

2021

# Sandy City Water Conservation Plan



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**ABBREVIATIONS**

AMI.....	Advanced Metering Infrastructure
ASR.....	Aquifer Storage and Recovery
CUWCD .....	Central Utah Water Conservancy District
DWRI.....	Division of Water Rights
GPCD.....	Gallons per Capita per Day
JVWCD .....	Jordan Valley Water Conservancy District
LCWTP.....	Little Cottonwood Water Treatment Plant
MWDSLs .....	Metropolitan Water District of Salt Lake and Sandy
SERWTP.....	South East Regional Water Treatment Plant
ULS.....	Utah Lake System

## INTRODUCTION

Attitudes toward water supplies are changing. Water is no longer seen as a boundless resource, but as a valuable commodity that needs to be managed carefully. With this shift in attitude, conservation is becoming a larger part of water suppliers' plans to meet future water needs. Many water suppliers throughout the country have adopted conservation programs. Benefits of these programs include:

- Using existing water supplies more efficiently.
- Maximization of existing water conveyance, treatment, and distribution facilities.
- Delaying or deferring the expense of construction or capital improvement projects.
- Reducing the need for additional water supplies.

Sandy City (City) recognizes the benefits of conservation programs. The City has adopted water conservation as a key element in its long-term master plan to serve its customers. As a result, the City has already achieved a significant reduction in per capita use since 2000. Despite the progress to date, the City recognizes that per capita use will return to higher levels without continued emphasis on conservation. It also recognizes that there are still many benefits of further conservation efforts. Since sustained water conservation efforts will be an important component in the City's plans for future water use, this report will evaluate the City's current conservation program and will discuss additional measures that will allow further conservation of water.

## SYSTEM PROFILE

### Sandy City Water System Service Area

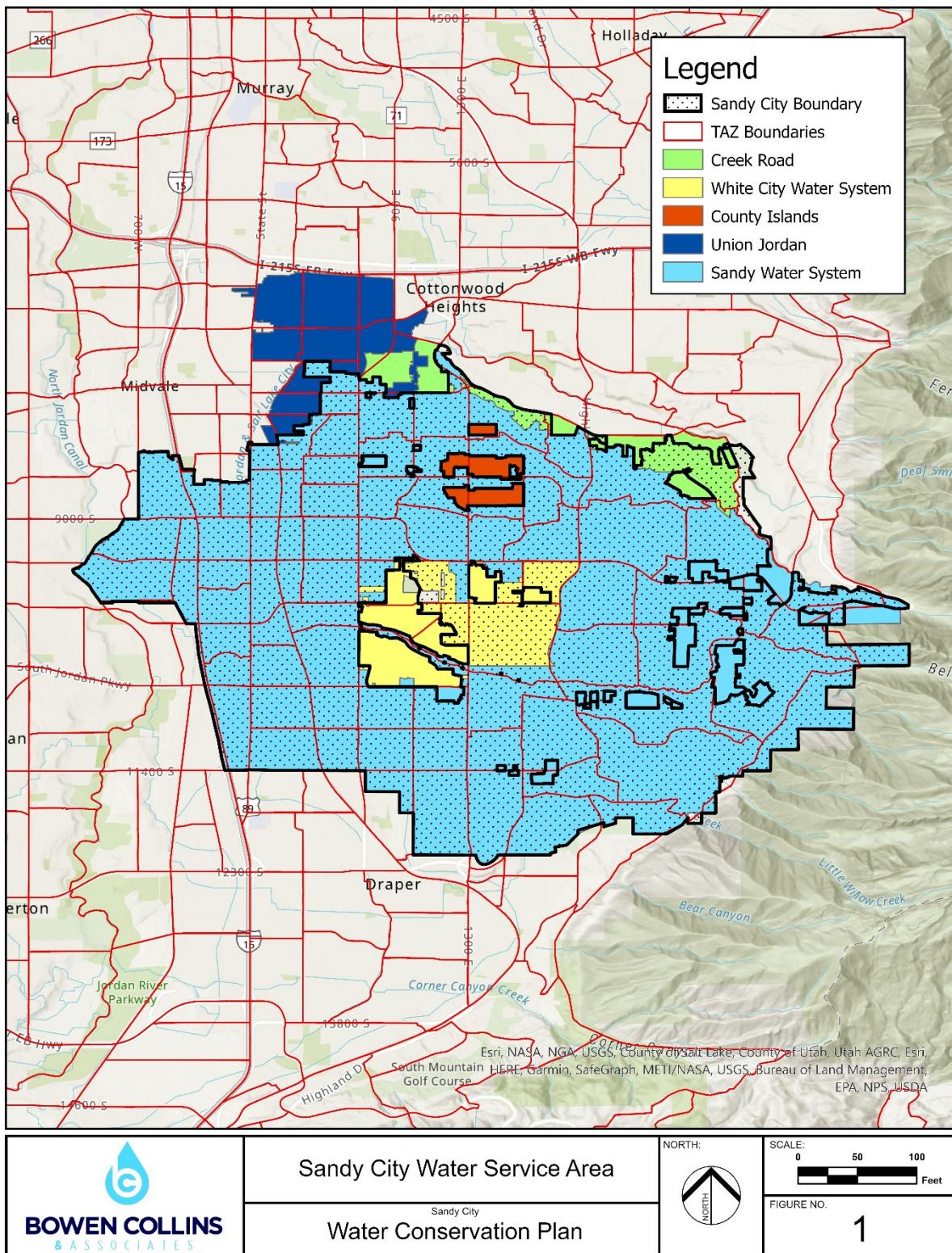
Sandy City is located in Salt Lake County; with a population of roughly 96,000<sup>1</sup>, it is the sixth largest city in the state. However, the water service system area population is slightly smaller because a few areas within the City's boundaries are served by other water agencies. The existing Sandy City water system service area is shown in Figure 1. The system serves most of the incorporated area of Sandy City as well as some areas outside the City's corporate boundaries. The portions of the existing service area located outside the City corporate boundaries can be categorized into two groups:

- The Granite area, an unincorporated area east of Sandy near the mouth of Little Cottonwood Canyon.
- The unincorporated County islands, relatively small areas of unincorporated Salt Lake County, that are completely surrounded by Sandy City.

Figure 1 also shows that there are several areas within Sandy City's boundaries that receive water from other water agencies. Three unincorporated county islands along 1300 East are currently served by the Jordan Valley Water Conservancy District. White City Township and a large block of Sandy City residents in the center of the City are served by the White City Water Improvement District. An area of Midvale (identified as "Union Jordan" in the figure) was served by the Sandy City water system prior to 2010 but is now served by Midvale City.

