WaterSMART: Water and Energy Efficiency Grants, FY2020

Funding Opportunity Announcement No. BOR-DO-20-F001

Funding Group II

Advanced Metering Infrastructure Program

City of Orem Department of Public Works

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Orem, UT 84057

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October 3, 2019

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Executive Summary

Date:	October 3, 2019
Applicant:	City of Orem Public Works Department, Water Section
City, County, State:	Orem, Utah County, Utah
Project Name:	Advanced Metering Infrastructure (AMI) Program
Project Length:	4 years total / 3 years remaining
Estimated Completion Date:	June 2022
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The City of Orem Public Works Water Department is requesting $1,500,000 in federal funding assistance under Funding Group II of the WaterSMART: Water and Energy Efficiency Grant for FY 2020 for the installation of advanced metering infrastructure (AMI) throughout the City. This request is approximately 20.6% of the total project cost. Grant funding will contribute to the installation of the City's 23,000+ water meters with AMI technology. Meters that are five years old or newer will be retrofitted for AMI capability, and older meters will be replaced with completely new AMI meters. Water consumption is on the rise throughout Orem and the surrounding region as the area's population continues to increase rapidly, and as such, Orem is pursuing the development of AMI as a strategic effort to address the ever-increasing water demand within one of the driest regions of the United States. The system will provide accurate, real-time meter reading capabilities and enhanced customer awareness about water usage. The project will enable improved leak detection and identification of unusual water usage so any issues can be remedied much faster. We anticipate the project to result in water savings of approximately 3481.5 acre-feet (AF) per year, which is approximately 12.5% of the City's average annual water usage. The project will contribute to the conservation of the region's limited water supplies and help improve local supply reliability. This project will not be located on a federal facility.

Background Data

The City of Orem is located in Utah County, Utah on the east side of Utah Lake. The City covers an area of 18.65 square miles and has a population of approximately 98,000, making it the fifth-most-populated city in Utah.[1] Orem continues to grow rapidly, with an expected growth rate of 12% between the years of 2020 and 2030. The City maintains over 23,000 water meters for active accounts.

The City of Orem completed its Water Master Plan in 2016, which included a plan for investing in advanced metering infrastructure (AMI) throughout the City. The plan suggested that the City complete the project as soon as possible because of the associated benefits from accuracy in measuring water consumption and the resulting gains in efficiency which are necessary for Orem to reach its water conservation goals. Thus, the City began installing AMI meters in October 2018. It is expected that the project will be complete and all of the City's meters will be equipped with AMI technology by the end of FY2022.

Sources of Water Supply

The City of Orem and the Metropolitan Water District of Orem (MWDO) own the water rights used to supply water to the community. The MWDO was created in 1935 with the purpose of securing necessary water supply for the City.

A portion of Orem City's municipal water originates from two springs located in Provo Canyon: Alta Springs and Canyon Springs. The City also obtains water from a total of nine municipal groundwater wells located throughout the City.

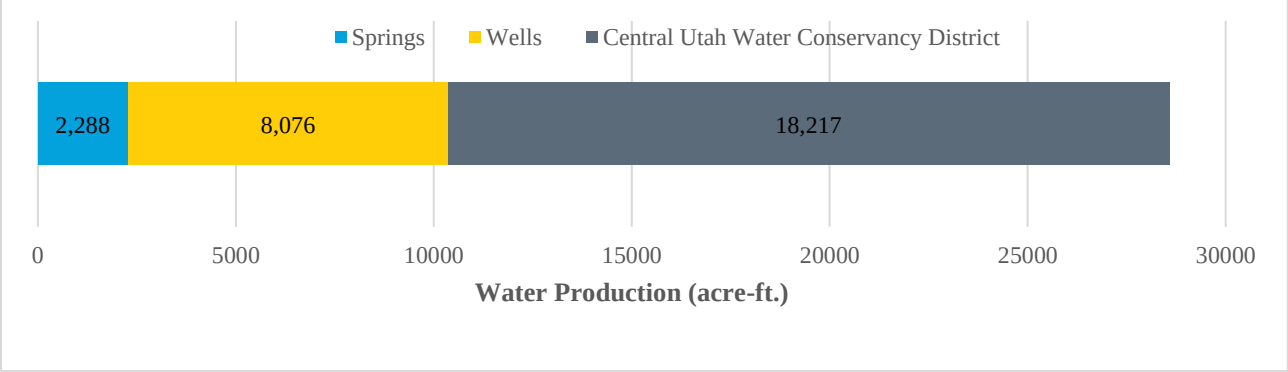
The majority of water used by the City of Orem is treated surface water. The Metropolitan Water District of Orem (MWDO) acquires Orem's surface water rights, which include natural flow runoff from the Provo River and storage water from mountain reservoirs. This surface water is treated at the Don A. Christiansen Regional Water Treatment Plant (DACRWTP), which is owned and operated by the Central Utah Water Conservancy District (CUWCD).

In 2018, the City's total water supply was 28,581 AF. The water production by source was as follows:

- CUWCD (treated surface water) – 18,217 AF, or 64% of the total supply
- 9 wells – 8,076 AF, or 28% of the total supply
- 2 springs – 2,288 AF, or 8% of the total supply

This information is presented in Figure 1 below.

Figure 1 – 2018 City Water Production by Source (acre-ft.)



Orem Well Water Rights

Orem exercises rights to remove water from underground aquifers through nine deep wells ranging from 500 to 1,000 feet in depth. The water right associated with these wells allows for a maximum pumping rate of 33.487 cubic feet per second (cfs) but cannot exceed 18,306 AF on an annual basis (shown in Table 1 below).

Table 1 – Orem Well Water Rights

Source	Water Right #	Maximum Pumping Rate (cfs)	Allowable Annual Removal (AF)
Nine groundwater wells	55-290	33.487	18,306

Orem Spring Water Rights

Orem also owns and maintains two mountain springs located in Provo Canyon: Canyon Springs and Alta Springs. Table 2 below shows the two springs and their associated water rights and yields.

Table 2 – Orem Spring Water Rights

Source	Water Right #	Associated Right (cfs)	Lowest Annual Yield (AF)	Average Annual Yield (AF)	Highest Annual Yield (AF)
Alta Springs	55-4160	13	1,915	2,950	4,365
Canyon Springs	55-3767 55-79	2.2	254	571	764

MWDO Surface Water Rights

The MWDO acquires Orem's surface water rights by owning shares of stock in various entities as shown in Table 3 below. Water provided under these shares is, and will continue to be, converted to municipal and industrial use for various consumer needs.

Table 3 – MWDO-Owned Irrigation Shares

Canal	Shares	AF
Provo Bench Canal and Irrigation Company	938.895	14,862.71
North Union Irrigation Company	230.445	1,887.34
Provo Reservoir Water Users Company	1,948.85	13,057.30
Provo River Water Users Association	2,254.00	2,254.00
Dixon Irrigation Company	300.00	495.00

In addition to these sources, the MWDO has contracted with the CUWCD for 7,520 AF of Central Utah Project (CUP) water.

Current Water Uses & Number of Water Users Served

The City's water system serves residential, commercial, industrial, and other customers. The most current (2018) official population estimates place Orem's population at 97,521 residents.[2] In

addition to permanent residents, the City also serves a non-residential population of approximately 146,000. This non-residential population is composed of the Utah Valley University student and faculty population (which is the largest university in the state of Utah) along with many other commercial, industrial, and institutional entities.

The City of Orem maintains over 23,000 active water meters. Table 4 below provides the breakdown of water meters by customer class. More than 90% of the City's water customers are residential.

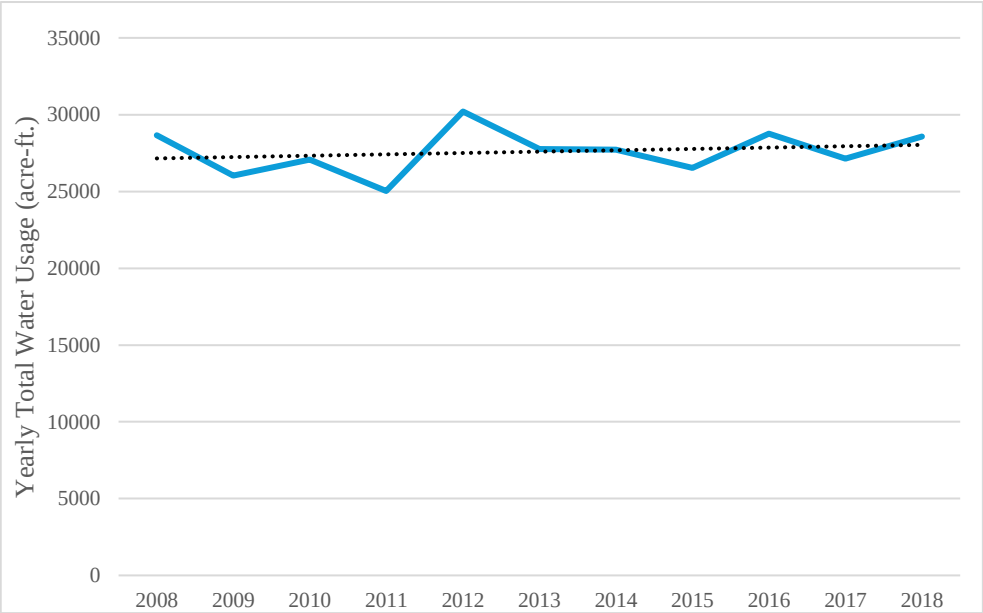
Table 4 – Water Meters by Customer Class

Customer Class	Percentage of Meters
Residential	90.80%
Commercial	7.34%
Institutional	1.59%
Industrial	0.002%
Other	0.0004%

Current Water Demand

From 2008 - 2018, Orem's average annual water usage has been 27,591 acre-feet. The yearly usage varies, but has remained relatively stable from 25,000 to 30,000 acre-feet per year. The City's water sources have remained the same during this time period, so the major variations from year to year are primarily due to the amount of moisture received throughout the year, and the population growth over time which has led to increased demand. Figure 2 below provides the yearly total water usage numbers from 2008-2018. This data is a baseline for future projections.

Figure 2 – Yearly Total Water Usage (2008 – 2018)



Projected Water Demand

Population growth is used as a proxy for projected water demand. Table 5 displays the City of Orem's residential and non-residential population projections through 2060 (which is projected to be near the City's build-out). The population projections through 2040 were developed by the Mountainland Association of Governments (MAG), a regional municipal planning organization, while projections for 2050 and 2060 were produced by Bowen Collins & Associates for Orem's 2016 Water Master Plan. Growth at this rate is going to require significant conservation measures to ensure the City has adequate water supply to meet future demands.

