

RESOLUTION 18-05

A RESOLUTION ADOPTING HYRUM CITY'S WATER MANAGEMENT AND CONSERVATION PLAN.

WHEREAS, Section 73-10-32, Utah Code Annotated, 1953, as amended, requires all distributors of culinary water to more than 500 connections to develop a water conservation plan; and

WHEREAS, said plan is to include, among other things, "ideas, suggestions, or recommendations to help conserve water and limit or reduce its use in the state in terms of per capita consumption so that adequate supplies of water are available for future needs"; and

WHEREAS, to comply with the requirements of Section 73-10-32, the Hyrum City Council studied the water supply and distribution systems of the municipality as well as future water needs projections and developed a water conservation plan attached hereto as "Exhibit A".

NOW, THEREFORE, BE IT RESOLVED by the City Council of Hyrum City, Cache County, State of Utah, that the HYRUM CITY WATER MANAGEMENT AND CONSERVATION PLAN attached hereto as "Exhibit A" is hereby approved and adopted as the water conservation plan of Hyrum City.

BE IT FUTHER RESOLVED that this Resolution shall take effect upon adoption.

ADOPTED AND PASSED BY the City Council of Hyrum, Utah, this 1st day of March, 2018.

HYRUM CITY

BY: _____
Stephanie Miller
Mayor

ATTEST:

Stephanie Fricke
City Recorder

WATER MANAGEMENT AND CONSERVATION PLAN

2017 UPDATE

HYRUM CITY

**60 West Main Street
Hyrum, Utah 84319-1205**



FEBRUARY 2018



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CHAPTER 1 - INTRODUCTION

1.1 Background

Hyrum City is a rural community of 8,510 people (2016 Estimate) located in northern Utah, approximately eight miles south of Logan. The City owns and operates a culinary water system serving all classes of customers, including agricultural, residential, commercial, and industrial users. The City also owns and operates a secondary water system serving a portion of the community. Most of these customers are located within the municipal limits, but service lines extend to a few users outside the City, most notably to one large industrial customer on the north boundary of town and a number of recreational or seasonal users located in Blacksmith Fork Canyon. A map showing the existing Hyrum City culinary water service areas (Current Zoning Map) is attached to this plan as Appendix A.

CHAPTER 2 - DESCRIPTION OF OUR CITY AND ITS WATER SUPPLY

2.1 Introduction

Hyrum City has three (3) wells, four (4) springs, 11,527 acre-feet of culinary water rights, 2,927 acre-feet of irrigation water rights, and three (3) culinary water storage tanks. Water rights are taken from the November 2008 *Hyrum City Potable & Secondary Water Rights 40-year Master Plan*, prepared by AQUA Engineering. In addition to these sources, water rights, and storage tanks, the City has a culinary transmission/distribution system with line sizes ranging from 3-inches to 18-inches. The City also has a dedicated irrigation system with line sizes ranging from 4-inches to 27-inches and approximately 100 acre-feet of irrigation storage.

Service connections to the system, as of October 2017, include the following:

2,738	single family residential
21	multi-family residential
1	mobile home residential (for 110 pads)
93	commercial
14	industrial
2,867	Total

Hyrum City furnishes water to its residential and commercial customers primarily for indoor use because approximately 2,204 customers use the piped irrigation system for outdoor watering. This secondary system is available throughout most of the City and, as part of its water conservation plan, the City encourages residents to connect to the irrigation system in order to preserve culinary water and save pumping costs. In 2012, Hyrum City completed a reuse pumping project that delivers approximately 130-160 MG of treated wastewater effluent into the secondary irrigation system.

2.2 Inventory of Water Resources

2.2.1 Water Rights

According to the 2008 *Potable & Secondary Water Rights Master Plan*, Hyrum has 10,078 acre-feet of water rights from wells and 1,448 acre-feet from springs for a total of 11,527 acre-feet.

The City has secondary water rights totaling 3,009 acre-feet serving 2,204 connections as of June 2017. Present (October 2017) Irrigation water rights include 844 shares in Hyrum Irrigation Company, 617 shares in High Line Canal, 82 shares in Blacksmith Fork, 1,431 shares in Porcupine Reservoir, and 35 shares in Richmond Irrigation.

The City has no immediate plans to develop additional culinary water sources but will readily purchase irrigation water shares in Hyrum Irrigation, High Line Canal, or Porcupine Reservoir Companies, as well as require new residential development to surrender water shares as agricultural lands are converted into residential building lots.

2.2.2 Water Sources

Hyrum City's culinary system utilizes water from three (3) wells and four (4) springs. The oldest well, located at the intersection of SR 165 and SR 101 in Hyrum, produces approximately 2,000 g.p.m. The other wells were drilled in 1993 and 1996, respectively, and are situated within a few hundred feet of each other at the mouth of Blacksmith Fork Canyon on SR 101. The larger one yields 4,500 g.p.m. while the other delivers 2,200 g.p.m.

Source	Location	Type/ Equipment	Casing, (inches)/ Depth (feet)	Equipped Capacity (g.p.m.)
Well No. 1	N 2428 ft W 160 ft from SE Corner Sec. 4, T 10N, R 1E, S.L.B.&M.	Well / Sub. Pump and Motor	12 / 472	2,000
Well No. 3	S 1025 ft E 1650 ft from North ¼ Corner Sec. 11, T 10N, R1E, S.L.B.&M.	Well / Sub. Pump and Motor	20 / 144 and 16 / 287	2,200
Well No. 4	S 810 ft E 2370 ft from North ¼ Corner Sec. 11, T 10N, R1E, S.L.B.&M.	Well / Sub. Pump and Motor	20 / 180 and 16 / 354	4,500
Total				8,700

Table 1: Hyrum City - Water Sources (Well Sources)

Culinary springs listed in order of production are Cold Water Spring, Main Spring, Dry Hollow Spring, and Box Elder Spring, all of which are located in Blacksmith Fork Canyon.