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<sup>1</sup> Kem C. Gardner Policy Institute – Estimated population for July 1, 2019 = 96,485



**Figure 1**  
**Sandy City Water Service Area**

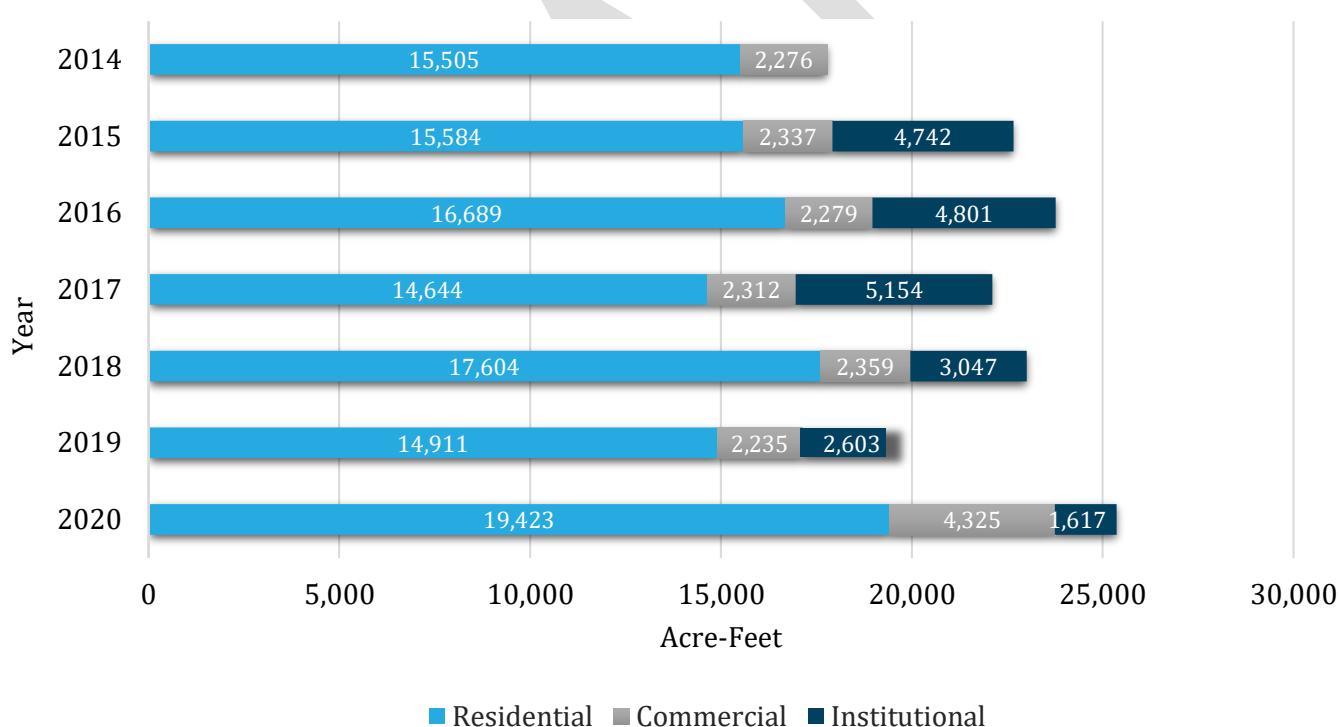
## System Connections

The Sandy City water system includes residential, commercial, and institutional connections. To help evaluate and quantify the amount of water that can reasonably be conserved in Sandy City, a cursory analysis of current water use patterns has been performed. Usage among different classes of customers for the year 2020 is shown in Table 1 and Figure 2.

**Table I**  
**FY 2020 Water Usage by Connection Type<sup>a</sup>**

Customer Class	Accounts	Percent of Connections	Annual Water Use (acre-ft)	Percent of Total Water Use
Residential	23,900	92.27	19,423	76.57
Commercial	1,659	6.40	4,325	17.05
Institutional	343	1.32	1,617	6.37
<b>TOTAL</b>	<b>25,902</b>		<b>25,365</b>	<b>100</b>

<sup>a</sup>Water usage by connection type data obtained from the Utah Division of Water Rights Public Water Supplier Information.



**Figure 2**  
**Current Delivery Type**

Roughly 92 percent of the meters in Sandy City are residential connections, accounting for 77 percent of the total water use. Hence, residential water use represents the largest single area for potential conservation. However, Sandy City also has a significant number of commercial and institutional connections. While comprising only about 8 percent of the total number of meters, commercial and institutional customers accounted for more than 23 percent of Sandy City water use. Thus, non-residential accounts should not be overlooked as potential contributors to future conservation efforts.

### Current Rates

Table 2 shows the City's current culinary water rate structure<sup>2</sup>. Currently, Sandy City charges 3/4" meters a monthly base rate of \$14.43 with increasing rates for larger meter sizes as summarized in the table. Volume rates are charged on an increasing block schedule with block tiers defined based on meter size. As shown, the increasing volumetric charges represent a relatively aggressive tiered schedule with Block 4 water use being charged at more than double Block 1 use. The structure has been designed this way to provide a strong conservation signal to system water users.

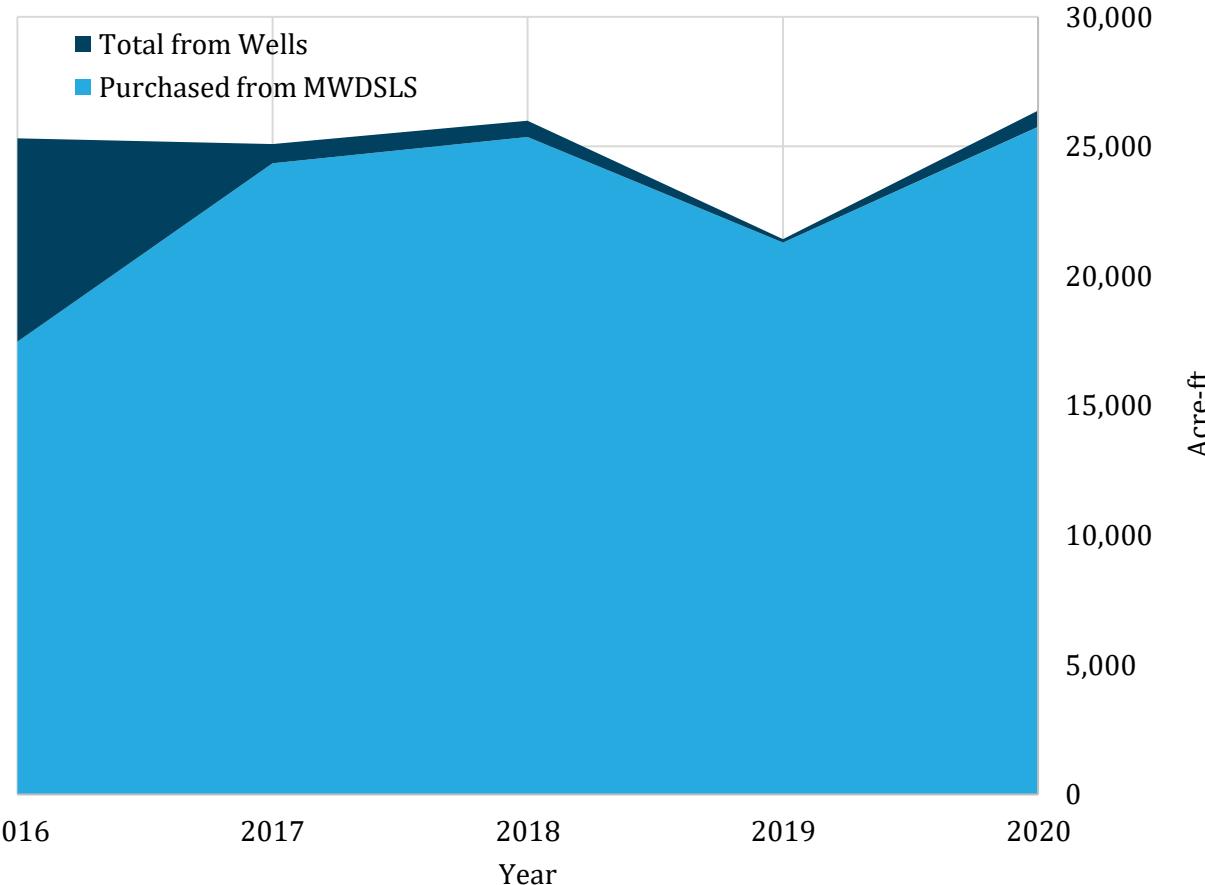
**Table 2**  
**Sandy City Culinary Water Rate Structure Cost Per Thousand Gallons**

