley – as long as they follow codes and ordinances. The hearing closed.

PUBLIC HEARING TO CONSIDER A RESOLUTION FOR THE ADOPTION OF THE CEDAR CITY WATER CONSERVATION PLAN. JONATHAN STATHIS:

Jonathan Stathis, Project Engineer – we finished the water conservation plan update, this is required by State law. This was approved in 1999 and we must update every 5 years and it has to be complete by December 31st. It was written and reviewed by City Staff, and submitted to division of Water Resources, they have approved it as written and now we are to the public hearing process. See attached Exhibit "A". Hartley – how does this tie into the State Water Engineer gave us a goal to reduce by 19% over several years. Jonathan – State Engineers is coming down with a mandate, that will be cuts on priority dates. At that point it will be mandatory not voluntary. Have you seen the draft ground water management plan with the dates? Paul has been involved with that quite heavily. We definitely need to start looking at and see what the City needs to be doing to prepare for that. That is a larger discussion. Cozzens – I think we should have Paul Monroe come in and explain that. In talking with people at the State, our West Desert filings are now final, signed off by the judge, it is our water, but my understanding if there was another personality in that position that may not have happened. Kent Jones was creative. Another comment, HB 381 allocates \$3 million for water authorization fund, I let Paul Monroe know, applications need to be made by December 1st, \$250,000 for each project. We have looked at trying to recharge from Quichapa, the TDS was so high they wouldn't let us. When Quichapa went dry the TDS doesn't get that high. Right now, it is 400-500, the water could be pumped out of Quichapa and put in the pivots, harvest the water and

have them idle their wells and help our worse area. we are probably going to apply for that grant, and we could do some of that. Maybe Cedar City could apply for that also for the Golf Course or somewhere. Jonathan – it is going to be we all need to play together. Hartley – I was thinking this was something different. Jonathan – this is Division of Water Resources, not the Division of Water Rights, this is a plan to encourage water conservation. The plan has to be done, but conservation is voluntary. Paul – this is the States way to encourage cities to conserve water, we live in the second driest state. It is different than the ground water management plan.

Mayor Pro Tem Adams opened the public hearing. Doug Hall – one thing we don't address in our water conservation plan, which every study says this is a way to conserve water it what it costs in their pocket to pay for it. We have a fund, if you ask workers in the utilities department as far as where we set on water, we have a large number of water projects we cannot fund. If we want to get serious about conservation of water, we need to increase what we pay. It cost \$.10 a thousand gallons, people don't pay attention until it hits their wallet. The money is the only way we can repair or replace our water infrastructure which we acknowledge we need to do, so it makes sense. Cozzens – I talked with Dave Nakken who was a mission president in California his water bill was \$850 per month for a small yard. The hearing closed.

PUBLIC HEARING TO CONSIDER AN ORDINANCE AMENDING THE CITY'S TRAIL MASTER PLAN BY EXTENDING A TRAIL FROM 100 W TO 300 W ALONG THE RAILROAD. KIT WAREHAM:

Kit – several months ago we extended our trails mater plan from 300 West to Airport Road and beyond. I didn't realize we acquired between 100 and 300 West, so we want to include that section in our trails master plan. Cozzens – is that needed where we have the bridge? Kit – I have had citizens ask why we were not utilizing the railroad property for a trail. Cozzens – I know there are some interested in purchasing that property. Kit – it does extend the length of that trail by a half mile. Phillips – will it tie in anywhere, there is a bridge at 300 to take you to the other side. Kit – we have trails that will intertie into that railroad trail to go north and south, mostly along drainages.

Mayor Pro Tem Adams opened the public hearing. There were no comments. The hearing closed.

PUBLIC HEARING TO CONSIDER AN ORDINANCE AMENDING THE CITY'S TRANSPORTATION MASTER PLAN BY REMOVING A MASTER PLANNED STREET PARALLEL TO THE I-15 FROM 400 NORTH TO KITTYHAWK DRIVE. KIT WAREHAM:

Kit – we had a master planned street from 400 North to Kittyhawk Drive. the master plan road has been there for quite a while, it has become obsolete, from 400 N to Railroad Tracks is a rezone to make the property high density property for college housing, there is not enough room for that to go through the development. Also, as we move north, we put in the new animal shelter that blocked the road at the other end. The main land provided by the master planned roads is the industrial property south of the Quichapa channel, it will be more useful to put in east and west roads instead of north and south. We have had interest in developing south into



Cedar City

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Mayor

Maile Wilson-Edwards

Council Members

Ronald R. Adams
Paul Cozzens
Terri W. Hartley
Craig E. Isom
R. Scott Phillips

City Manager

Paul Bittmenn

CITY COUNCIL MEETING NOVEMBER 13, 2019 5:30 P.M.