Source	Location	Water Right(s)	Flow, cfs	Period of Use
Cold Water Spring	S 950 ft E 1080 ft from NW Corner Sec. 9, T 10N, R 2E, S.L.B.&M.	25-3441	1.71	Jan. 1 to Dec. 31
Main Spring	S 552 ft E 1383 ft from NW Corner Sec. 12, T 10N, R 2E, S.L.B.&M.	25-3032	1.00	Jan. 1 to Dec. 31
Dry Hollow Spring	S 3710 ft E 456 ft from NW Corner Sec. 8, T 10N, R 2E, S.L.B.&M.	25-3027	0.50	Jan. 1 to Dec. 31
Box Elder Spring	N 142 ft E 11095 from N ¼ Corner Sec. 9, T 10N, R 2E, S.L.B.&M.	25-3042	0.50	Jan. 1 to Dec. 31
		Total	3.71	N/A

Table 2: Hyrum City - Water Sources (Spring Sources)

A 2008 study prepared by AQUA Engineering, Inc. entitled *Hyrum Potable and Secondary Water System 50 Year Demand Projections*, indicates existing culinary sources hold the potential to provide culinary water for a population of 37,718, but a 50-year projection of the City's irrigation system indicates an eventual deficit of 1,558 acre-feet and a culinary storage deficit of 1.45 million gallons.

While water conservation may help extend available supplies during dry years, it alone will not solve the problems of meeting future demand. Therefore, the City must continue to search for new supplies of secondary water or use its potable water resource to make up the deficit.

2.2.3 Culinary Water Storage

The culinary water system includes three storage facilities: a 1.0 million gallon reservoir constructed in 1974, a 2.0 million gallon reservoir finished in 1983, and a 2.0 million gallon reservoir finished in 2011 for a total storage capacity of 5,000,000 gallons. Table 3 summarizes Hyrum's culinary water storage.

Tank	Diameter / Dimensions (feet)	Depth (feet)	Primary Supply Source(s)	Equipped Capacity (MG)
Tank No. 1	83.50	24.0	Well No. 1, 2, 3, Cold Water Spring, Main Spring, Dry Hollow Spring, and Box Elder Spring	1.0
Tank No. 2	130.00	20.0	Well No. 1, 2, 3, Cold Water Spring, Main Spring, Dry Hollow Spring, and Box Elder Spring	2.0
Tank No. 3	130.00	20.0	Well No. 1, 2, 3, Cold Water Spring, Main Spring, Dry Hollow Spring, and Box Elder Spring	2.0
Total	N/A	N/A	N/A	5.0

Table 3: Hyrum City - Culinary Water Storage

The *Potable and Secondary Water Systems 50 Year Demand Projections* report proposes a storage requirement of 3,320,825 gallons based on 2,833 equivalent residential connections (ERC), which includes residential and light commercial usage and 20 heavy industrial connections. The report also estimates the potable water storage demand at 6,458,443 gallons for the year 2060. The current storage of 5 MG is projected to provide enough water storage till the year 2043.

2.2.4 Water Transmission/ Distribution System

An 18-inch ductile iron pipeline running approximately 11 miles down Blacksmith Fork Canyon conveys water from the springs to the reservoirs. This line was installed over a three-year period between 1985 and 1988, replacing a smaller, aging steel pipeline. Two (2) 14-inch ductile iron transmission lines carry water from the reservoirs at the mouth of Blacksmith Fork Canyon to the distribution system in town, connecting at points on Main Street and 300 South.

Many of the distribution lines were replaced in 1979-80 and the City added telemetry equipment to monitor and control operation of the wells in 1991. Distribution lines range in size from 3-inches to 14-inches in diameter.

Most of the community is served by lines sized to provide adequate pressure and delivery. Hyrum City has recently replaced, or is currently in the process of replacing, 3" and 5" water lines running through 100 east with an 8" waterline. The City plans to gradually replace old smaller waterlines such as these to have a more efficient system. The City has completed several other pipeline replacements/improvements, as part of the 2013, 2014, and 2017 Water Line Improvement Projects, throughout the City to improve water transmission and distribution, especially to the outlying and underserved areas.

2.2.5 Irrigation System

The irrigation storage reservoirs located southeast of the City hold 100 acre-feet of water when filled to capacity. The Wastewater Treatment Facility (WWTF) clarifiers, which were converted to reclaimed water holding tanks as part of the reclaimed water pump station project, provide an additional 0.7 acre-feet of storage.

The reclaimed water pump station project, completed in 2011, provides a flow of 500,000 gpd to 800,000 gpd for Hyrum's irrigation water users. In 2017, the pump station delivered approximately 130 MG of treated wastewater effluent into the secondary irrigation system.

According to a study completed by Cloward & Associates in February 2000, part of the irrigation distribution system is at capacity. The study includes a proposed plan of eight separate projects

necessary to increase capacity and extend service to additional users. One of these projects has been completed, thereby providing extra capacity and extended service to additional users. The rest of these projects continue to be a priority for the City and will be addressed as budget and time allow.

The City has also taken steps to minimize water losses due to evaporation and seepage by converting open irrigation ditches to piped systems. Old Irrigation water lines are periodically being replaced throughout the City. In 2015, Hyrum City funded a project to convert the Little Feeder Ditch to a piped irrigation water line. Over 2,800 feet of the canal was converted to a piped irrigation system.

2.3 Water Quality and Treatment

Water obtained from the springs and wells is tested per state regulations and monitored for continued compliance with the Safe Water Drinking Act. The Chlorination system located near Well #3 at the mouth of Blacksmith Fork Canyon was completed and has been in operation since 2001.

2.4 Service Policy

In the past, the City extended culinary water lines and service to anyone who submitted a request, whether inside or outside City limits. In 1998, the City Council adopted a new policy stating that all future connections must serve users located within City limits. This policy restriction is intended to discourage sprawl and reserve water resources for users located inside the community.

