IVINS CITY WATER CONSERVATION PLAN

2018 DRAFT



Ivins City

Water Conservation Plan

2018 (DRAFT)

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Adopted by Ivins City Council by Resolution on _____.

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Introduction

Ivins City is small city with an estimated population of ~~of approximately~~ 8,6~~0~~00 residents located in sunny Southern Utah in the high elevations of the Mojave Desert. Ivins is part of a rapidly growing and thriving community in Washington County, Utah. It is known for being at the doorway to Snow Canyon State Park which along with the Red Mountain Wilderness area provides a stunning backdrop for our community.

The arid desert climate, with an average of 8 inches of rainfall each year, makes us constantly aware of the scarcity of precious water.

Water supply is acknowledged to be in limited supply to our area, in fact, in our whole region and state. In 1998, the legislature of the State of Utah passed the Water Conservation Act (Utah State Code 73-10-32, last amended in 2007). This act requires all water providers to keep a water conservation plan. The plan must:

- include a clearly stated overall water use reduction goal
- every five years: providers review progress, allow public comment, update the plan, and then adopt it through the governing board.

Description of Ivins City

Ivins City is located on the west side of Washington County wedged between the City of St George and Santa Clara City on the east and Shivwits Indian Reservation on the west. To the north is the Snow Canyon State Park and Red Cliffs Desert Reserve which included the Red Mountain wilderness area. To the south is the Santa Clara River Reserve. The city is estimated to be 40 percent developed. There are some private properties near the Santa Clara River, which are currently in the unincorporated county that are expected to be annexed at some point in the future when the owners decide to develop.

The City is served by two water systems. Figure 1, on page 2 provides a map of the coverage of the two systems. On the west side of Ivins in the Kayenta area, the residents are served by a private water system called KWU with approximately 370 connections. The remaining part of Ivins is serviced by the City with 3,526 connections. This water conservation plan only addresses water conservation for the portion of the City served by Ivins City. These connections can be further broken down as 3,200 single family residential, 9 stock water, 43 commercial, 67 institutional, and 207 multifamily residential.

Ivins City has grown up fast in the past two decades. It originally began as a small farming community, an off shoot from Santa Clara City, when an irrigation canal diverted water from the Santa Clara River and brought to the area then called the Santa Clara Bench. Figure 2, on page 3 provides a chart of historical population and how the community began to rapidly grow, starting in the late 80's.