The City Council meeting will be held in the Council Chambers at the City Office, 10 North Main Street, Cedar City, Utah. The City Council Chambers will be an anchor location for participation by electronic means, and at least one council member may participate that way. The agenda will consist of the following items:

- I. Call to Order
- II. Agenda Order Approval
- III. Administration Agenda
 - a. Mayor and Council Business
 - b. Staff Comment
 - Employee of the Month, Brad Abrams. EAC
- IV. Business Agenda
Public Comments

Public

Consent Agenda

1. Approval of minutes dated October 16 & 23, 2019
2. Ratify bills dated November 4, 2019
3. Approve final plat for the Blackstone PUD, Phase 1. 3 Peaks Engineering/Tyler Romeril
4. Approve a gravel mining lease. Blackburn Family Partnership/Ryan Marshall
5. Approve vicinity plan for Crescent Hills Phase 3. Go Civil/Don Boudreau
6. Approve accepting the petition to annex 40.74 acres located in the vicinity of 1850 N. 3500 W. Go Civil/Tyler Romeril
7. Approve granting a public utility easement to Rocky Mountain Power across the City's Golf Course. Jonathan Stathis
8. Approve renewing Staheli Rec. Management's lease to operate their ice rink on the northeast corner behind the City's Aquatic Center. Dallin Staheli/Tyler Romeril
9. Approval of bid from Broderick & Henderson Construction in the amount of \$1,572,539.00 for the Fleet Facility maintenance building remodel project. Jonathan Stathis

Action

10. Canvass votes from the November 5, 2019 Election. Renon Savage
11. Consider waiving utility penalty of \$8.67. Denice Manweiler
12. Consider vicinity plan for the Blackstone PUD Phase 3. 3 Peaks Engineering/Don Boudreau
13. Consider an ordinance amending the General Land Use from Municipal Uses to Central Commercial for property located at approximately 1325 N. Northfield Road. Go Civil/Tyler Romeril
14. Consider an ordinance amending the zone from R-3-M to CC for property located at approximately 1325 N. Northfield Road. Go Civil/Tyler Romeril

15. Consider an ordinance amending the General Land Use from Low Density Residential to Medium Density Residential for property located at approximately 130 N. 2800 W. Go Civil/Tyler Romeril
16. Consider an ordinance amending the zone from R-1 to R-2-1 and R-2-1 to R-2-2 for property located at approximately 130 N. 2800 W. Go Civil/Tyler Romeril
17. Consider an ordinance abandoning a 20-foot-wide easement located at approximately 200 E. 1600 N. Go Civil/Kit Wareham
18. Consider an ordinance approving the request to amend the plat of the Towne Center Condominiums located at 96 N. Main St. Go Civil/Tyler Romeril
19. Consider an ordinance redefining the term "family" as it pertains to rentals in the R-2-2, R-3-M and SHD zones. Tyler Romeril
20. Public Hearing to consider entering a lease with Staheli Rec. Management for the use of City property located at approximately 2214 W. Royal Hunte Drive. Dallin Staheli/Tyler Romeril
21. Consider a resolution for the adoption of the Cedar City Water Conservation Plan. Jonathan Stathis
22. Consider an ordinance amending the City's Trail Master Plan by extending a trail from 100 W to 300 W along the railroad. Kit Wareham
23. Consider an ordinance amending the City's Transportation Master Plan by removing a master planned street parallel to the I-15 from 400 North to Kittyhawk Drive. Kit Wareham
24. Consider an ordinance amending the definition of a site obscuring fence. Kit Wareham
25. Consider recycling options. Ryan Marshall
26. Closed session, pending litigation

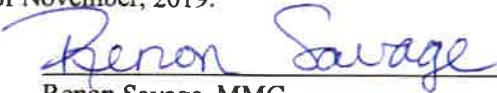
Dated this the 12th day of November, 2019.



Renon Savage, MMC
City Recorder

CERTIFICATE OF DELIVERY:

The undersigned duly appointed and acting recorder for the municipality of Cedar City, Utah, hereby certifies that a copy of the foregoing Notice of Agenda was delivered to the Daily News, and each member of the governing body this 12th day of November, 2019.



Renon Savage, MMC
City Recorder

Cedar City Corporation does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services.

If you are planning to attend this public meeting and, due to a disability, need assistance in accessing, understanding or participating in the meeting, please notify the City not later than the day before the meeting and we will try to provide whatever assistance may be required.

VICINITY OF 1850 N. 3500 W. GO CIVIL/TYLER ROMERIL; (7) APPROVE GRANTING A PUBLIC UTILITY EASEMENT TO ROCKY MOUNTAIN POWER ACROSS THE CITY'S GOLF COURSE. JONATHAN STATHIS; (8) APPROVE RENEWING STAHELI REC. MANAGEMENT'S LEASE TO OPERATE THEIR ICE RINK ON THE NORTHEAST CORNER BEHIND THE CITY'S AQUATIC CENTER. DALLIN STAHELI/TYLER ROMERIL; (9) APPROVAL OF BID FROM BRODERICK & HENDERSON CONSTRUCTION IN THE AMOUNT OF \$1,572,539.00 FOR THE FLEET FACILITY MAINTENANCE BUILDING REMODEL PROJECT. JONATHAN STATHIS:

Councilmember Cozzens moved to approve the consent agenda items 1 through 9 as written above; second by Councilmember Phillips; vote unanimous.

CONSIDER A RESOLUTION FOR THE ADOPTION OF THE CEDAR CITY WATER CONSERVATION PLAN. JONATHAN STATHIS: Jonathan – this was discussed last week, it must be updated every 5 years. This has been approved by the Division of Water Resources. Hartley – I called Paul Monroe from the Water Conservancy District, it is the Utah Department of Natural Resources has set a goal of 19% by the year 2030, so my question is this plan in conformity with those goals they have outlined. The Division of Water Resources, the Department of Natural Resources, does it coincide or is it different. Paul – I had conversations with Paul Monroe, they are two different entities, they don't ever set a benchmark, they are aspirational goals to have better practices and use water wise landscaping. I think they work together.

