

City of Toquerville

WATER CONSERVATION PLAN

APRIL 2013



BY:
ProValue Engineering, Inc.
52 South 850 West, Suite 202B
Hurricane, UT 84737



FOR:
City of Toquerville
P.O. Box 27
Toquerville, UT 84774

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I. INTRODUCTION

In response to the rapid growth occurring throughout the State of Utah, Our City citizens and leaders are becoming concerned for the future cost and availability of the water supply. A similar concern has been demonstrated by the state legislature in the Water Conservation Plan Act (House Bill 71) passed and revised in the 2004 legislative session (Section 73-10-32 Utah Code Annotated). This WCP is written to address how water conservation programs and practices will play an important role in meeting our future water needs as well as address the concerns of leaders and citizens of both Our City and the State of Utah.

The City has chosen to complete this water conservation plan as an informative tool to help provide its' users with information of its past usage and knowledge to manage life's most valuable resource. A brochure has been set up to give water user's information of this plan. The City can pass the brochure to the water users to inform them of conservation & management methods.

II. DESCRIPTION OF CITY OF TOQUERVILLE AND ITS WATER SYSTEM

The City of Toquerville is located about 30 miles south of Cedar City and less than 20 miles north of St. George. It lies in a valley made up of converging drainages of Ash Creek and La Verkin Creek. The elevation of the City varies from 3040 feet on the South end to 3800 feet at the homes along Anderson Junction. The City has good water available from springs about a mile above town. The water from the springs is used for culinary and irrigation. This water has helped the City sustain itself as an agricultural, gardening, and fruit community.

Ten miles to the northwest of Toquerville are the Pine Valley Mountains. To the south are La Verkin City and the City of Hurricane. State Highway 17 runs through the center of town. This highway is used by tourists to access the National Parks and recreation areas to the East. Toquerville is one of the gateways to eastern Washington County.

Toquerville is located in the upper reaches of the Mohave Desert and has a typical "high desert" climate. Summers are hot and dry, with daytime temperatures reaching 105 degrees and nighttime temperatures around 70 degrees. Spring and autumn temperatures are very comfortable. Winters are mostly mild, with nighttime temperatures averaging about 30 degrees and daytime temperatures in the upper 50's to 60's.

Currently, the water department maintains 4 tanks, 22 miles of pipeline, 137 fire hydrants, 200 valves, and close to 500 water meters.

A. Existing Water Connections

The City of Toquerville currently has 480 customers that pay for water. All of these customers are paying the residential water rate of \$36.21 per month for the first 10,000 gallons. Eight of the customers pay an additional user fee. Seven of the 8 customers pay \$72.42 because they pay for 2 residences. One customer pays for 3 residences at a rate of \$108.63 per month. This forms an extra 9 residential connections, totaling 489 equivalent residential connections.

B. Population Projections

The growth rate between the year 2000 and the year 2010 was 5%. The projected growth rate used by the State of Utah for the next twenty years is 4%.

Table II-B
Population Projections

YEAR	POPULATION
2000 Census:	910
2010 Census:	1,370
2015 (DEA estimate)	1,650
2020 (DEA estimate)	1,989
2025 (DEA estimate)	2,397
2030 (DEA estimate)	2,888
2035 (DEA estimate)	3,480

C. Projected Water Connections

By using the existing equivalent residential connections of 489 and the projected growth rate of 4%, the number of users that Toquerville will have in the future can be projected. This will project the number of users found in Table II-C.

Table II-C
 Projected Equivalent Residential Connections (ERC's)

Year	POPULATION	USERS
2010	1,370	
2011	1,426	
2012	1,482	489
2013	1,538	513
2014	1,594	531
2015	1,650	550
2016	1,718	573
2017	1,786	595
2018	1,853	618
2019	1,921	640
2020	1,989	663
2021	2,071	690
2022	2,152	717
2023	2,234	745
2024	2,315	772
2025	2,397	799
2026	2,495	832
2027	2,593	864
2028	2,692	897
2029	2,790	930
2030	2,888	963
2031	3,006	1,002
2032	3,125	1,042
2033	3,243	1,081
2034	3,362	1,121
2035	3,480	1,160
2036	3,598	1,199
2037	3,717	1,239
2038	3,835	1,278
2039	3,954	1,318
2040	4,072	1,357
2050	5,256	1,752