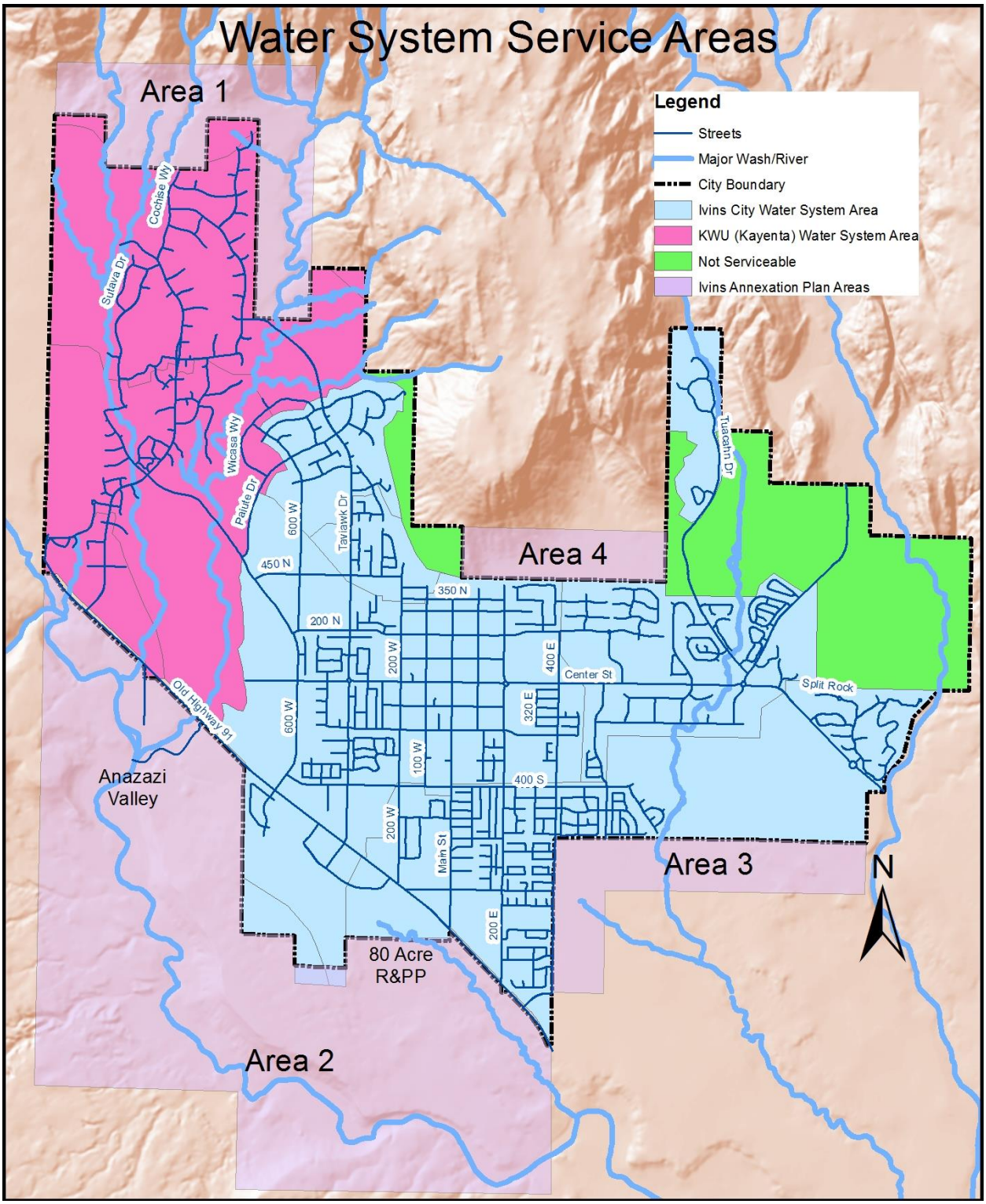


FIGURE 1. IVINS CITY WATER SYSTEM SERVICE AREAS

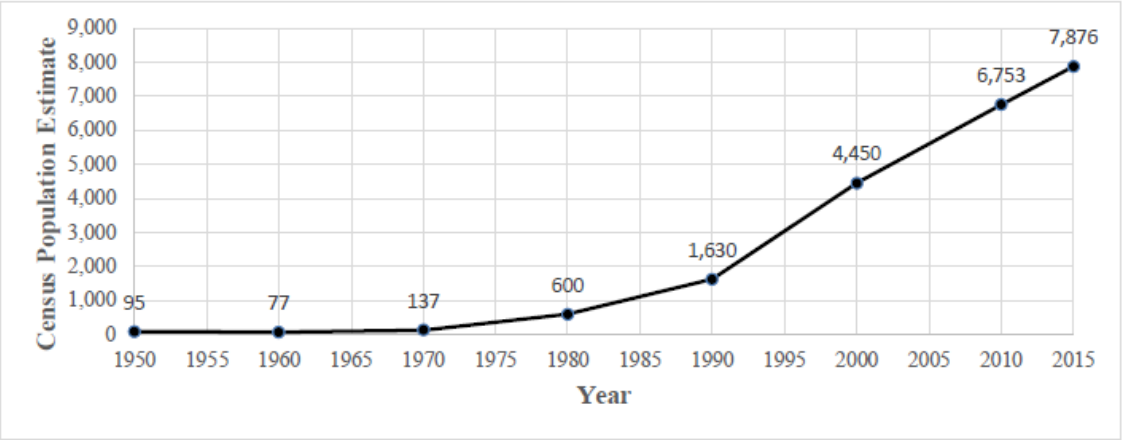


FIGURE 2 HISTORICAL POPULATION OF IVINS

Water Supply

The City water supply is a mix of groundwater and surface water sources. The following table provides a list of these sources:

TABLE 1. SUMMARY OF IVINS CITY WATER RIGHTS/WATER SUPPLY AGREEMENTS

Description	Flow Capacity (gpm)	Annual Production (acre-feet/year)
Irrigation Water Shares	As needed	347
Snow Canyon Compact Water Rights	350	393
Gunlock Wells Agreement	As needed	614
Ence Wells Water Supply Agreement	600	380[1]
Quail Creek Project	1,700	2,000
	Total Potable Water:	**3,387**
	Total Water:	**3,734**

[1]The Ence Well has a total water right of 880 acre-feet with a 600 gpm capacity. Of this 880, approximately 400 acre-feet is allocated to KWU and Ence, and another 100 acre-feet is used by irrigation users. This considered, it is estimated that 380 acre-feet is potentially available for the Ivins culinary water system.

Furthermore, the City has entered into the Regional Water Supply Agreement in 2006 with the Washington County Water Conservancy District (WCWCD). In ~~T~~this agreement ~~guarantees~~ the WCWCD agrees to "provide adequate water to meet the needs of" Ivins City and all other municipal customers in the County that have signed the agreement.~~that Ivins City will be provided water by the District for all of its future development.~~ The term of the agreement is 50 years. It is currently being renegotiated, which will reset the 50-year term upon its re-execution. A more detailed description of the City's water supply is provided in the Water Master Plan.

Ivins City is currently pursuing the construction of an irrigation system that would provide water to the entire system. The City has 347 acre-feet of irrigation water shares to provide some of the water needed to feed the newly proposed system. The WCWCD has committed that, if the City will build the system, it will find the water sources necessary to supply the system.

Estimated Growth

It is not hard to convince people that water conservation is important in Ivins when we are in such an arid environment. It is even more clear in this environment of rapid growth. The following chart shows a projection of growth that was presented in our last water system master plan.

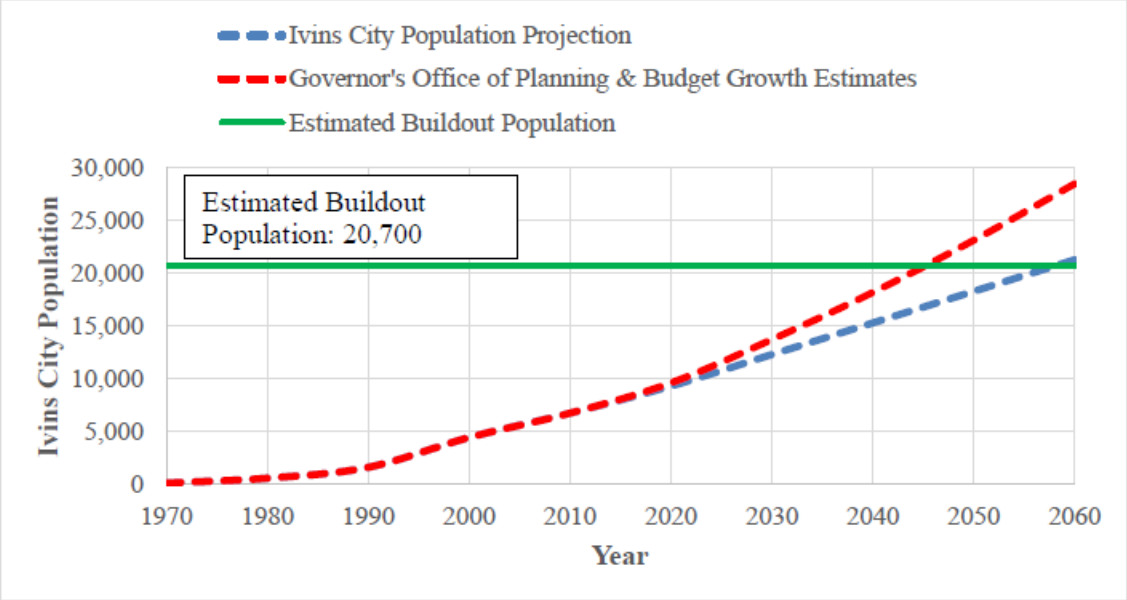


FIGURE 3 IVINS CITY POPULATION PROJECTIONS THROUGH BUILDOUT

The blue line is the line of growth that the city considers to be most reasonable, however, the Governor's Office of Planning and Budget has a projection that is even more aggressive.

Ivins City comprises of 10 square miles and has a current approximation of 40 percent developed. When all the remaining land development occurs, the population is expected to reach an estimated 20,700. Per ~~our~~ the projections, we will reach that estimated build out in approximately 40 years.

The following table shows the future needs of Ivins City. This is based on an estimate that 0.75 acre-feet of water is needed per equivalent residential unit (ERU), actual current usage per ERU is 0.65 acre-feet (including system water loss). This value is 27% less than the 0.89 acre-feet per ERU that has been used in the past based on Utah Administrative Code R309-510-5. The 0.75 acre-feet per ERU is used to ensure a 15% safety buffer.

TABLE 2. PROJECTED FUTURE IVINS CITY REQUIRED SOURCE CAPACITY.

