City of Orem
Water Conservation Plan

FAMILY CITY USA

October 2022

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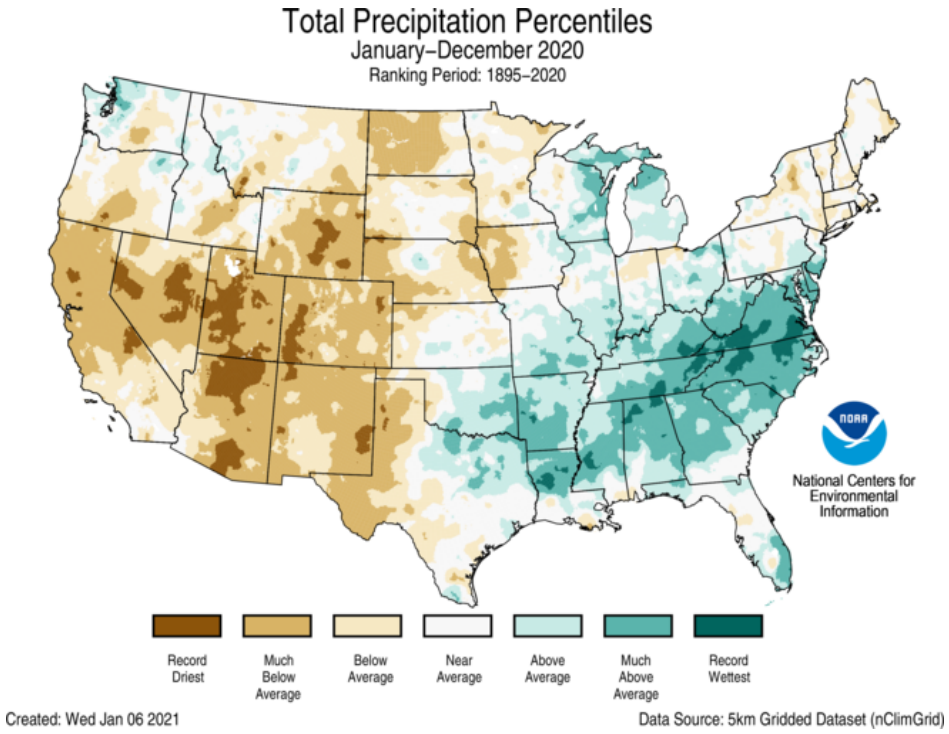
INTRODUCTION

In 1960, the City of Orem had a population of 18,394. From the 60s through the 90s, Orem experienced rapid growth. Population growth has slowed since then. The 2010 census reported Orem's population at 88,328, and the most recent census estimate in 2021 was 97,861. Previous leaders and water managers planned well to meet the water needs for the citizens. However, citizens of Orem and leaders are becoming more aware of the future cost and availability of its water supply. The Utah State Legislature reemphasized its commitment to water conservation by modifying the Water Conservation Plan Act in the 2004 legislative session (Section 73-10-32 Utah Code Annotated) and again in 2016 approving SB 28 – Water System Conservation Pricing. The 2022 City of Orem Water Conservation Plan addresses the concerns of leaders and citizens of the City of Orem as well as the state of Utah. This plan uses the most current census data and projections. The per capita consumption trend has continued to decrease steadily. This plan, in concert with previous plans, utilizes source meter data. Future plans will additionally represent metered delivery statistics.

DESCRIPTION OF OREM CITY AND ITS WATER SYSTEM

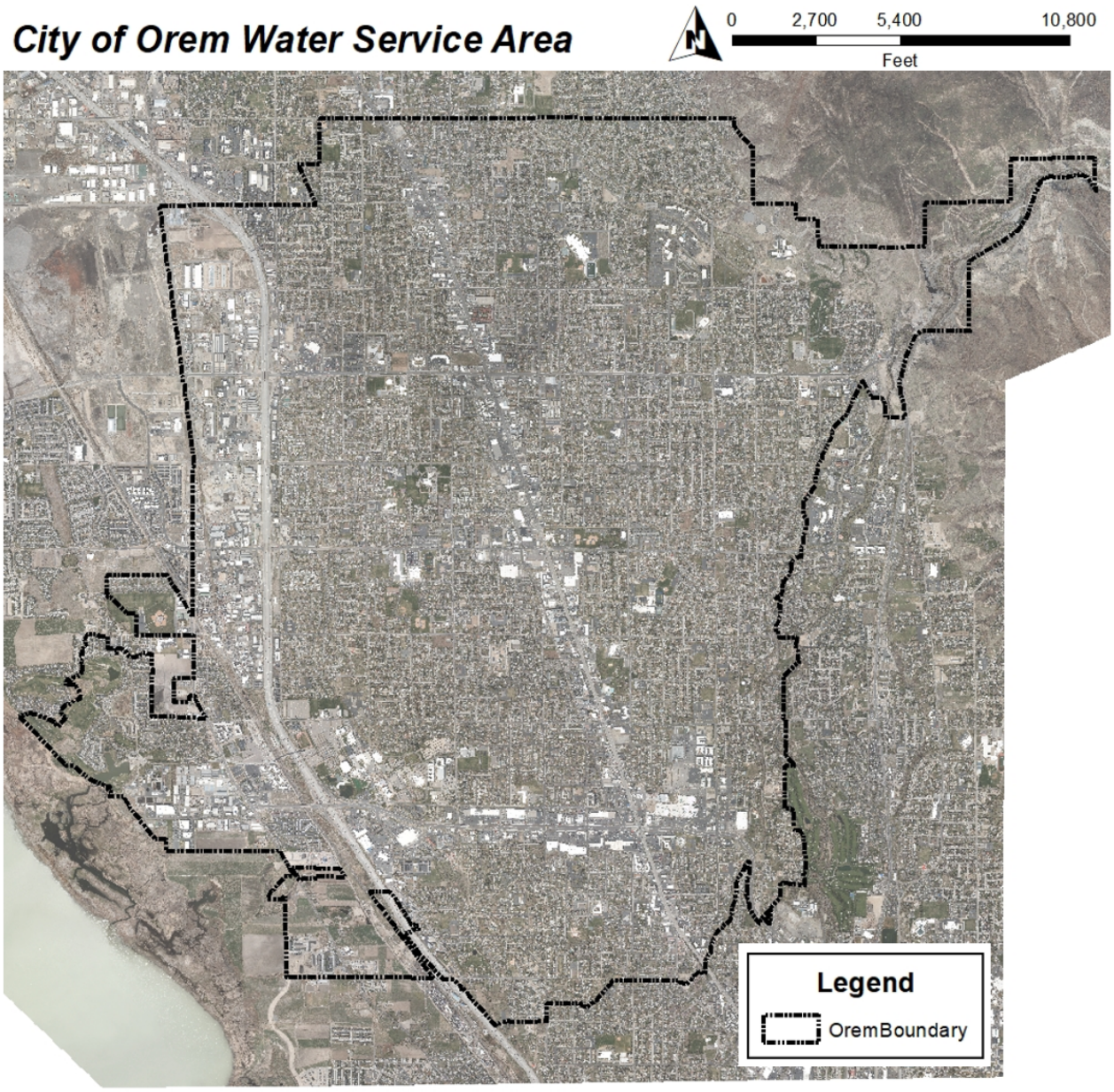
The City of Orem is located in central Utah County and in the second driest state in the nation. Figure 1 shows the State of Utah receives “Much Below Average” and “Record Driest” from January through December 2020 based on a Ranking Period between 1895 and 2020. (source: noaa.gov)

