



Water Conservation Plan

August 2013

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Introduction

Due to the continued rapid growth in Southern Utah, many citizens and leaders are becoming concerned for the future cost and availability of the water supply. The state legislature has also voiced concern and addressed this issue in the Water Conservation Plan Act. This Act is codified as Section 73-10-32 of the Utah State Code. This water conservation plan is written to address the concerns of leaders and citizens of both Ivins City and the state of Utah.

Description of Ivins City

Ivins City is located in Southwest Utah in Washington County. Ivins City's corporate boundaries encompass approximately 10.2 square miles with the current 2013 population estimated at 8,000 people. The community's vision for the future, as defined in the General Plan, is to incorporate a generally open, rural, low profile form of development with an uncrowded feel and ample open space. Of the 6,162 acres within Ivins City's boundary, 3,028 acres are still undeveloped while 2,242 acres are developed and 892 acres are deemed open space. A portion of the undeveloped area may be undevelopable due to slopes, flood plains, and other natural geographical features. Additionally, of the 6,162 acres within the corporate boundaries of Ivins City, 1,817 acres are within the Kayenta Water Users service area and are not served by the Ivins City water system.

Population Projections

Population projections can be derived from several sources including the Utah Governor’s Office of Planning and Budget (GOPB), the Dixie Metropolitan Planning Organization (DMPO), and the census. The Culinary Water Capital Facilities Plan, completed during 2013, estimates a buildout population of 19,100 in year 2046 using the most recent census data. Figure 1 illustrates the actual and projected population trend.

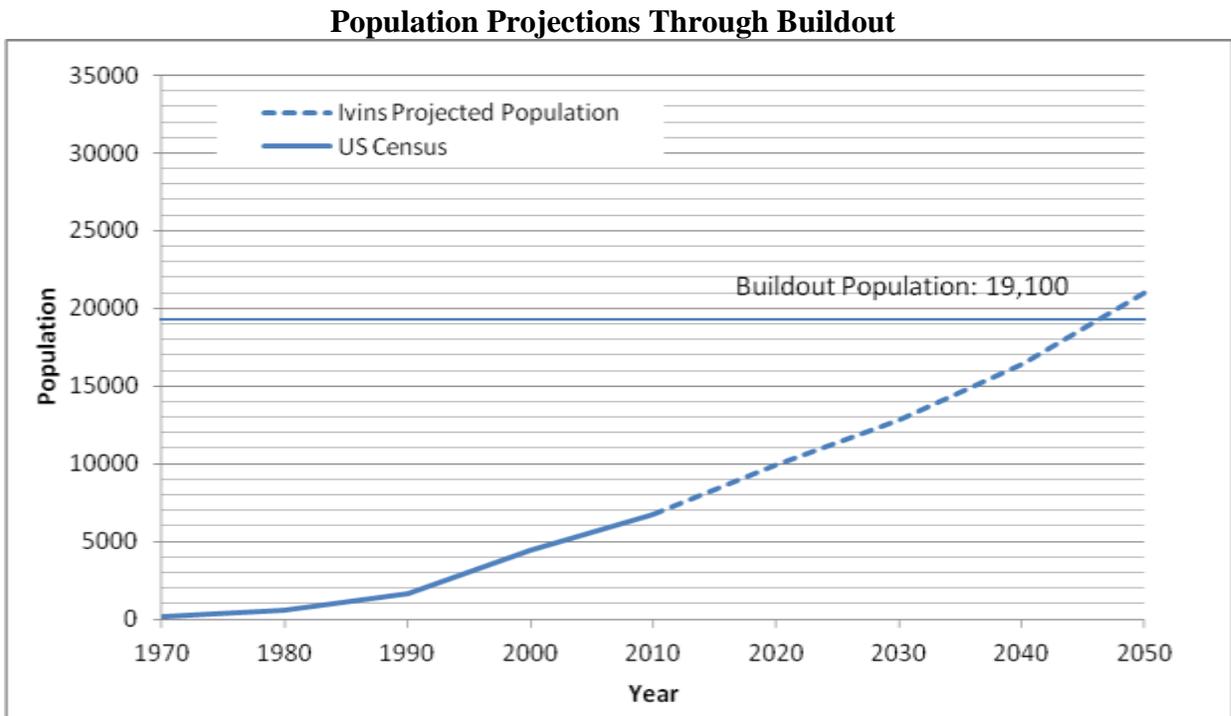


Figure 1

The population projections shown includes the Kayenta development. As mentioned earlier, this area is served by the Kayenta Water Users Association and not by the Ivins City water system.