	Ivins City Municipal Water System				Kayenta Water Users System				Total Ivins City (Including KWU)			
Year	ERUs	Average Annual Demand (acre-feet/yr)	Peak Day Demand (gpm)	Peak Hour Demand (gpm)	ERUs	Average Annual Demand (acre-feet/yr)	Peak Day Demand (gpm)	Peak Hour Demand (gpm)	ERUs	Average Annual Demand (acre-feet/yr)	Peak Day Demand (gpm)	Peak Hour Demand (gpm)
2017	3,629	2722	3528	5469	372	279	362	561	4,001	3001	3890	6029
2020	4,017	3012	3905	6053	490	368	477	739	4,507	3380	4382	6791
2025	4,663	3497	4533	7026	687	515	668	1036	5,350	4012	5201	8062
2030	5,309	3981	5161	8000	884	663	860	1332	6,193	4645	6021	9332
2035	5,955	4466	5789	8973	1,081	811	1051	1629	7,036	5277	6840	10603
2040	6,601	4950	6417	9947	1,278	959	1243	1926	7,879	5909	7660	11873
2045	7,247	5435	7045	10920	1,475	1106	1434	2223	8,722	6541	8480	13143
2050	7,893	5919	7673	11894	1,672	1254	1626	2520	9,565	7174	9299	14414
2055	8,539	6404	8301	12867	1,869	1402	1817	2817	10,408	7806	10119	15684
2057	8,797	6598	8553	13257	1,948	1461	1894	2936	10,745	8059	10447	16192

Our current water sources only supply the City to 2028, this is why the City is currently aggressively working to develop out a secondary water system to remove the burden off of the culinary system providing service for future needs. If the City can continue with improvements in water conservation, this current supply could last longer. The details and costs of this expansion are found in our Culinary Water Master Plan and Irrigation Water Master Plan. Copies of those plans are posted to www.Ivins.com

State-Wide Water Conservation

The State of Utah Division of Water Resources (DWRe) is responsible for leading water conservation efforts for the State and to ensure that water providers are complying with the Water Conservation Act. The State has its own plan and its own goals. The DWRe current plan, called Utah's *Municipal and Industrial Water Conservation Plan Investing in the Future*, was last updated in 2014.

This plan lists important benefits to water conservation:

- Increase water levels in reservoirs
- Postpone construction of large water development projects
- Delay capital investments to upgrade or expand existing water facilities
- Reduce sewage flows, delaying the need for more wastewater treatment facilities
- Conserve energy as less water is treated and pumped
- Create a more sustainable way of life

The state has set a specific goal to reduce the 2000 per capita water demand from public community systems by at least 25 percent by 2025. This goal was set based on modeling and research that indicated that this could be achieved without any draconian measures.

The following figure shows what the water usage state-wide looked like in the year 2000.

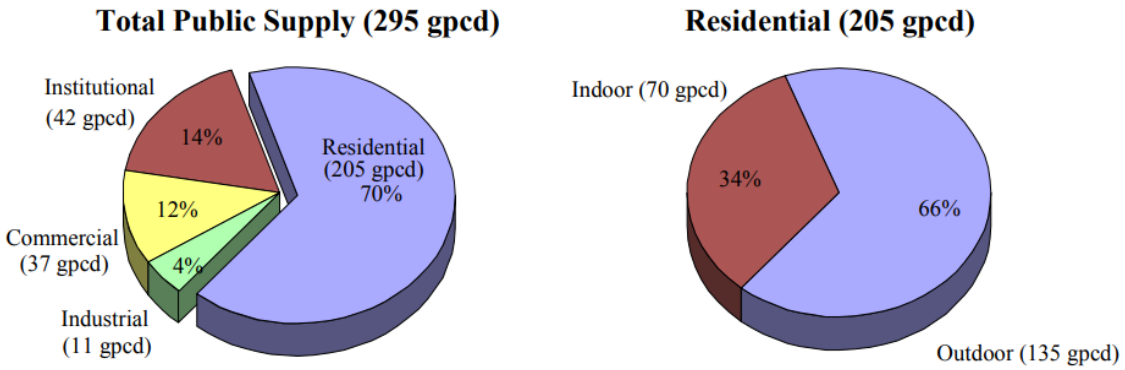


FIGURE 4. UTAH STATE-WIDE BREAKDOWN OF PUBLICLY SUPPLIED WATER USE INCLUDING SECONDARY WATER IN THE YEAR 2000.

To achieve its goals, the State promotes the following best management practices for water conservation:

1. Develop a comprehensive water conservation plan updated every 5 years
2. Ensure all connections are metered and read on a regular basis
3. Implement pricing that encourages water conservation
4. Adopt ordinances that promote water conservation such as time of day watering, prohibiting general waste of water, and requiring water efficient landscaping
5. Designate a water conservation coordinator
6. Promote public information programs
7. Reduce leaks in the system
8. Promote large landscape conservation programs and incentives
9. Provide water audit programs for residential customers
10. Ensure plumbing standards and codes support conservation
11. Promote school education programs
12. Promote conservation programs for commercial, industrial and institutional customers
13. Use reclaimed or recycled water where feasible
14. Use “Smart” controller technology

The promotion of these concepts appears to have been successful. Most of us are now familiar with many of the water conservation initiatives that have been promoted by the State such as “Slow the Flow, Save H2O”. Water efficient demonstration gardens are now common throughout Utah. Elementary school students are learning about the importance of water conservation.

Since the year 2000, the state has seen reductions in water usage per capita. In 2010, the water usage had reduced by approximately 18%. The following chart shows this progress clearly.

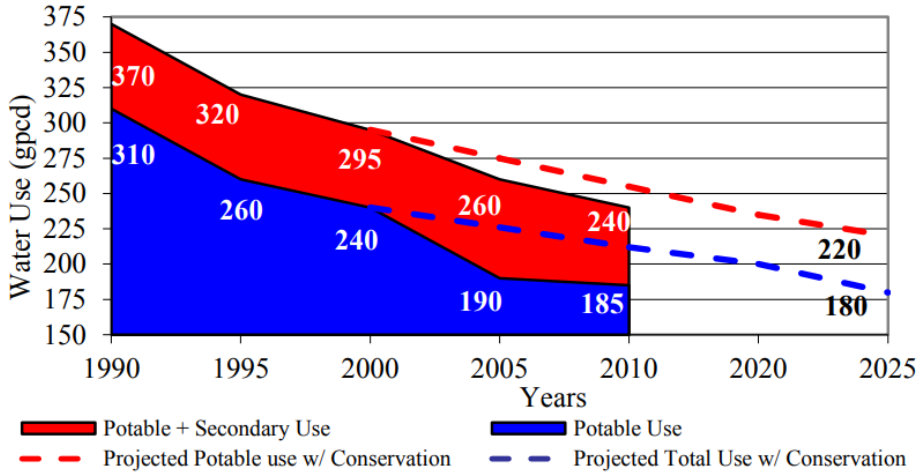


FIGURE 5. UTAH STATE TRACKING OF PUBLIC COMMUNITY SYSTEMS PER CAPITA WATER USE

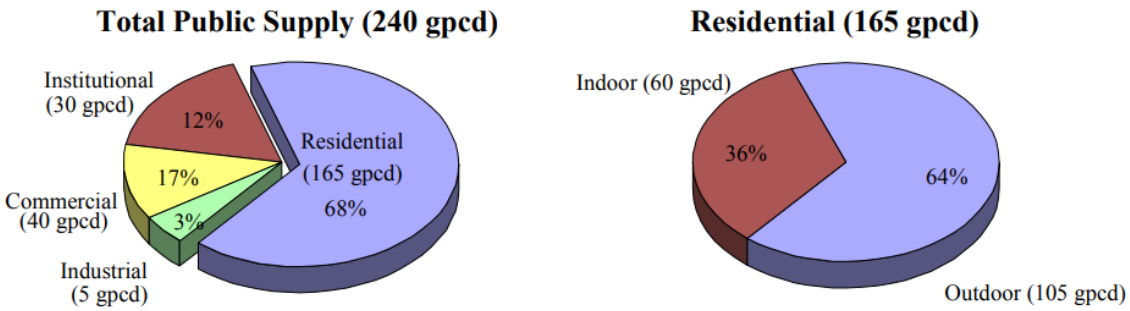


FIGURE 6. UTAH STATE-WIDE BREAKDOWN OF PUBLICLY SUPPLIED WATER USE INCLUDING SECONDARY WATER IN THE YEAR 2010.