Figure 1



Encompassing 18.6 square miles, Orem has an estimated population of 97,861 in July 2021. Providing water to meet the needs of its citizens has always been a top priority of City leaders and water planners. The service area for the City is shown in Figure 2 below.

Figure 2



As a result, a well-maintained and operated water system provides the residents of Orem with water whenever needed. Currently, the water system provides water through 23,530 connections (see Table 1).

Table 1
City of Orem - Water Meter Types and Sizes

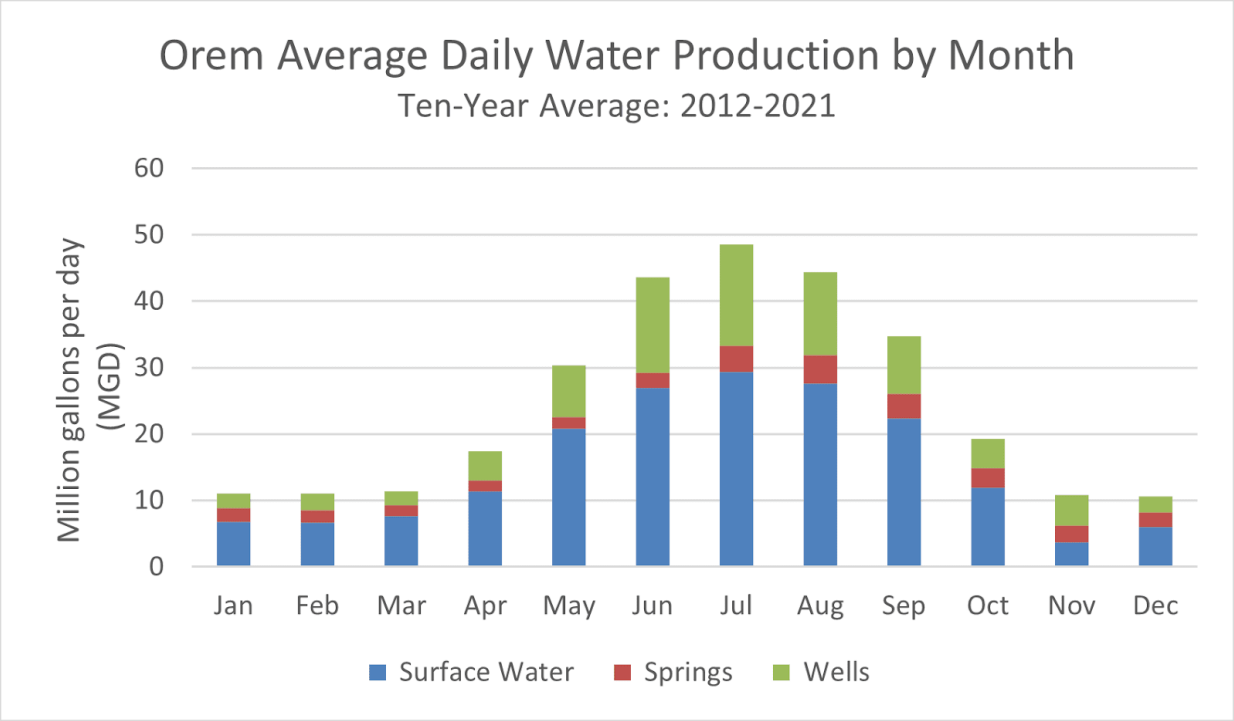
Type	¾"	1"	1½"	2"	3"	4"	6"	8"	12"	TOTAL
Apartment	47	83	74	64	14	8	2	2		**294**
Commercial	845	461	215	209	8	13			2	**1,753**
Condo	2,479	58	20	20						**2,577**
Institutional	29	19	27	87	9	23	2	4		**200**
Industrial	23	15	4	9	2	2				**55**
Multi-unit	388	478	102	154	4	7	7	4		**1,144**
City Facilities	4	37	2	85	3	24	15	2		**172**
Single Family	14,791	2,488	43	11		2				**17,335**
TOTAL	**18,606**	**3,639**	**487**	**639**	**40**	**79**	**26**	**12**	**2**	**23,530**

In addition, Orem's leaders and residents place a high value on open space. In 2001, Orem City built Lakeside Sports Park, which is a 55-acre park with five softball fields, eight full-size soccer fields, and other landscaped play areas. In 2004, the Links at Sleepy Ridge 18-hole golf course was constructed in partnership with a private developer. Currently, the City maintains and irrigates approximately 275 acres of turf and flowerbeds. Landscaped areas around schools, churches, and major industries occupy over 525 acres. In 2015, the City annexed 264 acres in the Southwest area. Utah Valley University is a large water user. For landscaping, they use water pumped from a deep well that was recently constructed on campus.