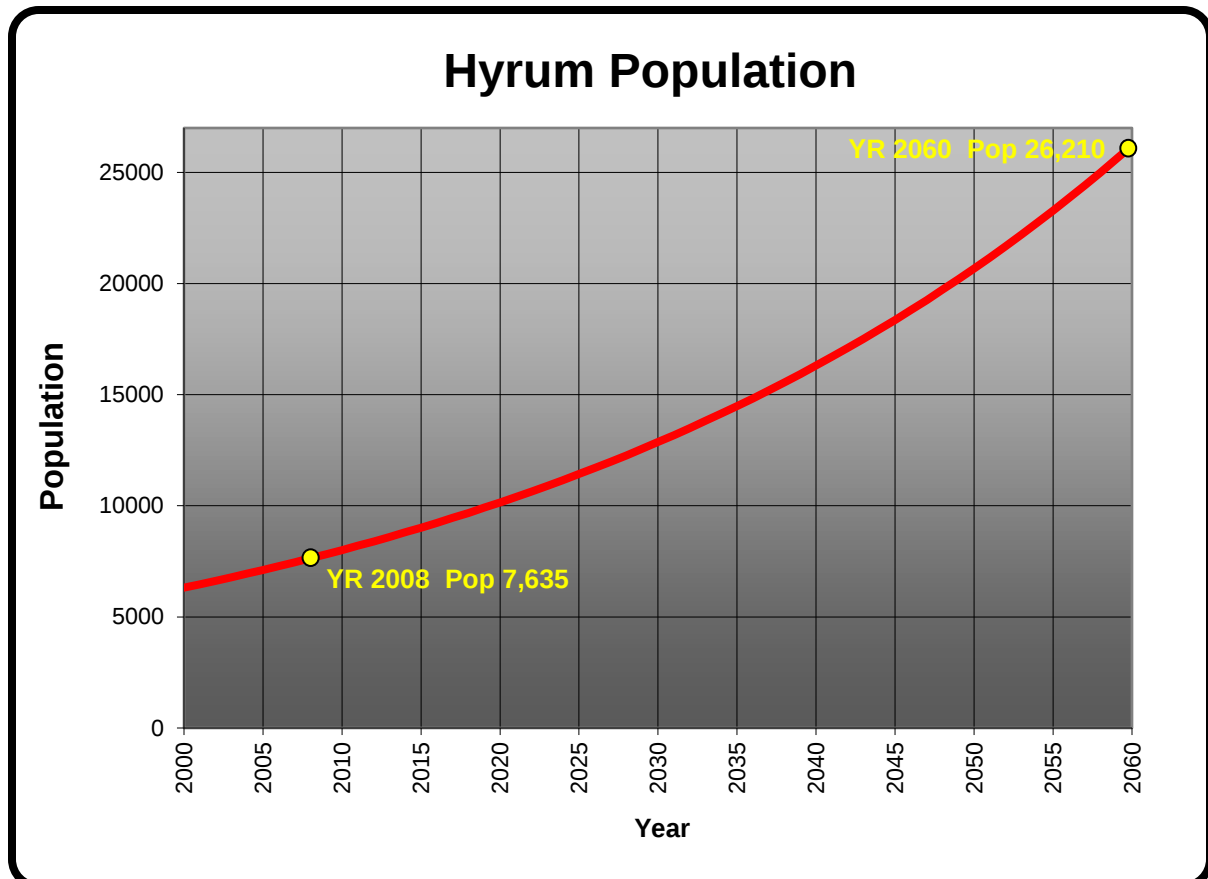
2.5 Water Budgets

The City meters their existing sources, i.e. wells and springs, and bills their water users. The total potable water metered flow for 2016 is 1,090,760,150 gallons per year or 2,988,384 gallons per day. Hyrum's current total potable capital water use is approximately 352 gallons per capita per day (gpcd). This is above the State average of 240 gpcd because of the high industrial and commercial use in Hyrum. When the potable water usage from commercial and industrial users is eliminated, the usage is 224,022,560 gallons per year or 72 gpcd. Currently, 534 connections use culinary water for irrigation, skewing the residential indoor water use.

The City measured the total flow for their existing sources at 4121.8 acre-feet or 1,343,092,650 gallons in 2016. With a metered flow of 1,090,760,150, the calculated system loss is 18.8%.

2.6 Present Water Use and Future Water Needs

Population projection data was obtained from the *Hyrum Potable and Secondary Water Systems 50-Year Demand Projections*, dated November 2008 by AQUA Engineering. This report used an average growth rate of 2.4% (see Figure 1). However, the current population is approximately 8,510, and the project population for 2016 was 9,231.



Note: Table from *Hyrum Potable and Secondary Water Systems 50-Year Demand Projections*, dated November 2008 by AQUA Engineering.

Figure 1: Hyrum City – Population Projections

The City metered 1,090,760,150 gallons of potable water usage in 2016. The projected potable water source demand and capacity uses data obtained from the *2008 Potable and Secondary Water Systems 50-Year Demand Projections* and has been adjusted to match current data to project future water use. Figure 2 projects the City to have a surplus of 4033 acre-feet without conservation practices in place, the figure illustrates the assumption that the current water use of 351 gpcd remains the same through 2050. A surplus of 5869 acre-feet is projected assuming conservation practices are put into place by 2050. Conservation practices considered to contribute are the following:

- Piping open irrigation ditches. As agriculture areas are developed, open irrigation ditches will be piped, reducing water losses inherent in these ditches.
- Replace old, leaky, or small pipes to at least the minimum standard 8" diameter pipe.
- The assumption that new homes will be built with water efficient fixtures, and residents of older homes will replace old/broken fixtures with new low-flow fixtures.
- Public outreach programs to educate residents of efficient water use techniques.

Hyrum has multiple commercial/industrial users that have a high demand for water in their plants' processes. Many of these industrial users are very conscious of their water use and are using the best practical water conservation practices. As technology improves water conservation for their respective industries' newer, more efficient practices will be integrated as they become practical for the industry.