From this data, it appears that the state's water conservation efforts have been effective and that the state is on track to meet the goal of reducing usage by 25 percent by 2025. There is other data indicating that the State may have already reached the 25 percent reduction goal. In fact, the State is ~~considering~~ establishing new water conservation goals ~~based on~~ using 2015 as a new baseline, setting each goal by region based on how much conservation can realistically be achieved. ~~The state may even set region specific goals.~~ Ivins City will ~~need to pay attention to what new goals are to be set.~~monitor the state's effort on water conservation goals and work with the WCWCD and other neighboring municipalities to achieve them.

Washington County Water Conservation

Ivins City is a partner with the Washington County Water Conservancy District (WCWCD) and benefits from many of the programs they have implemented county-wide. The District last updated its water conservation plan in 2015.

The District has identified 23 conservation programs in the following list, 5 of which were to be implemented per its 2015 update of the conservation plan (marked with an asterisk *).

They are listed as follows:

- Incentivize replacing inefficient equipment for commercial/industrial/institutional users
- Set water rates with conservation pricing
- Distribute retrofit kits to residential users
- Promote, educate, and train for efficient outdoor use
- Provide financial incentives for irrigation upgrades
- Provide rebates for high efficiency toilets for residential and commercial users
- Provide rebates for high efficiency urinals for commercial users
- Provide free water checks for irrigation users
- Provide rebates for multifamily washers
- Provide public information regarding general water conservation
- Reduce water losses in the water system
- Replace commercial spray nozzles
- Provide free water checks for residential users
- Provide rebates for Smart irrigation controllers
- Provide toilet leak detection
- Train landscape maintenance workers
- Provide a demonstration garden to educate on water efficient landscaping
- Provide a billing report educational tool*
- Provide free water checks for commercial users*
- Install high efficiency fixtures in government buildings*
- Retrofit school buildings with high efficiency fixtures*
- Provide a website to allow large landscape users to compare actual usage to a water budget*

The District had set a goal ~~matching~~ to exceed the State's goal to conserve water by 25 percent through the period of 2000 to 2025. According to District's ~~water conservation coordinator~~public information manager Karry Rathje, ~~the current plan indicated that by 2010 the District has met the 25 percent reduction goal based on the 2015 water usage data (which was not available for the plan approved in 2015) and in fact is showing reductions in usage of 30 to 35 percent.~~Washington County reduced its water use by more than 30 percent from 2000 to 2015.

Like the State, the District is now considering setting a new water conservation goal using 2015 water usage as the baseline.

Ivins City Current Efforts

Ivins City has implemented nearly all of the best management practices that have been recommended by the state in order to reduce usage. If the City does not offer the program, in many instances, the City's customers have the program available to them through the WCWCD.

The following table identifies which programs are implemented:

TABLE 3. IVINS CITY TABLE OF CURRENT EFFORTS FOR EACH RECOMMENDED BEST MANAGEMENT PRACTICE.

State Recommended Best Management Practices		Ivins Current Efforts
1	*Develop a comprehensive water conservation plan updated every 5 years.*	Completed
2	*Ensure all connections are metered and read on a regular basis.*	-All connections on the Ivins City system are metered and read monthly using an automated meter reading system. -Ivins City currently replaces 5% of its meters every year. -Ivins City is working with the private Ivins Irrigation Company to start metering its connections.
3	*Implement pricing that encourages water conservation.*	Ivins City has the most expensive water rate structure in Washington County of larger municipal water systems. The rate structure is tiered to encourage water conservation. See the section of water rates on page 12.
4	*Adopt ordinances that promote water conservation such as time of day watering, prohibiting general waste of water, and requiring water efficient landscaping.*	-Section 10.01.126 Use of Water Limited in Times of Scarcity -Section 10.01.127 Waste of Water Not Permitted -Section 11.01.203 Overflowing of water onto street is prohibited except for incidental water from sprinklers -Section 16.22.103 Landscape Requirements – drought tolerant water efficient landscape required on landscape buffers and commercial landscapes. -Ordinance 2004-29 established a water conservation program and policy establishing time of day watering restrictions. Ordinance needs to be codified.
5	*Designate a water conservation coordinator*	Ivins City is too small to have one person in this position; however, the Public Works Director is considered the water conservation coordinator for Ivins.
6	*Promote public information programs*	- A monthly newsletter is sent to all residents with the water bill with frequent reminders to reset water timer, conserve water, and other similar tips - The website has a page dedicated to water conservation including providing a copy of this plan. - Brochures and flyers are kept at City Hall for residents and are offered for free that encourage water conservation. - The WCWCD has two desert demonstration gardens that show residents how water efficient landscapes can be beautiful and conserve water. - Ivins City has also been donating financial support to the volunteer run non-profit Kayenta Desert Arboretum which operates a demonstration garden in the Kayenta Art Village. See kayentadesertarboretum.org
7	*Reduce leaks in the system*	- Ivins City remains under the 15 percent national average for system loss, however, ~~U~~unaccounted ~~water has been kept at 9~~ 7 percent for many years, but ~~-~~recently has ~~spiked~~ increased from 7 percent to ~~20~~ 12 percent for the past two years.

		- The City is improving its accounting of water lost due to flushing to see if that is the cause of the current loss. - Meter replacements are important to reduce the quantity of unaccounted water.
8	*Promote large landscape conservation programs and incentives*	Most large landscaped areas utilize irrigation water from the Ivins Irrigation Company.
9	*Provide water audit programs for residential customers*	The WCWCD offers these services to our customers at no charge.
10	*Ensure plumbing standards and codes support conservation*	The City has adopted the 2015 International Plumbing Code by the International Code Council and all associated water conservation measures.
11	*Promote school education programs*	The City and the WCWCD support the State Water Week program that where fourth graders are educated on various water issues included water conservation.
12	*Promote conservation programs for commercial, industrial and institutional customers*	The WCWCD has implemented or will soon implement several programs that are available for Ivins City commercial, industrial and institutional customers.
13	*Use reclaimed or recycled water where feasible*	The City of St George has the ability to recycle water from the Waste Water Treatment Plant and pump the water Ivins Reservoir where it can be used for irrigation systems. Ivins City is considering installing a larger reservoir that can hold the recycled water during the winter time for use in the summer time.
14	*Use "Smart" controller technology*	The ~~WCWCD~~ State of Utah Division or Water Resources has implemented a rebate program for "Smart" controllers available to Ivins City customers.

