WATER MANAGEMENT AND CONSERVATION PLAN

2022 UPDATE

HYRUM CITY

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Hyrum, Utah 84319-1205

JULY 2022

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CHAPTER 1 - INTRODUCTION

1.1 Background

Hyrum City is a rural community with a population of 9,362 people (2020 Census). It is located in northern Utah, approximately eight miles south of Logan. The City owns and operates a culinary water system serving multiple classes of customers, including: agricultural, residential, commercial, and industrial users. The City also owns and operates a secondary water system serving the majority of the community. Most of the customers are located within the municipal limits, but some service lines extend to a few users outside the City. Most notably, is 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, 3,330 acre-feet of irrigation water rights, and three (3) culinary water storage tanks. Culinary Water rights are taken from the November 2008 *Hyrum City Potable & Secondary Water Rights 40-year Master Plan*, prepared by AQUA Engineering. Irrigation Water rights and supplied by Hyrum City records. 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 have increased as the City has grown. Over the past 5 years the number of service connections have increased as demonstrated in the following table:

(as of October 2017)		**(as of June 2022)**
2,738	single family residential	3,051
21	multi-family residential	358
1	mobile home residential (for 110 pads)	1
93	commercial	45
14	industrial	28
(Not classified)	institutional	34
2,867	**Total**	**3,517**

Note: the number of institutional connections were not reported in 2017. They were lumped in and included with the commercial connections. For 2022, the connections have been re-classified to include institutional connections in their own category. The types of service connections included in the institutional category consist of schools, churches, and governmental agencies.

Hyrum City furnishes water to its residential and commercial customers primarily for indoor use because approximately 2,261 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 water from the water reclamation facility to the secondary (pressurized irrigation) system. In 2017 it was reported that approximately 130-160 MG of treated wastewater effluent was pumped into the secondary irrigation system. Since 2017 this flow was tracked more closely, as there are limiting factors on the delivery of this reclaimed water to the pressurized irrigation system. Most notable of the limiting factors is the piping system itself. The distribution line size exiting the reclaimed pump station is a 14-inch diameter pipe, but for a short distance, on 300 North, just before reaching the main portion of the City, the distribution line reduces to a 6-inch diameter pipeline. This reduction acts as a restriction to the flows that can be delivered to the main body of the City. The flow capacity that actually has been delivered to the City over the past 5-year period has averaged approximately 700 gpm, which equates to just over 1 million gallons per day. This flow rate is more indicative of the actual flow rates that have been delivered over the past 5-year period (2017 – 2022). This is a slight reduction from what was reported for the previous 5-year period (2012 – 2017).

To further promote water conservation, Hyrum City is aggressively seeking assistance to install meters on each of the secondary service laterals of the piped irrigation system. In an effort to comply with the goals of the State to have the pressurized irrigation system metered by 2029, as was recently enacted (2021), Hyrum City has engaged with their consulting engineer to pursue this concept. It has been demonstrated that the mere act of installing meters on an unmetered secondary system has prompted the end users to self-regulate and manage their water consumptive use to a savings of nearly 30-percent, or more. This is a significant conservation savings and as such, has become an important part of the Hyrum City conservation plan.

2.2 Inventory of Water Resources

2.2.1 Water Rights

As recorded in 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 that are utilized in the culinary water system. These culinary water rights have not changed, but the water

rights utilized for the secondary system have changed over time. The secondary water rights totaling 2,992 acre-feet serving 2,204 connections as of June 2017 have increased to 3,330 acre-feet to serve the current number of 2,261 secondary connections as of June 2022. The growth (changes) of secondary water rights since 2017 is shown in the following table:

Secondary Water Rights:

Source	2017	2022
Hyrum Irrigation Company	844	982
High Line Canal	617	735
Blacksmith Fork	82	73
Porcupine Reservoir	1431	1431
Richmond Irrigation	18	52
Miscellaneous	-	57
Total:	**2,992**	**3,330**

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 (gpm)
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
Main Spring	S 552 ft E 1383 ft from NW Corner Sec. 12, T 10N, R 2E, S.L.B.&M.	25-3032	1.96	Jan. 1 to Dec. 31
Cold Water Spring	S 950 ft E 1080 ft from NW Corner Sec. 9, T 10N, R 2E, S.L.B.&M.	25-3441	1.25	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	0.25	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	0.25	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, however, some pipelines are older and smaller than they should be to adequately deliver the flow necessary to meet the fire protection demand required by the most recent ISO and UBC standards. In the past, Hyrum City has undertaken to replace many of the 3” and 5” water lines within the City. For example, the City recently replaced the smaller 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 already completed several pipeline replacement/improvement projects over the past 10 years. Water line improvement projects in 2013, 2014, and 2017 were completed in the City to improve water transmission and distribution, especially to the outlying and underserved areas. Additionally, the City

is currently (2022) designing and preparing bids to replace an additional 2,500 linear feet of 8-inch diameter water line with a 10-inch water line in 900 West to improve water delivery issues on the west end of town.