Water Supply

Ivins City receives most of its water from the Gunlock Water Users Agreement, the Snow Canyon Compact, and from the Washington County Water Conservancy District (WCWCD) through the Washington County Water Pooling Agreement. In this agreement, the WCWCD has agreed to take responsibility for providing culinary water to meet the demands of future growth. The primary issue with future water sources for the City is how the District will deliver the needed water, with the most obvious course for delivery through the Regional Pipeline. The District has set a goal to reduce water demands by 25% by 2050. This would mean a reduction in water use from 0.89 AF/Y per ERU to 0.67 AF/Y per ERU. Table 1 illustrates the available water supply to Ivins City.

Source	Water Right No.	Flow Capacity (gpm)	Acre-Feet/Year
Snow Canyon Wells	81-1427	350	393
	81-1322		
	81-86		
	81-2207		
	81-2328		
	81-2411		
	81-2457		
Gunlock Wells Agreement	-	As needed	614
Ence Wells Water Supply Agreement	-	600	900
Quail Creek Water Block Purchase	-	1,700	1,000
Regional Water Supply Agreement	-	As needed for all future needs	As needed for all future needs

Table 1

The Ivins Irrigation Company provides secondary water from the Gunlock reservoir to current share holders within the City. Although irrigation water is not available to all City residents at this time, the City has required all new developments to install dry irrigation systems in preparation for a City wide system. Ivins City, the Ivins Irrigation Company, and the WCWCD are currently working together to implement a City wide irrigation system. Table 2 displays the City owned shares in local irrigation companies.

Source	Shares	Acre-Feet
Ivins Irrigation Company	103.69	103.69
St. George Clara Irrigation Company	47.5	193.8
Santa Clara Irrigation Company	11	49.6

Table 2

Present Water Use and Future Water Needs

As of December 31, 2012, Ivins City provided water to 2,704 residential, 37 commercial, 56 institutional, and 8 stock watering connections. In addition, Ivins City provided fire hydrant meters to contractors for the purpose of construction activities. Table 3 summarizes the quantities delivered in 2012 for each connection type.

Connection Type	Million Gallons	Acre Feet
Residential	419,539	1,287.52
Commercial	48,703	149.46
Institutional	24,176	74.19
Stock Water	1,064	3.27
Fire Hydrant	4,767	14.63
Totals	498,249	1,529.07

Table 3

The Washington County Water Conservancy District did a study regarding per capita water use for the five communities in their service area. After eliminating commercial water use and secondary homes, their study revealed that Ivins City's per capita water use is approximately 110 gpcd. This amount represents the lowest per capita usage of all five communities that were studied.¹ As a comparison, the average per capita water use for the State is 260 gpcd. Figure 2 illustrates the monthly water usage for years 2008 through 2012.

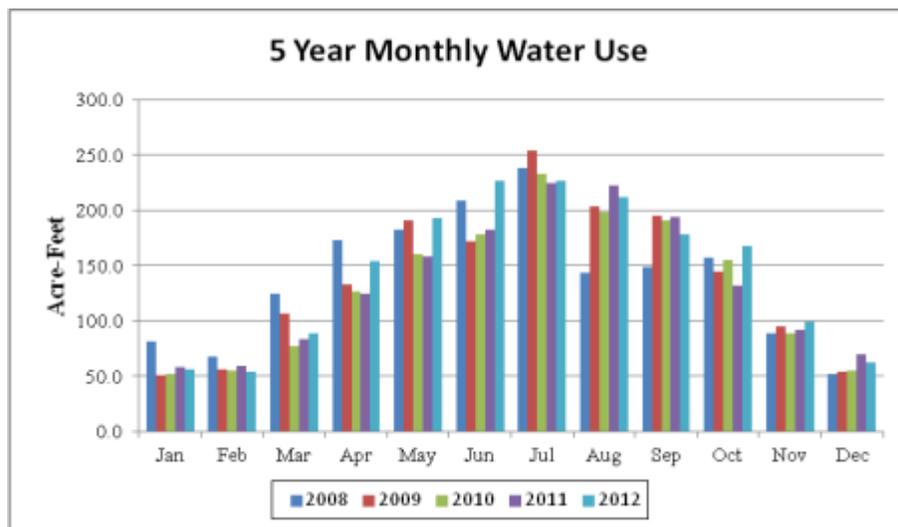


Figure 2

¹Washington County Water Conservancy District 2007 Operational Overview
Ivins City Water Conservation Plan

Figure 3 below shows the projected demands from 2010 to 2046. As shown, the municipal irrigation is planned to start reducing the load on the municipal culinary water system in 2014. By 2020, the irrigation system is projected to be fully built out.