Current Achievements

The following table shows historical water usage compared with current usage.

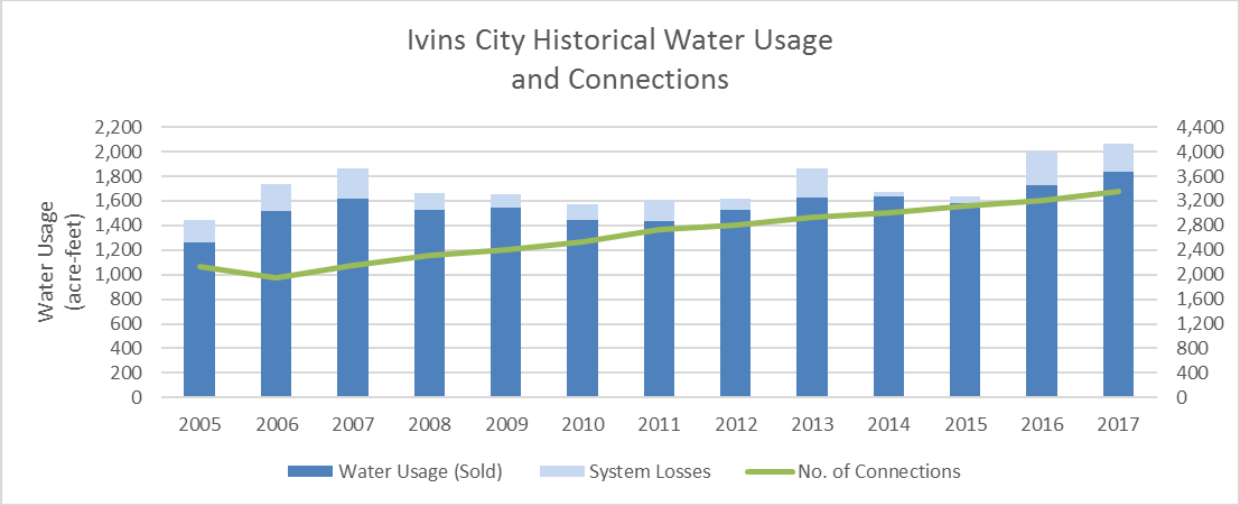


FIGURE 7. IVINS CITY HISTORICAL WATER USAGE AND CONNECTIONS.

The following graph shows the City historical usage since 2005. The dark blue column represents the all the water that was sold, the light blue portions of the columns show the amount of water that was not accounted for due to system leakage, meter inaccuracies, and unaccounted for water usage.

System losses have been a current concern as 2016-2017 water losses had an average loss of 12 percent, which is an increase from the prior period 2008-2015 where losses averaged 7 percent. The City has noticed that service line leaks have significantly increased in this two-year period, which may be one of the contributing problems. The city has recently become aware that a number of service lines were installed with a known defective pipe. The city has been replacing them as they have started to leak. It may be necessary to replace all known locations of the defective pipe and look into legal action against the manufacturer of the defective product.

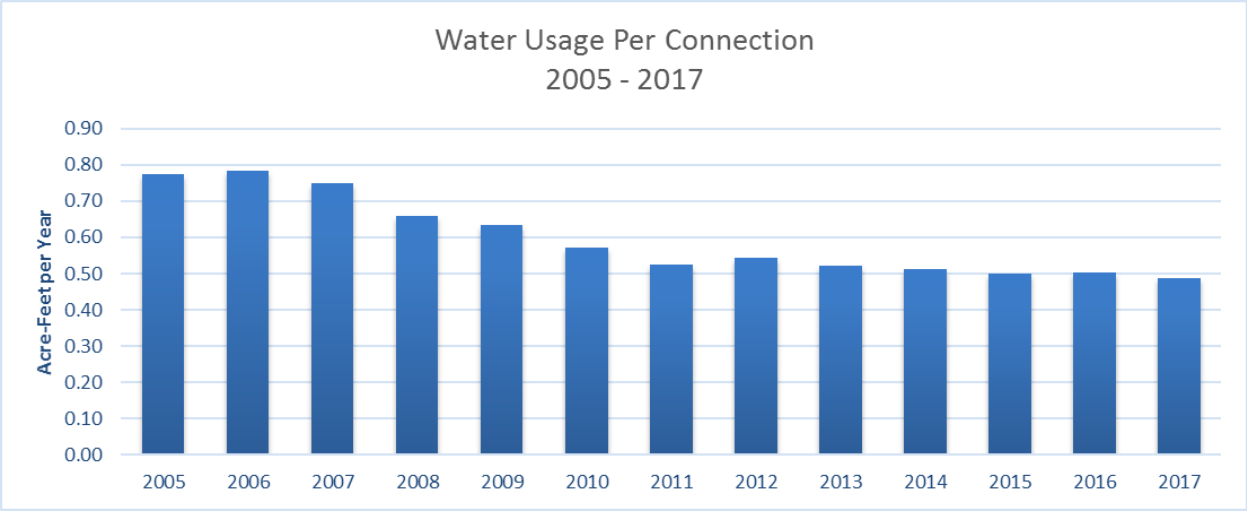


FIGURE 8. IVINS CITY WATER USAGE PER CONNECTION 2005 TO 2017.

Ivins City has experienced significant growth of water connections over the past 12 years but has not experienced significant increases in water usage. This curiosity is even more obvious in Figure 8 ~~the next graph~~ that shows the water usage per connection.

This chart indicates in 2008, water usage per connection started to decrease and continued to trend down until 2011. The average annual water usage from 2005 to 2008 is 0.77 acre-feet per connection. From 2011 to 2017, the average usage is 0.51 acre-feet. This represents a 34% reduction in usage.

The next graph, it shows the water usage measured in gallons per capita per day (gpcd). The water conservation achieved is also apparent, but less ~~dramatic~~significantly.