Councilmember Hartley moved to approve the resolution adopting the Cedar City Water Conservation Plan; second by Councilmember Isom; vote as follows:

AYE: 4
NAY: 0
ABSTAINED: 0

CANVASS VOTES FROM THE NOVEMBER 5, 2019 ELECTION. RENON

SAVAGE: Renon - The official results of the 2019 general election are as follows:

Don Oswald - 1767
W. Tyler Melling - 2914
Terri W. Hartley - 2482
Adam Hahn - 1769
Brittanie Parry - 1109
Craig E. Isom - 2142

The total voter turnout was 40.13%.

Councilmember Phillips voted to accept the canvass numbers; second by Councilmember Cozzens; vote unanimous.

CONSIDER WAIVING UTILITY PENALTY OF \$8.67. DENICE MANWEILER:
Pulled.

APPENDIX E

NOTIFICATION PROCEDURES

APPENDIX E

NOTIFICATION PROCEDURES

As required by Utah Code 73-10-32, this water conservation plan will be disseminated to the public through the following means.

1. Cedar City will devote part of at least one regular City Council meeting every five (5) years to a discussion and formal adoption of the water conservation plan, and allow public comment on it.
2. After its adoption by the City Council, the water conservation plan will be posted on the Cedar City website.
3. After its adoption by the City Council, the water conservation plan will be delivered to local media outlets. The local media outlets in Cedar City are known as The Spectrum (Cedar City Daily News) and the Iron County Today newspapers.
4. After its adoption by the City Council, the water conservation plan will be delivered to the governing body of Iron County.

APPENDIX F

WATER CONSERVATION PLAN FROM THE CEDAR CITY 2009 WATER MASTER PLAN UPDATE

GENERAL

The purpose of Section 3 is to *review the effectiveness of the City's water conservation program and update the recommended implementation plan. The previous master plan reviewed the water conservation potential for Cedar City, described State Water Conservation Guidelines, profiled current water use, described the general benefits of saving water, and provided an implementation plan with selected conservation measures. This update provides ongoing guidance in the same direction with refinements based on current regulation as well as the efforts and results of the recommendations already implemented.*

STATE OF UTAH GUIDELINES FOR WATER UTILITIES

New water conservation rules have been adopted by the State of Utah since completion of the previous plan. The State of Utah Code, Title 73, Chapter 10, Section 32 (73-10-32) requires each "retail water provider" to prepare, adopt and file with the Division of Water Resources, a conservation plan. The Code was passed by the State Legislature in 2004 and amended to its current form in 2007. 73-10-32 outlines the requirements of the plan which include the following as taken directly from the Code:

- *a clearly stated overall water use reduction goal*
- *an implementation plan for each of the water conservation measures it chooses to use, including a timeline for action and an evaluation process to measure progress;*
- *a requirement to devote part of at least one regular meeting every five years of its governing body to a discussion and formal adoption of the water conservation plan, and allow public comment on it;*
- *a requirement that a notification procedure be implemented that includes the delivery of the water conservation plan to the media and to the governing body of each municipality and county served by the retail water provider; and*
- *a copy of the minutes of the meeting (public discussion and adoption) and the notification procedure which shall be added as an appendix to the plan.*

The Code further suggests that the water conservation plan may include information regarding:

- *the installation and use of water efficient fixtures and appliances, including toilets, shower fixtures, and faucets;*
- *residential and commercial landscapes and irrigation that require less water to maintain;*
- *more water efficient industrial and commercial processes involving the use of water;*
- *water reuse systems, both potable and not potable;*
- *distribution system leak repair;*
- *dissemination of public information regarding more efficient use of water, including public education programs, customer water use audits, and water saving demonstrations;*
- *water rate structures designed to encourage more efficient use of water;*
- *statutes, ordinances, codes, or regulations designed to encourage more efficient use of water by means such as water efficient fixtures and landscapes;*

- incentives to implement water efficient techniques, including rebates to water users to encourage the implementation of more water efficient measures; and
- other measures designed to conserve water.

From the provisions of 73-10-32 it is clear that the previous water conservation recommendations are consistent with the State’s conservation plan requirements. However, there are several requirements associated with the implementation plan, adoption and notification that need to be added. The Code also requires that the plan be updated at a minimum every five years. Without conservation plan compliance (meaning adoption, notification and updating), the City is not eligible to receive State funds for water development.

PROFILE OF CURRENT WATER PRODUCTION

Table 3-1 provides a profile of updated indoor and outdoor water use as well as un-metered water (UMW), as recorded by the City’s billing system. The current profile is somewhat different than situation reported in the previous master plan. While the volume of indoor use over the past 10 years increased only slightly, outdoor use doubled and total UMW actually decreased.

Table 3-1 Updated Water Use Profile

Water Use	2007 Total Use (gal)	2007 Percent Total	1997 Total Use (gal)	1997 Percent Total
Indoor Use	800,569,911	36%	781,097,972	48%
Outdoor use	1,198,816,989	54%	540,365,894	34%
Total Billed	1,999,386,900		1,321,463,866	
Un-Metered	213,699,700	10%	290,077,434	18%
Production	2,213,086,600		1,611,541,300	

Obviously, outdoor water use makes up the largest portion of the City’s water use and as a result, water demands for the culinary water system increase substantially in the summer. Peak summer water use may be more than six times average winter use.