Inventory of Water Resources

The City of Orem and the Metropolitan Water District of Orem (MWDO) own water rights and water shares in private canal and irrigation companies that are used to supply culinary water to the community. The MWDO is a representative board that manages and acquires Orem's surface water in the form of water shares in private canal and irrigation companies, which include natural flow and storage water in the Provo River. This surface water is diverted out of the Provo River at the Olmstead Diversion and treated at the Don A. Christiansen Regional Water Treatment Plant (DACRWTP), which is owned and operated by Central Utah Water Conservancy District (CUWCD). All spring and ground water rights are owned entirely by the City of Orem, which currently includes nine deep wells and two mountain springs. An additional tenth deep culinary water well is currently under construction and will be fully operational in 2024. Figure 3 depicts the ten-year average of water production in the City on a monthly basis for each of the sources of water.

Figure 3



These sources combine to supply the citizens of Orem with all of its indoor and outdoor water demands throughout the year. Culinary water will continue to come from these sources. The ten-year average of water produced through springs, wells, and surface water is 2,583 (11%), 6,768 (28%), and 15,106 (62%) million gallons per day (MGD) respectively of drinking water for an average of 24,456 MGD annually.

The MWDO owns water shares in various private canal and irrigation companies and other entities as shown in Table 2. Water provided under these shares is, and will continue to be, converted to municipal and industrial (M&I) use for the various needs of the Orem consumer.

Table 2
Summary of MWDO-Owned Irrigation Shares

Canal	Shares	AF
Provo Bench Canal and Irrigation Company	948.71	14,932.69
North Union Irrigation Company	233.44	2,238.66
Provo Reservoir Water Users Company	1,948.00	13,344.79
Provo River Water Users Association	2,254.00	2,254.00
Central Utah Water Conservancy District	7,520.00	7,520.00
Dixon Irrigation Company	300.00	564.00

Orem City exercises rights to remove water from underground aquifers through nine deep wells ranging from 500 to 1,000 feet in depth. These wells are located throughout Orem's bench, which is an alluvial fan to the former Lake Bonneville. The water right associated with these wells allows for a year-round flow rate of 22.51 cfs plus a remaining diversion volume of 2,104.48 acre feet for a combined total annual diversion volume of 18,401.72 acre feet. All of Orem City's ground water rights are consolidated into one water right as shown in Table 3. The ground water provided under this right is also used for the various needs of the consumer.

Table 3
Summary of City-Owned Ground Water Rights (Wells)

Source	Water Right #	Allowable Annual Removal (AF)
Ground Water Wells (Currently nine)	55-290	18,401.72

Besides these wells, Orem City also owns and maintains two other ground water sources, Canyon Springs and Alta Springs. These springs are located approximately 1.5 and 5 miles northeast of the mouth of Provo Canyon, respectively. Until 1979, approximately 60% of Orem's culinary water came from Alta Springs. This spring has its peak flow in late July or early August and contributes to 75% of total spring production. Table 4 describes these springs in further detail.

Table 4
Summary of City-Owned Ground Water Rights (Springs) 2012-2021

Source	Water Right #	Associated Right (cfs)	Lowest Annual Yield (AF)	Average Annual Yield (AF)	Highest Annual Yield (AF)
Alta Springs	55-4160	13	1,533	2,400	3,211
Canyon Springs	55-3767 55-79	2.2	253	547	762

In addition to these resources, MWDO has contracted with the Central Utah Water Conservancy District (CUWCD) for 7,520 AF of Central Utah Project (CUP) water as shown in Table 5. The contract with CUWCD requires MWDO to pay for the water whether or not it is put to beneficial use. MWDO reached its peak contract amount in 2017, and the agreement runs through 2047.

Table 5
Contracted Water Supply with CUWCD

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018+
Acre-Feet	3,020	3,520	4,020	4,520	5,020	5,520	6,020	6,520	7,020	7,520	7,520

Historic and Future Water Needs

Figure 4 depicts the daily per capita water use per state in the United States (source: epa.gov, USGS, Circular 1405). Since 1960, Orem's water consumption has been steadily declining from 359 in 1960 to 254 gallons per capita per day (gpcd) in 2016. Over the past ten years, Orem's use has averaged 261 gpcd.