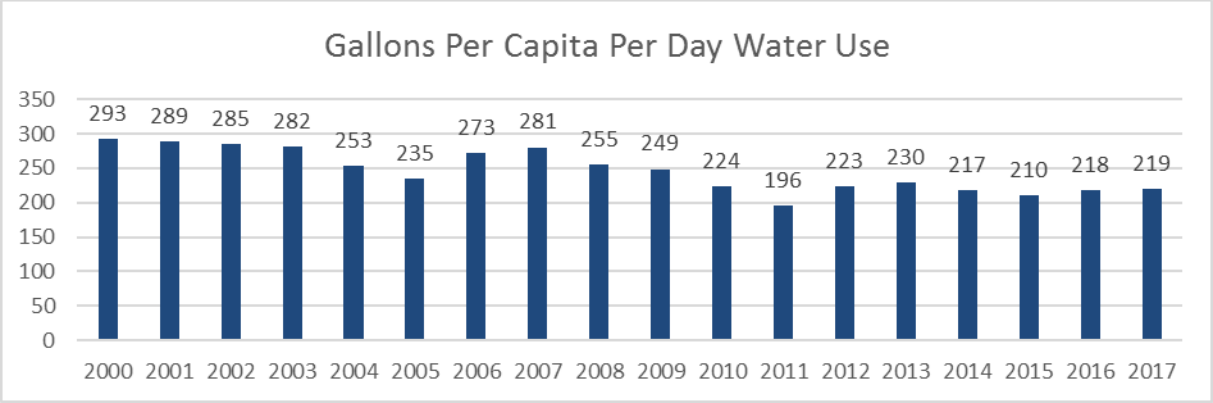


FIGURE 9. IVINS CITY HISTORICAL WATER USAGE IN GALLONS PER CAPITA PER DAY

The 2015 usage indicates a 28% improvement from per capita usage in 2000 thus meeting the goal set by the State of Utah of reducing per capita usage from 2000 levels before 2025.

In Figure 10, the breakdown of usage per category is provided. Ivins City usage is 85 percent residential the remaining 15 percent is mostly commercial and institutional. A very small amount of potable water is provided for stock watering and no water is provided for any industrial uses.

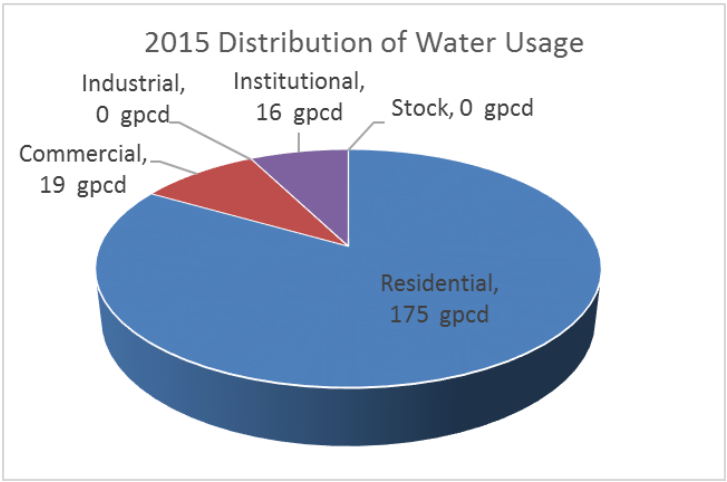


FIGURE 10. 2015 DISTRIBUTION OF WATER USAGE IN GALLONS PER CAPITA PER DAY.

Water Conservation Rates

Ivins City has some of the most aggressive water conservation rates in the County. It may only be a correlation, but Ivins also has the lowest water usage in the County. In 2017, Ivins City rates compared to other cities in Washington County as follows:

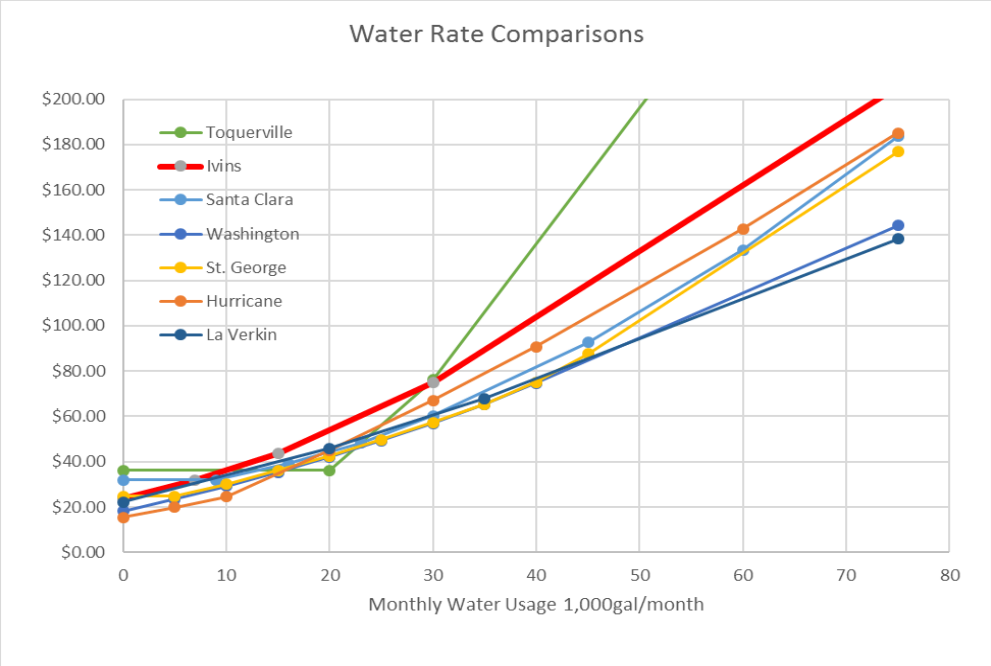


FIGURE 11. WATER BILLING COMPARISONS OF CITIES IN WASHINGTON COUNTY (2017)

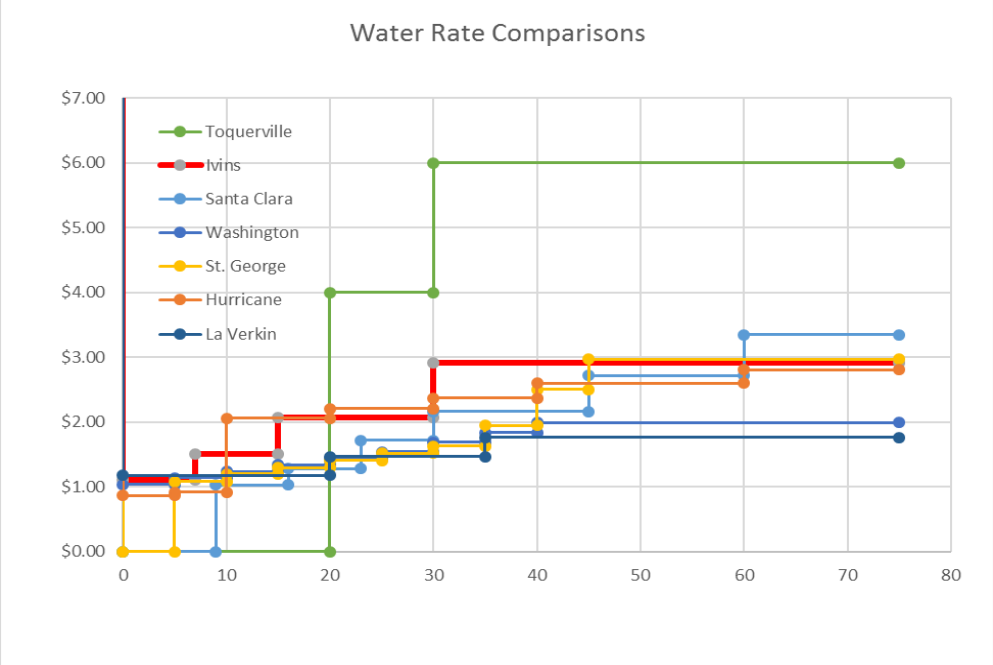


FIGURE 12. WATER RATE COMPARISONS OF CITIES IN WASHINGTON COUNTY (2017)

Per this chart, once usage exceeds 10,000 gallons per month, Ivins City carries the highest charge for water, with the exception of one ~~C~~city, Toquerville: which has a city-wide irrigation system, so water usage only represents indoor usage ~~which should~~that in most cases stays less than 20,000 gallons per month.