Meter Size	Base Rate	Block 1: \$1.64	Block 2: \$2.53	Block 3: \$2.98	Block 4: \$3.42
3/4 and under	\$14.43	1 to 6	7 to 40	41 to 80	81 and up
1-inch	\$18.78	1 to 7	8 to 65	66 to 130	131 and up
1.5-inch	\$23.14	1 to 35	36 to 200	201 to 400	401 and up
2-inch	\$35.12	1 to 50	51 to 400	401 to 800	801 and up
3-inch	\$123.34	1 to 80	81 to 740	741 to 1,480	1,481 and up
4-inch	\$156.01	1 to 170	171 to 1,765	1,766 to 3,525	3,526 and up
6-inch	\$232.25	1 to 645	646 to 5,300	5,301 to 11,000	11,001 and up
8-inch	\$319.39	1 to 645	646 to 5,300	5,301 to 11,000	11,001 and up
10-inch	\$439.19	1 to 645	646 to 5,300	5,301 to 11,000	11,001 and up

<sup>2</sup> Rates shown are for Sandy City residents. A separate schedule is used for customers outside the City. The outside-City rate structure is identical in form, with both base and volume rates slightly higher than City rates.

## SUPPLY INFORMATION

A summary of Sandy City's current and future water supply is contained here. For additional information on water supply the reader should refer to Sandy City's Supply and Demand Master Plan. The majority of Sandy City's culinary water is currently purchased from Metropolitan Water District of Salt Lake and Sandy (MWDSLs) with a small amount coming from the City's wells. Figure 3 shows the volume the City has used from both sources as reported to the Division of Water Rights (DWRI) website from 2016 to 2020.



*Figure 3*  
*Sandy Water Sources*

Prior to 2017, the City historically used a significant volume of water from its well sources. However, in more recent years, the City has made a concerted effort to maximize its use of surface water sources with a goal of preserving the health of its aquifer for use in times of drought.

Table 3 summarizes the City's current reliable culinary water supply for both average and dry year water conditions. In both cases, supplies have been categorized by source. For existing supplies, all sources are treated through MWDSLs except for "Peaking Wells". Future potential sources include Aquifer Storage, and Recovery (ASR) and water from the Utah lake System (ULS). These sources will be developed as needed to provide for the growth or supply redundancy needs of the City.

**Table 3**  
**Usable Yield of Sandy City Culinary Water Sources**

Source Category	Average Year (acre-ft)	Dry Year (acre-ft)
<b>Existing Supply</b>		
Ontario Drain Tunnel	3,070	2,000
Little Cottonwood	9,700	8,000
Bell Canyon	980	860
Peaking Wells	11,000	13,700
MWDSLS Sandy Preferred PRP Storage	7,940	7,940
<b>Total Available Water Existing Supply</b>	<b>32,690</b>	<b>32,500</b>

## **WATER MEASUREMENT**

Currently, all culinary water connections within Sandy City are metered and read on a fifteen-minute basis. In 2012, the City began replacing its water meters with a new advanced metering infrastructure (AMI) system. Full deployment of the AMI system was completed in 2020. A significant advantage of this system is the ability to easily monitor and identify customer water leaks. The AMI equipment also allows the City to more accurately determine the amount of water lost from the system, identify diurnal patterns in water sales, and help customers create a water budget and manager their water use/conservation.

## **WATER PRODUCTION, SALES, AND SYSTEM LOSS**

### **Historic Water Use**

Historic water use from 2000 to 2020 is summarized in Table 4. Table 4 includes both water production (water produced by each source and delivered to the system) and water sales (metered use out of the system). For both categories, per capita water use has also been calculated. Data for this table comes from production records from Sandy City, water sales records provided from the City to the Division of Water Rights, and recent population estimates from the Wasatch Front Regional Council<sup>3</sup>.

<sup>3</sup> Population projections have been based on Traffic Analysis Zone (TAZ) data prepared by Wasatch Front Regional Council. These projections do not exactly match published population numbers for Sandy City because the water service area does not match the corporate boundaries of the City. However, these numbers do use the Kem C. Gardner Institute projections as their fundamental basis. For example, in 2019, the Kem C. Gardner population for Sandy City was 96,485. The water service area population for this same year is equal to the Sandy City population (96,485) + the Granite area population (1,101) + the portions of unincorporated Salt Lake County served by Sandy City (1,717) – the portion of Sandy City served by other providers (primarily White City Water Company, 6,118) = 93,185.

**Table 4**  
**Historic Per Capita Water Production, Sales and System Loss**

Year	Sandy City Water System Population	Historic Water Production (acre-ft) <sup>a</sup>	Per Capita Production (gpcd)	Historic Water Sales (acre-ft) <sup>b</sup>	Per Capita Water Use (gpcd)	System Loss (acre-ft)	System Loss %
2000	95,842	31,517	294	29,593	276	1,924	6%
2001	95,742	30,794	287	28,914	270	1,880	6%
2002	95,643	26,194	244	24,595	230	1,599	6%
2003	95,544	26,609	249	24,170	226	2,439	9%
2004	95,444	25,179	235	24,550	230	629	2%
2005	95,345	25,349	237	22,952	215	2,397	9%
2006	95,245	28,850	270	24,957	234	3,893	13%
2007	95,146	30,314	284	25,210	237	5,104	17%
2008	95,046	27,397	257	26,592	250	805	3%
2009	94,947	25,678	241	24,110	227	1,568	6%
2010	85,243	24,894	261	23,374	245	1,520	6%
2011	86,207	23,622	245	22,180	230	1,442	6%
2012	87,170	28,409	291	26,675	273	1,734	6%
2013	88,134	25,528	259	22,948	232	2,580	10%
2014	89,098	24,444	245	22,202	222	2,242	9%
2015	90,061	24,136	239	22,663	225	1,473	6%
2016	90,683	25,392	250	23,769	234	1,623	6%
2017	91,425	25,299	247	22,110	216	3,189	13%
2018	92,477	25,992	251	23,010	222	2,983	11%
2019	93,185	21,426	205	19,749	189	1,677	8%
2020	93,794	26,384	251	25,365	241	1,019	4%

<sup>a</sup> Historic water production values have been provided by Sandy City.

<sup>b</sup> Historic water sales data differ slightly in some years than previously reported to the Division of Water Rights. The City plans to update the reported water use numbers in the Division of Water Rights' database.