The previous profile also divided indoor and outdoor use between residential and non-residential use categories. This information was not available for this study. However, it is recommended that additional study be performed by the City to examine these trends as well to determine if one category should be targeted for conservation measures above another.

Growth

It is expected that Cedar City will continue to experience significant growth. Since completion of the previous plan, population has increased from 18,398 to 26,480 (2007), or about 3.7 percent annually. As presented in Section 2, the expected population in 2032 is 69,663, an annual increase of about 3.94 percent. This represents a 25 year growth of 163 percent over current

(2007) numbers. Therefore, water conservation programs should be designed for both existing and future customers.

Summary of Where to Place Conservation Effort

From the perspective of deferring proposed water capital improvement projects, the reduction of summer peak-day water use would be effective. Prime targets to reduce peak-day use are the exterior uses by single families and by public agencies. Improved efficiency at local government-owned sites would target concentrations of turf (parks and playing fields) and set a good example and establish credibility with the general public. *The recommended conservation measures of the previous plan focused on these priorities and they continue to be the focus of this update.*

GENERAL BENEFITS FROM SAVING WATER

Quantifiable benefits to Cedar City by reducing water demand include:

- Reduction in operation and maintenance (O&M) expenses resulting from lower pumping energy
- Deferral or downsizing of capital facilities- Lowering the rate of increase in demand can postpone facility construction and, in cases where growth is slowing, avoid the next water supply or treatment increment. The types of water utility capital facilities most likely affected include water storage reservoirs, raw-water transmission facilities, *new well development*, finished water storage, and *booster* pumping stations. Fewer or smaller facilities also reduce staffing costs.

In addition, wastewater utilities can benefit from reduced indoor water use which translates into reduced wastewater flows. While this reduces O&M costs of existing facilities, wastewater capital facilities are less affected because most are designed for peak wet weather flow, which is not significantly affected by reduced average dry weather flows.

A balanced perspective should also consider the reduction in water revenues. Conservation programs can suppress water sales, lowering revenues. If the reduction occurs slowly, say less than 1 percent per year (*as has been the case over the past 10 years since the initial plan formulation*), then the revenue loss impacts can be mitigated by periodic rate adjustments. These adjustments would be handled similar to operating cost increases due to inflation and can be integrated into financial planning.

PREVIOUS PROGRAM

The previous plan consisted of three programs:

1. *System Water Audits and Leak Detection*
2. *Public Information*
3. *Non-Promotional Pricing*

The previous water conservation recommendations were developed by evaluating the water savings and cost-effectiveness of typical conservation Best Management Practices (BMPs). The water savings are computed by multiplying unit water savings, per measure, by a market

penetration or installation rate, and then multiplying by the number of units in a particular service area, such as dwelling units targeted by a particular program. Cost-effectiveness was evaluated by first estimating costs and then computing the cost of water saved. The evaluation was done using the expected population growth.

The cost-effectiveness was evaluated in terms of the cost of water saved, in dollars per 1000 gallons. This was computed by dividing the present worth of the initial and/or annual costs by the total water saved over the next 25 years. Table 3-2 shows the results of the previous analysis. Measures that were selected for the plan are indicated by an “x” in the last column. The residential retrofit and *ultra low flush* (ULF) toilet replacement measures were not selected because they overlap with the conservation due to the natural replacement of fixtures. The other measures not selected either offered too little water savings or *came* at too high a cost.

Table 3-2 Cost-Effectiveness of Measures

Measure	Total Water Saved (mil gal)	Unit Cost of Water Saved (\$/1000 gal)	Recommended For Plan
Residential Water Surveys	80	0.60	
Residential Retrofit	955	0.45	
System Water Audits, Leak Detection and Repair	3895	0.15	X
Non-Residential Landscape Ordinance	399	0.28	
Large Landscape Conservation and Incentives	253	1.47	
High-Efficiency Appliance Promotion	136	0.55	
Public Information	772	0.22	X
Com/Ind/Inst Conservation	49	1.70	
Non-Promotional Pricing	1642	0.02	X
Residential ULF Toilet Replacement	363	0.69	
Non-Res ULF Toilet Replacement	228	0.49	

Also included in the plan was the naturally occurring conservation due to plumbing fixture replacement.

Shown in Table 3-3 are the savings expected for the previously recommended plan. Note that the percentage of total water use reduction is 8 percent in water use (billings) by 2022. Expected savings in production, which include reduction of unaccounted for water was considerably more, 14 percent. The annual costs also vary with population, as more budget is required to reduce demand in a larger system. Overall the plan was to save 1.6 mgd by 2022. The unit cost of the water saved was projected to be \$0.10 per 1000 gallons saved or \$33 per acre-foot saved. The reason this is so low is that the naturally occurring conservation due to plumbing fixture replacement is free, the cost to adjust the rates is just the cost of the rate study, the public information is inexpensive and whereas the system water audits leak detect costs are relatively high, the water saved should also be high. In other words water conservation was determined to

be an excellent investment for Cedar City. It is doubtful that additional supplies could be developed, treated, and distributed for such a low cost.