Other Factors Affecting Water Conservation

There are other influences contributing to the lower usage as well. Kayenta represents the majority of the west one third of Ivins. They have been leaders in the area in promoting water efficient landscaping and demonstrating how this can be done in a pleasing manner. All new commercial and multifamily developments are required to use water efficient landscaping. Single family residential developments are encouraged, but not required to do so; however, the large majority of residential construction does use water efficient landscapes because that is what the customer market expects.

There are a few factors that work against Ivins City's water conservation goal. The City's demographics are changing. The City has become a retirement community in the past two decades. This has caused the average house hold size to decrease from 3.5 persons per household to 2.8. This naturally impacts the ability to reduce the usage of water per person since a landscape, representing 50 percent of total usage, is not dependent on the number of occupants of the home.

Another factor is that 18 percent of the homes in Ivins City are second homes. Second homes may use less water indoors, but they don't use less water outdoors, in fact, a recent study by the WCWCD indicates that second homes may use more water outdoors than primary residences. The lack of onsite care may be the reason for this statistic.

Water Conservation Reduction Goal

~~Ivins City has adopted the same water conservation goal as the State and the WCWCD which is to reduce per capita usage in the Year 2000 by 25 percent before the Year 2025.~~

The City has clearly met the goal set by the State of Utah by reducing per capita usage from 293 gallons per capita per day to 210 gallons per capita per day. The State and the WCWCD have also reached the 25 percent conservation goal and more. ~~The City has not yet set a new goal as it is waiting for the State of Utah and the WCWCD to identify new goals heading into the future. The next update to this plan in 2023 will provide an updated goal.~~

The city is setting ~~a~~the following new goals ~~with~~upon the adoption of this plan:

1. Reduce water usage in gallons per capita per day (gpcpd) ~~usage from 2017 to 2027~~ by 10 percent for the 10 year period from 2017 to 2027 setting the target at~~from 219 to~~ 197 gpcpd.
~~Reduce water usage per connection from 2017 to 2027 by 10 percent from 0.51 acre-feet per connection to 0.46 acre-feet.~~
~~1.~~2. Reduce and then maintain system water losses to 7 percent or less.~~Reduce system and other unaccounted water losses from~~

Proposed 5-Year Water Conservation Strategies

~~Going beyond reaching the goal set, the City is considering additional strategies to improve water conservation. The following are under consideration.~~The following strategies are proposed and shall be implemented in the next 5 years upon the adoption of this plan:

Goal #1: Reduce water usage in gallons per capita per day (gpcpd) from 2017 to 2027 by 10 percent from 219 to 197 gpcpd.

Strategy 1A: Continue all current efforts.

Strategy 1B: Review and revise water rates and tiering

- The city is conducting a rate study now and the city council may want to adjust the tiering to encourage more water conservation.
- Additional revenue from more aggressive tiers could be used to fund other water conservation programs.

Strategy 1C: Review and revise water conservation ordinances:

- Pass an ordinance that requires additional water conservation measures in new home construction. Further research and then consider adopting the following measures:
    - Hot water recirculating pumps, (already required in some areas of the US, it may be more feasible to implement this requirement if there is an available rebate)
    - Smart irrigation controllers that adjust automatically for seasons and weather,
    - Rainwater harvesting and reuse.
    - Require water efficient landscapes for residential (currently only required for commercial new construction).
- Review and revise the water conservation ordinance, Ordinance Number 2004-29. Consider the following:
    - Review current voluntary time of day requirements that restricts watering from 6 a.m. to 7 p.m. Other cities in the region have adopted an 8 a.m. to 8 p.m. standard. The WCWCD would prefer that consistent county standard would help allow better promotion.
    - Review other water waste restrictions.
    - Review enforcement policy.
    - Compare with other cities and coordinate efforts.
    - Review drought stages and implementation.
    - Add day of the week water restrictions.

Strategy 1D: Increase public information/education campaign efforts.

- Increase awareness through monthly newsletter. Include at least 6 monthly articles or reminders regarding water conservation.
- Add a “Slow the Flow” or similar water conservation slogan ad stamp to each water bill and newsletter.

- Work with the WCWCD to start implementing water billing educational tools.
- Continue to financially support the Kayenta Desert Arboretum non-profit and provide information to the public to encourage more visitation to the arboretum and also District supported demonstration gardens.

Goal #2: Reduce and then maintain system water losses to 7 percent or less.

Strategy 2A: Increase meter replacement frequencies.

- Replace all meters that meet the criteria of being 10 years old and have metered through a cumulative one million gallons or more. Studies have shown that the cost of replacing the meter that meets these criteria is offset by the lost revenue.

Strategy 2B: Record water usage that has normally been unaccounted.

- Start estimating and recording water usage from hydrant flushing.
- Start estimating and recording water usage from fire department training and actual emergencies.
- Start estimating or metering when possible and recording water usage from filling and flushing new water lines during construction.
- Start estimating and recording water loss from catastrophic system leaks or tank overflow events.

Strategy 2C: Reduce water leaks

- Replace all known defective service piping in the system.
- Improve leak detection efforts using existing sound detection equipment.
- If the above listed efforts do not reduce system water loss, evaluate the usage of zone flow measurements to pin point locations of leaks.

Strategies after 5 years

~~Reduce water system loss:~~

~~Increase meter replacement frequencies. Currently replacing 5 percent of system each year, could be increased 10 percent.~~

~~Replace all service lines constructed of faulty PE pipe~~

~~Record water used for flushing hydrants~~

~~Improve leak detection efforts using sound detectors.~~

~~Consider Zone Flow Measurements to detect problem areas.~~

~~Possible Ordinances:~~

~~Add time of day (typically 6pm to 10am) watering restrictions.~~

~~Add day of the week watering restrictions.~~

~~Require use of smart controller or rain/moisture sensors~~

~~Require water efficient landscapes on single family homes new construction (rather than just encourage)~~

~~Encourage or help Ivins Irrigation Company to meter irrigation water usage.~~

~~Increase public information campaign efforts~~

This plan will be updated in 5 years. It may be necessary to improve water conservation efforts further than those listed in this plan. ~~In the future, as water becomes even more scarce.~~ The City ~~will~~ may want~~need~~ to consider the following measures.