Figure 4

Historic and Future Water Needs

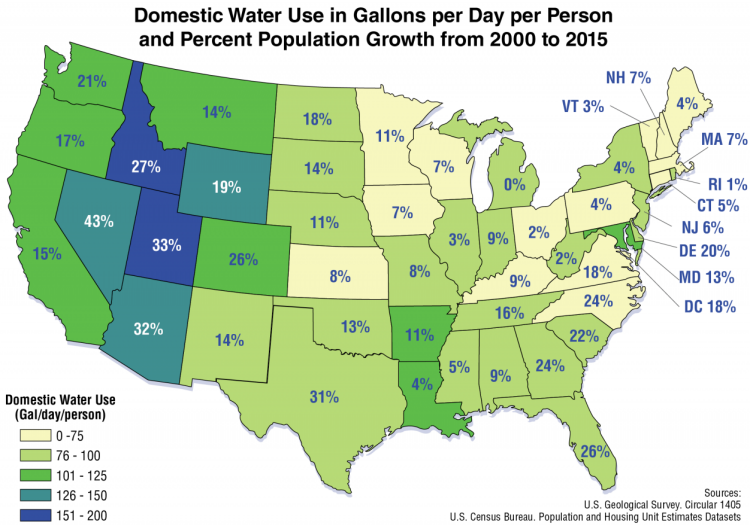
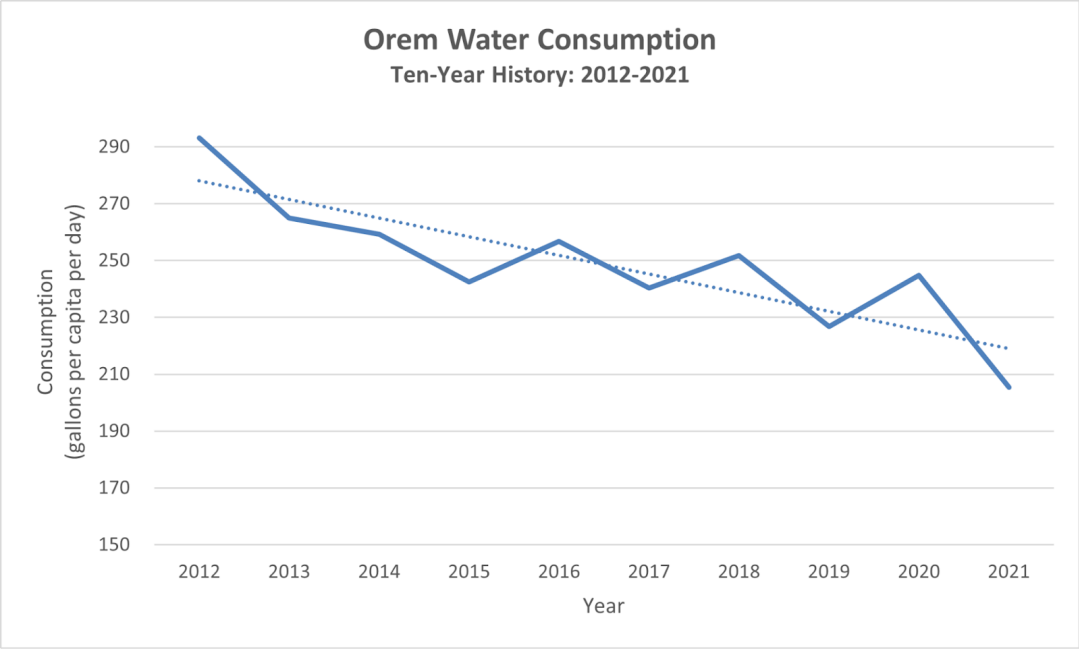


Figure 5 graphically represents Orem's water consumption over the past ten years, including a trend line that represents a relatively consistent drop of 6.5 gpcd, or about 3% per year over the past ten years. There has been a 30% reduction in per capita consumption since 2012 when the consumption rate was at its all-time high.

Figure 5



During the 80s and 90s, the City of Orem experienced a growth rate of 2.0-2.5%. From 2000 to 2010, the growth rate was 0.47%. Since 2010, the growth rate has been 1.5-2%. As growth occurs, demands on City resources increase. For example, traffic congestion increases and must therefore be mitigated. More storm water is generated and must be aggressively managed. Space that is more open is created for parks and recreation. Likewise, the overall demand on the City's water resources also increases.

Although Orem City is a mature City, many opportunities for change are on the horizon. In fact, new legislation passed over the past few years now allows for higher densities, which, in turn, requires more efficient urban design with respect to utilities, traffic, open space, etc. Even though the growth has caused changes in the way the land is developed, the average per capita water demand over the same footprint may actually decrease with these developments.

Utah's Regional M&I Water Conservation Goals

A state-wide water conservation plan titled "Utah's Regional M&I Water Conservation Goals" was completed by the Utah Division of Water Resources in 2019. It recommends conservation goals for water suppliers in regions throughout the state. The goal for the Provo River Region was to decrease water use by 20% from 2015 to 2030. Additionally, it recommends an overall 27% decrease by 2040 and 32% decrease by 2065.

Using these guidelines, the baseline for the City was calculated to be 261.5 gpcd in 2015 with an expected reduction of approximately 3.5% per year to reach the goal of 209.1 gpcd by 2030. Meeting this goal will save over 7.3 billion gallons of water by 2030. This information is summarized in Figure 6 and Table 6 below and shows the City is trending well to meet this goal.

Figure 6

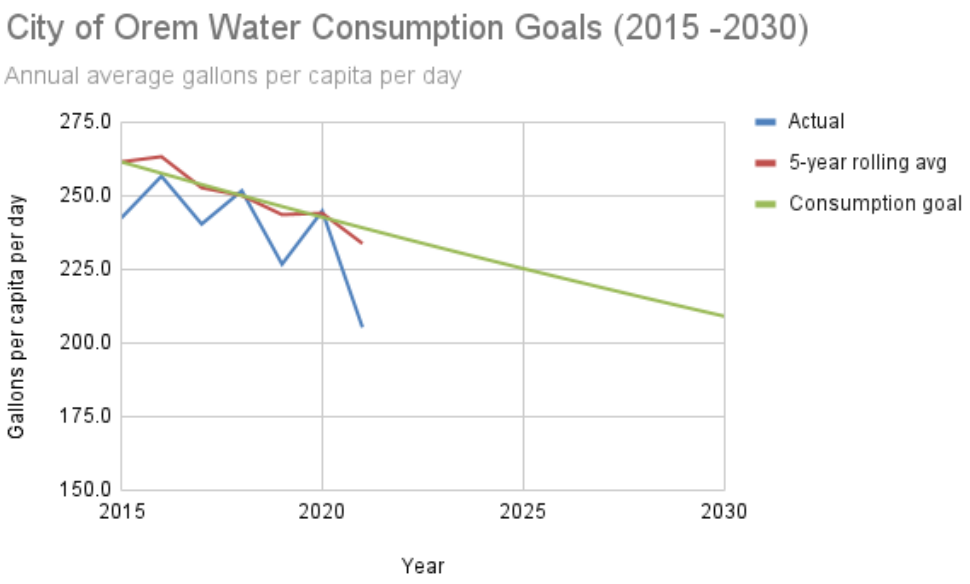


Table 6

City of Orem Water Consumption Summary
(annual average gallons per capita per day)

Year	Actual (gpcd)	5-year rolling avg. (gpcd)	Consumption Goal (gpcd)
2015	242.4	261.5	261.5
2016	256.7	263.3	257.6
2017	240.4	252.7	253.8
2018	251.7	250.1	250.1
2019	226.8	243.6	246.4
2020	244.8	244.1	242.7
2021	205.3	233.8	239.1
2022			235.6
2023			232.1
2024			228.7
2025			225.3
2026			222.0
2027			218.7
2028			215.4
2029			212.2
2030			209.1

THE FOLLOWING SECTION REFLECTS WATER CHALLENGES AND GOALS FROM THE 2017 WATER CONSERVATION PLAN. UPDATES FOLLOW EACH SECTION.