Table 3-3 Previously Recommended Plan for Savings

Measure	Water Saved-High Growth (mgd 2022)	Annual Cost (\$/year)
System Water Audits	0.84	45,000
Public Information	0.13	12,500
Non-Promotional Pricing	0.39	2,000
Total Savings Due to Measures	1.36	59,500
Natural Fixtures Replacement	0.20	0
Grand Total Water Savings	1.56	59,500
Savings in Water Use, %	8.08	
Savings in Production, %	14.37	

The selected programs for the previous plan are described in more detail in the following paragraphs.

System Water Audits Leak Detection and Repair

Some system water losses, or unaccounted-for water (UAW), are authorized. The purpose of this measure is to reduce unauthorized use of water such as leaks from older and broken pipes, joints, or valves. Up to 40 percent of all UAW can be attributed to leaks. For example, if the UAW is greater than 10 percent of total production, then the leakage could be 4 percent, and the City may find a leak-detection and repair program beneficial. Lower UAW levels usually indicate that leak-detection and repair would not be cost-effective.

This goal involves reducing UAW, as a percentage of production to 10 percent. In many cases the easy savings have probably been found and the City will need to move into leak detection and repair to get the value less than 10 percent.

Every year a preliminary system water audit would be completed by the City. The audit would involve the following steps:

1. Determine metered sales
2. Determine other system verifiable uses
3. Determine total supply into system
4. Divide metered sales plus other verifiable uses by total supply into the system to determine UAW. If this quantity is less than 0.9 (more than 10 percent UAW), a full scale audit is needed.

When needed Cedar City would complete water audits of their distribution systems using a methodology consistent with that described in AWWA's "Water Audit and Leak Detection Guidebook."

Where the water audit indicates that leak detection and repair would be cost-effective, Cedar City would initiate a leak-detection and repair program. In addition, Cedar City would check customer bills for extreme changes that may indicate a leak on the customer's property. This step can be automated by programming the billing system to flag water bills with consumption greater than 25 percent of the previous year's consumption. The City would encourage these customers to look for leaks.

Cedar City will need to conduct water distribution piping leak detection surveys and repair leaks discovered during the surveys. The goal of the program should be to begin inspection of the pipes in older downtown areas, then working outward to the outer limits the service area until all the piping has been inspected. The desired time to inspect all water distribution pipes for leaks is on the order of four years. Re-inspection of the pipes will begin upon the completion of the first overall survey and subsequent repairs. Leak survey equipment will be used in the initial survey. When a leak is located a crew with a leak detector would be called in to pinpoint the leak. The leak is then found and fixed by a repair crew.

Most of the work conducted by each leak detection and repair crew involves surveying the water distribution lines systematically. However, sometimes a water use customer calls the City concerned that his/her water bill is unusually high. In this case, an investigator would assess the situation with leak detection equipment to determine if in fact a leak is present on the property. If a leak is present, then it is the customer's responsibility to have the leak repaired. The only instance that the City would repair the leak is if City personnel caused the break in the pipe during the investigation.

Public Information

This measure would expand existing public information efforts. It serves as the 'glue' to tie all the other measures together. It would not only address specific measures but also cultural/social aspects of establishing or enhancing a water conservation ethic among the Cedar City customers; most 'importantly, it would convey to the public an understanding of why water conservation is important. Programs include theatrical productions, poster contests, T-shirt design contests, speakers to employee and community groups, presentations and tours with hands-on demonstrations; radio and television time, and printed educational material such as bill inserts. Utilities will attempt to put the water use from the same period in the prior year on customer water bills. Public education would continue to be used to raise awareness of other conservation measures available to Cedar City customers.

A public information program needs goals, staff, materials and a theme to be effective. The program will also need an annual budget to carry out the program. The following steps could be used to add the new program:

- Develop a clean and persuasive statement purpose
- Choose an appropriate theme
- Identify key target groups
- Select members for a water conservation committee
- Identify communication paths, resource materials, and volunteers

- Design and implement specific campaigns
- Ensure effective coordination and follow-through

This measure targets all customers within the Cedar City service area. The coordinator would develop the program following the steps listed above. Once a purpose statement has been created, a water conservation theme would be decided upon. This could be based on the results of this study which will identify where most of the conservation benefits will come from.

A program logo reflecting the theme should then be selected. The image could be realistic, stylized, or a friendly caricature; and it should be given a suitable name. This theme can be retained or modified as needed in the future.

A public information specialist would likely devote most of their time to public education. Additional staff may be involved to help by educating the public through a speakers bureau, tours, producing bill inserts, creating displays at fairs and nurseries, giving presentations, and creating low water-use gardens. This program will likely be carried out with in-house staff. Certain parts of the development could be contracted out, such as graphics and printing. A water conservation committee could be created to receive input from consumers affected by the program, to advise the water conservation coordinator about new programs, materials, and means of communicating with target groups; assist in ideas; and help develop and implement specific education programs. The committee could consist of an elected official as chairperson, representatives of interested agencies and parties, and technical personnel.

To convey to the customers the importance of water conservation, the program may seek to explain why construction of water facilities may be necessary if water conservation is not practiced, how much these facilities would cost, and then compare these costs to what benefits can be received from conserving water. Public information would be used to promote the other selected conservation programs as well.

The various media forms including bill inserts, ads, and television and radio spots can be used to instill a conservation ethic in the community. Specific material compliments the other programs such as free audit programs so that the customers are aware of how to take advantage of existing conservation programs. For example, a spring bill insert could publicize the availability of irrigation audits to qualified customers (larger water users) or the availability of free water audit or retrofit kits for homeowners.