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.

Since a study completed by Cloward & Associates in February 2000, the City has been attempting to complete projects that were identified in the study as necessary to increase capacity and extend service to additional users. One such project included the installation of a pumping station 3 years ago at the Hyrum Dam called the Little Feeder Pump House. The City owns 2,400 acre-feet of irrigation shares at the Hyrum Dam, so they built the 150 hp, 8-inch line that pressurizes the Little Feeder Canal water and feeds it directly into the secondary main line, matching the pressures of the main line system. This water is primarily used to meet peak demands of the secondary system and is manually controlled through a variable frequency drive (VFD). The pump is usually set at a delivery of 2 cfs. The water is metered at the canal from the dam, as well as at the pump itself.

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. The 1998 policy continues to be in force to date, and is anticipated to remain in force for the next 5-year period.

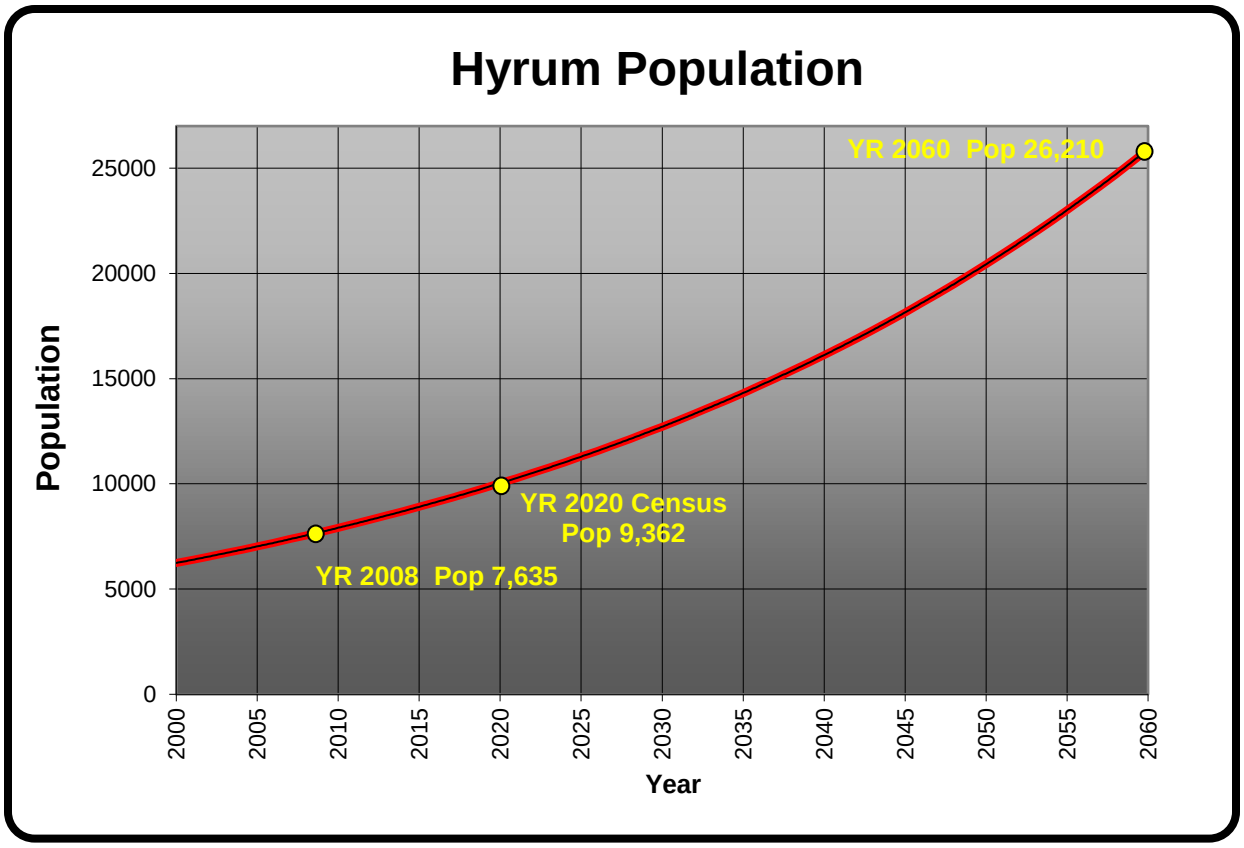
2.5 Water Budgets

The City meters their existing sources, i.e. wells and springs, and bills their water users. The total potable water metered flow for 2016 was reported to be 1,090,760,150 gallons. The total potable water metered flow for 2021 was reported to be 1,091,568,160 gallons. This reported total water flow is measured at one large meter located at the chlorinator. The increase of total annual flow from the year 2016 to 2021 represents an overall usage increase of 808,016 gallons, or 2,213 gpd. However, giving consideration to the population and number of connections increased over that same 5-year period, the actual gallons per capita per day (gpcd) decreased from 351 gpcd to 319 gpcd, a decrease of 9.1%. This is a significant reduction (conservation) of usage, even though the amount is still above the State average of 240 gpcd. The average gpcd for Hyrum has always been higher than the State average because of the high industrial and commercial use within the City. When the potable water usage from commercial and industrial users is eliminated, the usage is 224,830,570 gallons per year or 66 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 3,350 acre-feet or 1,091,672,407 gallons in 2021. With a metered flow of 860,395,000, the calculated system loss is 21.18%.

2.6 Present Water Use and Future Water Needs

Population data was obtained from the 2020 Census. The population in Hyrum City at the time of the 2020 Census was 9,362. The *Hyrum Potable and Secondary Water Systems 50-Year Demand Projections*, dated November 2008 by AQUA Engineering, projected an average growth rate of 2.4% (see Figure 1) through the year 2060. This growth rate has increased from approximately 1.5% prior to 2016 to approximately 2.4% since 2017. Therefore, the growth rate of 2.4% was used for the population projections of this WCP.



Note: Table from *Hyrum Potable and Secondary Water Systems 50-Year Demand Projections*, dated November 2008 by AQUA Engineering, and from the 2020 Census

Figure 1: Hyrum City – Population Projections

The City metered 1,091,568,160 gallons of potable water usage in 2021. The projected potable water source demand and capacity uses data obtained from the *2008 Potable and Secondary Water Systems 50-Year Demand Projections* 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 319 gpcd remains the same through 2050. A surplus of 5867 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.