- Improve automatic water meter reading system to read daily and possibly even hourly to~~and~~ provide instant feedback to customers on water use.
    - This would mean some significant infrastructure improvements that would involve installing a few permanent radio towers in Ivins to collect the data from the meter reading equipment more frequently.
- Create water budgets for each water account and provide feedback to customers. ~~This can be complicated and costly.~~
    - This involves setting a water budget for each household based on number of residents and size of landscapes.
    - Penalize accounts that exceed water budgets.
    - ~~~~
    - ~~More aggressive water shut off timeline for non-payment.~~
- Other ideas
    - Encourage (or require) grey water reuse systems
    - Encourage (or require) recycling showers
    - ~~Encourage (or require) rain water harvesting~~
    - ~~Encourage (or require) on-demand hot water systems~~
    - Encourage (or require) artificial turf installations in certain situations

Appendix A: Resolution by City Council Adopting the Water Conservation Plan

Appendix B: Public Notice

Appendix C: Minutes of Public Hearing

Appendix D: Existing Water Conservation Ordinances

Ivins City, Utah
City Code

Title 10
PUBLIC SERVICES

Chapter 1
WATER SYSTEM

10.01.126: USE OF WATER LIMITED WHEN:

In time of scarcity of water, whenever it shall in the judgment of the mayor and the city council be necessary, the mayor shall by proclamation limit the use of water to such extent as may be necessary. It is unlawful for any person, his family, servants or agents, to violate any proclamation made by the mayor in pursuance of this chapter. (Prior Code § 14-104)

10.01.127: WASTE OF WATER NOT PERMITTED:

(1) Users of water from the municipal water system shall not permit water to continue to run wastefully and without due efforts to conserve water. If, in the judgment of the water superintendent or of any of the officers of the city, a user of municipal water engages in practices which result in the needless waste of water and continues so to do after reasonable notice to discontinue wastefulness has been given, the superintendent or any officer may refer the matter to the city council.

(2) The city council may thereupon consider terminating the right of the individual to use culinary water. If it elects to consider the matter of termination, it shall give notice to the water user of the intention to terminate his water connection at least five (5) days prior to the meeting of the city council at which termination of water service is to be considered. The notice shall inform him of the time and place of the meeting and of the charges which lead to the consideration of the termination.

(3) A water user whose right to utilize municipal water is being reviewed shall have opportunity to appear with or without counsel and present his reasons why his water service should not be discontinued.

(4) After due hearing, the city council may arrive at a determination. If the determination is to discontinue the wasteful water user's service connection, it shall notify him of the decision and of the period during which the service will remain discontinued. (Prior Code § 14-105)

Title 11
PUBLIC WAYS AND PROPERTY

Chapter 1
STREETS AND SIDEWALKS

11.01.203: OVERFLOWING OF WATER ON PUBLIC PROPERTY:

It is unlawful for any person to allow water to overflow from any ditch, canal and other irrigation systems onto the streets, sidewalks or property of the city. Exception: incidental water from small landscape sprinkler systems. (Ord. 2014-03, 2014)

Title 16
ZONING REGULATIONS

Chapter 22
LANDSCAPING AND OUTDOOR LIGHTING

16.22.101: PURPOSE:

The purpose of this chapter is to identify appropriate standards for landscaping and site and building lighting to achieve the following purposes:

(1) To preserve and enhance the natural environment and aesthetic qualities of the city.

(2) To preserve and enhance the appearance, character and value of all properties.

(3) To promote water conservation through the practical use of native and low water use plants.

(4) To promote compatibility and continuity between different land uses located in proximity to each other.

(5) To prevent objectionable light sources and light pollution of the night sky.

(6) To provide attractive streetscapes on all road and street rights of way.

(7) To protect privacy and the enjoyment of property.

(8) To promote energy conservation. (Ord. 2005-13, 2005)

16.22.102: APPLICABILITY:

This chapter shall apply to all applications requiring a class II, class III, class IV or class V use application approval. The requirements of this chapter shall be considered in all land use application reviews, as well as the landscaping and outdoor lighting requirements of chapter 19 of this title. (Ord. 2005-13, 2005)

16.22.103: LANDSCAPE REQUIREMENTS:

This chapter provides no specific requirements, standards or regulations for site and building landscaping that may typically be provided by a land use ordinance, including minimum planting requirements, plant locations and sizes, required plant materials, and minimum berming and screening standards. Rather, the city defers to the skills, talents and abilities of registered landscape architects to provide site and building landscaping to achieve the purposes of this chapter and this title. For guidance, the general provisions contained in chapter 19 of this title are provided for reference, as well as the following landscape design principles:

(1) Landscape plans should achieve the following purposes:

(a) Preserve and complement the desert character of the natural landscape, mitigate building and parking lot impact, add aesthetic charm, interest and character, and conserve water.

(b) Provide visual interest and variety.

(c) Provide necessary screening elements.

(d) Add year around site beautification.

(e) Blend with the natural landscape.

(f) Highlight building design features.

(g) Conserve water.

(2) Landscape plans and landscape features shall demonstrate and provide:

(a) Necessary landscape buffers between dissimilar or conflicting land uses. Landscape buffers shall be provided for off street parking and service areas, and these areas shall be screened from public streets.

(b) A soft landscape transitional treatment when manmade areas and features adjoin areas of natural open space.

(c) Use of plants and site materials consistent with, and of a similar scale with, existing natural desert landscape, neighboring landscape, and adjacent streetscape areas where appropriate. Drought tolerant "xeriscape" desert landscaping is encouraged. Landscaping improvements may also include berming, contouring, rocks and boulders.

(d) Use of vegetation native to southern Utah or desert environments.

(e) Use of landscape designs and plant materials necessary to establish a coordinated relationship to any existing or proposed streetscape plantings. The size and spacing of landscape elements shall also be of appropriate scale and character to all proposed site structures and features.

(f) Streetscape buffers to provide areas of landscape materials located on the perimeter of the development site. All streetscape buffer areas shall:

(i) Be designed to provide the public with an open view of scenic vistas.

(ii) Blend with the natural and neighboring environment to provide a pleasant experience for the public.

(iii) Be designed to be consistent with neighboring streetscape and right of way areas.

(iv) Be encouraged to be uneven and creative with varied setbacks.

(g) When walls, fences and barriers are located adjacent to public rights of way that create a continuous surface greater than twenty feet (20') in length, landscape and planting treatments shall be provided to visually soften the wall, fence or barrier.

(h) Efficient long-term maintenance. Landscape plans shall demonstrate that long term maintenance factors have been considered in the landscape design. For example, irrigation systems shall be designed to achieve low maintenance and efficient water consumption. (Ord. 2005-13, 2005)