D. CURRENT USAGE

Lance Gubler is the current operator of the water system. He has records of the current water usage. For 2011, a total of 46,091,000 gallons was used by residents in the City. This is 141.45 acre-feet of water. The following table shows this usage:

**Table II-D
Current Water Usage**

Month	Meters Read	Gallons of Usage	Acre-Feet of Usage	Gallons per day/ User
Jan, 2011	408	2,576,772	7.91	204
Feb, 2011	405	2,483,098	7.62	219
Mar, 2011	425	2,906,772	8.92	221
Apr, 2011	426	3,458,243	10.61	271
May, 2011	414	3,612,818	11.09	282
June, 2011	424	5,259,497	16.14	413
July, 2011	428	5,126,713	15.73	386
Aug, 2011	429	6,839,370	20.99	514
Sept, 2011	418	3,776,615	11.59	301
Oct, 2011	413	4,037,576	12.39	315
Nov, 2011	426	3,042,161	9.34	238
Dec, 2011	422	2,971,900	9.12	227
		ANNUAL	141.45	299

The City currently uses less than the State requirement suggests per user for indoor use. The State estimates that each user will use 400 gallons per day for indoor use and 3.26 acre-feet per year per irrigated acre for outdoor usage. The 141.45 acre*feet per year used by the users is 88 gallons per minute. There is, however, concern for a loss on metered water due to worn out meters.

Currently, the City should set new water management goals and should continue to provide new users with information on xeriscaping and water management. This will keep current usage at its present conservative rate.

E. PROJECTION OF NEEDED SUPPLY FOR 2050

The City will have a population at or above 5000 by the year 2050. It is projected that the City will need close to 400 gallons per minute to take care of their needs. Table II-D shows this projected supply that will be needed in the year 2050.

Table II-D
Projected Needed Supply up to 2050

Year	POPULATION	USERS	PROJECTED SUPPLY, gpm
2012	1,482	494	121
2022	2,152	735	178
2032	3,125	1,077	255
2040	4,072	1,357	313
2050	5,256	1,752	396

III. WATER PROBLEMS, CONSERVATION MEASURES AND GOALS

The City will continue to provide new and existing users with information of xeriscaping, water usage, and conservation methods. Part of this plan is to implement water conservation tips for all users. These tips will be given out via a brochure. To look around Utah, most would never guess that it is actually the second-driest state in the nation – averaging only 13 inches of water each year. Working together to practice easy conservation techniques, such as water-wise landscaping, is a huge step toward ensuring enough water for now and into the future. Below are many methods to help conserve water:

- Xeriscape is a creative way of landscaping that utilizes water-saving plants and landscapes that can actually save money, time and effort. Beautiful Xeriscape-type plants and landscape designs at local nurseries or landscape designers can easily be found. The following are some common rules of thumb in preparing an effective landscape plan using Xeriscape principles.
- Plant drought resistant trees and plants. Many beautiful trees and plants thrive with far less watering than other species.
- Limit the lawn area. Less lawn area generally equates with less maintenances. A general rule for a typical residential lot includes: 10 percent of the landscape (lot minus house size) in “hardscaping” (patios, driveways, decks and walks); 50 percent in lawn and turf areas; while the remaining 40 percent is utilized in shrub, garden or other uses.
- Most lawns are either bluegrass or tall fescue. Bluegrass will require more water to keep looking green than tall fescue. New lawns will require more water than established lawns. The following are some effective tools for knowing your lawn.
- Understand your irrigation system. Locate the time clock and learn how to set it. Know where the shut-off valve is in case of an emergency. Be sure your irrigation system is designed correctly and provides “head to head” coverage.

- Understand how weather affects your lawn. High temperatures and low humidity will cause your lawn to use more water. Wind will also increase water loss. Adjust your irrigation system seasonally according to the weather. Do not water during winter months or rainy weather.