Table 5 – City of Orem Residential and Non-Residential Population Projections

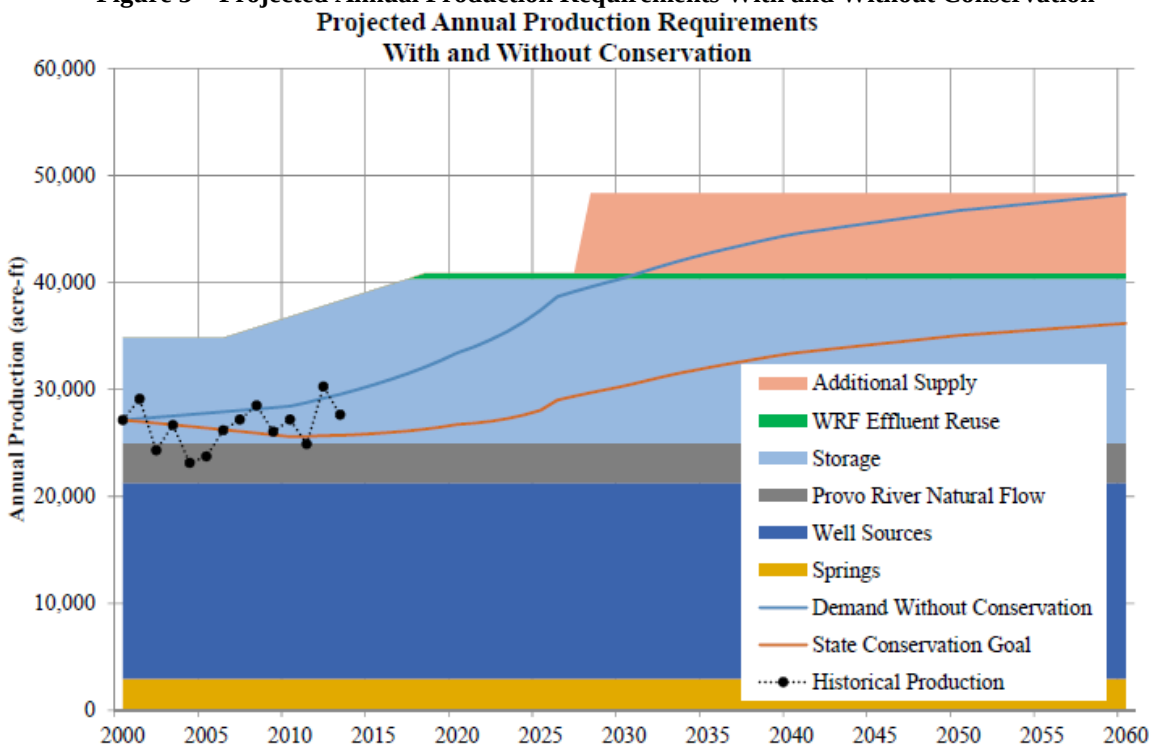
Year	Orem Residential Population	Orem Non Residential Population
2020	101,130	146,643
2030	113,311	155,318
2040	125,951	161,309
2050	132,889	164,401
2060	137,610	167,552

The City's current average water production is approximately 28,000 AF, with a dry year usable water yield of 40,351 AF (this is the amount of water that would be available to the City under drought conditions). Table 6 below and Figure 3 on the following page show Orem's projected annual water production requirements without and with conservation (these figures are based on estimates from Bowen Collins & Associates). The future water production estimates are determined by multiplying per capita water demand by population projections.

Table 6 – Projected Water Production Requirements (AF)

	2020	2030	2040	2050	2060
Average Annual Production Requirements *without* Conservation (AF)	33,408	40,419	44,488	46,721	48,240
Average Annual Production Requirements *with* Conservation (AF)	26,727	30,314	33,366	35,041	36,180

Figure 3 – Projected Annual Production Requirements With and Without Conservation



As shown in Table 5 and Figure 3, without the benefits associated with AMI and related conservation efforts, Orem's water demand is projected to be over 40,000 AF by 2030, and approximately 48,000 AF by 2060. Thus, demand would quickly outpace our dry year usable water yield of 40,351 AF.

However, the City currently has a water conservation goal consistent with the State of Utah conservation goal to reduce per capita water usage by 25 percent by the year 2025 (based on water use as measured in the year 2000). If the City is able to meet this conservation goal, the annual supply requirement in 2060 is projected to be only 36,180 AF. Thus, the City would have sufficient annual water supply at build-out based on our dry year usable water yield of 40,351 AF. In order to ensure adequate water supply in future years, the City must place increased emphasis on conservation through implementing AMI and additional dedicated conservation efforts.

Potential Shortfalls in Water Supply

Utah is the second-driest state in the nation,[3] and available water supply can fluctuate based on the amount of precipitation the area receives in a given year. The area is highly susceptible to severe drought, and the City must put forth significant efforts to prepare for and manage drought years.

The City's water supply is also impacted by regional population growth. As previously mentioned, the CUWCD operates a direct filtration plant (the DACRWTP) to treat surface water and provide Orem and other regional customers with safe and clean water. In the past, Orem has been the plant's largest customer, and has enjoyed access to nearly all of the storage at the 37-million gallon

treatment plant, even though Orem has rights to only 9.5 million gallons of storage at the plant. However, Utah County is experiencing tremendous population growth—the current population is approximately 661,000, but this number is projected to reach over 1,500,000 by 2060.[4] With this booming regional population growth, the CUWCD is continually obtaining more customers. This proportionately decreases the amount of water that Orem City can receive from the DACRWTP. We expect that as the plant obtains new customers, the amount of storage available to the City will decrease until it reaches its contractual limit of 9.5 million gallons. This further demonstrates the need for Orem to implement water conservation efforts in order to maintain adequate water supply despite the area's rapid population growth.

Water Delivery System

Water is distributed to Orem City customers through over 350 miles of distribution pipe, and the water distribution system is divided into 12 major pressure zones. The majority of the sources and storage for the City's water system reside at a high elevation on the east side of Orem, so most water flows through the system by gravity through pressure-reducing valves. The City also has 4 booster pump stations used to deliver water to higher elevation service areas once it has been treated.

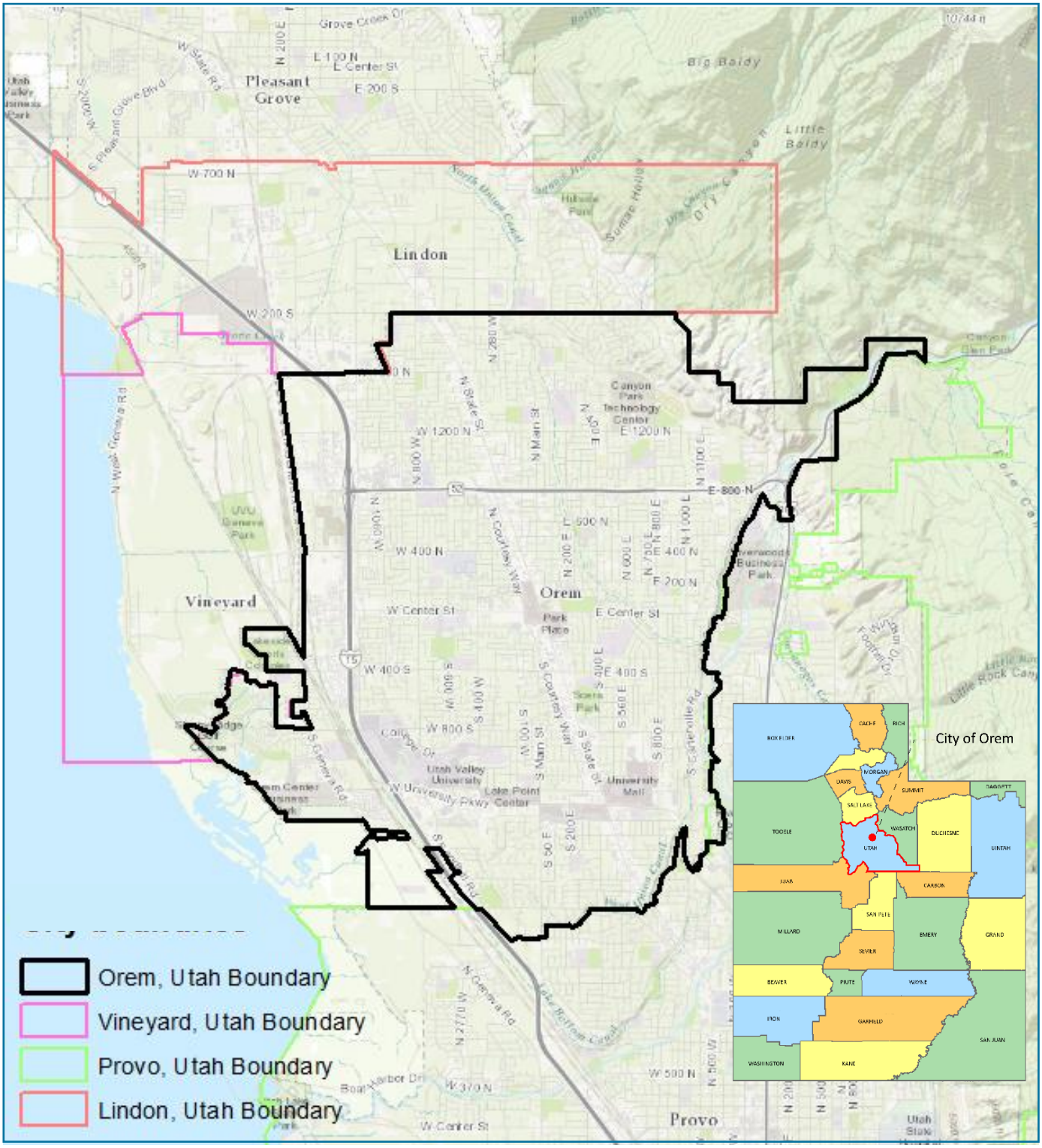
Past Reclamation Relationships

The City of Orem has no past working relationships with Reclamation

Project Location

The City of Orem's AMI Project is located in the state of Utah, Utah County within the City's boundaries as shown in Figure 4 on the following page.

Figure 4 – City of Orem County and Municipal Map



Technical Project Description

Water conservation has become a priority for the state of Utah, which is the second-driest and third-fastest-growing state in the United States.[5] The City of Orem currently has a water conservation goal consistent with the State of Utah conservation goal to reduce per capita water usage by 25 percent by the year 2025 (based on water use as measured in 2000). One of the water conservation measures the City is pursuing in order to reach this goal is the replacement of all of the City's 23,000+ traditional manual read meters with AMI meters. This project will be a critical component of the City's overall water conservation plan.

The City began installing AMI infrastructure throughout the City in October 2018. The City is requesting funding assistance for the remaining work to be completed, which is estimated to be complete by the end of FY2022. Meters that are five years old or newer will be retrofitted for AMI capability, and older meters will be replaced with completely new AMI meters.

Table 7 summarizes the planned AMI meter installations for FY2020 – FY2022.

Table 7 – Meter Replacement Schedule

Meter Replacement Schedule (FY2020 FY2022)	
Full Meter Replacement	
Fiscal Year (July 1-June 30)	**Number of Meters to Replace**
2020	5,378
2021	6,463
2022	6,850
Total Units	**18,691**
Retrofit Existing Meters with New Registers and Endpoints	
Fiscal Year (July 1-June 30)	**Number of Meters to Retrofit**
2020	479
2021	474
2022	498
Total Units	**1,451**

By the end of the project, all meters in the City of Orem will be equipped with AMI technology. The AMI meters will be installed in order of our existing water meter read route. This will simplify the conversion in our billing program from a manual read method to an automated network read method. This will also spread the installations city-wide, which will enable us to test the reliability of the network and determine where we may need to strategically add additional towers or other infrastructure to provide a stronger network.

Primary Problems with Manual Meters

AMI technology is necessary to conserve water because customers need timely data to detect leaks and adjust behavioral patterns. With our current manual read meters, this is difficult or impossible for customers to do.