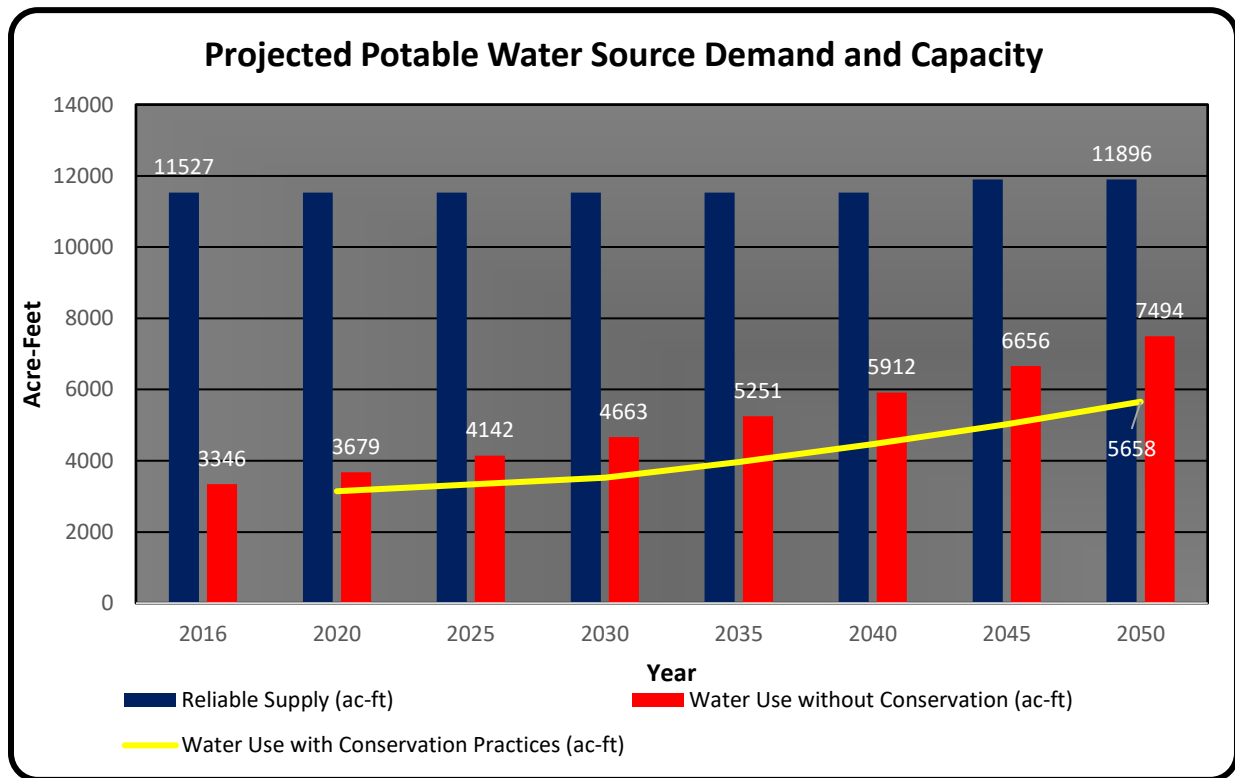
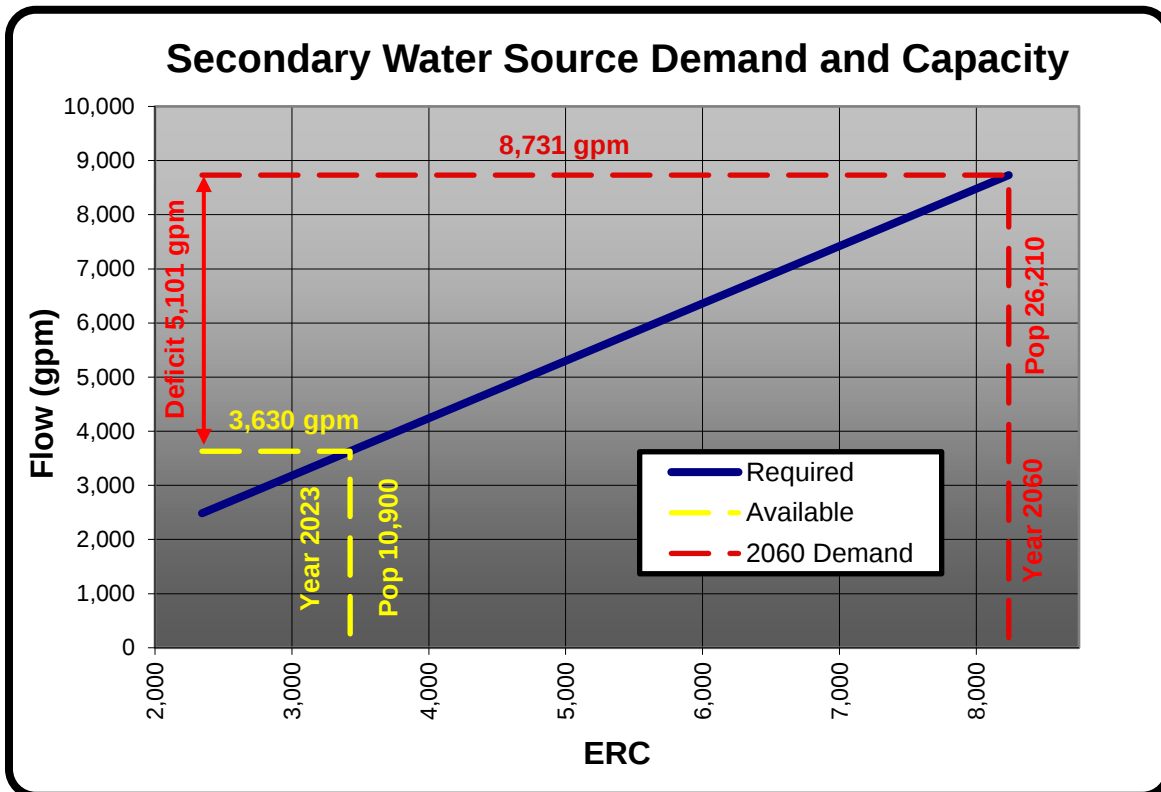