WATER CHALLENGES AND CONSERVATION GOALS

Water Challenges Identified

The following list identifies four water challenges currently facing Orem: pricing, education, water meters, and increased operating expenses. Overcoming these challenges will not only increase water conservation, but will also reduce peak demands and the need for expensive water system upgrades. The potential to establish a new generation of wise water users exists, which will lead to a long-lasting positive conservation effort. Each challenge represents an opportunity for the City to reduce water consumption and use this renewable resource efficiently, more wisely, and without waste.

1. Pricing. In 2016, the City completed a comprehensive Water Master Plan with a 10-year CIP plan and Financial Plan. The Financial Plan included Conservation Pricing with a four-tier system where customers pay more according to the increased block of volume utilized. The pricing will fund conservation projects including leaky pipe replacement, meter replacement, and educational materials.

   2022 UPDATE: The recently updated 2021 Water Master Plan and Financial Plan still includes a four-tier system where customers pay more according to the increased block of volume used. Revenue generated from this pricing structure will fund conservation projects including leaky pipe replacement, meter replacement, and educational materials. Inflationary pressures that have evolved over the past year have impacted the CIP and Financial plans and will need to be reexamined in the near future.

2. Education. Citizens, young and old, need more information and understanding of landscaping water requirements and efficient water-use habits and practices. Many residents do not know how much water is required to maintain a healthy landscape and how to use water efficiently inside the home.

   2022 UPDATE: Since 2012, the City of Orem has partnered with Alpine School District schools in Orem to provide elementary, junior high and high school students an educational experience about their water system and conservation practices. Other efforts to educate the public include promoting wise water use tips in City newsletters, on social media and the website, as well as community outreach efforts at festivals such as Summerfest.

3. Water Meters. Most of Orem's water meters are more than fifteen years old and should be replaced. As the meters age, they deteriorate and the level of accuracy diminishes.

2022 UPDATE: The City has been replacing all residential meters 5 years and older with AMI technology and should have this project complete by the end of 2022. This new technology will allow residents to monitor their water use and make immediate adjustments.

4. Increased Operating Expenses. The cost for goods has dramatically increased over the past several years. Metals, plastics, fuels, chemicals, power, transportation, and labor costs increase each year. The water fund has seen some increases in revenues but not at the same rates. Because operating expenses and capital project expenses have increased, remaining funds for programs and the quantity of capital projects have decreased.

   2022 UPDATE: Expenses continue to increase however, with the previously mentioned Master Plan and Financial Plan, the City is funding Water capital improvement projects in addition to increased operational expenses.

Water Conservation Goals To Be Achieved By 2027

In pursuit of solutions to the challenges identified, the following conservation goals have been identified:

- **GOAL #1**

  Reduce the City's water use to reflect the Regional Water Conservation Goals for 2030.

  The goals listed below as well as other efforts identified in this plan will help ensure this goal is met. Figure 6 above shows the desired results from these proactive conservation efforts through 2030 and will be updated annually to gauge how effective conservation efforts have been. Additionally, the Regional Water Conservation Goals Report offers many ideas of how to achieve this goal. Of most importance, it states that "*Policy plays a vital role in motivating and enabling water conservation. State, county, and local policy leaders should establish policies which require accountability for efficient water use. Policy leaders' support must consider universal metering, water loss control, education, and other water conservation activities, as well as the necessary funds for success. Policy leaders must also decide whether they are willing to support the necessary land use changes that will be required to reach the water conservation goals. This will include working with and being responsive to market forces to reduce both overall lot sizes for residential development and the amount of turf grass allowed. Water suppliers should be consulted in land-use decisions to ensure alignment with water conservation efforts. Policy leaders can set or influence the pricing of water to promote conservation and reflect the cost of water scarcity. State and local governments should consider the water use impacts of proposed businesses and their plans for water-efficient fixtures, landscaping, and operations before approval.*"

- **GOAL #2**
  Maintain an effective conservation-oriented water pricing structure each year.
  The water pricing system should encourage customers to reduce use without creating a revenue shortfall. This will extend the water supply, promote equity, maintain the minimum flow levels, and fund conservation efforts. The rates established in the 2021 Water Master Plan and Financial Plan will be recommended to the City Council for approval during the budget process each year.

- **GOAL #3**
  Complete the meter replacement project by the end of 2022.
  Barring supply chain issues, all meters five years and older will be replaced and include cellular, automatic reading technology. The meters will be more accurate, the amount of man hours required to read the meters will dramatically reduce, and more importantly the consumer will have tools to more closely monitor their water usage.

- **GOAL #4**
  Construct a tertiary treatment process at the Water Reclamation Facility to produce secondary water for irrigation by 2025.
  A process has been designed and funding is being acquired, as described in the 2017 Water Conservation Plan. The project will immediately supply water for landscape irrigation at the Links at Sleepy Ridge, Lakeside Sports Park, Springwater Park, and the Water Reclamation Facility. Future uses will include areas of unincorporated Utah County areas, portions of the Town of Vineyard, and potential local industrial users.