Increasing Meter Age and Inaccuracy

Like most things, water meters have a finite lifetime. Over time, meter components tend to become worn, reducing the overall registration of the meter. This means that older meters tend to under-read the amount of water used, ultimately reducing the amount of water sold and the corresponding revenue received by the City. To avoid significant losses in accuracy and corresponding revenue, the expected lifespan for a residential meter is approximately 10-20 years. Unfortunately, most meters in the City of Orem are much older than this. More than 35 percent of meters in Orem were installed more than 40 years ago, and only 10 percent have been installed in the last 10 years. Based on the increasing age of the meters, the overall estimated weighted average accuracy for meters in the Orem City system is only 81.4 percent. In addition, multiple audits have revealed that some of the City's meters read lower than 15 percent. Installing new AMI meters will increase the accuracy of the City's water meters and create a more efficient water system that will enable the City to charge consumers according to the water they truly use. Additionally, AMI will give consumers accurate usage data to help them forecast and manage their true costs before getting the bill. This understanding of cost will encourage consumers to use less water.

Manual Meter Reading Process

The current manual meter reading process is extremely time and labor-intensive and does not give customers the ability to react to water usage prior to receiving the bill. Since employees are only reading these meters once a month, and not at all during winter months (November through February) due to the weather, the City and residents obtain only infrequent data on water usage. As a result, neither the City nor the water user is able to quickly detect or respond to leaks and other problems. In addition, this process leads to additional indirect risks and environmental impacts as employees have to drive to and read each meter in the City.

AMI Benefits for the City of Orem

AMI offers high-level management of customer data that will fundamentally improve the City's ability to manage residents' water usage and promote good conservation habits. The City of Orem has identified the following benefits as the main reasons for pursuing AMI technology.

- **Leak Detection and Timely Maintenance** – Currently, the City reads water meters only once a month (and not at all during the winter months), leading to a considerable delay in our ability to detect and respond to leaks and other problems. In contrast, AMI is constantly collecting usage data, and because of this, it is able to quickly detect two types of leaks. First, AMI software can be programmed to recognize large sustained increases in flow departing from normal use patterns as would happen during catastrophic pipeline breaks. The City and residents could be notified at any time in this situation. Second, AMI can also determine when a small amount of flow is consistently being detected by the meter, indicating a small leak. The EPA estimates that the average home wastes 10,000 gallons of water each year due to leaks.[6] Early leak detection resulting from AMI will enable the City to quickly detect and repair leaks and other problems, resulting in a significant amount of conserved water and reduced bills for residents.

- **Time of Day Audits** – The City of Orem provides water conservation tips to residents, such as avoiding watering during peak use times (e.g. 10 AM – 6 PM). However, with our current manual water meter reading and data collection process, it is virtually impossible to determine how well this guidance is being followed. With AMI, the City could monitor water use patterns at all times and reach out to residents who may be using water inefficiently.
- **Water Pricing** – AMI meters will provide the City with complete, accurate data about water use. This would enable the City to bill water users fairly according to their true usage and impact on the overall system. This would encourage residents to adopt more efficient water use patterns in order to save money.
- **Peak Use Data** – Most water customers do not understand the nuances of their water usage, as they are only billed for their total monthly usage. However, with AMI, residents can monitor their individual water usage at any time to understand when they are using the most water. In addition, the City could use the AMI interface to provide notifications to residents about the times of day or year when demand is highest, encouraging residents to avoid watering during these times in order to avoid higher water bills and potential water shortages. This will help customers better understand how they can use less water and save money.
- **Water Conservation and Public Education** – AMI customer interfaces such as mobile phone apps can be used to educate in many ways. One survey found that 78% of respondents agreed that saving money was the primary reason they were proactive about conserving water.[7] Thus, the City could use the resident-facing AMI app to help residents understand how to conserve water and ultimately save money. This would motivate customers to be more proactive in practicing good water usage habits.[8] Another effective strategy could be to use "peer pressure" in the form of neighborhood-level data comparisons (e.g. to show each resident how much water they are using compared to their neighborhood averages). This type of comparison strategy has been found to be more effective at promoting water conservation than "appealing to people's sense of social responsibility, safe guarding the earth…, and even saving money."[9]

  Having a flexible AMI interface that can be adjusted according to the City's ever-changing needs is essential to being able to leverage AMI technology to its full capacity. For example, as Orem focuses on decreasing outdoor water use, we can provide links to blogs, rebates, incentive programs, and landscape workshops through the AMI interface. Providing financial incentives such as rebates and billing discounts associated with these data will promote active water conservation habits.[10] Along with these benefits, providing avenues for residents to set goals and obtain rewards for meeting these goals could be a powerful motivator.[11]

EVALUATION CRITERIA

Evaluation Criterion A: Quantifiable Water Savings (30 Points)

Orem conservatively estimates its total water savings to be 3481.5 acre-feet per year (or 12.5% of Orem's total annual water usage). The following subsections detail how this estimate was determined. Table 8, which shows annual water usage for the past 5 water years along with the 5-year average, can be used as a reference point for understanding the estimations.

Table 8 – Five-Year Historic Water Use

Water Year	Annual Supply (AF)	Average Use (AF/Connection)	# of Connections
2014	27,718	1.22	22,634
2015	26,534	1.18	22,549
2016	28,772	1.26	22,835
2017	27,145	1.19	22,902
2018	28,581	1.23	23,202
5-year Average	**27,750**	**1.21**	**22,824**

How has the estimated annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

The City expects that the implementation of AMI will lead to an overall water savings of **3,481.5 AF annually.** This total savings is **12.5%** of the City's average 5-year total usage of 27,750 AF.

We anticipate that AMI will ultimately produce water savings through three main categories: 1) availability of consumption data & improved public education; 2) leak detection; and 3) accurate meter reading & billing. See Table 7 and the following paragraphs for further details about the expected water savings by category.

Table 9 – Summary of Expected Total Water Conservation

Category	Estimated Annual Water Savings
Availability of Consumption Data & Improved Public Education	2,498 AF
Leak Detection	706 AF
Accurate Meter Reading & Billing	277.5 AF
TOTAL	**3,481.5 AF**

Availability of Consumption Data & Improved Public Education

Currently, the City is unable to effectively provide residents with detailed usage data and educational materials to encourage water conservation. To resolve this, in conjunction with AMI hardware implementation, we are also partnering with WaterSmart Software to provide our

customers with a user interface and customized notifications. The interface will be a web-based application that can be used on desktop computers and virtually any mobile device. This will enable residents to access their individual water usage data at any time and receive notifications about high or abnormal usage patterns so they can adjust their behavior accordingly. The City will also use the AMI interface to provide residents with accessible and practical educational materials about how to conserve water (and ultimately save money).

Researchers have found that the immediate availability of consumption data and educational materials about water conservation are crucial in encouraging water conservation. Based on previous research and AMI implementation case studies, we expect that water consumption will reduce by approximately 9% as a result of the AMI interface and associated programming (classes, videos, articles, etc.).[12] Based on our 5-year average total water usage of 27,750 acre-feet, this 9% savings translates to an estimated annual water conservation of **2,498 AF per year** due to customers' immediate accessibility to usage data and educational materials (see Table 10).

Table 10 – Expected Water Conservation Due to Availability of Consumption Data & Improved Public Education

	Orem 5 Year Average Total Water Usage	Estimated Savings	Estimated Annual Water Savings (Average Total Water Usage * Estimated Savings)
Benefits from Availability of Consumption Data & Improved Public Education	27,750 AF	9%[13]	**2,498 AF**

Leak Detection

AMI technology will virtually eliminate the current system losses due to leaks through its advanced leak detection capabilities. The average household loses approximately 10,000 gallons of water per year due to leaks.[14] However, AMI technology is able to detect both large and small leaks virtually immediately, and will notify the City and residents when a potential leak is detected. This will enable the City to quickly repair leaks and conserve a significant amount of water. Based on the average 10,000 gallon average annual water waste per connection due to leaks and the City's total meters (approximately 23,000), this equates to an estimated annual savings of 230 million gallons per year, or **706 AF** (see Table 11). This is a conservative estimate, since larger users and meters will result in more than the average conserved.

Table 11 – Expected Water Conservation Due to Leak Detection

	Approximate Number of Meters	Estimated Savings	Estimated Annual Water Savings (Number of Meters * Estimated Savings)
Benefits from Leak Detection	23,000	10,000 gallons per connection	230 million gallons **(706 AF)**

Accurate Meter Reading & Billing

Bowen Collins & Associates determined that the City of Orem's existing meters are under-reading at an average of 10 percent per household. This means that the City is providing approximately 10 percent more water than it is charging for, and ultimately losing a significant amount of revenue. Because of this, after implementation of the AMI meters, the average water bill will increase by 10 percent because the City will be able to charge residents according to their true usage. According to the price elasticity demand of water (which is the relationship between a change in water price and its demand), the City can reasonably expect a 1 percent decrease in water usage (or **277.5 AF** based on the 5-year total average of 27,750 AF) for the expected 10 percent increase in water cost due to accurate meter reading. [15] Researchers have also found that lower-income families reduce water consumption even more when facing increased water prices.[16] Because 15.0 percent of Orem residents have an income below the poverty level[17] (compared to 9.7 percent for the state of Utah),[18] we believe that installing AMI as an effort to lower water consumption will have a greater impact on water conservation in Orem than many other cities throughout the state. In 2016, Orem instituted a tiered water structure to incentivize water conservation by rewarding low water users with more affordable rates, and AMI will serve to reinforce this by making customers even more aware of the true costs associated with their water usage.

Table 12 – Expected Water Conservation Due to Improved Meter Reading & Billing

	Orem 5 Year Average Total Water Usage	Estimated Savings	Estimated Annual Water Savings (Average Water Usage * Estimated Savings)
Benefits from Accurate Meter Reading & Billing	27,750 AF	1%	**277.5 AF**

Total Estimated Water Savings

The total estimated water savings is **3,481.5 AF per year**, which is **12.5% of the City's average usage**. This is a significant water savings that will bring Orem closer to reaching its water conservation goals and will help to ensure that the City and surrounding region has adequate water supply as the area continues to grow and develop.

How have current distribution system losses and/or the potential for reductions in water use by individual water users been determined?

The City has taken a number of approaches to estimate total system loss and the potential for reductions in water use through the implementation of AMI.

To understand current losses, water produced by City wells, springs, the DACRWTP, or other connections is metered at the source and then communicated using a supervisory control and data acquisition (SCADA) system. This volume is reported to the State of Utah Division of Water Rights annually. For billing purposes, all individual meter connections are tracked monthly.

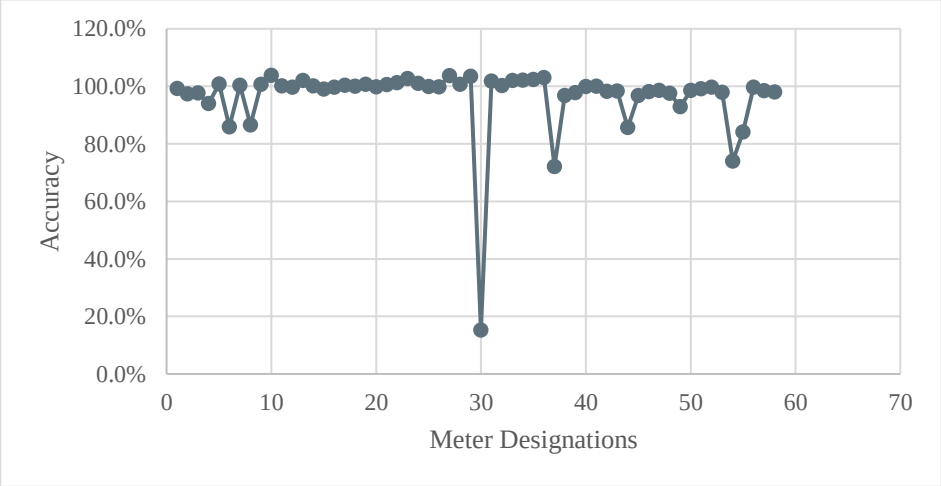
In 2013, Bowen Collins & Associates compared water produced, waste water totals observed at our treatment plant, and total water sold which suggested a total system loss of 36.1%. However,

this analysis is includes city connections, fire flows, and other water uses not associated with indoor use, so it likely overstates the actual loss. Then, they compared estimated indoor water use and water sold. The minimum total system loss under this analysis came in at 12.7%; this method provides a conservative estimate that is likely much closer to the actual loss.

