

Water Conservation Plan

June 2004

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Introduction

Due to the continued rapid growth along the Wasatch Front and in other areas of 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 (House Bill 418), which passed in the 1998 session, and its revision (House Bill 153), passed in the 1999 session. The Act was further amended in the 2004 session (House Bill 71). The 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 Bluffdale City and the state of Utah.

Description of Bluffdale City

Bluffdale City is located at the southern tip of the Salt Lake Valley at the foot of the Traverse Mountains and covers over 10,000 acres of land. The 2000 US Census showed a population of 4,700 people. The Capital Facilities Plan for Bluffdale City, completed February 24, 2004, estimates the current average annual growth rate at 6.33%. It also estimates a potential population of between 21,001 and 23,202 people within 5 years due to several proposed developments.

The residents and leaders of Bluffdale are committed to maintaining open space and the City's rural setting. Currently, 45% of the city's total area is zoned agricultural with 33%

Zone	% of Total
A-5 Agricultural	45.34%
R-1-43 Residential (1 acre min.)	33.23%
MU-1 Multi-use	7.85%
SG-1 Sand and Gravel	7.09%
CRO Clustered Residential	2.76%
GC-1 General Commercial	1.16%
R1-10 Residential	1.01%
I-1 Light Industrial	0.52%
GW-R Gateway Redwood	0.44%
R-MF Multifamily	0.37%
RC Regional Commercial	0.22%

Table 1

zoned as one-acre minimum residential lots. It should be recognized, however, that the A-5 Agricultural Zone is a holding zone. This land will be developed eventually. A complete list of land uses and corresponding percent of total land is found in Table 1.

Water Supply

All potable water needs are currently met through the Jordan Valley Conservancy District. Bluffdale's current contract is for 1178 acre-feet in 2004, increasing yearly to a maximum contract of 1410 acre-feet in 2008. The Bluffdale City Capital Facilities Plan

contemplates gradually increasing the contract with the Jordan Valley Water Conservancy District to a maximum of 2688 acre-feet per year and purchasing an additional 2688 acre-feet in groundwater rights to be pumped from wells.

Seven different canal or secondary water companies provide secondary water. Historically, most of the city has been cultivated and irrigated. Therefore, ample water rights to untreated surface water are already associated with the land. The City requires that developers secure 1.5 acre-feet of irrigation water per gross acre of property developed. Based upon the February 24, 2004 Capital Facilities Plan for the City, approximately 3,000 acre-feet of secondary water will be required to serve projected development over the next five years with 14,960 acre-feet required at buildout.

Present Water Use

Water use during the summer is significant as illustrated in Figure 1. However, water usage in recent years has decreased overall as shown in Table 2. The percentage of unaccounted for water has also decreased.

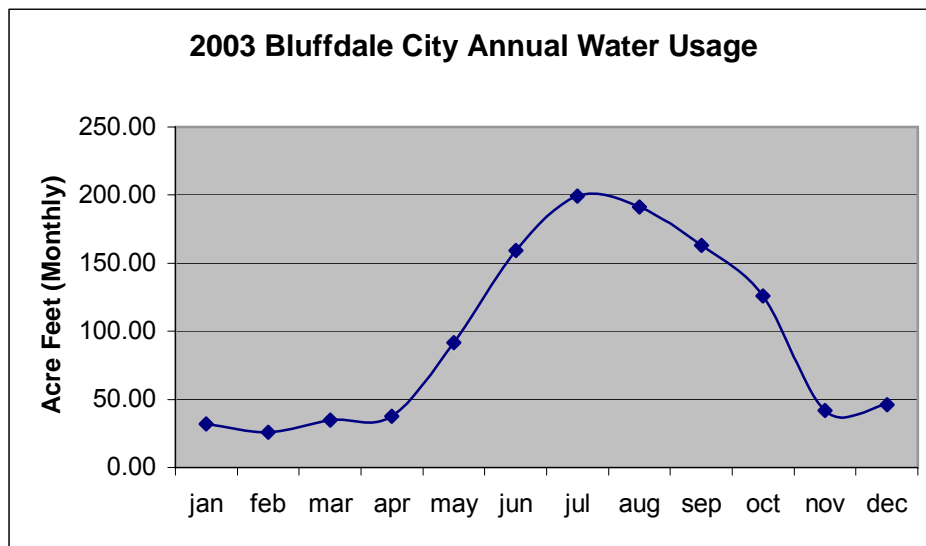


Figure 1

Summary of Annual Water Usage - Bluffdale City, Utah						
Fiscal Year	Contract Purchase Amount from JVWCD (Ac-Ft)	Amount of Water Purchased (Ac-Ft)	Amount of Water Billed (Ac-Ft)	% Loss	Number of Connections	Ave Annual Use Per Connection (1000s of Gal)
1998-1999	652	1,022.06	899.45	12%	1009	330.07
1999-2000	941	1,181.67	1044.54	12%	1077	357.52
2000-2001	984	1,171.85	1057.59	10%	1117	341.85
2001-2002	1029	1,192.19	1091.50	8%	1140	340.77
2002-2003	1077	992.41	913.43	8%	1216	265.94

Table 2

Current Conservation Measures and Programs

Bluffdale City currently implements the following water conservation measures and programs:

1. **Secondary Water System.** All new developments are required to install adequate pressurized secondary irrigation systems. These individual 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. The City anticipates metering all secondary water and charging for secondary water based on the amount used.
2. **Public Awareness Program.** A City newsletter is mailed to every household in Bluffdale monthly. Information regarding water conservation, including good water use practices and water-wise landscaping is included. Residents are also encouraged to participate in the Jordan Valley Water Conservancy District's Free Residential and Large Water Check Program.
3. **Water System Maintenance.** The City recently finished a system-wide replacement of all water meters which is enabling the City to more accurately account for water usage. In addition, Bluffdale City has also approved the purchase of a fixed network meter reading system. The new system will allow continuous meter reading and will be an effective aid in identifying leaks and giving residents real time information on water usage.
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. See Table 3 for the water rate schedule as per Resolution No. 2004-01.