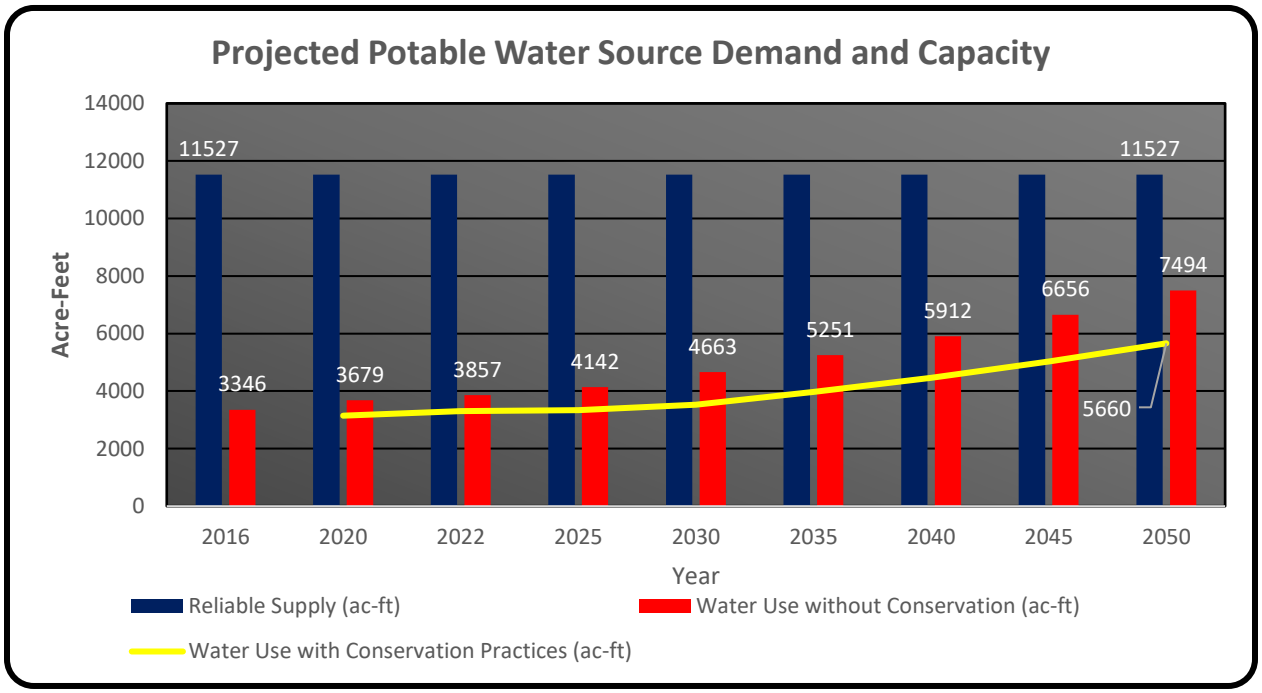
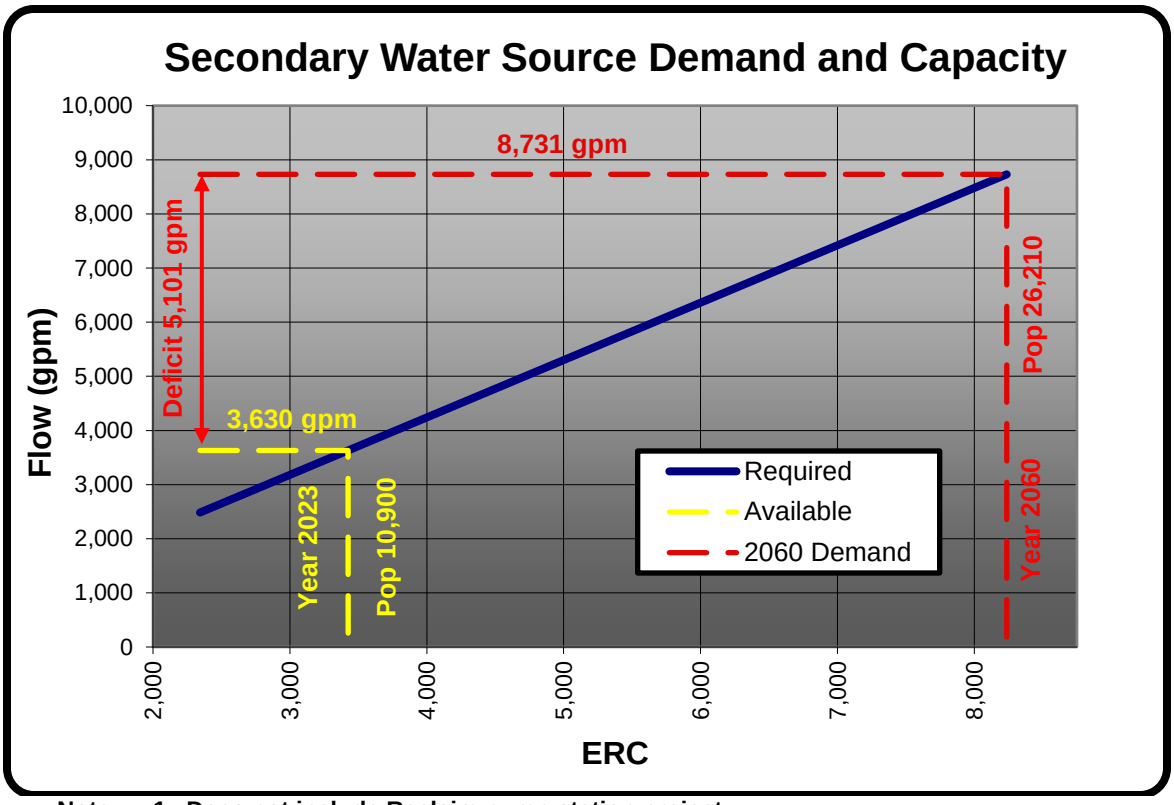