In 2016, Orem worked with the State of Utah to perform an AWWA water audit which revealed minimum average water losses of 2,759 acre-feet per year (which is approximately 10%).

Many of these losses are due to the increasing inaccuracy of the City's aging meters. In 2015, the City's Water Section worked with Siemens to perform an AWWA audit of water meters. They found that meter accuracy ranged from 15.3% to 103% (Figure 5 presents the variability in accuracy of the audited water meters). The City has performed additional audits and has found that the meters are likely even less accurate than believed, especially as they continue to age and become even more inaccurate. As new AMI meters are installed, we expect to minimize system loss.

Figure 5 – Weighted Average Accuracy of City Meters



Additionally, leaks are a major source of water system loss. The Environmental Protection Agency (EPA) estimates that the average household loses about 10,000 gallons of water through post-meter leaks each year.[19] Orem's current metering software already reveals major leaks by alerting management to any drastic changes in monthly water usage, but this is only able to be completed on a monthly basis (and even less during winter months) as the meters are read. In addition, minor leaks, which are much more common, cannot be tracked with our existing manual read meters. A key benefit of AMI is its ability to quickly detect and inform both the City and its customers of potential leaks, both large and small. This will eliminate much of the water loss due to leaks and provide room for the City to implement data-driven policy options to address water leaks.

Based on these figures, our estimated annual water savings of 12.5% is reasonable. The true system loss is likely between 10% (from the AWWA water audit) and 36.1% (from the Bowen Collins &

Associates study). The City expects that we will be able to recoup the majority of our current system losses through the implementation of AMI.

For installing individual water user meters, refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.

A typical Utah household will use twice as much water for irrigation as needed.[20] This represents significant potential for additional conservation. More specifically, Utah weather patterns and evapotranspiration rates suggest that yards in Orem should have a half inch of water no more than 2-3 times per week.[21] However, our metering data suggests that many Orem water customers are watering every day of the week for up to 45 minutes per station. Since Orem implemented tiered water rates in 2016, users have become increasingly concerned with the cost of their water, and many customers have already begun to implement water conservation habits to save money. AMI will build upon this by allowing us to provide customers with detailed water use data that can also be tied to other information regarding water conservation strategies, e.g. xeriscaping. AMI can be particularly useful in this regard because we can advertise such strategies and tips directly on the AMI customer interface.

If installing distribution main meters will result in conserved water, please provide support for this determination (including, but not limited to leakage studies, previous leakage reduction projects, etc.)

We do not plan to install any distribution main meters at this time. Due to the smaller size of the City, our supply, production, and customer meters function similarly to distribution main meters.

What types (manufacturer and model) of devices will be installed and what quantity of each?

The City is installing Badger brand meters City-wide. The model of water meter varies with size and application. Each meter is equipped with an HRE/LCD (High Resolution Encoder with a Liquid Crystal Display) register. The City is also installing Itron OpenWay Riva Endpoints. The meters will measure the water coupled with the register, thus sending a wired signal to the Riva endpoint that will then communicate wirelessly to the network to provide water usage data in 15 minute intervals.

Table 13 on the following page displays the types and quantities of devices to be installed as part of this project.

Table 13 – Quantities & Types of Devices

Amount	Manufacturer	Model
Meters to be Replaced		
16746	Badger	5/8"x3/4" M-25 Meter
3255	Badger	1" M-55 Meter
406	Badger	1-1/2" M-120 Meter
537	Badger	2" Meter
19	Badger	3" Meter
20	Badger	4" Meter
2	Badger	6" Meter
2	Badger	8” Meter
2	Badger	10” Meter
Meters to be Retrofitted		
1646	Badger	Retro-fit 5/8" x 3/4" M-25
327	Badger	Retro-fit 1" M-70 Meter
59	Badger	Retro-fit 1-1/2" M-120 Meter
71	Badger	Retro-fit 2" M-170 Meter
19	Badger	Retro-fit 3" Meter
20	Badger	Retro-fit 4" Meter
2	Badger	Retro-fit 6" Meter
2	Badger	Retro-fit 8" Meter
2	Badger	Retro-fit 10” Meter

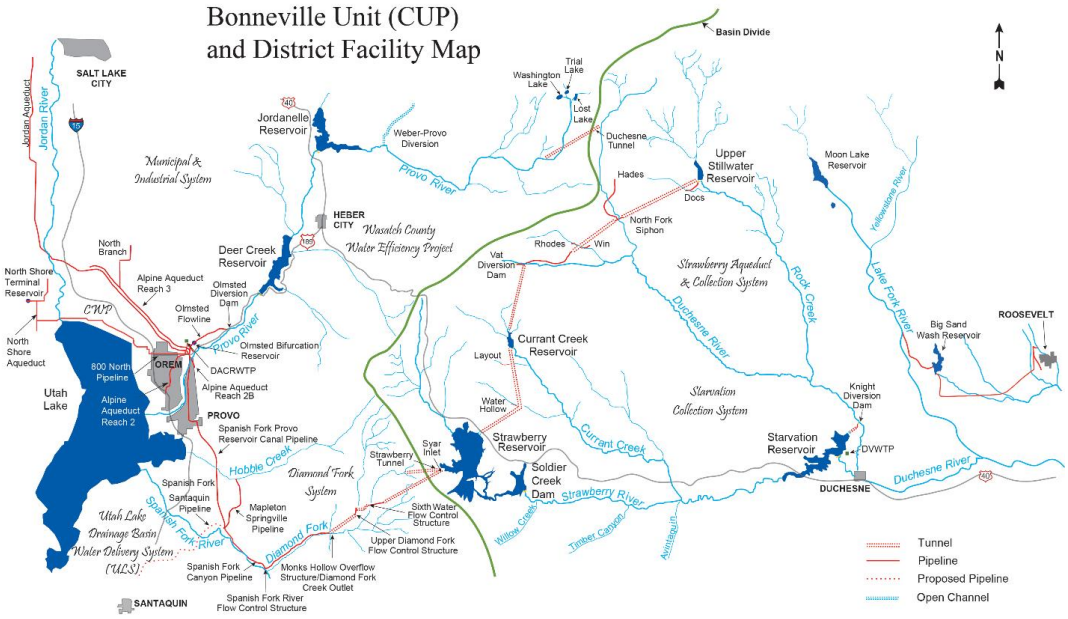
How will actual water savings be verified upon completion of the project?

The City of Orem will use a ‘pre-post’ design to determine the water savings that can be attributed to AMI. This will primarily be completed by comparing water consumption data before and after the installation of AMI meters; determining the water that is conserved through the AMI’s early leak detection capability; and completing biennial AWWA water audits to track water conservation over time. See F.2 (Performance Measures) for further detail on these and other performance measures.

Evaluation Criterion B: Water Supply Reliability (18 Points)

Figure 6 represents the regional water system, including Provo River, referred to throughout Evaluation Criterion B.

Figure 6 – Bonneville Unit (CUP) and District Facility Map



CUWCD

Will the project make water available to address a specific water reliability concern? Please address the following:

Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

Utah is the second-driest state and the third-fastest growing state in the nation.[22] Thus, drought is a constant concern, but even more pressing is the issue of the booming population growth in the region and state at large.

The population of Utah County (of which Orem is a part of) is expected to nearly triple over the next 50 years, bringing one million additional people to the area. Water supplies within the basin are already fully allocated. This poses major water supply issues for the future. As the population in and around Orem continues to grow exponentially, adequate water supply will not be available if significant water conservation efforts are not implemented as soon as possible.

Utah's governor has made water conservation a top priority since the state's population will double by 2060, and projections suggest that demand will eventually exceed supply if water conservation practices are not enhanced. In 2013, the governor assigned a strategic advisory team to address this specific issue. The team involved broad and transparent involvement from over 50,000

stakeholders (citizens, municipalities, and private entities) in order to develop a long-term state water strategy to ensure that Utah has the water resources that will maintain the state's high quality of life, healthy environment, and thriving economy for generations to come. In 2017, the team released a 50-year state water strategy plan. Among other things, the plan encouraged municipalities and water retailers to install AMI systems to provide real-time usage and comparative data to their customers in order to increase water pricing and efficiency and encourage water conservation.[23] Thus, Orem's AMI project is in direct alignment with the state's water conservation goals and plan.

Describe how the project will address the water reliability concern?

The proposed project will promote conservation as citizens will be able to monitor their water usage on a near real-time basis, enabling them to determine how they can adopt better water usage habits. It will also allow the City and residents to monitor non-revenue water usage, specifically real or physical losses such as leaks, which are estimated to be roughly 20% of all water usage. The leak detection will enable the City to quickly fix leaks and save a significant amount of water that would otherwise be lost due to leaks.

Water conservation efforts made by the City of Orem will benefit the whole region, as any water saved in the Provo River system and from ground water sources will remain in the watershed and can be used to meet increased demands due to population growth.

Where will the conserved water go and how will it be used?

Any savings realized by Orem will remain within the Provo river instream flows to be made available for the growing water needs in the City and surrounding region.

Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

Orem is unable to officially donate conserved water to other entities, as water rights are confined to place of use. However, downstream flows will benefit from any water not used by Orem. This is particularly important as the Provo River supplies drinking water to 50% of Utah's population.[24] The City of Orem has reached out to the CUWCD to help support local water sustainability efforts. Orem and the CUWCD work collaboratively in this regard across many issues. Later in the application, where flows that will benefit the June Sucker are discussed, a mechanism is described for assigning 1 CFS in the Provo River system during their spawning season.

Indicate the quantity of conserved water that will be used for the intended purpose.

Approximately 3481.5 acre-feet of water will remain in the water system.

Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:

Will the project benefit multiple sectors and/or users (e.g. agriculture, municipal and industrial, environmental, recreation, or others)?
Yes. As the City is replacing *all* meters in the City (not just residential), all water customers and sectors in the City will benefit. All customers will be able to access their individual usage data and receive all benefits of the AMI system (leak detection, educational materials, etc.).

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.
The City of Orem's AMI project will positively affect species. Increased river flows resulting from conserved water will be of benefit to the Provo River's fish. Historical records suggest poor decisions made by early settlers of the area during times of drought ravaged local fish populations to the point of near extinction. A 2008 report produced by BIO-WEST recommended a flow-regime, for the benefit of local wildlife, which Orem's water conservation efforts and resulting increased stream flow can help fulfill. The June Sucker, a fish endemic to the Utah Lake and Provo River, will particularly benefit from increased flows. Specifically, increased river flows will help create a more attractive spawning ground for June suckers by flushing sand and silt from their spawning substrate in the lower Provo River, reducing vegetation encroachment and algae growth, transporting larvae to the mouth of the Provo River, and cueing spawning.[25]

The City of Orem and the Metropolitan Water District of Orem will instruct the Provo River Commissioner to allocate 1 CFS to increase river flows for the June Sucker Recovery Implementation Program from May 10th to June 15th. This is the period for the June Sucker where increased flows are essential for successful spawning.