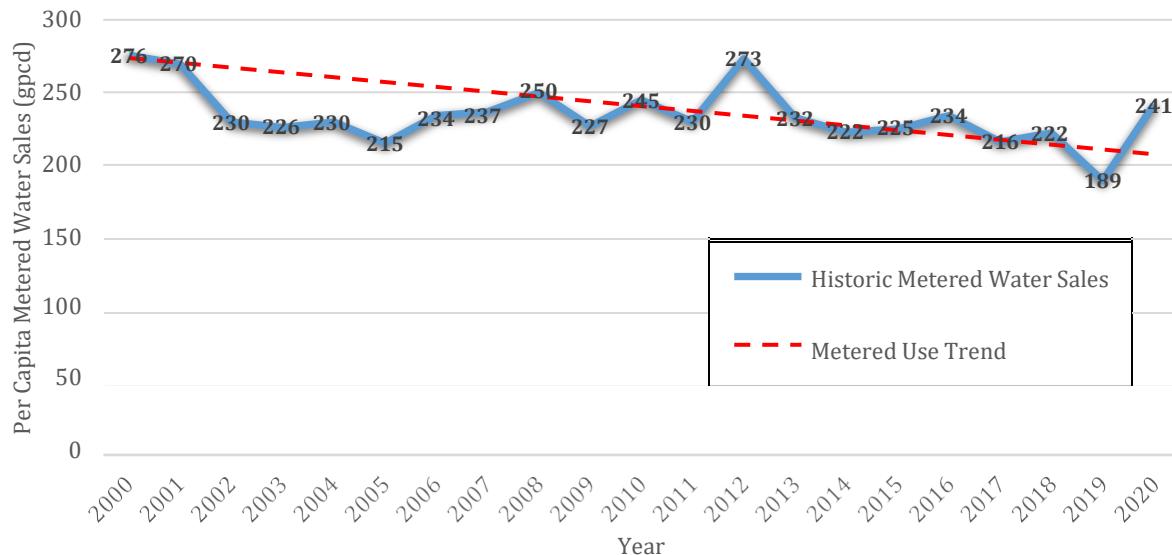
Two items should be noted regarding this table:

- Populations shown here are different than those previously reported to the Division of Water Rights as part of water use reporting. While the numbers contained in the water use reports reflected a genuine effort at reporting service area population at the time of the report, the values reported here reflect improved estimates based on more recent census data and a better understanding of system growth. The City plans to update the reported populations in the Division of Water Rights' database. It should also be noted that there is significant drop in population reported in 2010. This is accurate and reflects the removal of the Union Jordan area from the Sandy City water service population.

- Water sales numbers shown here are also slightly different in some years than those previously reported to the Division of Water Rights as part of water use reporting. These differences primarily occur in the earlier years of the record when the City was still trying to figure out what type of data the Division was requesting. The numbers shown here are a more accurate representation of actual water sales. The City plans to update the reported water use numbers in the Division of Water Rights' database.

### Historic Per Capita Water Use

As summarized in Table 4, the historic per capita water production ranges from a high of 276 gallons per capita per day (gpcd) in 2000 to a low of 189 gpcd in 2019. The change in per capital water sales is shown in Figure 4.



**Figure 4**  
**Historic Per Capita Water Use**

With the exception of 2012 and 2020, the figure shows the City's per capita use has a downward trend from the year 2000. The higher per capita water use shown in 2012 and 2020 are likely due to extreme dry weather years. The City's conservation efforts will need to consider the effect of drought and dry weather on water use demands so that future conservation goals can be achieved, even dry weather conditions. As will be noted in the conservation measures section of this report, the City is preparing a drought contingency plan to address this and other issues associated with drought.

## Current Per Capita Water Use

An analysis of Sandy's current municipal and industrial water use was completed. Estimated water use by type for the year 2020 is summarized in Table 5. Per capita water use for the year 2020 was estimated using the approximate population of 93,794 people and monthly metered sales data provided by Sandy City. Indoor water use was quantified using the average metered sales for each user type during the winter months with all other water use assumed to be outdoor water use. It is estimated that approximately 70 percent, 71 percent, and 94 percent of water is used outdoors for residential, commercial, and institutional water users respectively.

**Table 5**  
**Current Per Capita Water Use by Type**

User Type	Indoor Use (gpcd)	Outdoor Use (gpcd)	Total Use (gpcd)
Residential	55	130	185
Commercial	12	29	41
Institutional	1	14	15
<b>Total</b>	<b>68</b>	<b>173</b>	<b>241</b>

## System Losses

Over the last twenty years, average system losses in the Sandy City water system have been approximately 8 percent of annual water production, as shown in Table 4. The estimated system loss for 2020 was 3.86 percent based on an internal system water loss audit.

See "Conservation Practices" for further discussion of City efforts to minimize system losses including prevention activities and activities to locate and eliminate existing leaks.

## CONSERVATION GOAL WITH MILESTONES

Water production and metered water sales records show that efforts made by the City's staff and residents have already been effective in achieving a significant amount of conservation. Per capita water use is greatly reduced from where it was in 2000. While the observed results are positive, there are additional conservation measures that the City can implement to further reduce water use. To guide future conservation efforts, the City intends to adopt the State of Utah's regional water conservation goal to reduce per capita water use from a baseline amount (as measured in 2015) by 11 percent by the year 2030. Table 6 shows the per capita use conservation goal milestones for the City through 2065.

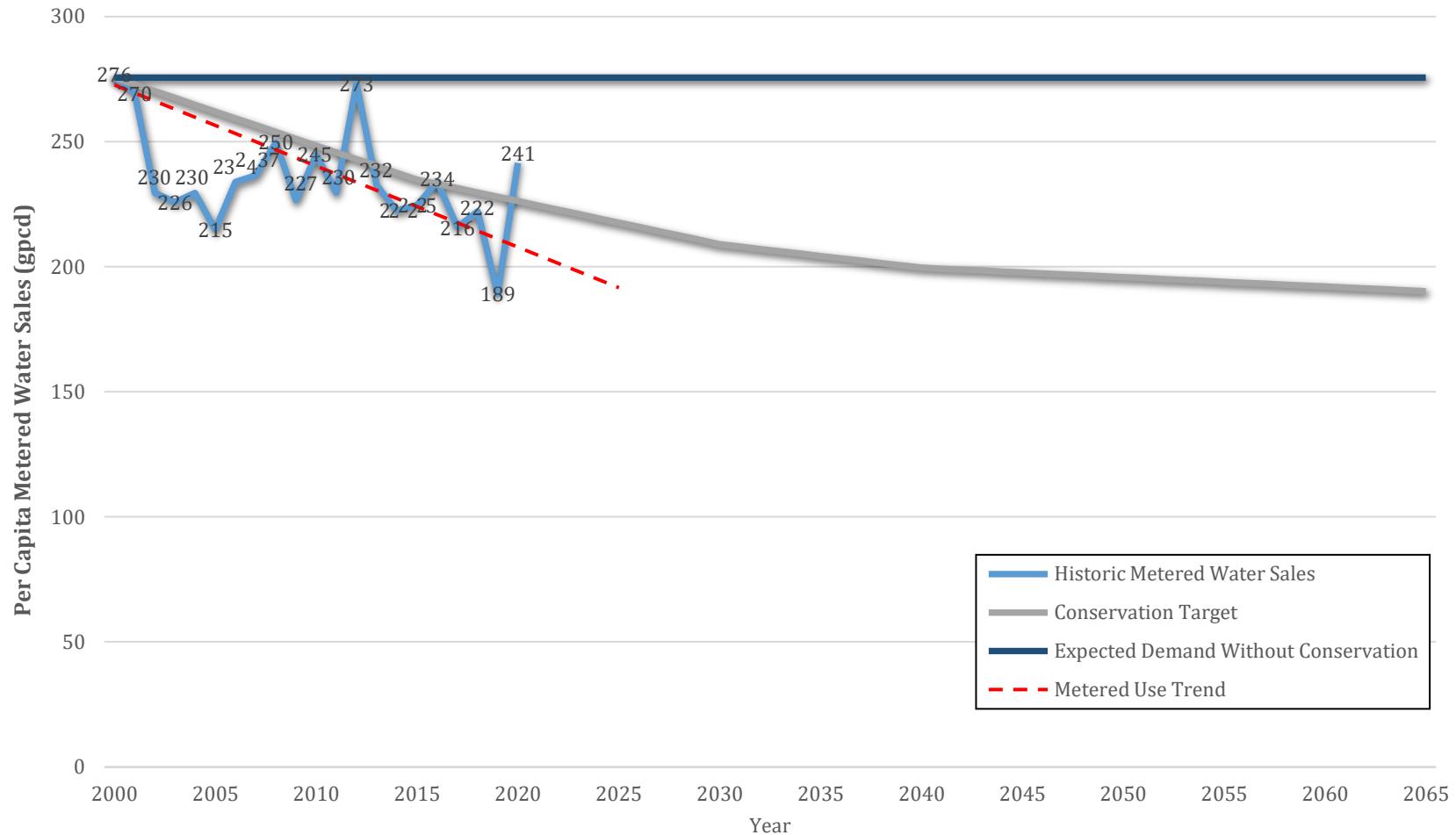
**Table 6**  
**Conservation Goal With Milestones Through 2065**