- Learn your soil type. Sandy soils do not hold water as long as clay soils and may require more water to keep lawns looking nice. On the other hand, with proper watering, you can promote deep-root growth in sandy soils that go longer without water than you think.

- Trees and shrubs. Trees and shrubs have a much deeper root system than your lawn. They should be watered deeply, no more than once a week.

- Once a lawn is established, it doesn't require daily watering. New lawns: irrigate twice a day for the first week, once a day for the next two weeks, and then every other day for the next two weeks. Established lawns: irrigate once every 2-3 days during the summer. In the fall water once every 4-5 days. Set sprinkler run time to apply a .7 – 1 inch of water each irrigation time. Irrigate in the early morning hours before sunrise.

- Fertilization. Fertilizer should be applied in the spring and fall only. Apply no more than one pound of actual nitrogen in one application per 1,000 square feet. The lawn will need about four pounds of actual nitrogen or four applications at the suggested rate.

- If there is noticeable run-off, run-off may be corrected by the following suggestions:
 1. Pre-wet your lawn with a short cycle of 5-10 minutes and come back one hour later and run sprinklers again for an additional 20-30 minutes.
 2. Heavy soil will benefit from the addition of organic matter. A light application of organic fertilizer should be applied after aeration.
 3. Aerate soil twice a year.
 4. De-thatching or aeration will remove thatch build-up, but you need to learn why thatch is accumulating. The most common causes are over-fertilization and being too short.
 5. Aeration may help, but you may also look at changing the area to something else that can be drip-irrigated (shrubs or trees.)

To help out even more with conservation, the City will set the following goals:

Water Conservation Goals

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

- **Goal #1** – **Reduce the city’s per capita water use rate by at least 15 percent in five years.**

The water-use rate is currently 221 gallons of treated water per capita per day (gpcd). The goal is to bring this down to 188 gpcd.

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

- **Goal #3** – **Maintain or improve the appearance of street landscapes, open spaces and yards.** Improved irrigation practices and water efficient landscapes can enhance the beauty of the city. Annual surveys of citizen attitudes will measure satisfaction, or lack thereof, with landscapes on city-owned properties and rights-of- way.

Measurement of Savings

The City plans to have an active account of the water saved during these goal periods by using modern technology and spreadsheets to monitor this. The City has Master Meter water meters with Master Meter electronic meter reading equipment.

To check out what the City is actively doing to replace old water meters, see section VI.

IV. CURRENT CONSERVATION PRACTICES

Currently, the City has the following practices:

- Charge the customers a fee that pays for the operation, maintenance and depreciation of the water system. One year ago, the City was paying \$22 as a base rate. In May of 2012, they raised this rate to \$36.21. The following section will describe this current water rate that was adopted. This new rate will encourage water conservation and help pay for the upkeep, replacement and maintenance of the current water system.
- The City currently encourages residents to follow the water conservation guidelines and tools that the Washington County Water Conservancy District provides. This is inside the County's water conservation plan at:
<http://www.wcwcd.org/wp-content/uploads/2012/07/WC-Plan-2010.pdf>
- PUBLIC EDUCATION: Currently the Washington County Water Conservancy District has a program to educate all students in the schools about water conservation. They have a demonstration garden that is currently being built that will educate the public of water conservation tools. The District provides administration of Irrigation Association certification testing. In 2003, the District, in partnership with Dixie Applied Technology College (DXATC), USU Extension, and St. George City created a program to educate the landscape professional in water efficient landscape management. The program has offered two courses: Water Efficient Turf Management and Planting for Success.
- The City has a full time water operator, Lance Gubler, which has helped in finding and fixing problems of the water system. This has increased the City's conservation of water.
- The City actively keeps up its' grounds for all City owned property and uses irrigation water for these properties that in is a pressure pipe system with timers used to limit the use of this water.
- Eighty percent of the land owners in Toquerville have irrigation water that is in a modern pressure system. This system is maintained, owned and operated by the Washington County Water Conservancy District. They follow their water conservation plan.
- Currently, the City just adopted a Water Conservation Plan ordinance on Thursday, April 11, 2013. It is enclosed as follows:

**TOQUERVILLE CITY
WATER CONSERVATION PLAN
ORDINANCE NO.2013.01**

AN ORDINANCE AMENDING PROVISION OF THE CITY OF TOQUERVILLE MUNICIPAL CODE PERTAINING TO THE ADOPTION OF A WATER CONSERVATION PLAN.