Figure 2: Hyrum City – Future Potable Water Source Demand and Capacity

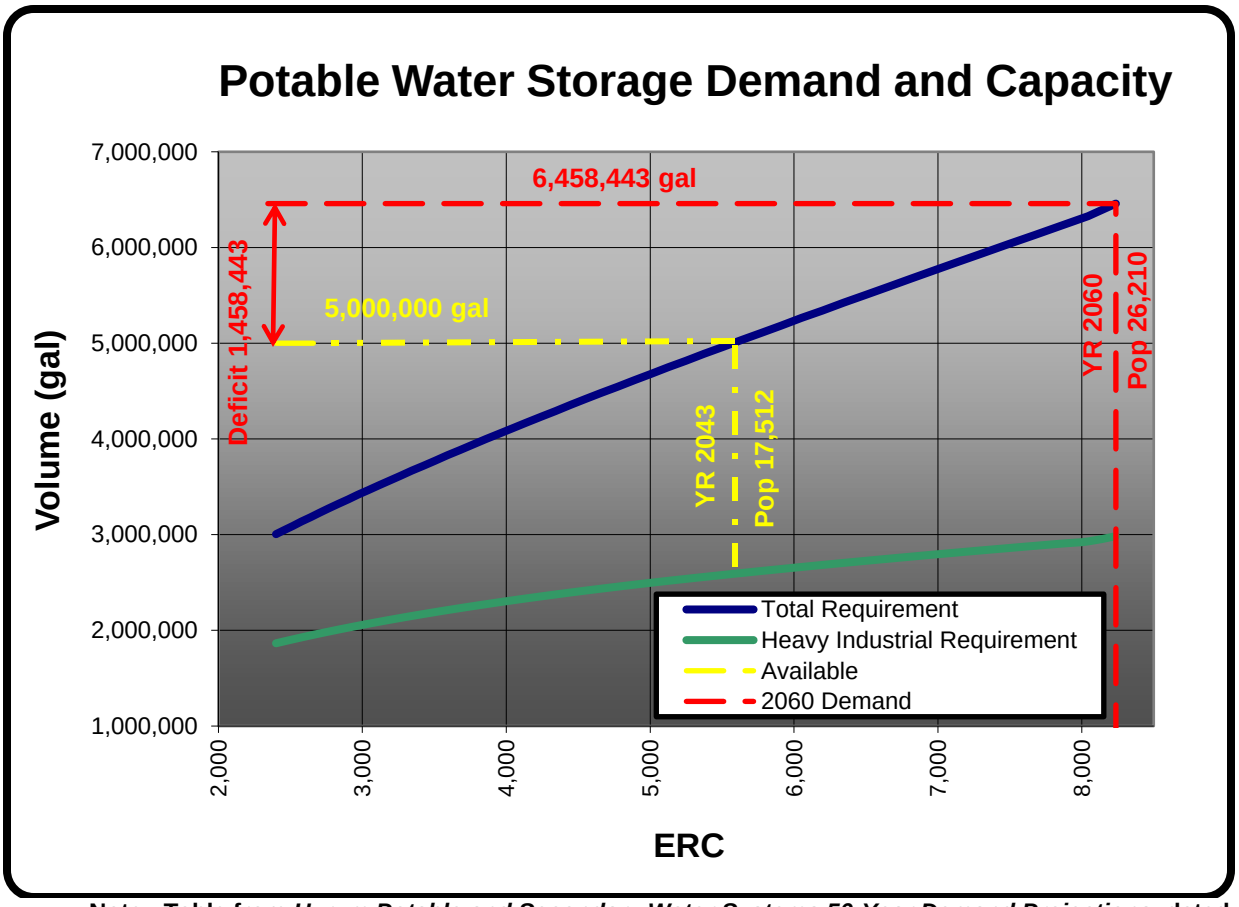
The projected secondary water source demand and capacity was obtained from the 2008 *Potable and Secondary Water Systems 50-Year Demand Projections*. Figure 3 projects the City to have a deficit of 5,101 gpm in year 2060. This means the City would run out of secondary water by the year 2023. This report 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 organizational 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 portable 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 the then governor's (Governor Herbert) 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 needs 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 20 years.