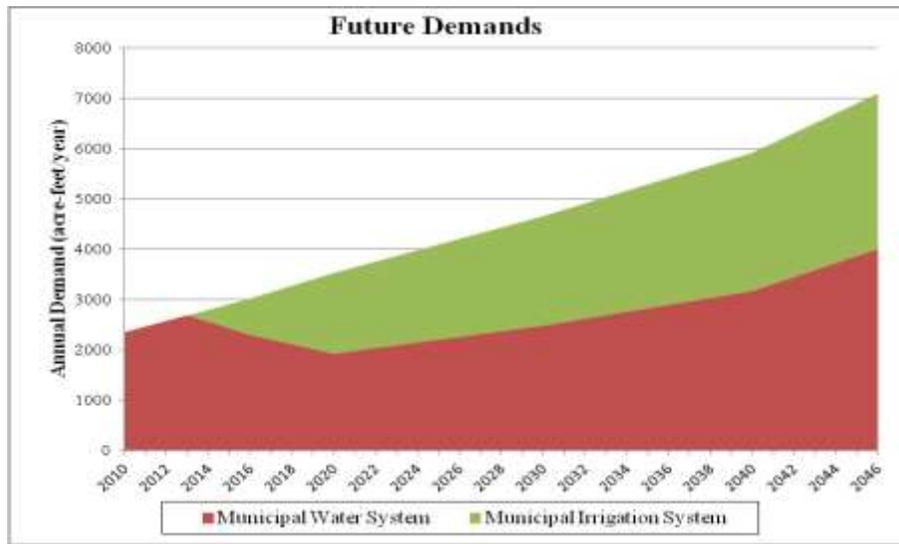


Figure 3

Current Conservation Programs

Ivins City currently implements the following water conservation programs:

1. Secondary Water System. All new developments are required to install irrigation systems within their respective developments. These systems will eventually be integrated into a citywide system. Use of secondary water will conserve culinary water, but isn't to be perceived as an opportunity for unrestrained use of water.
2. Public Awareness Program. A City newsletter is mailed to every household in Ivins City monthly. Information regarding water conservation is periodically included. Residents are also encouraged to participate in the Washington County Water Conservancy District's Free Water Check Program.
3. Water System Maintenance. Ivins City installed a Supervisory Control and Data Acquisition (SCADA) system to monitor tank levels to avoid potential overflows. In addition, a leak detector has been purchased to aid in finding water leaks.
4. Water Rates. An inclining block water rate has been adopted to encourage conservation through increased rates for water used in excess of a reasonable amount. Table 4 shows the current and proposed water rate schedule.

Culinary Water Rates					
	Current	Proposed			
Base Fee per Meter Size	FYE 2013	FYE 2014	FYE 2015	FYE 2016	FYE 2017
0.75"	\$23.90	\$24.62	\$25.36	\$26.12	\$26.90
1.00"	\$38.25	\$39.40	\$40.58	\$41.80	\$43.05
1.50"	\$47.81	\$49.24	\$50.72	\$52.24	\$53.81
2.00"	\$95.61	\$98.48	\$101.43	\$104.47	\$107.60
3.00"	\$286.84	\$295.45	\$304.31	\$313.44	\$322.84
4.00"	\$478.07	\$492.41	\$507.18	\$522.40	\$538.07
Residential Consumption Fee	Cost per 1k gal				
0 - 7,000 gals	\$1.01	\$1.04	\$1.07	\$1.10	\$1.13
7,001 – 15,000 gals	\$1.41	\$1.45	\$1.49	\$1.53	\$1.58
15,001 – 30,000 gals	\$1.97	\$2.03	\$2.09	\$2.15	\$2.21
> 30,001 gals	\$2.81	\$2.89	\$2.98	\$3.07	3.16
Commercial Consumption Fee	Cost per 1k gal				
0 – 20,000 gals	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
20,001 – 100,000 gals	\$1.24	\$1.28	\$1.32	\$1.36	\$1.40
> 100,001 gals	\$1.41	\$1.45	\$1.49	\$1.53	\$1.58

Table 4

Water Conservation Goals

In an effort to promote conservation and reduce water waste, the following goals have been identified.

- Goal #1: Educate citizens on water requirements for landscaping and efficient water-use habits and practices.** Many residents don't know how much water is required to maintain healthy landscaped areas and how to consistently use water efficiently indoors. Conservation information would help water consumers take advantage of the water saving incentives incorporated in the water rate schedule. As mentioned earlier, citizens are encouraged to participate in the Washington County Water Conservancy District's Free Water Check Program. The goal is to reduce the gpcd 25% by year 2050 as outlined in the District's Water Conservation Plan.

- **Goal #2: Identify and replace water meters that are old or inaccurate.** Replacing meters that are old or inaccurate will better account for actual water consumed and reduce water loss. The annual budget includes monies for new meters, not only for new growth, but for replacement meters as well. Goal is to replace meters such that no meter in the system is older than twenty years.
- **Goal #3: Locate and repair underground leaks.** This goal requires intense research. The soils we live in can readily absorb small leaks and a simple quick survey of the surface will not disclose these leaks. A leak detector was purchased as part of our leak detection program. Goal is to continue searching for and repairing any leaks.