Low water use landscaping is often promoted through demonstration gardens and brochures, developed through a public education program. Cedar City could start a Xeriscape program that could include demonstration gardens at the water department's office.

Non-Promotional Water Pricing

Under this measure Cedar City would modify their existing water rate structures to target reducing consumption. Traditional objectives in rate structure design include that the rates be based on the costs to serve, that they provide adequate and stable revenues, that they be fair or equitable among customer classes and volume users, and that they be easy to implement and administer. Non-promotional or conservation rates provide a financial incentive to ratepayers to reduce their water use, usually by applying a surcharge on peak months' usage or by charging a higher unit rate for water as more units are used. These rates are often not based on historical

costs to serve each customer group or rate block and therefore are held, by some ratepayers, to be unfair. It is, therefore, essential that new rates be developed through a public process that assures acceptance of the purpose and design of the rate structure. It is important to recognize that, for whatever new type of rate structure selected, greater leverage can be achieved from a combination of price with indoor and outdoor conservation programs than from price alone. Non-promotional water pricing makes the most sense as part of a broad demand management program.

In the evaluation of water rate alternatives two types of rates were considered: Rates with relatively low water allowances in the service charge, and inclining block rates. There are other rate forms that can be considered. Also most utilities have different rates for different classes of customers.

Non-promotional rates, especially inclining block rates, are sometimes perceived by ratepayers as being unfair. Public hearings will be required to hear the rate payers sentiments and to respond to them regarding the purpose of the rates and the design of the rate structure. Non-promotion rates should be presented to the public more as a subtle, but constant, reminder that water is a precious commodity that should not be wasted than as an unyielding deterrent to water use for traditionally acceptable applications. The public should be reminded that they can minimize the effect of rate shock by implementing the various conservation measures that Cedar City endorses, whether or not they are chosen as participants in the programs that are restricted (for budget and practical implementation reasons) to a limited number of participants per year.

IMPLEMENTATION PROGRESS

Since the completion of the previous plan, the City has begun implementation of all three recommended conservation measures. In addition, the City has adopted a daytime water restriction ordinance, not mentioned in the previous plan. And, the City has implemented customer water surveys and large landscape conservation incentives as conservation measures that were also not part of the recommended plan but were listed as BMPs considered during plan development.

The non-promotional water pricing, the customer water survey, and the large landscape conservation incentive measures were enacted under City Council Resolution No. 05-0126 in January of 2005. The resolution established an inclining block water rate schedule with the stated intent to encourage water conservation. A copy of the Resolution along with the specific of the rates and structure can be found in Appendix C of this report. The resolution mandated the offering of water audits for both culinary and pressurized irrigation water system customers as a public service “to identify and recommend specific water conservation measures.” It also established a classification for large irrigation users and required a separate irrigation meter or connection to the City’s pressurized irrigation system. The resolution assigns a monthly water allotment to each user based on acreage and evapotranspiration rates. A separate rate for large irrigation users (for culinary or pressurized irrigation system) was established based on the allotments to encourage irrigation efficiency and conservation.

The City’s public education efforts have included the following:

- *The City's annual "Consumer Confidence Report" includes water conservation tips and educational information. This is mailed out to all Cedar City residents in June or July of each year.*
- *The City's monthly newsletter. The newsletter is sent with the customer's monthly billing. Water conservation information is often included in the newsletter.*
- *The State's "Slow the Flow" campaign. The campaign provides water conservation information via television and radio.*

Each year as part of the City's annual water report, a system-wide audit of leakage and unaccounted-for water is performed. In addition, the City performed an actual leak detection survey several years ago and the system was reportedly found to be "pretty tight". Specific results of the survey and the annual audits were not available for this report but the City indicated that their UAW percentage was currently at 6.2 percent.

Cedar City has also adopted an ordinance (City Ordinance Section 37-7-1) to restrict daytime watering using culinary water. The purpose is to improve irrigation efficiency by reducing evaporation. Outside watering from the culinary system is restricted between the hours of 8:00 AM and 6:00 PM. The City strictly enforces this regulation during the summer. Under certain circumstances, a variance can be given by the City Engineer.

EVALUATION OF CONSERVATION PROGRAM EFFECTIVENESS

The previous plan provided a number of indicators and conservation milestones that can be used to measure progress or identify a trend. They include:

- *Reduction of UAW below 10 percent*
- *14.3% savings in water production*
- *8.1% savings in water use (billings) by 2022*

There are some indications that the City has made significant progress in conserving water. These include reductions in unit water use rates and in percent UMW and UAW water. Since 1997 the unit water use rate (water production divided by population) has steadily fallen from an average rate of 261 gpcd to 229 gpcd in 2007. This represents a reduction of approximately 14 percent. The UMW water percentage (related to UAW) as well as volume have also fallen. The ratio of UMW to total water production fell from 18 percent in 1997 to 10 percent in 2007. And, at 6.2 percent, the UAW percentage is less than the goal of 10 percent.

Additional water conservation trends can be seen by comparing the change in water use to the corresponding increase in population since the previous plan. Table 3-4 summarizes the increase of indoor, outdoor, billed, un-metered water use as well as total water production and population over the past 10 years. The table reveals that increase in indoor water usage was nearly flat. Outdoor water use, on the other hand, increased substantially. Un-metered water use actually declined. However, the decline was offset by a corresponding increase in billed water use which suggests that the City's accounting of billed water use has improved (which should have translated to better water revenues). Overall, water production increased more slowly than population over the same time period, suggesting that conservation achieved to date is about 7 percent. That is halfway to the program's total water conservation goal of 14 percent.