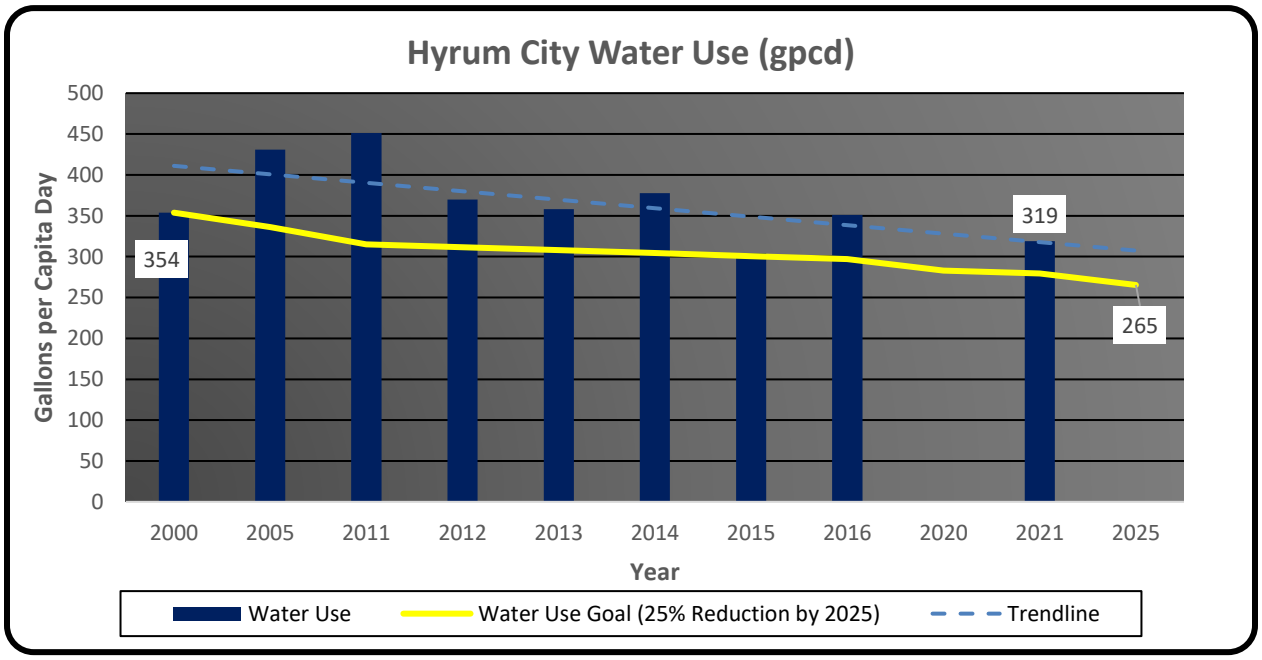


Figure 5: Hyrum City Water Use and Water Use Goal

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	Ongoing
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	Ongoing
8	Encourage Residents to Connect to Secondary Water	Encourage residents to connect to and use secondary water for outside watering purposes	N/A	Ongoing
9	Encourage Landscaping Plans that Require Less Water	Encourage residential & commercial landscaping plans that require less water to maintain.	N/A	Ongoing

*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 the immediate future needs, the City recognizes the importance of wise water management and attempts to instill these values with its residents. Especially with the experience of the recent years of excessive drought. 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. The 2017 report identified a total of 19 points of leakage over a total length of 52,500 feet of pipeline. The City continues to use the leak detection studies to repair leaks and decrease water system loss throughout the City.

The City's 2011 construction of the Reclaimed Water Pump Station provided additional water conservation as reclaimed water. The pump station has the capacity to provide approximately 2,100 gpm, but due to distribution piping restrictions as discussed earlier, is currently delivering on average, approximately 700 gpm. This flow rate is approximately equivalent to 1 million gallons per day.

Those parts of the City affected by morning canyon winds are permanently restricted from watering during 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 Chapter 3.2.

The City has experienced, and hopes to continue experiencing, the conservation goals listed in Chapter 3.2. These goals 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 and pressurized irrigation (secondary) water are as follows:

CULINARY WATER UTILITY CHARGES:

Residential Base rate:

¾”	meter	$	15.00	first 10,000 gallons
1”	meter		16.96	first 10,000 gallons

Commercial Base rate:

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
8”	meter		490.00	first 10,000 gallons
10”	meter		560.00	first 10,000 gallons