Figure 2: Hyrum City – Future Potable Water Source Demand and Capacity

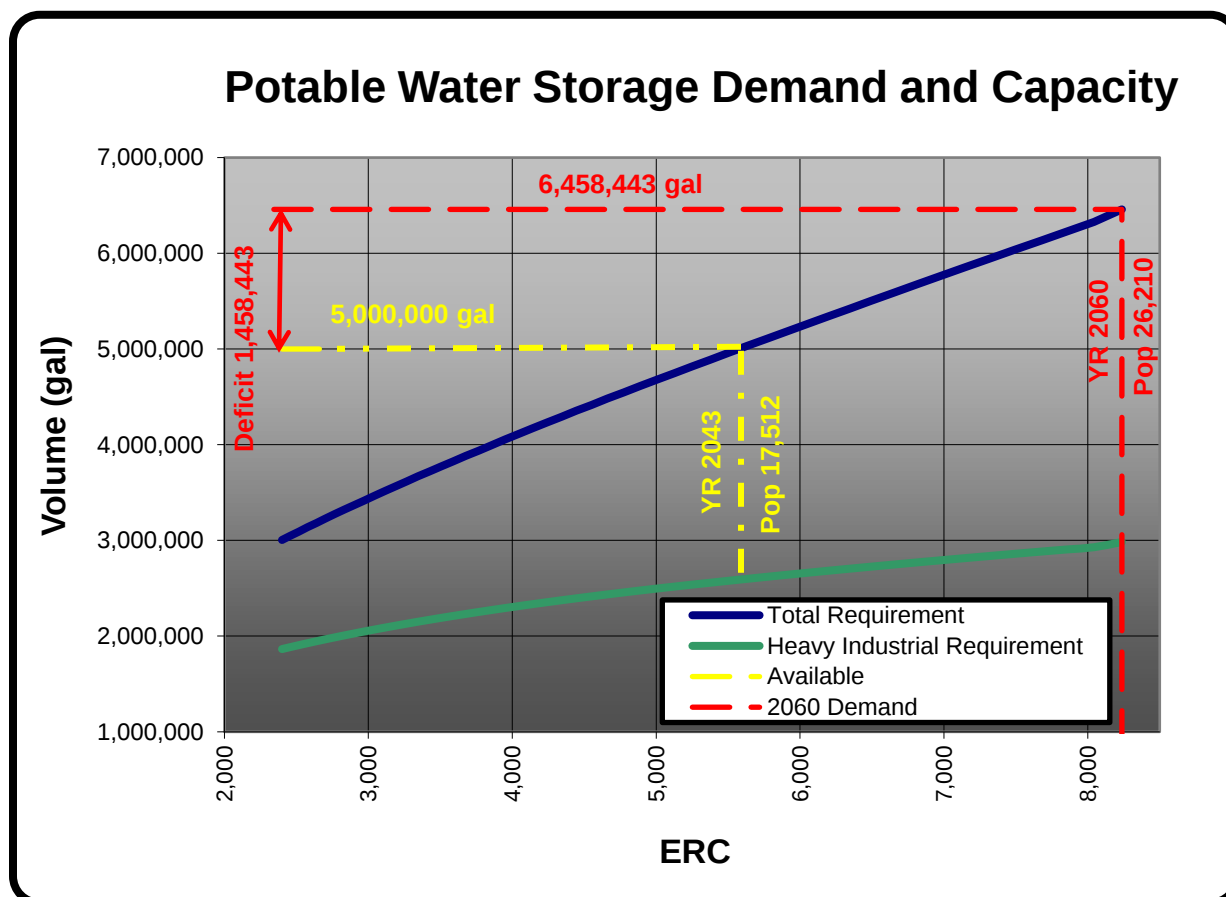
The projected secondary water source demand and capacity was obtained from the 2008 *Potable and Secondary Water Systems 50-Year Demand Projections*. Figure 3 projects the City to have a deficit of 5,101 gpm in year 2060. This means the City would run out of secondary water by the year 2023. This report was completed prior to the reclaimed water pump station project. Therefore, the reclaimed water pump station is capable of 2,100 gpm, which means the capacity of secondary sources is approximately 5,730 gpm which should suffice until approximately year 2033.



Note: 1. Does not include Reclaim pump station project.
2. Table from *Hyrum Potable and Secondary Water Systems 50-Year Demand Projections*, dated November 2008 by AQUA Engineering.

Figure 3: Hyrum City – Future Secondary Water Source Demand and Capacity

The projected potable water storage demand and capacity was also obtained from the 2008 *Potable and Secondary Water Systems 50-Year Demand Projections*. Figure 4 projects the City to have a deficit of 1,458,443 gallons in year 2060.



Note: Table from *Hyrum Potable and Secondary Water Systems 50-Year Demand Projections*, dated November 2008 by AQUA Engineering.

Figure 4: Hyrum City – Future Water Storage Demand and Capacity

The 2008 *Potable & Secondary Water System Fifty-Year Demand Projections* also showed that there would be a surplus of 4,834 acre-ft of potable water rights in year 2060 with a deficit of 1,193 acre-feet of secondary water rights for secondary water. Available secondary water rights would begin to be exceeded in year 2046.

CHAPTER 3 - WATER PROBLEMS, CONSERVATION MEASURES AND GOALS

3.1 Problems Identified

3.1.1 Emergency Operation

Because the culinary water storage reservoirs are in close proximity to a known geographic fault line, the City adopted an emergency response plan establishing an incident command system to direct emergency operations by providing organization and operational instructions for each utility, including

the culinary water department. City personnel installed valving capable of isolating the distribution system from the reservoirs and also purchased a 1-megawatt diesel generator capable of running any of the three wells in order to pump water should the town be isolated from its free-flowing spring supply during an earthquake or other disaster. Extra lengths of 14-inch pipe are on hand to repair lines should they be severed during an earthquake or to bypass the reservoirs in the event they are damaged beyond use.

The City will need to address future secondary water rights, secondary sources, and potable water storage in the next 20 to 30 years, according to projections. Potable water rights and sources are less urgent and will require attention within 50 years, according to projections. The City will address distribution and transmission system deficiencies with improvement or replacement projects as funding becomes available.

3.2 Water Conservation Goals

The City had previously established multiple water conservation goals with their previous WCP to follow Governor Herbert's statewide goal of reducing the State's gpcd 25% by 2025. The City's Water use was at 354 gpcd in 2000 to reduce water use by 25%, the gallons per capita day need to be at 265 gpcd in 2025. Figure 5 shows Hyrum's water use along with the 25% reduction goal. The overall trend of the City's water use is also shown in Figure 5 and shows that the efforts of the City have been working to decrease water use per capita over the past 10 years.