- **GOAL #5**
  Continue education efforts to the public regarding water conservation.
  Educate all ages of the public regarding wise water use. Improving irrigation practices and water efficient landscapes can enhance the beauty of the City while minimizing waste. Continue to develop ways to educate through social media, newsletters, utility bill inserts, visiting schools, teaming with the Central Utah Water Conservancy District (CUWCD), the Utah Division of Drinking Water (DDW), and other key players. Investigate implementing changes to the City of Orem Code that will promote water conservation in all zones.

- **GOAL #6**
  Replace automatic sprinkler controllers on all City-owned properties to newer technology by 2025.
  The City will replace its older sprinkler control technology with EPA WaterSense approved equipment. This will give maintenance crews better tools to irrigate parks more efficiently to reduce waste and costs.

CURRENT CONSERVATION PRACTICES

In order to overcome the water challenges identified and take advantage of the associated opportunities, specific water conservation measures must be identified and evaluated. Orem City has already implemented several water conservation measures. These, along with additional measures, will improve Orem's water conservation efforts and help overcome these challenges. Orem City's current water conservation program is directed at managing water shortages, replacing old water meters, detecting leaks, replacing old water mains and service lines, increasing efficiency of park and open space irrigation, and educating the public.

Water Shortage Management Plan

Orem City has a Water Shortage Management Plan that may be activated by the Water Management Team. The Water Management Team includes the City Manager, Assistant City Manager, Public Works Director, Assistant Public Works Director, Water Section Manager, and other personnel deemed necessary. This team is responsible to manage the water supply resources of the City and to report significant reductions in water supply to City management and the Orem City Council. This plan contains water conservation measures that may be implemented during shortages and emergencies ranging from mild to critical in nature. Conditions that may require various forms of water restrictions include:

- A prolonged drought that is evidenced by significant decreases in the ground water table, spring flow production, etc.,
- Loss of one or both of the Orem City's mountain springs,
- Loss of one or more primary wells, or
- Loss of treatment capacity at the Don A. Christiansen Regional Water Treatment Facility.

Rationing will become necessary when demands upon the system exceed the supply of available water. As the City moves from normal operations to full rationing efforts, the following phases will be evaluated and implemented when necessary.

Advisory Stage

Follow guidelines listed in this plan.

Mild Stage

Request select large users to modify their water use to reduce demand in the water supply system. These large users include City parks, golf courses, churches, schools, etc.

Moderate Stage

Request voluntary reduction of water usage. Although the City continually promotes wise water use for all water customers, all water users will be strongly encouraged to

follow wise water use practices. Some examples of wise water use include sweeping driveways rather than washing with a water hose, outside irrigation during non-daylight hours, storing drinking water in the refrigerator, repairing water leaks, etc.

Severe Stage

Mandate a reduction of water usage. Request odd-even watering days, based upon street address.

Critical Stage

Mandate a reduction of water usage with enforcement.

The Orem City Manager, or his appointed designee, will implement this Water Shortage Management Plan. The City will continue public education on a regular basis through the duration of the rationing effort. Public education efforts may consist of public announcements using radio, television, newspapers, flyers, the Orem City website (www.orem.org), and various forms of social media, etc.

The above phases are not intended to limit or restrict the ability of the City to meet the demands of the customer. Rather, it provides a guideline from which management decisions can be made. The City reserves the right to select the appropriate rationing phase based upon the specific circumstances regarding the anticipated duration of rationing, existing supply reserves, and the availability of alternate water sources.

Leak Detection Program

The leak detection is based on audio and visual indications of a leak in a specific area of the system. The City has contracted with a service to assist with leak detection. These efforts have proven to be successful, and several leaking lines have been identified and replaced as a result of this increased effort.

Water Main and Galvanized Service Line Replacement Program

As water mains and service lines age, they fatigue, corrode, develop leaks, and eventually fail and must be replaced. Water mains in corrosive soils and undersized lines must be replaced more frequently due to pipe coating deterioration and scouring resulting from higher velocities.

Moreover, the Water Section and the Streets Section work closely together planning for water main replacement projects, galvanized service line replacement projects, and street resurfacing projects. By coordinating together closely, personnel work to prevent undue excavation of newly surfaced roads and improving the integrity and efficiency of the water system. As the City continues the capital improvements program, water is recaptured.

Improve Efficiency Irrigating Parks and Open Spaces

The City of Orem Parks Section has a program to improve the efficiency of irrigating. Elements of this program include:

- Replacing old inefficient heads with new efficient ones;
- Replacing old leaking galvanized systems with new PVC;
- Updating sprinkler controllers with state-of-the-art technologies that allows remote control of the system and incorporates soil moisture content data and local weather station data to make real-time irrigation adjustments;
- Redesigning park systems to water more efficiently; and
- Performing water audits on every park.

Adjusting irrigation practices during times of drought

The Parks Section adheres to the following irrigation practices during times of drought:

- All regional parks will implement a 9:00 p.m. to 7:00 a.m. watering window.
- All other parks and parkways will implement a 10:00 p.m. to 6:00 a.m. watering window.
- No spot watering will be allowed outside watering windows.
- Areas of new sod will have no restrictions for four weeks after installation. However, new sod installation should not take place from mid June to mid August.
- Use of evapotranspiration (ET) technology will be suspended.
- Watering will occur every three days with the exception of actively-programmed, heavily-used sport fields.
- Stressed trees and shrubs may need to be watered more frequently than every three days.
- All sprinklers will be visually checked monthly for breaks, broken heads, arc adjustments problems, etc.
- All reported irrigation issues will be resolved as soon as possible.
- While working on irrigation issues outside of watering windows, the technician needs to be visible to the public. For example, a truck needs to be out in the park with flashers on, the technician needs to be present and moving from station to station, and watering cannot be left unattended.
- Irrigation systems will be shut off manually during rain and wind events in areas without rain and wind sensors.

Public Education

The City continues to be very active in its efforts to promote water conservation through education. Beginning in 1990, the City developed a water education program that targeted elementary, junior high, and high school students. Other efforts to educate the public are discussed later in this report.