The June Sucker has been federally listed since April 30, 1986. The June Sucker's ability to procreate is directly tied to water supply as it affects a number of factors described in the previous answer. Despite the BOR's efforts to mitigate the impact of the Jordanelle Reservoir and Deer Creek on the June Sucker, these man-made structures affect natural flows needed for the June Sucker's ability to successfully spawn. The BOR is heavily involved in working to solve this issue.

An increase in water in the Provo River system will deter algae and vegetation growth by attracting more numerous fish. This will create a healthier environment for all fish. The lower 4.9 miles of the Provo River have been designated as a critical habitat for the June Sucker which would be a major beneficiary of increased in stream flows.

Will the project benefit a larger initiative to address water reliability?
Yes. The City of Orem has a water conservation goal consistent with the statewide goal to reduce per capita water usage by 25 percent by the year 2025 (based on water use as measured in 2000). The City is striving to reach this goal and we believe that completion of this AMI project is a significant component of our ability to actually reach the goal. Implementing AMI will enable us

to further encourage conservation and increase water supply reliability for the City and surrounding region.

Will the project benefit Indian tribes?
Yes. Conserved water will benefit the total water system throughout the region, thereby benefitting rural and economically disadvantaged communities, such as Indian tribes, indirectly.

Will the project benefit rural or economically disadvantaged communities?
Yes. Conserved water will benefit the total water system throughout the region, thereby benefitting rural and economically disadvantaged communities indirectly.

Does the project promote or encourage collaboration among parties in a way that helps increase the reliability of the water supply?
Yes. This project brings multiple stakeholders together in order to encourage water conservation areas in the City, and more broadly, in the region. See below for additional details.

Is there widespread support for the project?
Yes, the City residents are asking for more timely data related to their water use. With increased rates, customers wish to better understand the daily patterns that will help them to conserve. Our pilot programs have proved valuable and 2 of 8 customers, in one grouping, were alerted to leaks that led to 10,000 gallons/year of savings.

Other regional organizations support Orem's effort to conserve water through AMI including the CUWCD, Utah Lake Commission, Department of Natural Resources, Trout Unlimited, and Orem's Natural Resources Committee.

What is the significance of the collaboration/support?
It is necessary that we have the support of the citizenry in this effort because it is a significant investment on the part of the city. Without the support of citizens, this project and the steps leading up to making this possible (e.g. the creation and implementation of Orem's Water Master Plan) would not have been possible.

We are one of the CUWCD's largest customers, and they are interested in any conservation efforts we pursue as that will expand the available supply for other communities throughout the region. We work closely with them in these efforts.

The CUWCD is also interested in obtaining the water usage data we receive from AMI customers. The CUWCD does not have any retail customers; however, they have significant interest in usage patterns of residential, institutional, commercial, and industrial users. Access to the City's data will offer their organization insight into the retail customer's usage before and after AMI. While Orem will use this data to help the City's efforts, CUWCD will use the data to assist their efforts for over 1 million residents within their service boundary.

Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

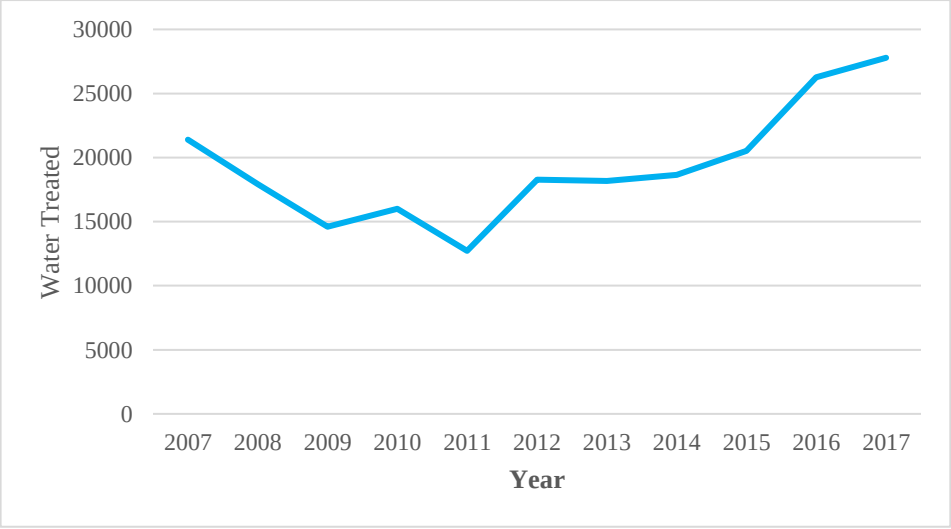
Future water conservation improvements throughout the state will be enhanced by Orem's implementation of AMI. Citizens of any given municipality are constantly comparing their municipality to other cities within their cultural and regional context. As Orem and other cities in the region implement AMI, a "new normal" will be created and citizens of neighboring cities will begin to request AMI. This is particularly true as state-required tiered rates have made water more expensive in every municipality, and residents are looking for ways to save money. Ultimately, the City of Orem believes that other cities in the region will follow our example and install AMI infrastructure, leading to significant water conservation and preservation of our area's limited water resources.

Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?

There is frequent tension and litigation over water in the area. A few examples are as follows.

Utah is the second-driest state and the third-fastest growing state in the nation.[26] Thus, it is imperative that serious actions (such as AMI implementation) be undertaken to conserve limited water supply. If Utah's municipalities do not pursue AMI and additional water conservation efforts, it is not a matter of "if" water crises will occur, but rather "when." One major issue on the horizon is the question of CUWCD's capacity to provide sufficient water to its customers in the region. As mentioned previously, Orem has historically been the largest customer at the DACRWTP. However, the DACRWTP has been obtaining many new customers, taxing their capacity to meet ever-increasing demand (total DACRWTP demand is shown in Figure 7 below). Through Orem's implementation of AMI, the City can help to reduce demand on the DACRWTP and enable the DACRWTP to continue to serve the area's ever-increasing population.

Figure 7 – Annual Total Deliveries from DACRWTP



Center for Biological Diversity v. U.S. BLM et al (2017), (U.S. Dist. Ct. Nevada): This case challenged a groundwater development project meant to serve Las Vegas. Although the City of Orem is not located directly in the Great Basin, Utah and Nevada more broadly have major issues with attempting to procure enough water for their desert cities from water sources within the Great Basin. The Great Basin Water Network, a coalition of environmentalists, ranchers, farmers, local governments and tribes, provide a list on their website (http://www.greatbasinwater.net/) of lawsuits related to Nevada involving water procurement.
Utah Alunite Corp. v. Jones (2016): In this case, a water district attempted to appropriate water rights, but was blocked by petitions from 300 protestants. While the State Engineer was considering the case, a mining company applied a competing application for the water rights. The State Engineer issued a declaration in favor of the water district which the mining company challenged in court.

These cases demonstrate that due to the limited water supply and increasing population in the region, tension and litigation over water is relatively common.

Describe the roles of any partners in the process. Please attach any relevant supporting documents.
The Provo River Commissioner and representatives from the CUWCD and the Provo River Water Users Association all work together to deliver and manage water supply sources from the Provo River system including High Uinta Lakes, Jordanelle Reservoir, Deer Creek Reservoir, and Utah Lake. Conserved water from surface sources will remain within the river system that will contribute to increased water surface and levels. All aforementioned entities are supportive of Orem's implementation of AMI.

Will the project address water supply reliability in other ways not described above?
Yes. The Provo River and its adjacent trail are popular locations for fishing, casual rafting, bird watching, walking, and cycling. More water within the system will improve the experience of those using the river and trail.

During times of drought, residents of Orem will be better prepared to conserve water through AMI education efforts and the water reliability afforded by that conservation.

Evaluation Criterion C: Implementing Hydropower (18 points)
Bowen Collins & Associates determined that the City of Orem loses significant water revenue due to inaccurate meter readings from the age-based degradation of our metering system. By replacing our aging meters with AMI, we expect to increase water revenues by at least 8-10% as we will be able to more accurately charge customers for the water they truly use. The increased revenue could allow us to invest in renewable energy projects as outlined in the City's 2016 Water Master Plan. One such recommendation Orem's Public Works Department has evaluated is installing an impulse style Pelton turbine or hydro generator along the Alta Springs Pipeline. Under the right circumstances, this project could be beneficial to the city.

Describe the amount of energy capacity.

The energy capacity of the system is irrelevant as any energy produced will be added into the regional electrical grid system.

Describe the amount of energy generated.

Annually, the generator is estimated to produce 521,069 kWh of renewable energy. These calculations have been made based on historic data using the equation "Energy Produced = Flow x Head x Density." This data is available but has not been provided due to its size. It is available upon request. Figures 8 and 9 provide estimations of energy capacity and production from installing a hydro generator along the Alta Springs Pipeline.

Figure 8 – Theoretical kWh and Energy Capacity of Pelton Turbine at Alta Springs

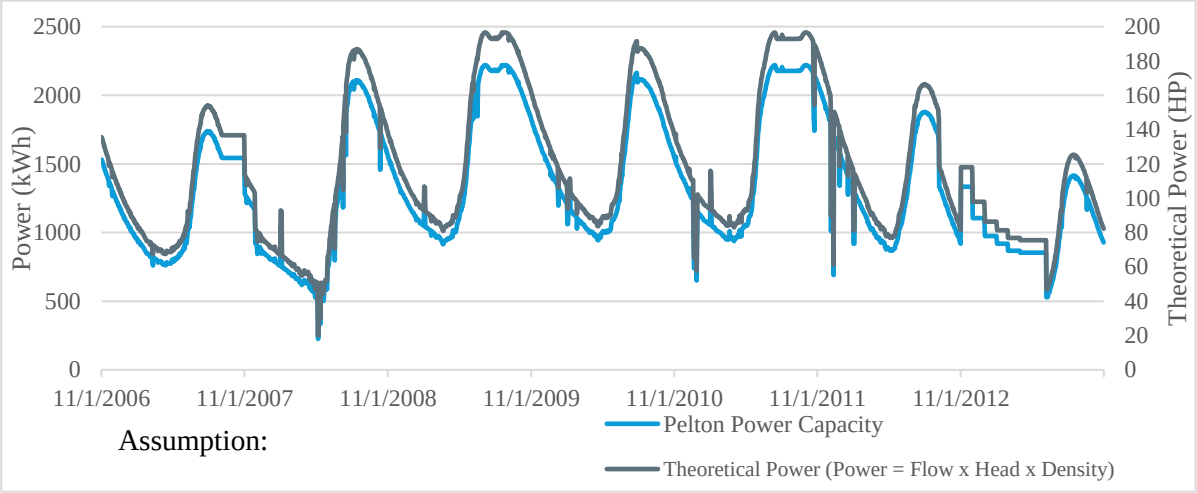
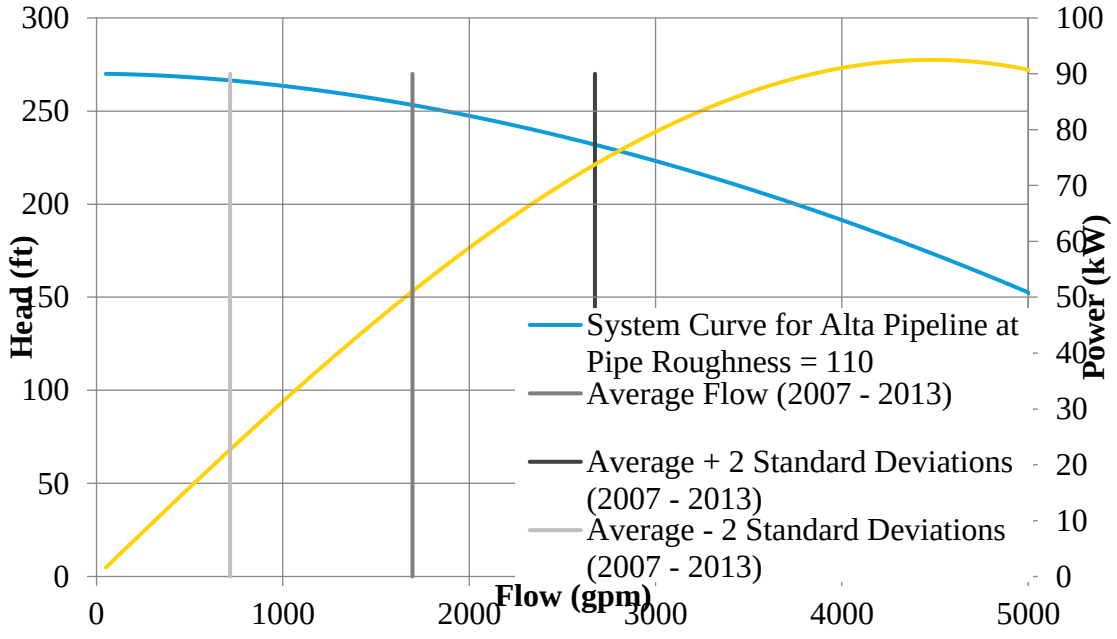


