Department of Natural Resources Prioritization of Water Projects for ARPA Funding

REPORT TO THE NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENTAL QUALITY APPROPRIATIONS SUBCOMMITTEE

October 19, 2021

Prepared by:

Brian Steed
Department of Natural Resources Executive Director

Kim Shelley
Department of Environmental Quality Executive Director

Craig Buttars
Department of Agriculture & Food Commissioner

Executive Summary

As part of the American Rescue Plan Act, the state of Utah is expected to receive approximately $1.4 billion from ARPA's Coronavirus State Fiscal Relief Fund and approximately $136 million from the Coronavirus Capital Projects Fund. These funds are to be used for projects that make a lasting impact that will benefit communities for generations.

This report provides an overview of the process that has taken place to identify how best to use these one-time funds to "provide resources for state, local, and Tribal governments to invest in infrastructure, including water, sewer, and broadband services." Several state agencies that share stewardship for the state's water management – the Department of Natural Resources (DNR), Department of Environmental Quality (DEQ), and the Department of Agriculture and Food (UDAF) – have collaborated to identify projects that will yield long-term water savings and improvements for the state including:

- $50 million for providers of pressurized secondary irrigation to provide meter installation on existing systems. Installing secondary meters yields the biggest bang for the buck when comparing the amount of water saved to the cost of the meters.
- $25 million for drinking water infrastructure. Drinking water is essential for all communities and their economic growth.
- $20 million for agricultural optimization projects that allow farmers to significantly reduce water usage while increasing crop yields through irrigation improvement projects.
- $5 million for Great Salt Lake preservation and restoration that will provide money for critical infrastructure for low water levels and address rising salinity.

As the fastest-growing state in the nation, it's critical to take steps to maximize and protect our water supply while ensuring safe, reliable drinking water for all Utahns so that we can safeguard our quality of life for future generations. Traditionally, two-thirds of Utah's growth has come from natural increase as current residents have children. If we want our children and grandchildren to live here, all Utahns need to reduce their water use. People have also discovered that Utah is a great place to live, work, and play – and they don't bring water with them when they move here.

Extreme drought conditions this year have also highlighted the need to improve the reliability and resiliency of the state's water supply. Several communities experienced impacts to their water supply. If drought conditions continue next year, potential restrictions could be implemented. Any restrictions would be determined at the local level to customize recommendations and responses for the area's conditions.

These one-time ARPA funds will accelerate needed infrastructure improvements that will yield both immediate and long-term water savings and economic and public-health benefits. Care has been taken to ensure the proposed requests are for one-time uses that do not result in a structural imbalance of ongoing expenditures against one-time resources.

DNR, DEQ, and UDAF appreciate the opportunity to work together to leverage these funds for the benefit of all Utahns.

Background

American Rescue Plan Act of 2021

The COVID-19 pandemic has had widespread impacts around the globe. In an effort to mitigate the strain of the pandemic on the American people, the United States Congress passed the American Rescue Plan Act of 2021 (ARPA), a $1.9 trillion economic stimulus bill. In addition to providing stimulus checks to qualifying families, ARPA provides $350 billion in emergency funding for state, local, territorial, and tribal governments to help bridge the gap between rising costs and falling revenues, including:

- $195 billion for states (a minimum of $500 million for each state)
- $130 billion for local governments (a minimum of $1.25 billion per state is provided by the statute inclusive of the amounts allocated to local governments within the state)
- $20 billion for tribal governments
- $4.5 billion for territories

Needed Relief

According to the U.S. Department of the Treasury, the Rescue Plan will "provide needed relief to state, local and Tribal governments to enable them to continue to support the public health response and lay the foundation for a strong and equitable economic recovery. In addition to helping these governments address the revenue losses they have experienced as a result of the crisis, it will help them cover the costs incurred responding to the public health emergency and provide support for a recovery – including through assistance to households, small businesses and nonprofits, aid to impacted industries, and support for essential workers. **It will also provide resources for state, local, and Tribal governments to invest in infrastructure, including water, sewer, and broadband services."**

Within these categories, recipients have broad flexibility on how best to use the funding to meet the needs of their communities. The state of Utah has many projects that fit under the "water and sewer infrastructure" umbrella. The Department of Natural Resources, Department of Agriculture and Food, and the Department of Environmental Quality have worked together to identify projects that maximize these one-time funds so that the improvements can benefit our state for years to come.