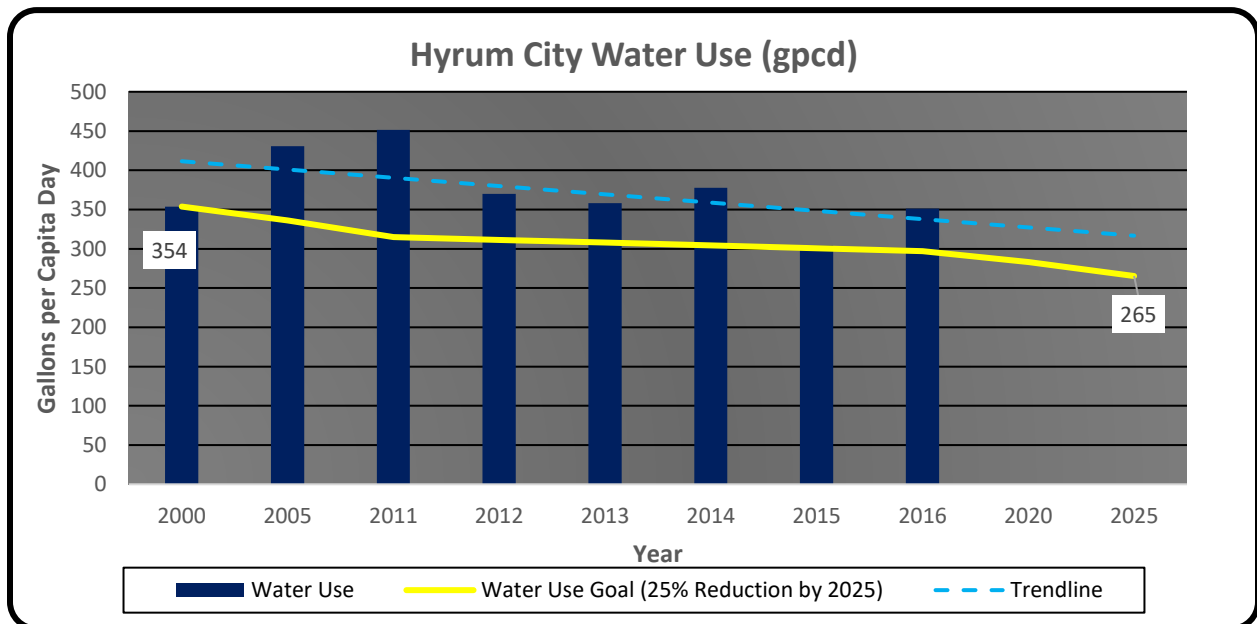


Figure 5: Hyrum City Water Use and Water Use Goal

Below is a table of Hyrum's current efforts and goals with the proposed implementations and timelines.

	Goal	Description	Quantity	Timeline
1	Replace Older Water Meters with Touch Read Meters	Approximately 70 percent have been replaced. Approximately 860 connections still need to be replaced with new touch read meters.	Approx. 145	Yearly
2	Replace Mechanical Flow Meters in Existing Irrigation Pump	Replace existing mechanical flow meters in existing irrigation pump station with new magnetic flow meters.	2	2021
3	Replace Older Distribution Lines	Replace old leaky pipes and smaller diameter pipes to at least Utah 8" Diameter standard.	Approx. 2000 feet	Yearly
4	Monitor and Quickly Repair Leaks	Continue to monitor and quickly repair leaks and perform a leak detection test.	1 Leak Detection Test	2019
5	Public Education	Continue to mail periodic newsletters, urging conservation of both culinary and irrigation water. The City will update their website to have a dedicated water conservation page outlining conservation practices.	N/A	2018
6	Enforce Plumbing Codes	Enforce plumbing codes requiring low-flow fixtures and encourage residents to replace older fixtures with water-efficient models	N/A	N/A
7	Work with Larger Users to Implement Conservation Practices	Work with industry, commerce and schools to implement conservation practices, including the installation of reuse systems for both culinary and irrigation water.	N/A	N/A
8	Encourage Residents to Connect to Secondary Water	Encourage residents to connect to and use secondary water for outside watering purposes	N/A	N/A
9	Encourage Landscaping Plans that Require Less Water	Encourage residential & commercial landscaping plans that require less water to maintain.	N/A	N/A

*Details on the Benefits/Costs of each goal can be found in Chapter 7.

CHAPTER 4 - CURRENT CONSERVATION PRACTICES

4.1 Water Conservation Contingency Plan

While served by sources adequate for present and future needs, the City recognizes the importance of wise water management and attempts to instill these values into its citizens. The City utilizes inclining block rates to encourage conservation (see section 5.1).

In 1990, the City installed a city-wide piped irrigation system, bringing secondary water to most of the community. Whereas, about half the properties in town were served by open-ditch irrigation, the piped system made secondary water available to nearly all residents as well as agricultural users within City limits who previously received water from the open-ditch system.

Besides the convenience, the piped system reclaims water formerly lost through seepage and evaporation (estimated between 30 and 70 percent in an open-ditch system), increasing the supply available for beneficial use by residents.

The secondary water system largely eliminates the need to use potable water on lawns and gardens. The City utilizes the secondary water system to provide water for parks and the cemetery. These areas also utilize timer-controlled sprinkling systems to reduce the amount of water used for lawn maintenance.

In an effort to further conserve water, the City had a leak detection study completed in 2006 to locate areas of potential leakage within the potable water system. This report identified a total of 19 points of leakage over a total length of 52,500 feet of pipeline. The City plans to perform another leak detection study by 2019. The City intends to use these studies to repair leaks and decrease water system loss throughout the City.

The City's 2011 construction of the Reclaimed Water Pump Station provides additional water conservation as reclaimed water. The pump station provides approximately 500,000 to 800,000 gallons per day of reclaimed water with a total of 130 MG of reclaimed water in 2016.

Those parts of the City affected by morning canyon winds are permanently restricted from watering during those times when water would be lost because of wind. Specifically, the City had previously implemented and will continue to implement the conservation goals listed in section 3.2.

The City is hopeful that the conservation goals listed in section 3.2 will reduce not only secondary water usage but also decrease potable water usage as more citizens move away from potable water for outdoor usage while also reducing their outdoor usage using these conservation techniques

4.2 Water Education Program

The City regularly mails newsletters urging conservation and prudent use of water.