Year	Reduction from Year 2015 Water Use	Conservation Goal Milestones (gpcd)
2015	0%	235
2026	8%	216
2030	11%	209
2040	15%	200
2065	19%	190

It is expected that additional efforts will be required to achieve the goals shown in Table 6 and encourage additional conservation. To date, conservation efforts have primarily focused on education and pricing to motivate the voluntary efforts of customers to conserve. However, to continue the trend of water conservation in the City, it is likely that a more aggressive effort and level of investment will be required.

## Measuring Savings from Conservation

Figure 5 shows historic culinary water use to date on a per capita basis compared to the historic and proposed City conservation goal. As can be seen, Sandy City has done an excellent job in meeting its goal aside from the two extremely dry years of 2012 and 2020. To track how well the City is doing in achieving its conservation goal in the future, the City will continue to annually estimate per capita water demands based on yearly metered sales data and an updated population estimate as a function of new system connections.



**Figure 5**  
**Historic Per Capita Water Use**

## EFFECT OF CONSERVATION ON FUTURE WATER SUPPLY AND DEMAND

The City has experienced large amounts of growth in the past but opportunities for additional future growth will be more challenging. Future growth is expected to be limited primarily to redevelopment of existing land due to the lack of open land available within the City's limits. The historic and projected population estimates for the Sandy City water service area are shown in Table 7.

**Table 7**  
**Sandy City Water System Historic and Projected Population Estimates**

Year	Population
2010	85,243
2011	86,207
2012	87,170
2013	88,134
2014	89,098
2015	90,061
2016	90,683
2017	91,425
2018	92,477
2019	93,185
2020	93,794
2021	94,665
2030	101,550
2040	110,348
2050	117,941
2060	123,772

Based on this projected growth, Table 8 shows both the projected dry year water production requirement (demand) for the City with conservation and the projected production requirement (demand) if no conservation occurs. This table also compares projected demands against the existing available water supply as described previously in this report<sup>4</sup>. This same information is shown graphically in Figure 6.

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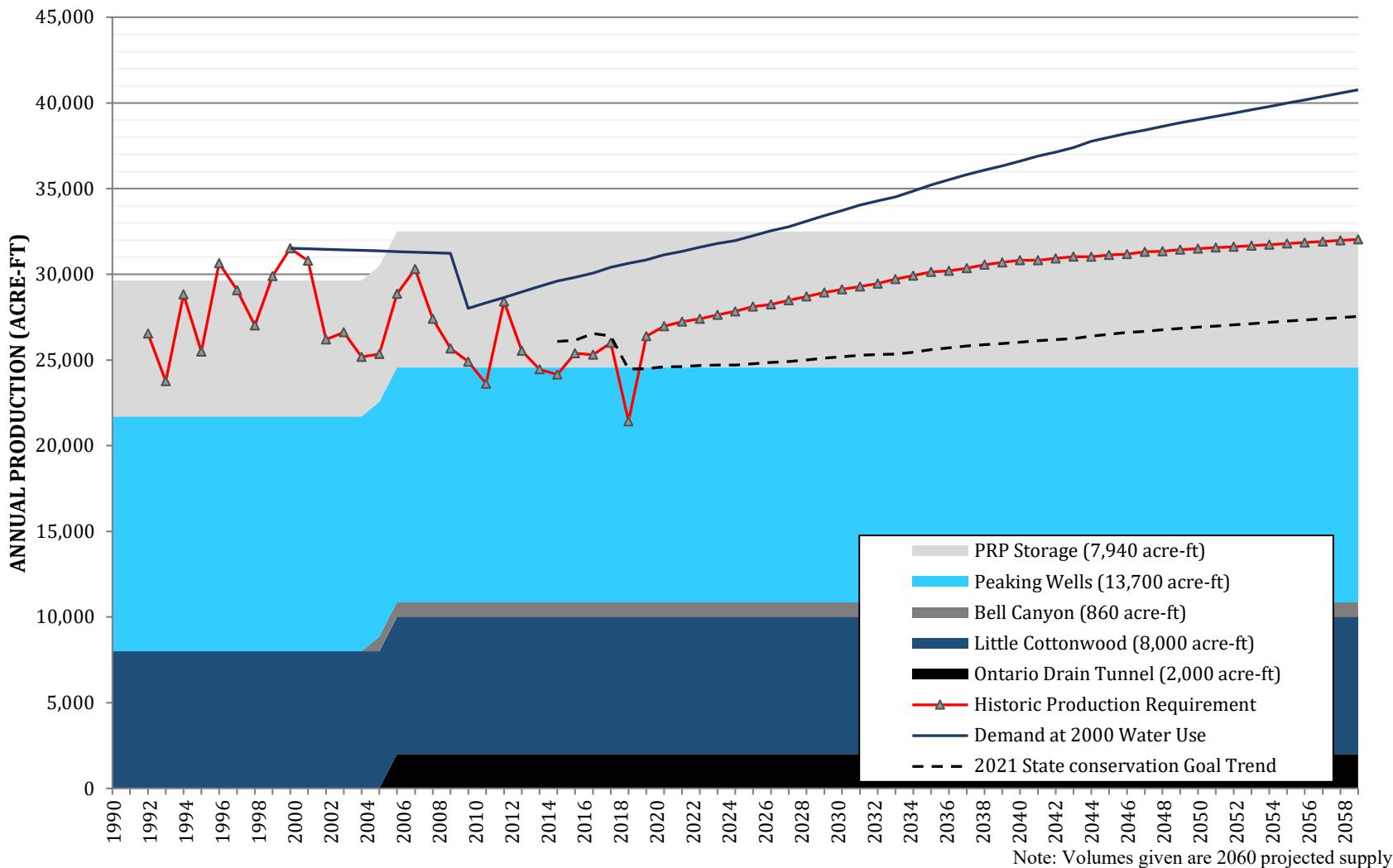
<sup>4</sup> The City has evaluated projected annual supplies and demands for both average and dry weather years; however, because the dry weather scenario will dictate City planning activities, only the dry weather scenario is shown in Table 8 and Figure 6.