Utah's ARPA Stimulus Funding

The state of Utah is expected to receive approximately $1.4 billion from ARPA's Coronavirus State Fiscal Relief Fund and approximately $136 million from the Coronavirus Capital Projects Fund. In order to maximize these funds, the Governor's Office of Planning and Budget's (GOPB) solicited funding requests that met the following criteria and received almost $1 billion in requests – about half of it for drinking water projects:

1. Respond to the public health emergency with respect to COVID-19 or its negative economic impacts, including assistance to households, small businesses, and nonprofits, or aid to impacted industries such as tourism, travel, and hospitality;

2. Provide premium pay to eligible workers of the State, territory, or Tribal government that are performing such essential work, or by providing grants to eligible employers that have eligible workers who perform essential work;

3. Provide government services to the extent of the reduction in revenue due to the COVID–19 public health emergency relative to revenues collected in the most recent full fiscal year of the State, territory, or Tribal government prior to the emergency; or

4. Make necessary investments in water, sewer, or broadband infrastructure.

GOPB prioritizes projects based on the following guiding principles:

- Fiscal prudence – Uphold Utah's stellar reputation for fiscal responsibility, maximize return on investment, maintain structural balance of ongoing revenues with ongoing spending, use federal dollars first, invest in the future economy.

- Proactive investments – Enhance and strengthen Utah's infrastructure to more effectively meet future public health and economic challenges in an innovative way.

- Targeted – Focus on people, industries, and locations that continue to suffer the greatest impact.

- Enduring – Favor investments that solve an existing problem and provide an enduring benefit.

- Accountable – Measure and account through a publicly available scorecard.

According to GOPB, the vision for these funds is to "make multi-generational investments that safeguard and fortify public health, and create the most inclusive, resilient, and prosperous economy in the nation." ARPA stimulus funding is one-time, so all requests must be for one-time uses that do not result in a structural imbalance of ongoing expenditures against one-time resources

Legislature Approves Joint Resolution Accepting Federal Funds

During the May 2021 Special Session, the Legislature approved a joint resolution approving the acceptance of federal funds related to the COVID-19 public health emergency. ARPA, signed into law on March 11, 2021, appropriates funding to the state to address the COVID-19 public health emergency and its fiscal effects. Utah Code requires that the Legislature approve the state's receipt of new federal funds if the state receives total payments of $10 million or more per year. This joint resolution approved the acceptance by Utah of the federal funds received under the ARPA.

The Legislature appropriated $571 million of ARPA funds during the May Special Session for projects including water development and conservation grants, unemployment insurance, local matching grants, and public health information system upgrades. Specifically, $100 million was set aside for the Department of Natural Resources to fund water projects. Several state agencies share stewardship over the state's water management, so a funding split is proposed that allocates money to DEQ and UDAF, as well as DNR.

Proposal for All Four Tranches

Projects that Make a "Multi-Generational" Difference

DNR, UDAF, and DEQ have worked together to prioritize projects that will make a multi-generational difference and provide a healthy return on investment. Providing safe, reliable water to the state's growing population is critical and requires a balanced approach. This year's extreme drought has highlighted the importance of taking measures to use this precious resource wisely to accommodate many competing priorities. These projects include the installation of secondary meters so that water use can be measured, agricultural optimization, drinking water and water quality improvements, and Great Salt Lake preservation and restoration efforts.