CHAPTER 5 - CURRENT PRICING STRUCTURE

5.1 Water Rates

The service rates, connection fees, and inspection fees for culinary water are as follows:

Base rate:

¾"	meter	\$	12.00	first 10,000 gallons
1"	meter		16.96	first 10,000 gallons
1 ½"	meter		47.26	first 10,000 gallons
2"	meter		73.50	first 10,000 gallons
3"	meter		157.51	first 10,000 gallons
4"	meter		367.51	first 10,000 gallons
6"	meter		420.01	first 10,000 gallons

Residential overage:

10,000 – 50,000 gallons	\$ 0.68	per 1,000 gallons
All over 50,000 gallons	0.98	per 1,000 gallons

Commercial overage:

10,000 – 50,000 gallons	0.456	per 1,000 gallons
All over 50,000 gallons	0.60	per 1,000 gallons

Users outside City limits are charged 1 ½ times the City rates.

Connection fees:

	<u>West SR 165</u>	<u>East SR 165</u>
Subdivision per home	267.00	267.00
Without road cut city-wide	1,208.00	1,208.00
With road cut city-wide	1,508.00	1,508.00
Canyon		Actual Cost

Inspection Fees:

Inspection Fee City-wide	30.00	30.00
Canyon	N/A	50.00

The service rates, connection fees, and inspection fees for pressurized irrigation are as follows:

Monthly user rate based on lot size:

0.00 to 0.50 acres	\$ 10.10
0.51 to 1.00 acres	12.28
1.01 to 1.25 acres	16.20
1.26 to 2.49 acres	16.20
2.50 to 3.74 acres	21.46
3.75 to 4.99 acres	27.20
5.00 to 9.99 acres	34.21
10.00 to 14.99 acres	49.56
15.00 to 19.99 acres	70.12
20.00 acres and above	94.29

Connection fees:	<u>West SR 165</u>	<u>East SR 165</u>
Without road cut city-wide	410.59	410.59
With road cut city-wide	660.59	660.59

Inspection Fees:

Inspection Fee City-wide	30.00	30.00
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The rate structure generates sufficient revenue to provide for operation and maintenance of the system as well as contribute to a reserve and capital expansion program. The utility funds most capital projects from reserves, but a substantial project requiring bonding would, of necessity, increase rates.

The inclining block rate for consumption above 10,000 gallons is designed to encourage conservation for culinary water users.

5.2 Impact Fees

Impact fees are primarily “buy-in” in nature, reimbursing the utility for capital investments already made to serve new growth.

Culinary Water Impact fees:

	<u>West SR 165</u>	<u>East SR 165</u>
Residential, single family	2,497.00	2,497.00
Residential, Multi-family per unit	1,872.75	1,872.75

Commercial/Industrial	<u>Meter Size (in)</u>	<u>ERC</u>	<u>Impact Fee per Meter Size</u>
	¾	1	\$ 2,497.00
	1	1.6	\$ 3,995.20
	1.5	2	\$ 4,994.00
	2	4	\$ 9,988.00
	3	6	\$ 14,982.00
	4	8	\$ 19,976.00
	6	20	\$ 49,940.00

Secondary Water Impact fees:

With Dedicated Water Rights:

Single Family Residential per Unit	\$	794.00
Multi-family Residential per Unit		248.00
Commercial/Industrial per Acre		675.00

Without Dedicated Water Rights:

Single Family Residential per Unit	\$	4,366.00
Multi-family Residential per Unit		1,396.00
Commercial/Industrial per Acre		3,567.00

CHAPTER 6 - ADDITIONAL CONSERVATION METHODS

The City will continue to use the following conservation methods and goals: Replace Older Water Meters with Touch-Read Meters, Replace Older Distribution Lines, Monitor and Quickly Repair Leaks, Public Education, Enforce Plumbing Codes, Work with Larger Users to Implement Conservation Practices, Encourage Residents to Connect to Secondary Water, and Encourage Landscaping Plans that Require Less Water.

CHAPTER 7 - COST ANALYSIS

7.1 Goal #1

a. Benefits of Reaching Goal #1

The benefit of replacing older water meters with touch-read meters saves the City time and it also provides the customer with a more accurate reading of their water usage. Touch-read meters save the City time by reducing the time spent reading meters. This saving of time allows the City more time to identify any problems, such as leaks on a water connection lateral, with the water system and allows the City personnel to devote their time to other tasks. The replacement of older water meters also helps conserve water by replacing older leaking water meters with new ones.

b. Cost of Reaching Goal #1

The City has replaced approximately 70 percent of the water meters with touch-read meters. This means 860 connections still need to be replaced with touch-read meters. A typical touch-read water meter cost for residential service is on the order of \$200.00/ each (materials plus labor). Meters for larger connections are a greater cost but for the purpose of this analysis \$200 will be used to install each meter. This means the cost to install the remaining touch-read meters is \$172,000. The City used to spend every day of the month to read meters. They now spend approximately 40 hours a month to read all the City's meters. This is a savings of approximately 1,440 hours a year that the City can allocate to operation and maintenance of the other components of the City's water system. Once all the City's meters are replaced, it is expected approximately 24 hours a month will be spent on meter reads. This will save an additional 192 hours that City personnel can devote to other tasks.

7.2 Goal #2

a. Benefit of Reaching Goal #2

The main benefit of replacing the existing mechanical flow meters is more reliable flow data. Older turbine or mechanical meters often get clogged and skew the associated data. New magnetic flow meters don't have a mechanical mechanism that will get clogged from debris in the water.

b. Cost of Reaching Goal #2

The City will replace two 12" meters which will approximately cost \$35,000 each.

7.3 Goal #3

a. Benefit of Reaching Goal #3

The main benefit of replacing older distribution lines is less water is loss through distribution system, reducing the amount of water required. Replacing these older water lines also reduces operation and maintenance costs as the City does not have to keep repairing a pipeline which may need to be replaced. It is expected that leakage will be reduced to below 5% throughout the water system.

b. Cost of Reaching Goal #3

The City replaces approximately 2,000 feet of older water mains every year at a cost of approximately \$200,000 to \$250,000 a year.