Figure 9 – Potential Power Production Relative to Historic Alta Springs Flows



Describe any other benefits of the hydropower project.
Hydropower is a clean and renewable energy source. This project harnesses an existing gravity source that currently requires Pressure Regulating Valves (PRVs) to effectively remove the high head energy.

Evaluation Criterion D: Complementing On-Farm Irrigation Improvements (10 points)
This evaluation criterion is not applicable to this project.

Evaluation Criterion E: Department of the Interior Priorities (10 points)
Below is a description of how the proposed project supports the priorities of the Department of the Interior.

1. **Creating a conservation stewardship legacy second only to Teddy Roosevelt.**

   a. **Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment.**
   Research has shown that implementing AMI has a significant impact on reducing water consumption when leveraged appropriately.[27] Orem seeks to take advantage of AMI according to best practices as recognized by leading researchers.[28]

   b. **Examine land use planning processes and land use designations that govern public use and access.**
   Utah requires water be used according to the place of use and quantity approved by the State Engineer. All water is owned by the State and Rights to its use are granted by the State. This project seeks to promote more efficient uses of water for the common good within the state.

   c. **Revise and streamline the environmental and regulatory review process while maintaining environmental standards.**
   If Orem residents can consume less water from the Provo River system, more water will remain within the system. No review or regulation is required when people have the tools necessary to make their own informed decisions regarding water consumption.

   d. **Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity.**
   AMI is designed to expand per capita capacity through conservation. Orem is unaware of any water storage, transportation, or distribution system conflicts with the DOI.

   e. **Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;**
   The June Sucker Recovery Program, Utah Lake Commission, and Central Utah Water Conservancy District all support the project and are hopeful that Orem can increase efforts in water conservation.

f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing.
This is not applicable to the project.

g. Shift the balance towards providing greater public access to public lands over restrictions to access.
This is not applicable to the project.

2. Utilizing our natural resources.

a. Ensure American Energy is available to meet our security and economic needs.
AMI will help to conserve energy sources so that American security and economic needs may be better met through the following means: 1) conserving the energy that would otherwise be required to obtain and treat the water that will be conserved, and 2) the elimination of vehicle usage for manual meter reading. More details about these two items are below.

1. Central to the energy-water nexus is the concept of embedded energy. Embedded energy is the "amount of energy it takes to collect, convey, treat, and distribute a unit of water to end users."[29] By limiting the amount of water consumed, energy is saved. We can assume that embedded energy savings will correlate to overall water savings.

   In 2009, the Utah Division of Water Resources calculated the data presented in Table 14 on the following page which represents the average energy costs per acre-foot of water produced within each water cycle phase.

Table 14 – Energy Intensity Estimates

Water Cycle Phase	Energy Intensity (kWh/AF)
Groundwater Source & Conveyance Facilities	700-950
Water Treatment	40-50
Distribution	140-220
Wastewater Treatment	400-850

Based on the numbers in Table 14, Table 15 represents the energy conservation the City can anticipate due to the expected 3,481.5 AF of water conserved per year (calculations were based on the midpoint for the energy intensity estimates for each category listed in Table 14). As shown below, after completion of this project, we can expect a total energy savings of 5,831,512.5 kWh per year due to the significant reduction in water consumption.

Table 15 – City of Orem Water Cycle and Energy Conservation
Based on 3,481.5 AF/Year Conserved

	Source Conveyance		Water Treatment		Distribution		Waste Water Treatment		Total Energy Savings (kWh/yr) *(Source Conveyance + Water Treatment + Distribution + Waste Water Treatment)*
Total Conserved Water	Energy Intensity (kWh/AF)	Energy Savings (kWh/yr)	Energy Intensity (kWh/AF)	Energy Savings (kWh/yr)	Energy Intensity (kWh/AF)	Energy Savings (kWh/yr)	Energy Intensity (kWh/AF)	Energy Savings (kWh/yr)	
Energy Conservation	825	2,872,237.5	45	156,667.5	180	626,670	625	2,175,937.5	**5,831,512.5**

As Orem implements this AMI project and less water is consumed, the energy costs to obtain and produce water will decrease significantly. This will ensure energy is available for other needs.

2. The project will also help to ensure adequate energy supply through the elimination of manual meter reading and the associated meter reading vehicle usage. The City's existing meter reading system requires City employees to drive to each area of the City to read each individual meter. The new AMI system will eliminate all mileage associated with the City's former meter reading methods. This will result in a significant savings in fuel every year.

   On average, our meter reading vehicles drive a total of 5079 miles annually and have an average fuel efficiency of 18 miles per gallon. After the implementation of AMI, this mileage will be eliminated because meter readers will no longer have to drive to each meter monthly to read the meter. This will result in a potential reduction in fuel use of 283 gallons/year (5079 total miles / 18 miles per gallon). Greenhouse gas emissions are estimated to be approximately 19.6 pounds/gallon.[30] Thus, this reduction in mileage will therefore result in a reduction in greenhouse gases of approximately 5,547 pounds per year (283 gallons * 19.6 pounds/gallon). The reduction in vehicle emissions will also promote cleaner air. The City of Orem is ranked as having some of the worst air quality in the nation due to inversion problems related to the surrounding mountains, so this project is essential to help the City contribute to cleaner air.

b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications.
This project will not negatively impact access to mineral resources.

c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle.
Not applicable.

d. Manage competition for grazing resources.
Not applicable.

3. Restoring trust with local communities.

a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands.
The City of Orem is a major water user in the region. As the City implements AMI and other conservation efforts, it will lessen the burden on the regional water system. Additionally, Orem has agreements with surrounding cities to provide water if necessary, and already provides regular water to the neighboring city of Vineyard. This is only possible through Orem's wise water use. Additionally, the Central Utah Water Conservancy District is a partner, neighbor, and ally in the effort to provide water for Orem and the region.

b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioner, Tribes, and local communities.

Orem works closely with water authorities and state and regional offices to meet conservation goals, such as the Governor's statewide goal to reduce per capita water usage by 25% by 2025. We also work with the Utah Lake Commission, which includes the mayors of the cities around Utah Lake as well as the representatives from the Central Utah Water Conservancy District and the Utah Department of Natural Resources' Division of Forestry, Fire and State Lands; Division of Water Rights; and Division of Water Resources. In the effort to conserve water, Orem, with the State of Utah, piloted a program to perform water loss audits through a partnership between the City, the State of Utah, a private engineering consultant, and the American Water Works Association (AWWA). Orem is a founding member of the Provo River Watershed Council and works closely with the State of Utah's Department of Natural Resources. The efforts of the Provo River Watershed Council are mainly focused on improving water quality, but also include providing information to the public regarding water conservation, recreational stewardship, and agricultural practices to enhance the Provo River system. Orem's AMI project will be a topic of advertisement and discussion with the Utah Department of Natural Resources employees and other members of the Council. We are also involved with the June Sucker Recovery Implementation Program by way of the Endangered Species Act of 1973.

4. Striking a regulatory balance.

a. Reduce the administrative and regulatory burden imposed on U.S. industry and public.

AMI empowers citizens and companies to better manage their water consumption by limiting surprises and allowing for a better understanding of the components of their water bill without government mandates and regulations. In other words, market forces will drive individual behavior.

b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

Not applicable.

5. Modernizing our infrastructure.

a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure.

AMI is the cutting-edge method, within the smart city paradigm, for measuring water usage which brings our analytical and management capabilities into the 21st century. Additionally, our choice to install an Itron AMI system will allow us to piggyback other

smart city technologies along the Itron communications network supporting everything from economic development to street safety. This is not available through other AMI technologies.

Also, high levels of electricity are needed to start up our well pumps, and we have no way of altering the rate at which they pump once they have been activated. Our Water Master Plan suggests installing Variable Frequency Drives (VFDs) at each of our pumps. Our pumps could then continuously run at lower levels resulting in significant long-term energy savings. This would be possible by tying our AMI data into our SCADA system, we could accurately and more efficiently deliver water according to hyper-local demand levels. Currently, we pump from our wells according to aggregate demand with little regard for the nuances of water usage throughout the city. With the increased water revenue associated with the installation of AMI, we could install VFDs within our wells.

b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs.
All Itron and Badger products we will purchase are manufactured and designed in the United States. The City of Orem will also be contracting out the construction of communication towers for the AMI project though local contractors. The long-term cost savings afforded by AMI will allow for investment in other infrastructure throughout the city.

c. Prioritize DOI infrastructure needs to highlight construction of infrastructure; cyclical maintenance; and deferred maintenance.
The DOI has long created projects for water development in the West. By using less and encouraging conservation, expansion of water development is delayed. In addition, putting less strain on the system can defer maintenance on DOI assets.

Evaluation Criterion F: Implementation and Results (6 points)

Subcriterion No. F.1—Project Planning

Does the project have a Water Conservation Plan and/or System Optimization Review (SOR) in place?
The City of Orem contracted with Bowen Collins & Associates to produce a Water Master Plan which includes an analysis of the impact of water conservation efforts on the city's water usage or system optimization review (SOR). This plan was finalized in March 2016 and is attached to this application. The City of Orem's Water Master Plan recommends the installation of AMI within its 10-Year Capital Improvements Schedule.

The City of Orem also finalized a Water Conservation Plan in December 2017 (the plan is also attached to this application). This plan details current and projected water needs and the main water challenges faced by Orem. The plan also contains six goals for the City to implement in order to encourage water conservation. One of these goals was to replace all old meters with new meters within five years; thus, this project aligns with the City's Water Conservation Plan.

Subcriterion No. F.2—Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).