Proposed funding allocation:

- $50 million for secondary meters
- $25 million for drinking water
- $20 million for agricultural optimization
- $5 million for Great Salt Lake preservation and restoration

$50 Million for Secondary Meters

Secondary water is untreated water that does not meet EPA Safe Drinking Water requirements. Generally, irrigation and canal companies deliver secondary water through separate (from drinking water) pressurized pipelines or open ditch systems to irrigate lawns, gardens, landscapes, parks, cemeteries, golf courses, and other open areas. These companies provide an alternative to using high-quality drinking water for irrigation. This pressurized pipeline water has typically been unmetered because the technology didn't exist until a decade ago, and the mechanical meters would get plugged and damaged from the unfiltered secondary water. Technology has improved, and the new meters for pressurized secondary water are more durable and accurate (Appendix A).

Metering secondary water provides more accurate use numbers so the Divisions of Water Rights and Water Resources can better measure water use and plan accordingly. If secondary water isn't measured, the Division of Water Resources estimates water use and availability, which is less accurate for planning purposes and leads to reporting excessive use.

Unmetered pressurized secondary irrigation connections use about 50% more water than metered connections (estimated in 2018). This additional water use is excess water applied above and beyond the evapotranspiration needs of landscapes. Adding secondary meters has shown great potential to reduce waste and increase irrigation efficiency. It is hard to manage what is not measured.

Estimated Water Savings

Approximately 30% of the state's Municipal and Industrial water use is estimated secondary water. Areas that have installed secondary meters have seen a water use reduction by about 20-30%, which can be attributed to education – simply knowing how much water is used results in a decrease (Appendix B). Many of these areas have not yet charged for the metered water and have continued to provide it at a flat rate (Appendix C). Installing secondary meters yields the biggest bang for the buck when comparing the amount of water saved to the cost of the meters.

In 2019, Utah residents used an estimated 267,976 acre-feet of secondary water on lawns and gardens. That means if all secondary connections were fully metered, we could see savings between 54,000 acre-feet to 80,000 acre-feet. (For perspective, East Canyon

Reservoir holds about 50,000 acre-feet.) Several cities in Utah County are fully metered (Spanish Fork, Saratoga Springs, Mapleton, and Santaquin), and Weber Basin Water Conservancy District has installed over 12,000 connections.

Cost of Statewide Metering

There are approximately 260,000 secondary water connections in the state, with only 15% of the connections metered. The cost to install a retrofitted secondary water meter is between $1,500 to $2,000 depending on the water line size and if the meter needs to be installed in the front yard or backyard (a new secondary meter installation is approximately $400). The cost range could be anywhere from $330 million to $440 million to install meters statewide. While this is a sizable investment, if you annualize the cost of the acre-feet of water saved, it is approximately $525 per acre-foot (based on an estimate done in 2019), which is extremely cost-effective compared to new water development project cost.

Secondary Metering Legislation

Over the past several years, the Utah Legislature has passed a series of bills addressing the metering of pressurized secondary water. During the 2019 legislative session, SB52 was passed. SB51 passed in 2020, and SB199 in 2021. These bills apply to secondary water systems that are pressurized, enclosed systems. If the system is an open canal, these bills do not apply.

- SB199 (2021) requires new connections to install meters and secondary water suppliers to develop a plan and file it with the Utah Division of Water Resources by December 31, 2025, that addresses the process the secondary water supplier will follow to implement metering, including:
    - The costs of full metering by the secondary water supplier
    - How long it would take the secondary water supplier to complete full metering by no later than December 31, 2040, including the anticipated beginning date and completion date
    - How the secondary water supplier will finance metering
    - The bill requirements only apply to Class 1 (population of 1 million or more) and Class 2 (population of 175,000 or more but less than 1 million) counties, including Salt Lake, Utah, Weber, Davis, and Washington counties.
    - In 2021, the Legislature allocated $2 million in grant money for small systems (less than 5,000 connections or cities, towns, metro townships) to use for secondary meters in Class 1 and 2 counties. The grant money can be used for up to 50% of the project cost and will be available every fiscal year.