Section 1. Preamble

- A. WHEREAS, the City of Toquerville operates a culinary water system; and
- B. 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;

Section 2. Ordaining Clause

NOW, THEREFORE, IT IS ORDAINED BY THE CITY COUNCIL OF THE CITY OF TOQUERVILLE, UTAH:

Title 14 Chapter 14-200 of the Our City Municipal Code is hereby to read as follows:

Section 3. Water Conservation Plan

The water conservation plan of the City of Toquerville, adopted on the 11th day of April, 2013. The plan will be amended no less than every five years and will continue to play a vital role in the future development of the City of Toquerville, Utah.

Mark Fahrenkamp	Aye <u>✓</u>	Nay _____	Absent _____
Daren Cottam	Aye <u>✓</u>	Nay _____	Absent _____
Brad Langston	Aye <u>✓</u>	Nay _____	Absent _____
Paul Heideman	Aye <u>✓</u>	Nay _____	Absent _____
Ty Bringhurst	Aye <u>✓</u>	Nay _____	Absent _____

Signed:

By *Darrin LeFevre* Date April 11th, 2013
Darrin LeFevre, Mayor, Toquerville City

Attest: *Renee Garner*
Renee Garner, City Recorder



V. CURRENT PRICING STRUCTURE

The following figure is the City resolution that shows the existing water rates as adopted by the City on May 10, 2012.

<u>RESOLUTION #RES.2012.03</u>		
MAY 10, 2012		
TOQUERVILLE CITY – Fees		
ADMINISTRATIVE & PUBLIC WORKS FEES ADJUSTMENTS FOR		
Residential Utilities/ Culinary Water Rates, Public Works,		
Solid Waste, Cemetery, Park Equipment, and Town Hall Reserve Use Fees.		
<u>Amending and Replacing Resolution #RES.2011.01</u>		
PURPOSE: This Resolution will amend the Residential Utilities, Culinary Water Rates, Public Works, Solid Waste, Cemetery, Park Equipment, and Town Hall Reserve Use Fees to reflect the Operation and Maintenance Costs to the City.		
<u>ADMINISTRATION</u>		
Requests for Records	\$1	Per Page+\$30/hr Research
Photo Copies	\$.10	Per Page
Fax Transmission	\$2.	First Page
	\$1.	Each Additional Page
Land Management Code Book	\$40	
Standards and Specifications	\$30	
General Plan	\$40	
Toquerville Histories	\$15	Each
Toquerville Walking Tour	\$10	Each
Returned Check Fee	\$20	
<u>BUSINESS LICENSE</u>		
Business License	\$50	Calendar Year (to Dec.31 st); Partial Yr Fee - First Year Only (\$25)
<u>CEMETERY</u> (Effective 05-10-12)		
Open and Closing of Grave	\$400	Weekday
	\$500	Saturday (No Sunday or Holiday)
Plot Fee (Includes Perpetual Care)	\$350	Resident
	\$650	Non-Resident
<u>RESIDENTIAL UTILITIES</u>		
Tenant Deposit (Rental Property)	\$300	Refundable
Culinary Water (Effective 05-10-12) -----	\$36.21	Monthly - Base Rate per month for 0- 10,000 gals. Plus---\$4.00 per 1,000 gals over 10,000 gals, and \$6.00 over 30,000 gals
- Non Irrigation users w/ no access, Summer Rate	\$36.21	Monthly – May 1st to Oct 1st - Base Rate per month for 0- 20,000 gals. Plus---\$4.00 per 1,000 gals over 20,000 gals, and \$6.00 over 30,000 gals
Standby Fee for Non-User (No Meter to Property)		
Application Required -----	\$5	Monthly

This rate schedule shows users are charged \$36.21 per month for 0 to 10,000 gallons except for irrigation users in the summer months who receive 20,000 gallons. The rate of \$4.00 per thousand for the first graduated rate and \$6.00 thereafter are set to encourage conservation.