Table 3-4 Water Conservation Trends

Water Use	Production Volume (gal)		Increase		
	1997	2007	Amount (gal)	% Total	% Annual
Indoor	781,097,972	800,569,911	19,471,939	2%	0.25%
Outdoor	540,365,894	1,198,816,989	658,451,095	122%	8.29%
Billed	1,321,463,866	1,999,386,900	677,923,034	51%	4.23%
Un-Metered	290,077,434	213,699,700	(76,377,734)	-26%	-3.01%
Production	1,611,541,300	2,213,086,600	601,545,300	37%	3.22%
Population	1997	2007	Amount	% Total	% Annual
	18,398	26,480	8,082	44%	3.70%

From the trends, it would also appear that much of the savings are attributable to the reduction of indoor water use as well as elimination of some water losses such as leaks or storage tank overflows. It can be concluded that the City's conservation efforts have been very successful. It should be noted however that additional savings could be accomplished in reducing outdoor water use since it grew at much greater rate than the rate of population growth.

RECOMMENDED PROGRAM UPDATES

The same measures recommended in the previous plan are again recommended for this plan update. No additional measures are recommended. While all of the recommended measures have been implemented to one degree or another, not all of the activities associated with each measure have been fully implemented. Conservation efforts should be continued with increased focus on outdoor water use to accomplish the savings goal. All other measures already implemented by the City should be continued. Specific ongoing or improved efforts are detailed in the following paragraphs.

System Water Audits Leak Detection and Repair

UAW is less than 10 percent and leak detection project confirmed that water losses from leaks are insignificant. Thus a leak detection and repair program would not be cost effective. However, the City should continue to perform the annual audit as well as monitor customer billing for extreme changes in individual customer usage as a maintenance measure.

Public Information

The City has a good beginning to a public information program but more could be accomplished. An improved campaign should be developed, focused on areas where greatest conservation can be achieved (like outdoor use). The State has a number of public information documents already prepared that could be used to augment the City's efforts. The City could increase its level of communication to customers through the newsletter by providing more frequent conservation related information. The City could also employ or designate an existing employee (ideally a public information specialist) to devote part of their time to public education

around conservation. And, the City could incorporate a xeriscape demonstration garden into one of its parks or building landscapes.

Non-Promotional Water Pricing

Rates should be reviewed periodically both to quantify the initial impact as well as to see that the conservation effect continues over time. Some adjustment to the rates may be considered at the time they are up for an increase for financial reasons in response to the results of the monitoring. Additional rate adjustments combined with increased focus through a public information program may be effective in further reducing outdoor water usage.

OTHER IMPLEMENTATION CONSIDERATIONS

In addition to the program update recommendations, the following should be addressed by the City in their conservation plan and program to comply with the State of Utah requirements:

- 1. Establishment of a timeline for action and an evaluation process to measure progress for all conservation measures.*
- 2. One City Council meeting every 5 years to discuss and adopt the conservation plan with provisions for public comment. A copy of the meeting minutes should be attached to the plan as an appendix.*
- 3. Delivery of the plan to City leaders, Iron County and the media.*
- 4. The plan should include a drought/emergency element.*

APPENDIX G

CITY ORDINANCES: TIME-OF-DAY WATERING AND SCARCITY OF WATER

SECTION 37-7. Waste Prohibited.

It shall be unlawful for any water user to waste water, or to allow it to be wasted, by imperfect stops, taps, valves, leaky joints or pipes, or to allow tanks or watering troughs to leak or overflow, or to wastefully run water from hydrants, faucets, or stops or through basins, water closets, urinals, sinks, or other apparatus, or to use the water for purposes other than those for which he has paid, or to use water in violation of the rules and regulations for controlling the water supply. After notification of violation, the City may terminate any service found in violation of this section if, within a reasonable time period, the condition has not been remedied.

SECTION 37-7-1. Time-of-Day Watering Parameters.

- (A) For purposes of this section the following terms shall have the following definitions:
1. “Culinary Water” shall include all water supplied through that portion of Cedar City’s water works system for culinary use. Typical examples of culinary water include, but are not limited to, residential connections, business connections, and industrial connections.
 2. “Ditch Irrigation Water” shall include all water supplied by Cedar City pursuant to the terms of Chapter 21 of the Ordinances of Cedar City.
 3. “Irrigation” shall include the spraying, sprinkling, misting, flooding, dripping, or otherwise applying water on turf, gardens, trees, grass, shrubbery, or any other vegetation.
 4. “Secondary Irrigation Water” shall include all non-potable water supplied through any Cedar City water works system dedicated for secondary irrigation purposes. Typical examples of secondary irrigation water include, but are not limited to, large irrigation users such as schools, City recreational facilities, golf courses, or Southern Utah University. Additional irrigation uses may be added by the Superintendent of the Cedar City Water Works System.
- (B) Beginning on April 1 and ending on October 31 of each calendar year, outside irrigation using culinary water is prohibited between the hours of 8:00 a.m. and 6:00 p.m., except for the following situations:
1. New lawns that require frequent irrigation for establishment purposes within thirty (30) days of planting;