Residential overage:

10,001 – 50,000 gallons	$	0.78	per 1,000 gallons
over 50,000 gallons		1.08	per 1,000 gallons

Commercial overage:

10,001 – 50,000 gallons	0.96	per 1,000 gallons
All over 50,000 gallons	1.08	per 1,000 gallons

Users outside City limits:

Users beyond Hyrum City limits	1-½ times City rates

Connection fees:

Property owner responsible for connection

Meter & City inspection fee	$	424.00

Impact fees:

Residential, single family	$	2,498.00
Residential, multi-family per unit	$	1,872.75
Commercial/Industrial	Equivalent meter ratio x $272.33	

PRESSURIZED IRRIGATION (SECONDARY) UTILITY CHARGES:

Service Rates:

Monthly user rate based on lot size:

0.00 to 0.50 acres	$	11.10
0.51 to 1.00 acres		13.58
1.01 to 1.25 acres		14.83
1.26 to 2.49 acres		18.06
2.50 to 3.74 acres		24.04
3.75 to 4.99 acres		30.60
5.00 to 9.99 acres		38.66
10.00 to 14.99 acres		56.25
15.00 to 19.99 acres		79.94
20.00 acres and above		107.96
Mountain Crest High		540.00

Connection fees:

Property Owner responsible for connection

Impact fees with water:

Residential, single family	$	794.00
Residential, multi-family per unit	$	248.00
Commercial/Industrial, per acre	$	675.00

Impact fees without water:

Residential, single family	$	4,366.00
Residential, multi-family per unit	$	1,396.00
Commercial/Industrial per acre	$	3,567.00

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. Impact fees are shown in the utility (culinary and pressurized irrigation) table in the previous section.

For the culinary system, the impact fee is based on whether the connection is a residential or commercial/industrial connection. If it is residential, then the distinction is made whether it is a single family or multi-family connection. If the connection is single family, then it is a flat rate. If it is a multi-family connection then it is a base rate, multiplied by the number of units served by that connection. For the commercial/industrial connection the impact fee is calculated by multiplying the equivalent meter ratio by a fixed fee that is susceptible to change according to the decision of the City Council from year-to-year.