**Table 8**  
**Projected Dry Year Water Production Requirements<sup>a</sup>**

Year	Projected Production Requirements Based on Year 2000 Demands (acre-ft)	Projected Production Requirements At Proposed Conservation Goal (acre-ft)	Estimated Annual Savings Through Conservation (acre-ft)	Existing Reliable Supply (acre-ft)	Estimated New Supply Development Which Can Be Delayed Through Conservation (acre-ft)
2000	31,517	29,593	1,924	29,640	1,877
2005	31,353	27,988	3,366	30,500	853
2010	28,032	23,725	4,307	32,500	0
2015	29,616	23,695	5,922	32,500	0
2020	30,844	23,772	7,072	32,500	0
2025	31,955	23,691	8,264	32,500	0
2030	33,394	23,778	9,616	32,500	894
2035	34,833	24,246	10,588	32,500	2,333
2045	37,716	25,407	12,309	32,500	5,216
2060	40,702	26,637	14,065	32,500	8,202

<sup>a</sup>2018 Sandy City Supply and Demand Master Plan.

## Projected Sandy City Annual Production Requirements vs. Supply (Dry Year)



**Figure 6**  
**Projected Sandy City Annual Production Requirements vs. Supply (Dry Year)**

As can be seen in Table 8 and Figure 6, existing City supplies are currently adequate to meet projected demands, partially due to conservation achieved since 2000. Without conservation, projected demands would surpass available existing supplies by the year 2027; if demands surpassed supply, the City would have to identify and purchase additional water sources to meet the demands. With conservation, the existing supply and demand projections show that the City's existing supplies are expected to be sufficient until at least the year 2060.

Ultimately, if the City achieves its water conservation goals, it is expected to save approximately 14,000 acre-ft by 2060 and avoid the need for an additional supply of nearly 8,200 acre-ft. of water. Conservation will also reduce the City's reliance on peaking wells and help it be better prepared for potential supply reductions associated with climate change and/or drought years. Figure 6 illustrates why water conservation is essential to Sandy City's long-term water supply plan.

## **WATER CONSERVATION PRACTICES**

The following sections document both existing and proposed water conservation practices in the City. To organize the information, each section groups conservation practices by the following major conservation categories:

- Conservation Public Awareness Practices
- Education and Training Practices
- Rebates, Incentives, and Rewards
- Ordinances and Standards
- Water Pricing
- Improvements to Physical System

### **Current Conservation Practices**

Over the last two decades, Sandy City has been aggressive in implementing several conservation measures to reduce water usage. The City has a well maintained and operated water system and has been proactive in implementing and maintaining many programs to ensure that the system operates at an optimal level. Each of these programs is discussed in detail below (organized by major conservation categories):

#### **Conservation Public Awareness Practices:**

- **Water Meters** – All residential, industrial, and institutional connections to the City's water system are metered. The City also meters water that is used in public areas such as parks and streetscapes. Sandy City's system is 100 percent AMI.
- **Water Watch** – Every Sandy water customer has a smart meter connection to the city's water system and the ability to register for real-time water consumption alerts through "Water Watch" that will automatically send a text or email update if water usage exceeds certain thresholds. This tool is useful both for leak detection and conservation goals.
- **Water Conservation Staff** – Sandy City has a full time Water Education and Public Outreach Coordinator that provides public/stakeholder education and engagement on water

conservation. The coordinator is able to focus on public outreach and conservation initiatives on a daily basis. The duties of the water conservation staff include acting as visitor guides at Sego Lily Gardens, as well as developing and presenting conservation education material.

- **Water Conservation Web Site** – On the Sandy City Public Utilities' website, Public Utilities has a page devoted to water conservation (<https://sandy.utah.gov/1333/Conservation>). The conservation page has associated subpages that provide information on drought, Sego Lily Conservation Garden, water wise landscapes, incentives and rebates, links to other water conservation related sites, and conservation tips for both indoor and outdoor water use.
- **Water Conservation Materials** – In addition to our website, the City also generates and distributes a variety of print and visual materials, including, for instance, informational pamphlets about waterwise landscaping and door hangers to inform customers about Sandy City landscape ordinances and water conservation practices, and yard signs for residents to show their neighbors their commitment to waterwise practices.
- **Water Conservation Plan** – The City updates its Water Conservation Plan every five years and adopts it by Ordinance.
- **Social Media Campaigns** – Conservation staff works with our Communications Department on year-round social media campaigns designed to educate the public on water conservation and water use practices.
- **Signage at City Sports Events** – Sandy City has a robust series of youth and adult sports programs. The events for these programs take place at locations that exemplify the use of low-water use landscaping and conservation practices. Participants in Sandy City sports programs and their families frequent these locations and represent a portion of the population that can be easily encouraged on a regular basis to conserve water. Signage with QR code links to digital conservation resources are posted at these locations to facilitate public awareness of conservation resources distributed by the City.

#### **Education & Training Practices:**

- **“Slow the Flow” Campaign** – Sandy City has provided financial support to the “Slow the Flow – Save H<sub>2</sub>O” water education campaign through its membership with MWDSLS. This campaign is run by the Governor’s Water Conservation Team in conjunction with districts and municipalities in the State to provide water education information, multi-media advertising campaigns, and coordinated support of statewide conservation efforts.
- **Water System Audits** - The City offers audits to its water customers through a partnership between MWDSLS and Utah State University. The audit includes checking sprinkling systems and reviewing irrigation practices. After the audit, the program offers suggestions to improve water use efficiency. To encourage use of the program, the City identifies large users including schools, parks, and churches with large, landscaped areas, and reaches out to them to educate them about the water audits. This includes some large residential customers as well.
- **Water Conservation Education Program** – Sandy City supports efforts to educate school-aged children about water and the importance of conservation. These programs are specifically designed to motivate children to use water wisely and grow up with a

conservation ethic. It is hoped that these efforts will motivate the children to encourage their parents to use water more wisely as well.

- **Sego Lily Waterwise Demonstration Garden** – The City maintains a waterwise demonstration garden. The Sego Lily Gardens are divided into different landscaped areas, each with separate watering zones. This allows water use to be measured for specific landscaping themes. It also provides opportunities to exhibit various water wise plants and irrigation systems.
- **Sandy City Newsletter** – The City has utilized the City newsletter to educate and inform the public regarding conservation and other water issues. The City also advertises the garden fairs in these newsletters. During the garden fairs, experts present information on various topics as guests walk through the garden.
- **Direct Customer Outreach** – Sandy City also uses Water Watch to monitor water usage among city customers. The City reaches out directly to high-use customers to educate and inform customers about water-saving options available to Sandy residents.
- **Water Conservation Information** – In addition to our website, the City also generates and distributes a variety of print and visual materials, including, for instance, informational pamphlets about waterwise landscaping and door hangers to inform customers about Sandy City landscape ordinances and water conservation practices, and yard signs for residents to show their neighbors their commitment to waterwise practices.
- **Other Conservation Programs and Forums** – Sandy City is actively involved with building awareness around Water Week and Earth Day, including holding garden fairs at Sego Lily Gardens. Sandy City is also involved with the Utah Water Conservation Forum that reaches out to water conservation professionals across the state.