- SB51 (2020) replaced SB52 and changed the reporting dates established in SB52. Commercial, industrial, institutional, and residential users of metered secondary water are required to report to the Division of Water Rights on or before March 31 each year the following:
    - The number of secondary water meters within the secondary water supplier's service boundary
    - Secondary water supplier's service boundary
    - The number of connections in each of the following categories through which the secondary water supplier supplies pressurized secondary water:
        - commercial
        - industrial
        - institutional
        - residential
    - The total volume of water that the secondary water supplier receives from its sources. (Details can be found in lines 69-87 of SB51.)
- SB52 (2019) inventoried secondary systems to establish needed steps to get all connections metered (cost, time, number of meters needed, etc.), required new systems to include meters, established a timeline for existing systems to retrofit, and install meters, and established a reporting requirement.
    - The Legislature allows the Board of Water Resources to provide $10 million per year for low-interest loans to install secondary meters. Interested suppliers need to complete an application and provide 15% of the project cost. Application and more information can be found on the Water Resources' website.

Funding Availability

DNR recommends using ARPA funds to provide grant money to providers of pressurized secondary irrigation systems to accelerate the installation of secondary meters on existing systems.

- $50 million available for grants
- Cost-share for each project is 70% ARPA grant, 30% applicant funds.

Funding Guidelines

- The grant funds are available for meter installation on existing unmetered systems but are not for the development of new systems or replacement of existing meters.
- The 30% cost share (or applicant funding) may be a loan from the Board of Water Resources. This can be done through a separate application to the board.
- Funds will be disbursed so one entity cannot receive it all. For example, providers with 7,000 connections or less are eligible for up to $5 million; providers with over 7,000 connections are eligible for up to $10 million.

Application Process

1. Pressurized secondary water providers will submit applications to the Utah Division of Water Resources during a 45-day application period.
2. If funds remain after the first round of applications, additional application periods could be scheduled to ensure all funds are utilized.
3. Applications will be reviewed and prioritized by Water Resources staff.
4. Water Resources staff will recommend projects to the Board of Water Resources for funding consideration.
5. Applicants approved by the Board of Water Resources will enter into legal agreements with the Board of Water Resources to use the ARPA grant funds.
6. Project funds must be contracted by December. 31, 2024, and all funds spent and construction completed by December. 31, 2026.

Application Required Information

The following information will be required on each application and will be used by Division of Water Resources' staff in reviewing and prioritizing applications:

- Detailed project cost estimate including meter costs and installation costs.
- Total number of pressurized secondary water connections in the system.

STATE MATCH

ARPA Funds

Year	%State Grant	%Municipality/ Water District
2022	70	30
2023	70	30
2024	65	35
2025	60	40
2026	50	50
2027	40	60
2028	30	70
2029	20	80
2030	10	90

- Number of meters to be installed.
- Detailed estimated secondary water use reduction including average lot size calculations, average irrigated acreage, estimated water applied pre-project vs. post-project.
- Project timeline for purchase and installation of meters.
- Project must be stamped and signed by a Utah Registered Professional Engineer responsible for the work.
- Applicant must agree to provide either an educational component on the monthly billing statement and/or bill according to usage using a tiered conservation rate.

Priority Ranking

Projects will be ranked according to the following prioritization criteria:

- (60%) **Bang-for-Buck**: Ratio of estimated water use reduction divided by total state investment.
- (20%) **Need**: Applicants facing current or potential future water shortages where installation of meters and subsequent water use reductions will result in delaying or eliminating the need for new water development.
- (20%) **Shovel Readiness**: Accelerated construction schedule, prompt start, and finish.

$25 Million for Drinking Water Projects

Many of the state's small, rural communities and drinking water systems have experienced hardship due to the prolonged effects of the pandemic. At the same time, necessary infrastructure in these communities has reached or exceeded the end of its useful life. Investing in drinking water infrastructure in these communities will provide both immediate and long-term economic and public-health benefits. Studies have shown that investing in drinking water infrastructure is a net positive in any community. A 2018 study performed by The College of William & Mary's Public Policy Program determined that every dollar invested in water infrastructure generated up to $2.20 in economic activity as well as up to $1,438 in public health benefits.