For the pressurized irrigation system, the impact fee is also based on whether the connection is a residential or a commercial connection. If residential, then again, it needs to be distinguished between a single family and a multi-family connection. The single family connection is assessed a flat rated, and the multi-family has a different flat rate, but is then multiplied by the number of units for the connection. The commercial/industrial connection is yet another flat rate, multiplied by the acreage of the development.

In all cases, the flat rate and fee structure for both the culinary and pressurized irrigation systems is established by the City Council. The rates and fees can vary or change if the City Council so elects to do so as they review the structure each year.

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 lost through the 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 currently has on its books to replace and upgrade nearly 2,500 linear feet of waterline in 900 West. The preliminary estimates for this project is close to $2 million. As the city can secure funding, they will continue to replace older water mains in the city.

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 customer's 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 creats 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.

b. Cost of Reaching Goal #8

The cost of residents connecting to the secondary water system is borne by the property owner responsible for the connection. This would mean the physical, construction costs. There is an additional impact fee that the city charges the resident for their connection. That fee is $794.00 for a single family residential connection, and $258.00 per unit, for a multi-family connection. For a commercial/industrial connection the impact fee is $675.00 per acre.

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 continue promoting xeriscaping and low water usage designs. The City has current provisions for xeriscaping and conservation in their design standards. The City also has been incorporating xeriscaping on City projects such as 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 are associated with consultant design and review proposed plans and developments. Also, costs are associated with additional modifications and changes to the City design standards, along with 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 by 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. Subsequent Water Conservation Plans have been prepared and adopted by the Hyrum City Council, on a 5-year periodic basis, and in accordance with the State requirements and regulations, Section 3-10-32(4) (a). These periodic WCPs include versions prepared and adopted according to the following schedule:

2001 Original	Adopted June 7, 2001
2006 Update	Adopted August 2, 2007
2012 Update	Adopted February 7, 2013
2017 Update	Adopted February 2018
2022 Update	(Pending adoption)

APPENDIX A

HYRUM CITY CULINARY WATER SERVICE AREAS (CURRENT ZONING MAP)

APPENDIX B

WATER CONSERVATION PLAN ORDINANCE

RESOLUTION _____

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.

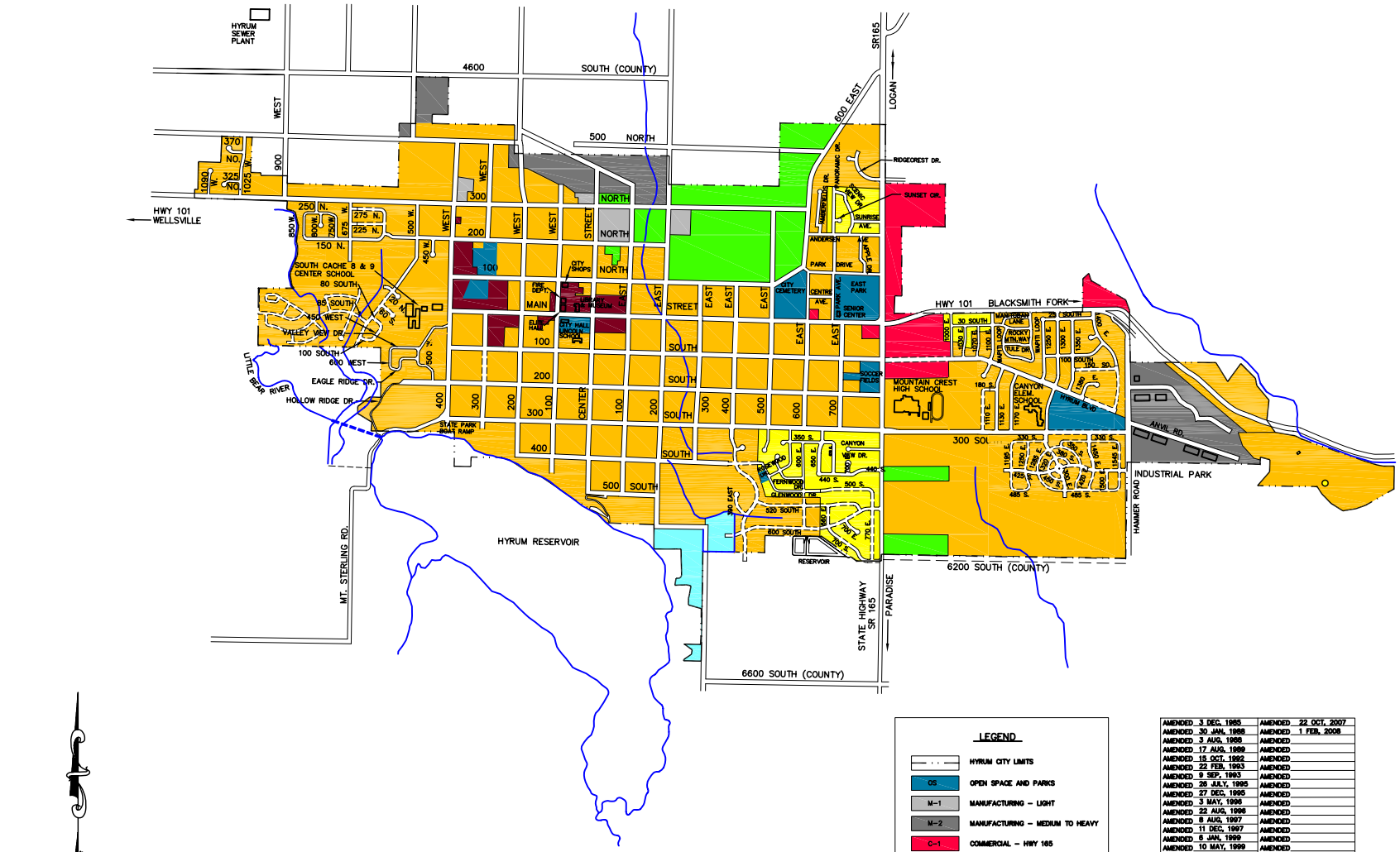
ADOPTED AND PASSED BY the City Council of Hyrum, Utah, this ___th day of _____, 20__.