The City of Orem will use a 'pre-post' design to track the project performance (i.e. the actual water savings that can be attributed to AMI). More specifically, the City will use the following measures to evaluate the project:

- **Before & After Usage Data** – The City will compare monthly water usage data for the project area before and after installation of the AMI meters. The City has all historical water use data, and will compare water consumption in the post-AMI era to historical data from similar weather years. The City will also adjust for changes in population, water rates, and any other changes that may affect water use in order to determine the actual reduction in water consumption (in acre-feet per year) that can be attributed to AMI.
- **Water Conserved via Early Leak Detection** – The City will record the number of leak alerts generated, the number of leaks fixed, and the estimated acre-feet of water conserved through early leak detection. Real-time monitoring can prevent a small leak from becoming a large leak, or even worse, a water main break.
- **Savings Due to the Elimination of On-Site Meter Reading.** The City will calculate the annual dollar value of staff time, gasoline, and vehicle maintenance spent prior to AMI implementation reading meters manually (i.e., Public Works staff driving to each meter location throughout the City to read meters). This staff function will be eliminated after the completion of the proposed project as all meter reading will be conducted remotely and will be automated. This frees these staff to concentrate on more critical and long-term tasks. The City expects a 100% reduction in these staff costs.
- **AWWA Water Audits** – The City will perform AWWA water audits biennially. This will provide robust time series data to track conservation over time.
- **Measuring Energy Savings** – The energy produced by the Pelton turbine, which will be added to the city's electrical grid, can be easily measured using a meter. The amount of electricity added to the grid will equate to the amount of energy that would have otherwise been produced through the burning of coal.

Taken together, we expect these performance measures to enable us to quantify the water and energy savings that result from the implementation of this AMI project.

Subcriterion No. F.3 – Readiness to Proceed

Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

As the City is already in the second year of this multi-year project, many of the major tasks (e.g. purchasing and installing the 9 network towers, the engineering and design work, partnering with WaterSmart software and building the customer interface, etc.) have been completed. Additionally, over 4,000 meters are already installed and "network-ready." Thus, the City is confident in its ability to continue and complete the project. The majority of the work that remains to be completed is the installation of the AMI meters; see Table 16 for the proposed meter installation schedule for FY2020 – FY2022. By the end of FY2022, the City anticipates that installation of all meters and all related tasks will be complete.

Table 16 – Proposed Project Schedule

Fiscal Year	Number of Meters to Install
2020	5,857
2021	6,937
2022	7,348

Describe any permits that will be required, along with the process for obtaining such permits.

There are no permitting requirements to complete the project. All meters will be installed in the place of existing meter boxes.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

No additional engineering or design work is required, other than the materials previously prepared.

Describe any new policies or administrative actions required to implement the project.

No new policies or administrative actions will be required to complete the project.

Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?

The environmental compliance cost estimate was developed through discussion with the local Reclamation office (via a recommendation of approximately 1% of the total project cost).

Evaluation Criterion G: Nexus to Reclamation Project Activities (4 Points)

Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:

Does the applicant receive Reclamation project water?
Yes, from Jordanelle Reservoir (Central Utah Project Water) and Deer Creek (Provo River Project).

Is the project on Reclamation project lands or involving Reclamation facilities?
No.

Is the project in the same basin as a reclamation project or activity?
Yes, this project will take place in the Utah Lake/Jordan River Basin.

Will the proposed work contribute water to a basin where a Reclamation project is located?
Yes, this project will contribute water to the Provo River.

Will the Project benefit any tribe(s)?
Not directly.

Evaluation Criterion H: Additional Non-Federal Funding (4 Points)
This project will be made possible by 79.3% non-Federal funding.

$$\frac{\$5{,}725{,}494 \text{ non-Federal funds}}{\$7{,}225{,}494 \text{ total budget}} = \textbf{79.2\% non-Federal funds}$$

PROJECT BUDGET

Funding Plan and Letters of Commitment

The non-Federal share of project costs will be funded through user fees collected by Orem's water fund. The City has recently instituted tiered water rates with revenues exceeding projections. The City's Water Master Plan is tied to these tiered rates with the installation of AMI specifically planned for. The City Council is committed to water conservation efforts and demonstrated this by approving tiered rates. The City Council also voted unanimously to implement AMI and committed to its funding in each of the last 4 fiscal years' budgets.

Budget Proposal

For FY2020-FY2022, the total budget is $7,225,494. The City is requesting $1,500,000 from the Bureau of Reclamation, and will fund the remaining $5,725,494 itself. See Tables 17 and 18 and the subsequent budget narrative for further detail.

Table 17 – Summary of Non-Federal and Federal Funding Sources

Funding Source	Amount
NON-FEDERAL: City of Orem	$5,798,424
FEDERAL: Requested Reclamation Funding	$1,500,000
Total Estimated Project Cost	**$7,298,424**

Table 18 – Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity		
Salaries and Wages				
Employee 1 PW Tech	$ 36,000	3	Years	$ 108,000
Employee 2 PW Tech	$ 36,000	3	Years	$ 108,000
Employee 3 PW Tech	$ 36,000	3	Years	$ 108,000
Employee 4 Field Supervisor – Tyler Peay (50%)	$ 28,000	3	Years	$ 84,000
Employee 5 Section Manager (15%) – Lane Gray	$ 14,850	3	Years	$ 44,550
Employee 6 Engineer (2%)	$ 3,300	3	Years	$ 9,900
Employee 7 Flexible (50%)	$ 9,500	3	Years	$ 28,500
Total Salaries and Wages				***$ 490,950***
Fringe Benefits				
Employee 1 PW Tech	$ 12,600	3	Years	$ 37,800
Employee 2 PW Tech	$ 12,600	3	Years	$ 37,800
Employee 3 PW Tech	$ 12,600	3	Years	$ 37,800
Employee 4 Field Supervisor (50%)	$ 9,800	3	Years	$ 29,400
Employee 5 Section Manager (15%)	$ 5,198	3	Years	$ 15,593
Employee 6 Engineer (2%)	$ 1,155	3	Years	$ 3,465
Employee 7 Flexible (50%)	$ -	3	Years	$ -
Total Fringe Benefits				***$ 161,858***
Travel				
Mileage				
Vehicle 1	$ 0.55	6000	Miles	$ 3,300
Vehicle 2	$ 0.55	6000	Miles	$ 3,300
Vehicle 3	$ 0.55	6000	Miles	$ 3,300
Total Mileage				***$ 9,900***
Materials & Supplies				
Meter Size (New)				
3/4"	$ 185	14809	Each	$ 2,739,665
1"	$ 275	2835	Each	$ 779,625
1 1/2"	$ 490	406	Each	$ 198,940
2"	$ 663	537	Each	$ 356,031
3"	$ 7,000	21	Each	$ 147,000

4"	$ 8,000	51	Each	$ 408,000
6"	$ 10,000	24	Each	$ 240,000
8”	$ 16,000	8	Each	$ 128,000
10”	$ 24,000	0	Each	$ -
Total Meters (New)				***$ 4,997,261***
Meter Size (Retrofit)				
3/4"	$ 141	1000	Each	$ 232,086
1"	$ 141	286	Each	$ 46,107
1 1/2"	$ 145	49	Each	$ 8,555
2"	$ 145	71	Each	$ 10,295
3"	$ 364	19	Each	$ 6,916
4"	$ 364	20	Each	$ 7,280
6"	$ 364	2	Each	$ 728
8"	$ 364	2	Each	$ 728
10"	$ 364	2	Each	$ 728
Total Meters (Retrofitted)				***$ 215,106***
Additional Costs				
Meter Lids	$ 20	20142	Each	$ 435,480
Replacement Drill Cutting Bits	$ 125	12	Each	$ 1,500
Network Router - 8dB	$ 8,000	1	Each	$ 8,000
Network Router - 5dB	$ 7,500	8	Each	$ 60,000
UIA Fiber Cabinets equipped w/ Batteries and switches	$ 12,000	1	Each	$ 12,000
Setup	$ 200,000	1	Each	$ 200,000
Total Additional Costs				***$ 644,056***
Contractual/Construction Cost				
Fiber Optic Connectivity	$ 49,500	(From Utopia)		$ 49,500
Environmental and Regulatory Compliance Cost				
Reclamation Environmental Review	$ 65,686	1	Lump Sum	$ 66,300
Contingency				
Contingency				$ 6,634,931
Total Estimated Project Cost				**$ 7,298,424**

Budget Narrative

Salaries and Wages: $490,950

The estimated salaries and wages cost of $490,950 includes estimated time for City of Orem employees for the administration and oversight of the project. Salaries and wages are based on 2019 salaries.

Project Management

Tyler Peay is the program manager (Field Supervisor) for the City of Orem's AMI implementation project and Lane Gray is the Water Section Manager. Tyler Peay will handle the day-to-day implementation of this project (50% of his time or roughly 936 hours) along with his other duties while Lane Gray will handle administrative and budgetary matters (15% of his time).

Water Meter Installation

Other employees who will assist with the project will include the following:

- 3 Public Works Technicians. These employees will handle most of the installation of the new meters, and will spend 100% of their time on installing the new meters and implementing the project.
- 1 Engineer. This employee will create plans regarding the communication towers and assist with other design plans.
- 1 Flexible employee. This employee will contribute as needed (e.g., removing and installing meters). This employee will spend approximately 50% of their time on the project.

Fringe Benefits: $161,858

Fringe benefits for each employee, except the flexible employee who will not receive benefits, include the following:

- Basic Life, AD&D & LTD
- Unemployment (fixed rate)
- Workers Compensation (fixed rate)
- Medicare (fixed rate)
- Medical PEHP
- H.S.A Single Contribution plus Match Annually
- Tier II Retirement Plan (provisional)
- 457 Match (provisional)

On average, these benefits amount to 35 percent of salary and wages for the City's full-time employees. The benefit costs for the listed employees were calculated using this percentage.

Thus, annual budgeted benefit amounts for participating employees include the following:

- Employee 1, 2, and 3 (PW Techs): $12,600 per year

- Employee 4 (Field Supervisor): $9,800 per year
- Employee 5 (Section Manager): $5,198 per year
- Employee 6 (Engineer): $1,155 per year

Travel: $9,900
Orem has previously purchased three ½ ton Chevy Silverados for the Public Works Technicians who are dedicated to this project. They have been and will be using these vehicles to transport personnel and materials to project locations throughout the city. Mileage costs for these vehicles were estimated using the FEMA Schedule of Equipment Rates, which is $0.55 per mile. Assuming that each vehicle drives 200 work days per year, 10 miles per day, the mileage cost over three years is $3,300 per vehicle, or $9,900 total.

Equipment: $0
Not applicable. As previously mentioned, Orem has purchased three ½ ton Chevy Silderados for the Public Works Technicians who are dedicated to this project, but this is a prior purchase.

Materials and Supplies: $5,856,423
See Table 18 for an itemized list of materials and supplies. All estimated meter costs are based on prices provided by our vendor Hydrospecialties.

Contractual: $49,500
Fiber Optic Connectivity: Utopia, a regional fiberoptic infrastructure management organization will need to connect each of the towers to fiberoptic lines.

Environmental and Regulatory Compliance Costs: $66,300
The project will be evaluated for CEQA and NEPA compliance during the first year of the project. Costs have been estimated at 1% of the total project cost per the recommendation of the local Bureau of Reclamation office.

Other Expenses: $656,863
Contingency: A 10% contingency line item was including in the budget proposal to cover unexpected costs beyond the budgeted amount.

Total Budget: $7,298,424
With all these items considered, the total project budget for the remaining work to be completed is $7,298,424.

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

Will the proposed project impact the surrounding environment (e.g. soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.
AMI will promote water conservation by allowing more water to flow downstream which will be a benefit to the June Sucker. There will be no earth-disturbing work because all structures will be built upon pre-existing foundations and structures (e.g. water tanks). AMI water meters will be installed in pre-existing meter boxes.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?
There are no species that will be impacted in the project area.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.
No, the project will have no negative impacts on wetlands or surface waters.