CURRENT WATER RATES

In the 2016 Utah Legislative Session, a new law was passed that requires retail water providers, such as the City of Orem, to create pricing that promotes water conservation. The title of Senate Bill 28 is "Water System Conservation Pricing" and the language reads that retail water providers are required "to establish an increasing rate structure for culinary water." So as customers use more water, the cost per gallon of the water increases. In May of 2016, the Orem City Council, as required by state law, approved a plan to implement a tiered rate structure for the Orem water utility which continues today. The pricing structure includes four tiers with increasing unit costs. The rationale behind the creation of the tiered rates are explained below.

The purposes of the tiered rate structure are 1) to comply with Senate Bill 28, 2) meet the financial needs of the water utility for operations, maintenance, and replacement, and 3) encourage wise water use through increasing block tiers. There are two components to Orem's water bill: the base rate and the consumption rate. As meter size increases, base rates increase following AWWA (American Water Works Association) multiplier guidelines. Orem has four "blocks" of consumption pricing with the same unit price for all meter sizes. The "allowance" or block volumes are different for each meter size.

Not all water utilities bill the same way. Some (or most) water utilities created tier block volumes and all users, regardless of meter size or number of units, fall under the same tier plan. As one could imagine, the larger meters and multi-unit accounts were in the 2nd, 3rd, and 4th tiers almost immediately. Orem studied many different methods to determine what would be best for its utility. Orem does not have a secondary irrigation system--all of Orem’s water is treated, culinary water.

By calculating the 90th percentile of all ¾" residential accounts in the winter months, Orem set the first block volume to include up to 11,000 gallons. This means that 90% of the ¾" residential accounts will not exceed 11,000 gallons. 78% of the 22,000 accounts are ¾" meters.

To create the second block volume (11,001 - 34,000 gallons) for ¾" accounts, the 90th percentile of the shoulder months of May, June, and October was calculated. 90% of the ¾” residential accounts will not exceed 34,000 gallons during these months.

The third block volume (34,001-65,000 gallons) used the 90th percentile of the peak months of July, August, and September. 90% of the ¾" residential accounts will not exceed 65,000 gallons during these months.

The fourth block volume (65,001 +) is anything over the 90th percentile for the summer months for the ¾" residential accounts.

The block volumes for meter sizes 1" and above increase with the AWWA multipliers for the respective meter sizes.

As illustrated in Table 6, the monthly base rate starting in July 2022 for a ¾" water meter is $20.20. For 1,000 gallons, Tier 1 is $0.83, tier 2 is $1.04, tier 3 is $1.23, and tier 4 is $1.46. The flow allotments for each meter class are also shown. (Source, City of Orem Adopted Budget for FY23)

Table 6

Usage Charge by Tier	Adopted Fee
Tier 1	$0.83
Tier 2	$1.04
Tier 3	$1.23
Tier 4	$1.46

Flow Allotment by Meter Size (per 1,000 gallons per month)							
Meter Size	Tier 1		Tier 2		Tier 3		Tier 4
	>	≤	>	≤	>	≤	
¾"	0	11	11	34	34	65	65 +
1"	0	18	18	57	57	109	109 +
1½"	0	37	37	113	113	216	216 +
2"	0	59	59	181	181	346	346 +
3"	0	110	110	340	340	650	650 +
4"	0	220	220	680	680	1,300	1,300 +
6"	0	458	458	1,417	1,417	2,709	2,709 +
8"	0	587	587	1,813	1,813	3,466	3,466 +
10"	0	1,063	1,063	3,287	3,288	6,284	6,284 +

Base Rate By Meter Size	Adopted Fee
¾"	$20.20
1"	$39.22
1½"	$110.42
2"	$181.64
3"	$276.59
4"	$466.48
6"	$1,178.58
8"	$1,574.21
10"	$2,361.32

CONTINUED CONSERVATION MEASURES

In order to effectively meet Orem City's future water needs and overcome the water challenges identified, the City updates its Water Master Plan every five years. This was most recently done in 2021. The plan identifies projects that will be needed in the future to ensure the system is reliable and meets the needs of residents for years to come and recommends a plan to fund them.

Included in this is continued commitment to water conservation measures. Several programs and plans have been created over the past decade and are being carried out. These programs

include Water Conservation-Oriented Rates, Meter Replacement Program, Water Loss Investigation, Water Reuse Implementation, Increased Public Education, Improving Efficiency of Irrigating Parks and Open Spaces, and Water Conservation Ordinances.

Water Conservation-Oriented Rates

The City adopted the four-tier water rate structure and will need to stay committed to the recommendations in the 2021 Water Master Plan. The consumption rates will continue to gradually increase to meet the needs of operations, maintenance, replacement, capital improvements, and inflation as described in the 2021 Water Master Plan. The tiered rates will accomplish two objectives: 1) encourage individual conservation and 2) fund identified capital water infrastructure improvements.

Meter Replacement Program

Over time, all meters become less accurate in recording actual flows. This leads to lost revenue to the City and inaccurate data. As part of the master planning effort and evaluation process, the meters were tested according to AWWA standards. The results indicated an immediate need to replace meters because some meters read high and most read low. This effort started two years ago and will result in an increase in the City's water revenue as well as sewer revenues since they are tied directly to water consumption during the winter months.

In addition to accurate reads, the City has been implementing Automated Metering Infrastructure (AMI) technology. AMI will give customers daily information about their individual water use, alerts for potential leaks, and can remind customers of tier levels and offer water conservation tips.

Water Reuse Implementation

In July of 2003, the Utah State Engineer approved 9,634 AF of Orem's sewer effluent for diversion for water reuse purposes. Much of the reuse water delivery system, which will provide tertiary irrigation water to the Links at Sleepy Ridge, Lakeside Sports Park, Springwater Park, and the Orem Water Reclamation Facility (OWRF) site, has been installed from the OWRF to those sites. This project has been designed, bid, and awarded. It should be noted that the City has secured an additional $8M in Utah County ARPA funding and $1M in a federal earmark in 2022 to cover the extraordinary inflationary construction expenses.