Water Rates	
Usage (100s of Gallons)	Price per 1000 Gallons
≤ 10	\$1.20
10 ≥ 50	\$1.50
50 ≥ 100	\$2.00
> 100	\$2.50
Customer Class	Monthly Recurring Fee
Residential	\$12.00
Commercial	\$30.00
Pressure Zones	Incremental Price per 1000 Gallons to cover Delivery Costs
1	\$0.00
2	\$0.11
3	\$0.22
4	\$0.33
5	\$0.44
6	\$0.55

Table 3

Water Conservation Challenges and Opportunities

Some of the main challenges to water conservation are:

1. Citizens lack information and understanding of landscaping water requirements 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. Most current irrigation and indoor practices are based on convenience rather than plant needs and water supply considerations.
2. Homeowners, specifically of the larger one-acre lots, have a propensity to plant and care for large areas of grass and other water intensive landscaping.
3. Some water is not being metered. It is difficult to determine if the water that is unaccounted for is being wasted or not.
4. Drought tolerant plants are not readily available in the retail market.
5. State regulatory agencies are not encouraging water reuse.
6. Development CC&Rs (Conditions, Covenants, and Restrictions) are drafted by developers to require excessive amounts of traditional landscaping. City

Ordinances also require landscaping around homes sooner than it is reasonable for native, drought tolerant plants to become established.

Each challenge represents an opportunity to improve. The first two challenges above can be addressed through a well-thought-out public education plan. Conservation information helps water consumers to take advantage of the water saving incentives incorporated in the water rate schedule. The opportunity also exists to prepare a new generation of wise-water users. This can be assisted with a strong sustained water education program in the public and private schools.

Replacing all of the City's meters was the first step in addressing challenge number 3. While it is difficult to know everything that caused the unaccounted for water loss to drop from 12% in 1999 and 2000 to 8% in 2002 and 2003, the new water meters probably played an important role. Better record keeping, monthly billing, and a continuous read fixed network meter reading system will help to identify where the remaining 8% is being lost. A more detailed accounting of water used to flush water lines, fill fire trucks, conduct fire flow tests etc., will also help.

Making more plants available on the retail market will have to be achieved by educating people and thereby creating a demand for native, drought tolerant plants. Publishing and distributing information on garden fairs and workshops organized by the Jordan Valley Water Conservancy District is a good way to get people acquainted with native drought tolerant plants. The City has also constructed samples of drought tolerant landscaping or xeri-scaping. Landscaping along existing and future roads in the city could be more easily maintained if low water-use shrubs and mulches were used instead of Kentucky blue grass.

Water Conservation Goals

In order to objectively evaluate the City's progress in promoting water conservation, the following goals have been identified:

1. Reduce the City's per capita water use by 2% annually for the next five years.
2. Implement a fixed network continuous read metering system within the next five years.
3. Landscape the new Bluffdale Fire Station and the median and parkstrips on Marketview Drive with drought tolerant plants and xeri-scaping during 2004-2006.
4. Include information on water conservation in City newsletters May through August every year for the next five years.
5. Recommend in the form of a resolution, that state regulatory agencies encourage water reuse by publishing information regarding appropriate designs and strategies.
6. By January 1, 2005, revise city ordinances requiring landscaping to recommend use of drought tolerant plants and low water use designs and allow an appropriate amount of time for drought tolerant landscaping to become established.

7. Encourage residents to replace old high water-use toilets and shower heads with new, more efficient models by making the water efficient models available through the City. The Division of Water Resources estimated in 1995 that installing water efficient fixtures could reduce residential indoor water use by 33%.

Other strategies that the City will continue to utilize are as follows:

Water Rates

Water rate schedules are designed to meet the customer's basic requirements and to provide additional price incentives for efficient water use.

Landscape Ordinances/Incentives

A review and update of landscape and development ordinances will provide guidelines for public, private, and commercial development for water use. High-performance building guidelines will ensure continued water conservation for the future.

Education

Water personnel could contact large water users and introduce water conservation measures to them. Continued information included with the water bill could also continue to encourage wise water usage.

The following information on efficient outdoor and indoor water use could be made available to the citizens of Bluffdale City by attaching it to the water bill or the City's newsletter.

Outside Water Use:

- Water landscape only as much as required by the type of landscape, and the specific weather patterns of your area.
- Do not water on hot, sunny, and/or windy days. You may actually end up doing more harm than good to your landscape, as well as wasting a significant amount of water.
- A single sprinkler spraying five gallons of water per minute uses 50 percent more water in just one hour than the combination of 10 toilet flushes, two five-minute showers, two dishwasher loads, and one full load of laundry.
- 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. Some underground leaks may not be visible due to draining off into storm drains, ditches, or traveling outside your property.
- 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 Use

- About two-thirds of the total water used in a household is used in the bathroom.
- 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. If you do not have a low volume flush toilet, put a plastic bottle of sand and water in the tank 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.
- When doing laundry, make sure you always wash a full load or adjust the water level appropriately if your machine will do that. Most machines use 40 gallons or more for each load, whether it is two socks or a week's worth of clothes.
- 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.
- Stopper 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

The public is encouraged to comment on this water conservation plan during scheduled public hearings once every five years. The minutes and notification procedure of public hearings will be included as Appendix A of this plan.

The city engineer and his staff will be responsible to work on the Water Conservation Goals as outlined and make an annual report to the City Council on the City's success in meeting the goals outlined.