#### **Rebates, Incentives & Rewards:**

- **Toilet Replacement Rebate** – The City works with Utah Water Savers to provide a toilet replacement rebate program that provides up to \$100 per toilet. Rebates will be given to residents who replace toilets that use more than 1.6 gallons per flush and were installed prior to 1994. Residents must replace old toilets with a WaterSense-labeled toilet and rebates are limited to two toilets per home.
- **Smart Irrigation Controllers** – Sandy City works with Utah Water Savers to provide a rebate program for Smart Irrigation Controllers. The program allows residents to receive a rebate for up to \$75 when they purchase an eligible WaterSense-labeled smart controller. These controllers sync watering schedules with local precipitation, temperature, and wind patterns. Rebates are limited to one smart controller per property every five years.

## Ordinances & Standards:

- **Water Efficient Landscaping Ordinance<sup>5</sup>** – In January of 2002, the City Council adopted the Water Efficient Landscape Ordinance (Ordinance 21-25-4) The ordinance requires new commercial and multifamily developments, as well as new City-owned properties, to submit landscape and irrigation plans during the development review process. The plans are required to be designed by certified professionals in both landscape and irrigation systems. The landscaped areas of the new developments are required to meet certain irrigation system efficiency standards once installation is completed. In addition, water conserving plants are now required for slopes greater than 30 percent. The developments must also pass a water audit once the irrigation systems have been installed.
- **Timing of Landscape Watering Ordinance<sup>6</sup>** – Sandy City has coordinated with other water agencies to develop a six-phase water restriction protocol to be implemented in times of drought or other water emergencies. In December of 2001, the City Council adopted an ordinance specific to the Sandy City water system that permanently restricts sprinkler irrigation between 10:00 a.m. and 6:00 p.m. for all water users (landscape ordinance 8-3-2). Violations of this ordinance are generally met with friendly reminders from the City, but the ordinance does allow the City to assess fines to chronic violators. To date, the City has received adequate responses from violators and has not yet issued a fine.
- **Waste Prohibited Ordinance<sup>7</sup>** – Sandy City has adopted an ordinance that prohibits water waste and allows City staff and City Council to act in the case of excessive or irresponsible water waste.

## Water Pricing:

- **Increase Block Rate Structure** – In 2001, the City Council adopted a new water rate structure intended to provide an incentive for water users to conserve. The key element of the rate structure is an increasing rate based on monthly water use. The rate structure includes four tiers with the highest tier charging more than double for water than water used in the lowest tier. Primary goals of the increasing block structure are to reduce peak system demands and reduce the waste of water on outdoor landscaping uses.
- **Billing Patterns** – For almost 20 years, the City has been billing customers on a monthly basis. Monthly billing allows consumers to receive more frequent feedback on their water use habits and adjust their use accordingly. More recently, the City has also implemented AMI at each connection to its distribution system. AMI allows customers to access information on their water use on almost a real time basis. This provides even better feedback on water use patterns to customers.

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<sup>5</sup> See the full text of the Ordinance: [CHAPTER 21-25. - LANDSCAPING STANDARDS | City Code | Sandy, UT | Municode Library](#)

<sup>6</sup> See the full text of the Ordinance: [Sec. 8-3-2. - Timing of Landscape Watering. | City Code | Sandy, UT | Municode Library](#)

<sup>7</sup> See the full text of the Ordinance: [Sec. 8-3-1. - Waste Prohibited. | City Code | Sandy, UT | Municode Library](#)

- **Charging True Water Costs to All Water Users** – In the past, Sandy City has not charged City departments the true cost of their water. For example, the Parks Department paid an annual charge based on a budget number rather than the actual amount of water used. Although the Parks Department has traditionally done a commendable job of managing their water use, this policy has been changed and City departments are now charged based on actual consumption to promote water conservation.

#### **Improvements to Physical System:**

- **Conjunctive Use of Surface and Groundwater** – Sandy City, by having membership in the MWDSLs, more efficiently utilizes surface waters when available and only uses groundwater supplies during periods of peak demand.
- **Conversion of Public Landscapes** – Many changes have been implemented in the landscaping of public areas. For example, a park strip at a public utility booster station has been converted to a low-water use ground cover. The Parks and Recreation Department is experimenting with the conversion of streetscapes to bark and/or low-water use trees and plants. At Flat Iron Park, the Parks Department has planted trees and shrubs on several inclines. Water use in these areas will be restricted once the plants are established. At the 40-acre Hidden Valley Park, only 2 acres are planted with turf, with native plants being used in the remaining area. Several detention basins have been re-landscaped with drought tolerant plants. Water wise landscaping was installed surrounding a new parking area surrounding Lone Peak Park. This includes drip irrigation for water-saving perennials, trees, and shrubs.
- **Pipeline Corrosion Protection** – Sandy City requires the installation of corrosion protection on all ductile iron pipes in corrosive soil or the use of PVC pipe. In addition to extending the life of the pipelines, this measure is designed to minimize system losses by reducing leaks in pipelines.
- **Line Replacement Program** – The City has a water fund budget for pipeline replacement (not including major conveyance projects). Funds reserved for this purpose will be used to replace old and failing water lines in the Sandy City water system. In addition to maintaining the system in good working order, it is hoped that this effort will reduce the number and severity of water leaks in the system.
- **Park Computerization** – All of the City's sites that have power (including parks, city buildings, and streetscapes) have been equipped with smart controller systems that monitor daily weather reports and adjust output at each zone to maximize irrigation efficiency.
- **Improved Utilization of Bell Canyon Creek Water Right**. Sandy City has rights in Bell Canyon Creek that have historically been utilized principally for flood irrigation through an aging ditch system. While some of the water was historically treated by JVWCD through the South East Regional Water Treatment Plant (SERWTP), capacity limitations at the plant limited use of this source for potable purposes. With MWDSLs's expansion of the Little Cottonwood Water Treatment Plant (LCWTP) and improvements completed by the City, Bell Canyon water can now be diverted to Little Cottonwood Creek and then treated at the LCWTP (whether directly or by exchange). During dry-year conditions, 863 acre-feet of new useable

water is estimated to be available through Sandy City's water rights in Bell Canyon Creek. The City has also facilitated the enclosure of the historic open ditch system operated by the Bell Canyon Irrigation Company. This conservation measure is saving hundreds of acre-ft previously lost through seepage and evaporation from the ditch. Most recently this water has also been used for ASR operations in Dimple Dell (see below).

- **Aquifer Storage and Recovery from Bell Canyon Creek and Other Sources.** Aquifer storage and recovery (ASR) refers to the concept of increasing groundwater supplies by increasing recharge to the aquifer. The concept utilizes underground storage capacity in the aquifer. During periods of peak runoff, the City diverts flows in excess of either demand or treatment capacity to Bell Canyon Creek (also referred to as Dry Creek) so that the water can be infiltrated into the ground and later withdrawn from well sites. The City has constructed a metering gauge at 1300 East in Dry Creek to calculate the amount of water that has infiltrated the ground. The City also has plans for future ASR projects on 10 acres of land purchased by Public Utilities in the 50-acre Quail Hollow Park area and consider further expansion of ASR into the public park area with Sandy water resources, and/or in partnership with Metro Water.
- **Expanded Use of Little Cottonwood Creek Water Rights.** Sandy City has primary water rights in Little Cottonwood Creek, most of which are treated by MWDSLs, in their LCWTP. These water rights generally allow for Sandy City utilization of approximately one-third of the Little Cottonwood Creek discharge. Little Cottonwood Creek experiences its highest flow rates in May, June, and the first part of July. Because of past limitations in diversion capacity, some of these water rights have not historically been fully utilized. Over the last few decades, however, MWDSLs has made several improvements to the LCWTP. This includes upgrading the capacity of LCWTP to 150 mgd and eliminating historic diversion bottlenecks. With the LCWTP improvements, Sandy City can now utilize more of its creek water rights in the spring and save their MWDSLs water stored in Deer Creek for later in the summer season.