Water Conservation Measures

The following list of water conservation measures, as defined in the Ivins City General Plan, is as follows:

1. Install water-efficient fixtures in all new construction.
2. Encourage replacing non-efficient fixtures with water-efficient fixtures in existing structures.
3. Encourage new development to adopt water conservation policies and water-efficient landscaping.
4. Respond rapidly, taking corrective action and instituting recurrence control, on all water system leaks.
5. Periodically publish the status of City water consumption with comments and recommendations for conservation. Also provide examples of water conservation landscaping that are effective.
6. Continue to use water rate structures that reward low water usage.
7. Continue the enforcement of Ivins City Code sections that define misuse and appropriate punishment for water waste.
8. Promote the use of new conservation technologies.
9. Promote a secondary water system for irrigation purposes.

Ivins City adopted an ordinance establishing a water conservation program and policy. This program implements water restrictions that run concurrent with the 4-stage plan implemented by the City of St. George. The Water Conservation Program and Policy ordinance is attached as Appendix A.

Water Education Program

The following information on efficient outdoor and indoor water use could be made available to citizens through the City offices and occasionally be included in the City newsletter. Another good source of water conservation tips can be found on the Washington County Water Conservancy District's website at <http://wccd.state.ut.us/Conservation.htm>

Outside Water Use:

- Water landscape only as much as required by the type of landscape, and the specific weather patterns of our area.
- Avoid watering during the heat of the day when losses due to wind and evaporation are greatest. You may actually end up doing more harm than good to your landscape, as well as wasting a significant amount of water.
- Use a broom to sweep sidewalks and driveways instead of using the hose to clean them off.
- Wash your car from a bucket of soapy (biodegradable) water and rinse while parked on or near the grass or landscape so that all the water running off goes to beneficial use instead of running down the gutter to waste.
- Check for and repair leaks in all pipes, hoses, faucets, couplings, valves, etc. Verify there are no leaks by turning everything off and checking your water meter to see if it is still running. Many underground leaks may not be visible.
- Use mulch around trees and shrubs, as well as in your yard to retain as much moisture as possible. Areas with drip systems will use much less water, particularly during hot, dry and windy conditions.
- Keep your lawn well-trimmed and all other landscaped areas free of weeds to reduce overall water needs of your yard.

Indoor Water Use:

About two-thirds of the total water used in a household is used in the bathroom. Concentrate on reducing your bathroom use. Following are suggestions for this specific area:

- Do not use your toilet as a wastebasket. Put all tissues, wrappers, diapers, cigarette butts, etc. in the trashcan.
- Check the toilet for leaks. Is the water level too high? Put a few drops of food coloring in the tank. If the bowl water becomes colored without flushing, there is a leak. A leaking toilet may be wasting more than 100 gallons of water a day.
- If you do not have a low volume flush toilet, put a plastic bottle full of sand and water to reduce the amount of water used per flush. However, be careful not to over conserve to the point of having to flush twice to make the toilet work. Also, be sure the containers used do not interfere with the flushing mechanism.
- Take short showers with the water turned up only as much as necessary. Turn the shower off while soaping up or shampooing. Install low flow showerheads and/or other flow restriction devices.
- Do not let the water run while shaving or brushing your teeth. Fill the sink or a glass instead.

Other indoor tips:

- When doing laundry, make sure you always wash a full load or adjust the water level appropriately if your machine has that capability. Most machines use 40 gallons or more for each load, whether it is two socks or a week's worth of clothes.
- Use your automatic dishwasher only for full loads. Each load you run uses about 25 gallons of water. If you wash dishes by hand, don't leave the water running for rinsing.
- Repair any leak within the household. Even a minor slow drip can waste up to 15 to 20 gallons of water a day.
- Know where your main shutoff valve is and make sure that it works. Shutting the water off yourself when a pipe breaks or a leak occurs will not only save water, but also eliminate or minimize damage to your personal property.
- Keep a jar of water in the refrigerator for a cold drink instead of running water from the tap until it gets cold. You are putting several glasses of water down the drain for one cold drink.
- Plug the sink when rinsing vegetables, dishes, or anything else; use only a sink full of water instead of continually running water down the drain.

Implementing and Updating the Water Conservation Plan

This plan has been reviewed and approved by the Ivins City Technical Review Committee and adopted by the City Council on September 19, 2013. This water conservation plan will be updated and resubmitted to the Utah Division of Water Resources in year 2018 as required by legislative House Bill 153. A copy of the resolution adopted by the City Council is attached as Appendix B. Questions regarding water conservation can be answered by calling the public works department at 435-634-0689.

APPENDIX A

APPENDIX B