2. Short cycles required for testing, inspecting, and maintaining irrigation systems provided that there is a person physically present to monitor the system test; or
 3. Use of culinary water for irrigation of commercial stock and commercial gardens or plant nurseries that are licensed by the City, provided that the licensee or a representative is personally on the premises at the time the irrigation is taking place.
 4. Special permit issued by the Superintendent of the Cedar City Water Works System.
- (C) Use of Secondary Irrigation Water and Ditch Irrigation Water are specifically excluded from the provisions of this ordinance.
- (D) Within a calendar year culinary water users found violating this ordinance shall be subject to the following penalties:
1. Upon a first offense a notice reasonably designed to educate and inform the water user about the provisions of this ordinance shall be provided. The notice shall be deemed sufficient if left in a conspicuous location on the property where the ordinance violation occurs. An example is leaving a notice hanging on the front door of a residence, or the manager's door of a multi-unit dwelling.
 2. Upon a second violation the water supply to the property where the violation occurs shall be shut off. Once the water is shut off it may only be turned back on by City staff after the fee established in this ordinance or the City's fee schedule has been paid.
 3. Upon a third or subsequent violation the water supply to the property where the violation occurs shall be shut off. Once the water is shut off it may only be turned back on by City staff after the fee established by this ordinance or the City's fee schedule and an additional one hundred dollar (\$100) penalty have been paid.
- (E) All fines and penalties shall be paid in full prior to restoration of water service. If not paid the fines shall be added to the water user's outstanding water bill and collected in accordance with the provisions of this ordinance.
- (F) The City's Public Works Department shall maintain a complete list containing the time of day, date, and address of each property for the enforcement of the provisions of this ordinance.

- (G) After the enforcement action has taken place a property owner shall be able to appeal. The appeal shall be to the City Manager. The appeal shall be limited in scope to the property owner having to show that on the dates and times recorded by the Public Works Department they were not irrigating with culinary water during prohibited times. The City Manager shall be limited in the remedy that may be provided. If clear from the facts and circumstances the City Manager may waive re-connection fees and/or penalties imposed by this ordinance and remove the unfounded violation from the records maintained by Public Works.
- (H) For purposes of enforcing this ordinance each day when a violation occurs may be considered a separate violation.

Amended by City Ordinance No. 0423-14-1

SECTION 37-8. Water Department to Have Free Access.

The Water Superintendent and his agents shall at all ordinary hours have free access to places supplied with water from the water works system for the purpose of examining the plumbing system, ascertaining the amount of water used and the manner of its use.

SECTION 37-11. Fire Hydrants.

All public fire hydrants shall be kept under control of and shall be kept in repair by the Superintendent of water works, and in case of fire the fire department shall have free access to said hydrants. No other person shall open or operate any fire hydrant, or attempt to draw water therefrom without special permission of the Superintendent of water works, or obstruct the approach thereto.

SECTION 37-12. Unlawful to Take Water Without Paying Therefore.

It shall be unlawful for any person by himself, family, servants, or agents to take or use water coming through the water mains without paying therefor as herein provided; or without authority, to open any stop-cock, valve, water meter or other fixture attached to the system of water supply, or in any way to injure, deface, or impair any part, or any appurtenance of the water works, or to cast anything into any reservoir or tank of the said water works.

During construction the general contractor shall be responsible for the project and subject to a five hundred dollar (\$500.00) penalty for any violation of the above paragraph. Said penalty shall be paid in full prior to the issuance of a building permit or certificate of occupancy, whichever comes first.

SECTION 37-13. Unlawful to Take Water After It Has Been Turned Off by the Water Department.

Manager's authority is limited to allowing the customer to take advantage of the two (2) year payback provisions contained in this ordinance.

4. Staff shall be able to rely on the City's billing records in order to make a determination if the customer has been receiving a bill for these services and if the bill has been sent to the address requested by the property owner.
5. If the staff is not successful in collecting the bill pursuant to this section, nothing in this section shall be construed to limit, restrict, or prohibit the City from using its other collection remedies contained in the Cedar City Ordinance including, but not limited to discontinuing the customer's water service, or collecting the debt as a civil debt.

Amended by ordinance No. 1214-11

SECTION 37-14. Scarcity of Water.

In the event of scarcity of water, whenever it shall in the judgment of the Council be necessary, the Mayor shall by proclamation limit the use of water to such an extent as may be required for the public good and also, said proclamation may determine the method, manner and time of use of said water.

SECTION 37-15. Tapping and Water Development Fees.
REPEALED, MARCH 1998

SECTION 37-16. Water Mains.

Except where otherwise provided in these ordinances, the following shall be the exclusive method of extending water mains in Cedar City, Utah, on dedicated streets where water services are not now available and outside of recognized subdivisions.

In the event the lot owner desires water service and there is not a water main in front of the property for which owner desires said service, then for whatever extension is necessary to bring the water main (8-inch minimum diameter) to the furthest developed property line, said property owner shall sign an agreement with Cedar City providing that he shall be reimbursed for expenses incurred to cover the actual cost of extending said water main. After said agreement is executed and construction drawings have been submitted and approved by the City Engineer, then water main can be installed. Thereafter, the installation reimbursement amounts, shall be collected along the specific pipe line thus installed, and be paid by Cedar City Corporation to the individual that paid for the extension until that individual has been completely reimbursed without interest for the money expended for making said extension or for a ten-year period whichever occurs first. In addition to the cost of extension, said property owner shall pay