Public Education

Educating residents and businesses to use water more efficiently will enhance the likelihood that water use goals will be met. Although the benefits and costs of a strong education program are difficult to enumerate, the Water Management Team is committed to increase education to the public well into the future. Information on water conservation has been included in the 2021 Consumer Confidence Report (CCR), which is available online at

https://orem.org. Printed copies of the 2021 CCR are available at the Orem City Center, Orem Public Works, Orem Library, Orem Senior Friendship Center, Orem Summerfest and other community education events. Typical language in the consumer confidence report includes:

Wise Water Use Utah is the second driest state in the nation. Water conservation by individual citizens is an important part of making sure we'll have enough today and in the future. Here are some things we can all do to help preserve this precious resource:

- Fix plumbing leaks.
- Take shorter showers.
- Replace regular shower heads with low-volume heads. Remember, a bath takes about 36 gallons of water. A shower takes about 25.
- Be conservative with toilet flushes. Don't use the toilet for trash disposal.
- Don't leave the water running when shaving or brushing teeth.
- Wash full loads of laundry and dishes, not partial loads.
- Don't rinse dishes with running tap water. Instead, rinse dishes by dipping.
- Keep a pitcher of cold water in the refrigerator instead of running tap water until it cools.
- Water lawn, gardens, etc. in the coolest part of the day. Deep soak weekly instead of lightly sprinkling daily. Water the plants, not concrete.
- Use a bucket when washing cars. Don't let the hose run.

The following information on efficient outdoor and indoor water use will continue to be made available to the citizens of Orem through the Orem City Library, Orem City Website, and flyers disseminated with the water bill. Additionally, quick social media posts and light-hearted videos will continue to be part of the education process.

Outdoor Water Use:

- Water landscape only as much as required by the type of landscape and the specific weather patterns of your area, including cutting back on watering times in the spring and fall.
- Do not water on hot, sunny, or windy days. You may actually end up doing more harm than good to your landscape as well as wasting a significant amount of water.
- Sweep sidewalks and driveways instead of using the hose.
- Wash your car from a bucket of soapy (biodegradable) water and rinse while parked on or near the grass or landscape so that all the water running off goes to beneficial use instead of running down the gutter.
- Check for and repair leaks in all pipes, hoses, faucets, couplings, valves, etc. Verify there are no leaks by turning everything off and checking your water meter to see if it is still running. Some underground leaks may not be visible due to draining off into storm drains, ditches, or traveling outside your property.
- Use mulch around trees and shrubs, as well as in your garden to retain as much moisture as possible. Areas with drip systems will use much less water, particularly during hot, dry, and windy conditions.

- Keep your lawn well trimmed and all other landscaped areas free of weeds to reduce overall water needs of your yard.

Indoor Water Use:

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

- Do not use your toilet as a wastebasket. Put all tissues, wrappers, diapers, cigarette butts, etc. in the trash can.
- Check the toilet for leaks. Is the water level too high? Put a few drops of food coloring in the tank. If the bowl water becomes colored without flushing, there is a leak.
- If you do not have a low volume flush toilet, put a plastic bottle full of sand in your toilet tank to reduce the amount of water used per flush. However, be careful not to over conserve to the point of having to flush twice to make the toilet work. Also, be sure the containers used do not interfere with the flushing mechanism.
- Take short showers with the water turned up only as much as necessary. Turn the shower off while soaping up or shampooing. Install low-flow showerheads and other flow restriction devices.
- Do not let the water run while shaving or brushing your teeth. Fill the sink or a glass instead.
- When doing laundry, make sure you always wash a full load or adjust the water level appropriately if your machine will do that. Most machines use 40 gallons or more for each load, whether it is two socks or a week's worth of clothes. Some new, more efficient machines can reduce usage to 25 gallons per load.
- Repair any leak within the household. Even a minor slow drip can waste up to 15 to 20 gallons of water a day.
- Know where your main shutoff valve is and make sure that it works. Shutting the water off yourself when a pipe breaks or a leak occurs will not only save water, but also eliminate or minimize damage to your personal property.
- Keep a jar of water in the refrigerator for a cold drink instead of running water from the tap until it gets cold. You are putting several glasses of water down the drain for one cold drink.
- Plug the sink when rinsing vegetables, dishes, or anything else. Use only a sink full of water instead of continually running water down the drain.

Plumbing Fixture Replacement

Many of the City's homes and businesses were built after 1992 when plumbing codes were revised to require low-water-use toilets and low-flow showerheads in new construction. While it is difficult to calculate meaningful estimates of the benefits and costs of such programs on the water use rate, there is ample evidence that such programs are effective. The City of Orem will continue to update plumbing codes and encourage the use of low-flow plumbing fixtures.

Improve Efficiency of Irrigating Parks and Open Spaces

Orem City presently has approximately 275 mowed acres in the cemetery, parks, sports fields, and around office buildings. Orem's Parks Section has been replacing all of its irrigation controllers with the state-of-the-art WeatherTrak irrigation controllers throughout the City. These controllers integrate real-time weather, soil moisture, and evapotranspiration conditions to optimize irrigation efficiency. Every controller will be replaced with these WeatherTrak irrigation controllers by 2025.

Water Conservation Ordinances

The City has adjusted the definition of "Landscaping" in its site plan requirements to include various types of ground plantings and gives green cover credit for the canopy of shrubs and trees and does not specifically require turf grass. Orem modified its xeriscaping ordinance in 2020 decreasing the required amount of green cover on a property from 75% to 50%. It is anticipated additional water conservation ordinances will be in place in the near future.

Conclusion

The City of Orem is committed to water conservation and using water wisely. Orem will continue to support the programs and goals outlined in this 2022 City of Orem Water Conservation Plan and thereby maximize water conservation, minimize water waste, and use water more efficiently. These efforts will ensure the City meets its goal to decrease per capita water consumption by 20%, to 209.1 gpcd by 2030, saving over 7.3 billion gallons of water.