### **New Conservation Practices Planned for Implementation**

There are several new conservation practices that the City has either recently started to implement or will implement in the next five years. The following sections describe each conservation practice and Table 9 summarizes the implementation schedule, estimated costs, and measurement of progress for each practice.

#### **Conservation Public Awareness Practices:**

- **Water Shortage & Drought Plan** – The City plans to complete a detailed water shortage and drought plan within the next year. This plan will include specific drought stages along with triggers and responses for each. This will help direct the City and its residents conserve water during critical drought seasons.
- **Utility Bill Improvements** – The City plans to work with our utility billing software provider to identify opportunities for conservation messaging in each utility bill. The City plans to begin sending personalized conservation messaging beginning in 2022.

## **Education & Training Practices:**

- **Continued Public Education Efforts.** Sandy City currently supports many water conservation programs such as the “Slow the Flow” water conservation campaign, the Water Conservation Education Program, and their Water Watch program which currently has 4,500 participants. Sandy City needs to remain active in public education on water conservation to sustain a long-term reduction in water use. Additional public education efforts will potentially include:
  - Increasing outreach to classrooms and expand resources for teachers through our website.
  - Offering community education classes (see next conservation practice for details).
  - Creating a conservation calendar with social media outreach.
  - Introducing a virtual garden tour.
  - Enhancing education materials at Sego Lily Garden
- **Water Conservation Classes** – Water conservation classes will be offered at Sego Lily Gardens. Topics to be discussed at the classes could include low-water use landscape design, irrigation systems, varieties of turf, low-water use plants, and native plants. Sandy City plans to review and update conservation class materials used previously and hold a class session per quarter for the next five years.

## **Rebates, Incentives & Rewards:**

- **Localscapes Rebate** – Sandy City is exploring a partnership with Central Utah Water Conservancy District (CUWCD) in order to offer a rebate program to residents who install a new landscape or renovate an existing one, following the Localscapes five-step approach. This rebate program will begin in August 2021 as a pilot program and future funding may be contingent on passing landscaping ordinances the following year. Cash rewards and plan reviews will be given for landscaping projects that meet program requirements. Applicants must take a Localscapes class before submitting a plan for review. All projects must use a Localscapes design, sign an agreement form, and install their project within 12 months. Rewards will be based on project size and estimated water savings. On average, the reward for a typical  $\frac{1}{4}$  acre lot will be around \$2,000.
- **Flip Your Strip Rebate** – Sandy City is exploring a partnership with CUWCD to offer a rebate program to residents who replace the lawn in their park strip with a water-efficient design. This rebate program will begin in August 2021 as a pilot program and future funding may be contingent on passing landscaping ordinances the following year. Participating residents must meet all program requirements to be considered eligible for the rebate. Eligible participants can receive \$1.00 per square foot or \$1.25 per square foot if they attend a free park strip class.

## Ordinances & Standards:

- **Update City Ordinances Regarding Water Conservation.** The City has a great foundation for water conservation with its Water Efficient Landscape Ordinance. However, this ordinance is several years old and may not fully address some more recent issues of interest. During the next two years, the City will review this ordinance to identify additional modifications that may offer additional opportunities for conservation.
- **Propose Additional City Ordinances Regarding Water Conservation to the City Council.** City leaders feel a responsibility to “make it easy” for residents to “do the right thing” with respect to conservation. Over the next five years, Sandy City will investigate implementing potential conservation policy actions including, but not limited to, those listed below:
  - Park strip code (require 30% or more of waterwise vegetation)
  - Improve water waste and time of day ordinance
  - Add more info on enforcement or fines
  - Irrigation Audit Policy – ordinance requiring all new commercial & institutional properties to have irrigation audit

After appropriate consideration of new conservation actions, Sandy City personnel will propose viable conservation actions be implemented by City Ordinance to the City Council by 2023.

## Water Pricing:

- **Evaluate Current Water Rate Structure to Further Incentivize Conservation.** Sandy City adopted a conservation-oriented water rate structure in 2001. This has been occasionally updated over the last two decades. All indications are that the adopted rate structure has had a positive influence on encouraging conservation by Sandy City customers. Although this rate structure is performing well, there are certainly modifications to the rate structure that could be considered to further encourage conservation. Within the next year, the City will complete a rate study to identify potential modifications to its current rates structure that encourage reductions in excessive water use and further incentivize conservation. Results of the review will be presented to City Council for consideration.

## Improvements to Physical System:

- **AWWA Water Audit Program** – The City plans to participate in the AWWA Water Audit Program. This program helps water suppliers quantify system water loss and associated revenue losses. The City will participate in at least one additional water audit by 2025.

**Table 9**  
**Implementation Schedule, Estimated Costs & Measurement of Progress**

New Conservation Practices	Implementation Timeline	Estimated Cost	Measurement of Progress
Annual Tracking of Water Conservation Progress	Ongoing	\$0 (existing staff)	Per capita water use compared to 2015
Water Shortage and Drought Plan	Complete by 2025	\$20,000	Completion of report with associated recommendations
Utility Bill Improvements	Ongoing	\$30,000/year	Implementation of conservation messaging
Continued Public Education Efforts	Ongoing	\$15,000/year	Overall reduction of citywide water consumption
Water Conservation Classes	Begin in 2022	Funded by Staff Position	Hold a class session per quarter for the next five years and incorporate online course offerings
Localscapes Rebate	Begin in 2021	\$0/year (State-funded)	Number of landscapes on existing City and residential properties that include xeriscaping techniques
Flip Your Strip Rebate	Begin in 2021	\$0/year (State-funded)	Number of park strips converted/participating residents within annual period
Update City Ordinances Regarding Water Conservation	Complete by 2023	Varies	Present results to City Council in 2023
Propose Additional City Ordinances Regarding Water Conservation to City Council	Complete by 2025	Varies	Present results to City Council through next five years
Evaluation of Current Water Rate Structure to Further Incentivize Conservation	Complete in 2021	\$15,000	Completion of report with associated recommendations
AWWA Water Audit Program	Complete by 2025	\$5,000/year	Completed audit score and record

## **WATER CONSERVATION COORDINATOR**

The City has appointed a Water Conservation Manager (Abi Holt). The manager is responsible for overseeing all City conservation efforts. Working closely with the Water Conservation manager is the Conservation Education & Outreach Coordinator (Nikki Wyman). The Education & Outreach Coordination leads the effort on the City's public education program, water conservation workshops, distributing City conservation information at City events, and acting as the liaison for water conservation matters between the citizens and City officials.

## **WATER CONSERVATION PLAN AUTHOR(S)**

This plan was prepared by Bowen Collins & Associates at the Draper office:

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