VI. ADDITIONAL CONSERVATION MEASURES

To meet future water needs, problems, and measures, the City has received funding from the State of Utah to complete water improvements during this year of 2013. These improvements will replace over 150 meters and services where it is believed leakage has been occurring. These improvements account for one-third of the culinary water distribution system and will replace almost 4 miles of 8" diameter and 10" diameter water lines.

During the next few years, the City should inventory and inspect all new and older meters to insure that leakage is kept to a minimal.

VII. COST ANALYSIS

The City water system would cost \$7.0 million dollars to replace the entire system in today's dollars.

VIII. IMPLEMENTING AND UPDATING THE WATER CONSERVATION PLAN

The City should continue to charge the current water rates. These rates may be looked at annually and adjusted to provide enough revenue to keep up with operating costs. The main way to keep users focused on conservation is to charge a higher rate for high usage. The current rate structure is the best measure working now to promote this.

The City should hand out the attached brochure to current and new users to educate them of water conservation methods.

Once, each year, this plan should be looked at and updated as need or change may require.

*For Water Related
Questions contact:*

Renee Garner

City of Toquerville Recorder

435-635-1094

For System Help Call:

Lance Gubler

Water System Operator



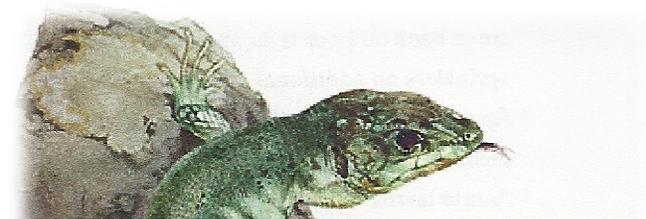
City of Toquerville

212 N Toquer Blvd
Toquerville, UT
84774

Toquerville City Guide to Water Conservation



A Simple Course
to Save our Most
Valued Resource



Utah is actually the second-driest state in the nation - averaging only 13 inches of water each year. Working together to practice conservation techniques is a huge step toward preserving our most valued resource

Xeriscape: A way of landscaping that utilizes water-saving plants and landscapes that save money, time and effort. Xeriscape type plants and landscape designs can be found at local nurseries.

- * Plant drought resistant trees and plants
- * Limit Lawn Area. A general rule is 10% of landscape in hardscaping (patios, driveways, decks, etc); 50% in lawn and turf; 40% in shrub, garden and other uses.



Lawns: Most Lawns are either bluegrass or fescue.

Bluegrass requires more water to keep looking green than fescue.

- * Understand your irrigation system. Know where shut-off valves are located and how to set timer.
- * Understand how weather affects your lawn. Lawn requires more water in high temperatures and low humidity. Wind also increases water loss. Do not water during winter months or rainy weather.
- * Learn your soil type. Sandy soils do not hold water as long as clay soils. With proper watering you can promote deep-root growth in sandy soils.
- * Fertilization. Fertilizer should only be applied in the Spring and Fall. Apply no more than one pound of nitrogen in one application per 1,000 square feet. Example - 10 lbs of 10-6-4 or 8 lbs of 12-12-12 per application. Lawn will need about four pounds of actual nitrogen or four applications at the suggested rate.

- * Watering. New lawns - irrigate twice a day for first week, once a day for next two weeks, then every other day for next two weeks. Established lawns - irrigate every 2-3 days during the summer, every 4-5 days in the fall. Set sprinkler time to apply .7 - 1 inch of water each irrigation time. Irrigate early in the morning.

Trees and Shrubs: Use low-water use plants as much as possible. Group plants that have similar water demands.

- * Trees and shrubs should be watered deeply, no more than once a week. They have a much deeper root system.

Run Off: Run off is the point when water is not going into the ground as fast as it is being applied.

- * Wet your lawn for 5-10 minutes then come back on hour later and run sprinklers an additional 20-30 minutes.
- * Apply a light application of organic fertilizer after aeration.
- * Aerate lawns twice a year.
- * De-thatch or aerate to remove thatch build-up.
- * Look at changing areas with run-off to something that can be drip irrigated (shrubs or trees.)