HYRUM CITY

By _____
Stephanie Miller
Mayor

ATTEST:

_____
Stephanie Fricke
City Recorder



0 1000 2000 3000
Scale In Feet

HYRUM, UTAH ZONING MAP

LEGEND

- HYRUM CITY LIMITS
- OS — OPEN SPACE AND PARKS
- M-1 — MANUFACTURING – LIGHT
- M-2 — MANUFACTURING – MEDIUM TO HEAVY
- C-1 — COMMERCIAL – HWY 165
- C-2 — COMMERCIAL – DOWNTOWN
- R-A — RESIDENTIAL, AGRICULTURAL
- R-1 — RESIDENTIAL, SINGLE FAMILY
- R-2 — RESIDENTIAL, MULTI FAMILY
- R-3 — RESIDENTIAL, 1/2 ACRES LOTS
- R-4 — RESIDENTIAL, VARIED LOT SIZES
- R-5 — RESIDENTIAL, 1 ACRE LOTS
- P-T — PROFESSIONAL/TECHNOLOGY PARK

AMENDED 3 DEC. 1985	AMENDED 22 OCT. 2007
AMENDED 30 JAN. 1988	AMENDED 1 FEB. 2008
AMENDED 3 AUG. 1988	AMENDED
AMENDED 17 AUG. 1989	AMENDED
AMENDED 15 OCT. 1992	AMENDED
AMENDED 22 FEB. 1993	AMENDED
AMENDED 9 SEP. 1993	AMENDED
AMENDED 26 JULY. 1995	AMENDED
AMENDED 27 DEC. 1995	AMENDED
AMENDED 3 MAY. 1996	AMENDED
AMENDED 22 AUG. 1996	AMENDED
AMENDED 8 AUG. 1997	AMENDED
AMENDED 11 DEC. 1997	AMENDED
AMENDED 6 JAN. 1999	AMENDED
AMENDED 10 MAY. 1999	AMENDED
AMENDED 9 JUNE. 1999	AMENDED
AMENDED 25 JAN. 2000	AMENDED
AMENDED 10 MAY. 2000	AMENDED
AMENDED 18 SEP. 2000	AMENDED
AMENDED 11 JAN. 2001	AMENDED
AMENDED 19 FEB. 2003	AMENDED
AMENDED 07 MARCH. 2003	AMENDED
AMENDED 24 SEP. 2003	AMENDED
AMENDED 23 FEB. 2004	AMENDED
AMENDED 12 JAN. 2007	AMENDED

NO.	DATE	DESIGN	DRAWN	CHECKED
-	2/01/2008	-	-	-

ORIGINAL
REVISIONS

HYRUM CITY CORPORATION

ZONING MAP

AQUA ENGINEERING, INC.
533 W. 2600 S., SUITE 275 BOUNTIFUL, UT 84010
PHONE (801) 294-0027 FAX (801) 294-0153

SHEET
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