When was the water delivery system constructed?
The water delivery system has been implemented alongside development since the incorporation of the City in 1919.

Will the proposed project result in any modification of or effects to individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.
No, this project will have no direct effects on irrigation systems.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.
No. There are no buildings, structures, or features listed or eligible for listing on the National Register of Historic Places.

Are there any known archeological sites in the proposed project area?
No, there are no known archeological sites in the proposed project area.

Will the proposed project have a disproportionately high and adverse effect on low-income or minority populations?
No, AMI will be equitably distributed throughout the entire City of Orem. AMI will actually have a positive impact on low-income populations because AMI will make customers aware of the direct costs associated with their water usage and provide tips for users to conserve water (and ultimately save money).

Will the proposed project limit access to ceremonial use of Indian sacred sites or result in other impacts on tribal lands?
No, the project will not limit access to ceremonial use of Indian sacred sites or have any other negative impacts on tribal lands.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?
No, the project will not contribute to the spread of noxious weeds or non-native species.

REQUIRED PERMITS OF APPROVAL

There is no need for the City to obtain permits or approvals to complete the project.

LETTERS OF SUPPORT

The following individuals/entities have provided letters of support: John Curtis, U.S. Representative for Utah's 3rd Congressional District; Mitt Romney, U.S. Senator for Utah; Eric J Ellis, Utah Lake Commission Executive Director; Gene Shawcroft, CUWCD General Manager; and Sarah Bateman, Orem Natural Resources Stewardship Committee Chair. See Appendix A for letters of support.

OFFICIAL RESOLUTION

An official resolution which identifies the official with legal authority to enter into an agreement with Reclamation was adopted by the City Council and has been attached in Appendix B.

UNIQUE ENTITY IDENTIFIER

The City of Orem's Unique Entity Identifier (DUNS number) is 072988710.

MANDATORY FEDERAL FORMS

See attachments for Mandatory Federal Forms.

Appendix A: Letters of Support

JOHN R. CURTIS
3RD DISTRICT, UTAH

NATURAL RESOURCES
FOREIGN AFFAIRS

Congress of the United States
House of Representatives
Washington, DC 20515–4403

WASHINGTON, DC OFFICE:
125 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-7751

PROVO, UT OFFICE:
3549 N. UNIVERSITY AVENUE, SUITE 275
PROVO, UT 84604
(801) 922-5400

October 2, 2019

The Honorable Brenda W. Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Dear Commissioner Burman:

The City of Orem is competing for funding from the Bureau of Reclamation's FY20 WaterSMART Water and Energy Efficiency Grant program. Orem's proposed project consists of installing advanced metering infrastructure (AMI) throughout the City to address the critical need to conserve water in the state.

From my understanding, the City of Orem recently completed a comprehensive Water Master Plan. AMI provides real-time, detailed information to the customer about their specific water usage. Orem's implementation of its proactive conservation plan could benefit not only the City, but also neighboring communities as Orem draws less water from regional sources.

Additionally, the Orem City Council strongly supports its Water Conservation Plan and unanimously approved the implementation of the AMI throughout the City

As you review applications for WaterSMART Water and Energy Efficiency Grants, please give Orem's proposal full and fair consideration.

Sincerely,

John Curtis
Member of Congress

MITT ROMNEY
UTAH

COMMITTEES
FOREIGN RELATIONS
HEALTH, EDUCATION, LABOR, AND PENSIONS
HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS
SMALL BUSINESS AND ENTREPRENEURSHIP

United States Senate

SUITE SR-B33
RUSSELL BUILDING
WASHINGTON, DC 20510

125 S. STATE STREET
#8402
SALT LAKE CITY, UT 84138

September 23, 2019

The Honorable Brenda W. Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

RE: BOR-DO-20-F001, WaterSMART Grants: Water and Energy Efficiency Grants

Dear Commissioner Burman:

The city of Orem in my state of Utah is competing for funding from the Bureau of Reclamation's FY20 WaterSMART Water and Energy Efficiency Grant program. Orem's proposed project consists of installing advanced metering infrastructure (AMI) throughout the city to address the critical need to conserve water in the community and in the state of Utah.

The City of Orem recently completed a comprehensive Water Master Plan. The city-wide installation of AMI is critical to Orem achieving its water conservation goals as outlined in this plan. AMI provides real-time, detailed information to the customer about their specific water usage. Arming the water customer with this information enables market forces to drive conservation: to save water is to save money. Orem's implementation of its proactive conservation plan will benefit not only the City, but also neighboring communities as Orem draws less water from regional sources.

Additionally, the Orem City Council strongly supports its Water Conservation Plan and unanimously approved the implementation of the AMI throughout the city

I am proud of this city in my state and the leadership the city of Orem has demonstrated to conserve this critical natural resource. As you review applications for WaterSMART Water and Energy Efficiency Grants, please give Orem's proposal full and fair consideration.

Sincerely,

Mitt Romney
United States Senator

UTAH LAKE COMMISSION

September 20, 2019

Dear Bureau of Reclamation,

The Utah Lake Commission fully supports actions taken by neighboring municipalities to support its goals of improving the quality of Utah Lake. As such, it is exciting to hear that Orem City is pursuing the 2018 WaterSMART Grant for their Advanced Metering Infrastructure (AMI) project. AMI is known to reduce overall water usage

Over 60% of Orem's water consumption originates from surface water including Uinta Mountain streams and lakes, Jordanelle Reservoir, Deer Creek Reservoir, and the Provo River. Reducing water usage from those sources will benefit the river and stream flows along with lake and reservoir levels. Water saved from surface sources has a greater potential to remain in the watershed and benefit the entire watershed from the upper Uinta Mountains, through the reservoirs, Utah Lake, and ultimately the Great Salt Lake.

The Utah Lake Commission is made up of 15 local municipalities, the regional water district and three state agencies (Utah Department of Natural Resources, Utah Division of Forestry fire and State Lands and the Department of Environmental Quality. As an Interlocal formed with the goal of promoting beneficial uses of this natural resource, facilitating orderly planning and development in and around the lake, and assisting in the formulation and implementation of comprehensive plans for the management of Utah Lake and its shoreline, the Commission's goals are bolstered by this innovative water conservation effort by Orem City.

Thank you for your consideration.

Eric J. Ellis
Executive Director
UTAH LAKE COMMISSION
801-851-2901 o
801-836-1963 c
eric@utahlakecommission.org
www.utahlakecommission.org

Utah Lake Commission
Historic Utah County Courthouse
51 South University Ave.
Suite 109
Provo, Utah
84601

ph. (801) 851-2900
fx. (801) 851-2903

http://utahlake.gov

CENTRAL UTAH WATER
CONSERVANCY DISTRICT

355 W. University Parkway
Orem, UT 84058-7303
801.226.7100
www.cuwcd.com

Dear Bureau of Reclamation,

As General Manager of the Central Utah Water Conservancy District (CUWCD), I wish to express my support for Orem City in obtaining a 2019 WaterSMART Grant for their Advanced Metering Infrastructure (AMI) project. AMI is proven to reduce overall water usage.

The CUWCD supplies over 60% of Orem's municipal water supply. This water originates from surface water from the Uinta Mountain streams and lakes, Jordanelle Reservoir, Deer Creek Reservoir, and the Provo River. AMI will help reduce water usage from these sources. This will directly benefit the river and stream flows along with lake and reservoir levels. Water saved from surface sources has a greater potential to remain in the watershed and benefit the entire watershed from the upper Uinta Mountains, through the reservoirs, Utah Lake, and ultimately the Great Salt Lake.

This project will also benefit Central Utah Water Conservancy District directly as a water supplier to Orem City. We support Orem in improving their water infrastructure and its capability to providing better water use data to its customers in an effort to conserve water.

Thank you for your consideration.

Sincerely,

Gene Shawcroft, P.E.
General Manager

NATURAL RESOURCES
STEWARDSHIP COMMITTEE
OREM

Dear Bureau of Reclamation,

My name is Sarah Bateman and I serve as Chair of the City of Orem's Natural Resources Stewardship Committee. I wish to express my support for Orem in obtaining a 2018 WaterSMART Grant for its Advanced Metering Infrastructure (AMI) project.

Since 60% of Orem's water consumption originates from surface water including Uinta Mountain streams and lakes, Jordanelle Reservoir, Deer Creek Reservoir, and the Provo River, reducing water usage from those sources will benefit the river and stream flows along with lake and reservoir levels. Water saved from surface sources has a greater potential to remain in the watershed and benefit the entire watershed from the upper Uinta Mountains, through the reservoirs, Utah Lake, and ultimately the Great Salt Lake.

Considering the population growth projections for the Wasatch Front, fostering a conservation mentality now will lay the foundation for smart conservation and planning for the future. Though we often get sufficient snowpack during the winter, our desert state is not immune to the threat of drought. By looking at the environmental and economic impact of the 5-year drought in California and the looming human and governmental crisis of "Day Zero" (when the taps run dry) in Cape Town, South Africa, the City of Orem can implement policies that will preserve our water resources, our economy, our health, and our way of life.

The AMI would empower all Orem residents with the real-time data necessary to more quickly shift watering habits to reflect a conservation mindset. It would prevent surprises at the end of billing cycles, save money, and educate residents about the importance of valuing the precious, life-giving resource that is water.

Thank you for your consideration,

Sarah Bateman
Chair, Natural Resources Stewardship Committee, City of Orem

Appendix B: Official Resolution

RESOLUTION NO. R-2018-0009

A RESOLUTION BY THE CITY COUNCIL OF THE CITY OF OREM, UTAH, IN SUPPORT OF THE FUNDING AND IMPLEMENTATION OF ADVANCED METERING INFRASTRUCTURE (AMI) THROUGHOUT THE CITY AS OUTLINED IN THE PUBLIC WORKS DEPARTMENT'S WATERSMART APPLICATION

WHEREAS the City of Orem owns, operates, and maintains a Water Utility (Utility) that provides drinking water for 100,000 residents; and

WHEREAS the Utility meters and bills for water distributed to residents using outdated practices and inefficient methods; and

WHEREAS the City's 2016 Water Master Plan recommends the implementation of AMI for the wise and efficient management and use of water; and

WHEREAS the City of Orem has contracted with Itron/Hydrospecialties to provide the components for the City's AMI; and

WHEREAS the Orem City Council has reviewed the application for funding under the Bureau of Reclamation's WaterSMART grant program.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF OREM, UTAH, as follows:

1. The Orem City Council hereby supports the application submitted to the Bureau of Reclamation for funding under the WaterSMART Grant program.

2. If awarded funds, the City of Orem will work with the Bureau of Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

3. The City of Orem commits to contribute the funding specified in the funding plan of the WaterSMART application.

4. This resolution shall take effect immediately upon passage.

PASSED and APPROVED this **8th** day of **May** 2018.

Richard F. Brunst, Jr., Mayor

ATTEST:

JoD'Ann Bates, City Recorder

CITY OF OREM CORPORATE SEAL STATE OF UTAH

COUNCILMEMBER	AYE	NAY	ABSTAIN
Mayor Richard F. Brunst	☐	☐	☐
Debby Lauret	☑	☐	☐
Sam Lentz	☑	☐	☐
Tom Macdonald	☑	☐	☐
Mark Seastrand	☑	☐	☐
David Spencer	☑	☐	☐
Brent Sumner	☑	☐	☐

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