7.4 Goal #4

a. Benefit of Reaching Goal #4

The benefit of monitoring and quickly repairing leaks allows more water to be retained for delivery to customers.

b. Cost of Reaching Goal #4

There is a cost benefit of monitoring and quickly repairing leaks but it is on a case by case basis. Therefore, a cost is hard to quantify. If a large leak were to develop in the system, thousands of

gallons could be lost before shutting off the main and repairing it. Many smaller leaks provide an even greater loss as smaller leaks are not readily identifiable compared to larger leaks.

7.5 Goal #5

a. Benefit of Reaching Goal #5

The City currently mails periodic newsletters urging conservation of both culinary and irrigation water in their water bills. These newsletters encourage customers to be aware of water conservation. A dedicated page on Hyrum's website will be an additional reminder of water conservation practices and any future incentives or programs from the City.

b. Cost of Reaching Goal #5

There is not an additional cost for the City to implement this goal as they are already providing this information to its customers. The City and customers see a cost benefit as customers will not be billed as much and the City will not have to pump as much water from their wells.

7.6 Goal #6

a. Benefit of Reaching Goal #6

The main benefit of enforcing plumbing codes requiring low-flow fixtures and encouraging residents to replace older fixtures with water-efficient models is it reduces water use. The other benefit is it will reduce customers water bills. The City will continue to promote low-flow fixtures and water-efficient models during the building permit stage. The City can also create a program to provide credit to existing customers who replace older fixtures with water-efficient models.

b. Cost of Reaching Goal #6

The cost for requiring low-flow fixtures is handled on a case by case basis as each developer applies for a building permit. Encouraging customers to replace older fixtures with water-efficient models places the burden upon the customer unless the City created a program to provided credit to existing customers for replacement of older fixtures.

7.7 Goal #7

a. Benefit of Reaching Goal #7

The benefit of working with larger users to implement conservation practices can be significant in reducing culinary and secondary water use.

b. Cost of Reaching Goal #7

Cost is dependent on the number of larger users who were to participate in such a program. EA Miller's main plant has implemented conservation practices and has reduced its water consumption dramatically. Cache County School District has also implemented water conservation measures and has reduced water consumption.

7.8 Goal #8

a. Benefit of Reaching Goal #8

The benefits for residents to connect to secondary water are the reduction in culinary water use and it helps extend available source and storage supplies.

c. Cost of Reaching Goal #8

The cost of residents connecting to the secondary water system is \$410.59 without road cut and \$660.59 with road cut, with a \$30 inspection fee.

7.9 Goal #9

a. Benefit of Reaching Goal #9

Encouraging landscaping plans that require less water will reduce culinary and secondary water usage. Culinary water use will be reduced by consumers who irrigate off culinary water and secondary use will be reduced by consumers who irrigate off secondary water. The City could incorporate xeriscaping provisions into their existing City design standards. The City has begun to use xeriscaping on City projects including the City library and Salt Hollow Park.

b. Cost of Reaching Goal #9

Costs associated with encouraging landscaping plans that require less water are mostly administrative. These costs would be hiring a consultant to provide recommendations on changes to the City design standard, implementing the standards, and educating the public. Total initial costs can be expected in the \$5,000 to \$10,000 range.

CHAPTER 8 - IMPLEMENTATION AND UPDATING THE WATER CONSERVATION PLAN

The Water Conservation Plan must be implemented and updated by insuring the previously listed goals are reached. The tasks to complete each goal must be determined, a responsible party(s) assigned to that goal, and a time line set for completion of each goal.

8.1 Governing Body

The municipal culinary water system is managed by the mayor and City council, under whom the City administrator, public works director, and water superintendent oversee the daily operation.

8.2 Update

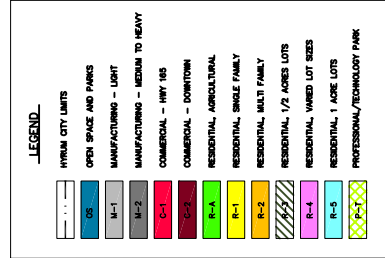
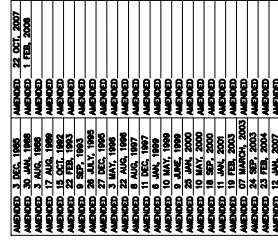
As required by Section 3-10-32(4) (a), Hyrum City will review and update the Water Management and Conservation Plan every five years. Should unforeseen growth or other conditions change, resulting in a need to reevaluate the water system, this plan will be updated more frequently.

8.3 Initial Adoption Date

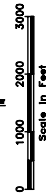
The original Water Conservation Plan was adopted by the Hyrum City Council on June 7, 2001.

APPENDIX A

HYRUM CITY CULINARY WATER SERVICE AREAS (CURRENT ZONING MAP)



HYRUM, UTAH ZONING MAP



APPENDIX B

WATER CONSERVATION PLAN ORDINANCE

RESOLUTION [REDACTED]

A RESOLUTION ADOPTING THE HYRUM CITY WATER MANAGEMENT AND CONSERVATION PLAN.

WHEREAS, Section 73-10-32, Utah Code Annotated, 1953, as amended, requires all distributors of culinary water to more than 500 connections to develop a water conservation plan; and

WHEREAS, said plan is to include, among other things, "ideas, suggestions, or recommendations to help conserve water and limit or reduce its use in the state in terms of per capita consumption so that adequate supplies of water are available for future needs"; and

WHEREAS, to comply with the requirements of Section 73-10-32, the Hyrum City Council studied the water supply and distribution systems of the municipality as well as future water needs projections and developed a water conservation plan attached hereto as "Exhibit A".

NOW, THEREFORE, BE IT RESOLVED by the City Council of Hyrum City, Cache County, State of Utah, that the HYRUM CITY WATER MANAGEMENT AND CONSERVATION PLAN attached hereto as "Exhibit A" is hereby approved and adopted as the water conservation plan of Hyrum City.

BE IT FUTHER RESOLVED that this Resolution shall take effect upon adoption.

ADOPTED AND PASSED BY the City Council of Hyrum, Utah, this [REDACTED]th day of [REDACTED], 20__.

HYRUM CITY

By _____
Stephanie Miller
Mayor

ATTEST:

Stephanie Fricke
City Recorder