This investment will make improvements in drinking water infrastructure in rural communities across the state by replacing, upgrading, repairing, or extending essential drinking water infrastructure while protecting public health. It fulfills the vision of ARPA

funding by making “multi-generational investments that safeguard and fortify public health, and create the most inclusive, resilient, and prosperous economy in the nation” as well as meet the eligibility criteria of supporting the public health response; addressing the negative economic impacts caused by the public health emergency; and investing in water, sewer, and broadband infrastructure.

Projects are capped at $3.5 million each, and were prioritized using financial and public health-based metrics that have proven effective over many years within the Drinking Water State Revolving Fund (DWSRF) financial assistance programs.

Project Prioritization

DEQ Division of Drinking Water (DDW) staff are in regular contact with public water systems statewide that are working on or planning to apply for loan or grant assistance for drinking water infrastructure. ARPA projects will be prioritized and capped at $3.5 million each using the following criteria:

1. Will the project serve a small, rural, or disadvantaged community or protect a vulnerable population?

2. Is the project shovel-ready? Shovel-ready for this process is defined “as a drinking water project that could begin construction in 2021 or 2022, but that has not incurred costs prior to March 3, 2021.”

3. Is the project eligible for funding under the State and Federal Drinking Water State Revolving Fund program criteria?

4. Does the project and the population it serves meet the hardship criteria established by the Drinking Water Board for community water systems? (Those criteria are explained below.)

5. Is the public water system and the community it serves interested and willing to accept ARPA funding if the funds became available?

Drinking Water State Revolving Loan Fund (DWSRF)

Utah's Drinking Water State Revolving Fund (DWSRF) is a multifaceted tool that supports states in achieving the public health objectives of the Safe Drinking Water Act. The program utilizes state and federal funding to provide both financial (loans and grants) and technical support to help public water systems ensure that they can supply safe and reliable drinking water to the people they serve. However, current DWSRF funding is not able to keep up with the drinking water infrastructure needs as evidenced by the approximately $500 million dollars in ARPA drinking water matching grant requests to the Governor’s Office of Planning and Budget.

- **Eligible Drinking Water State Revolving Fund projects include:**
    - Planning/ Design/Engineering
    - Sources (wells, springs, etc.)
    - Storage Tanks
    - Treatment Facilities
    - Transmission / Distribution Pipelines
    - Water Meters
    - Telemetry / SCADA (Supervisory Controls and Data Acquisition)
- **Eligibility and Application Requirements:** All applicants are required to meet eligibility and application requirements that include:
    - Demonstrating public support
    - That the project is a critical need
    - That the system is currently meeting drinking water requirements, or that the project will address deficiencies
    - Cost effectiveness
    - Technical, managerial, and financial capabilities
- **Hardship Criteria**: The Drinking Water Board has established two hardship criteria which DDW staff used to identify whether a public water system may be designated as a disadvantaged community:
    1. The water system service area Median Adjusted Gross Income (MAGI) must be less than or equal to 80% of the state's MAGI;
    2. Or the water system's average monthly residential water bill (including estimated new debt service to repay the loan portion of the requested financial assistance) must be greater than 1.75% of the local MAGI.

  The Division receives MAGI data from the Utah State Tax Commission each year for the previous tax year. The data is typically provided in December or January. For example, the Division will receive the 2020 tax year data in December 2021 or January 2022. The Tax Commission provides the data in two formats, by city and by zip code. The data is available on the DDW website.

- **Drinking Water Board Oversight:** The Drinking Water Board has a robust process in place to ensure accountability and transparency for every community investment made by the fund. This process will be applied to all ARPA requests for community water systems.

    1. All construction funds are placed in an escrow account, and money is only released to the applicant after a reimbursement request has been approved by DDW and DWSRF staff. The request must include statements of work completed, all appropriate invoices, and the signature of an approved water system representative. Request packets are reviewed by the Project Manager, the Financial Analyst/Manager, and then approved by the Assistant Executive Secretary to the Drinking Water Board. The approved reimbursement packet is then sent to the escrow agent to release the funds to the recipient.

    2. DWSRF staff perform interim and final inspections for each funded project to assure funds are used for their authorized purposes. In addition, DDW Permitting staff may perform an inspection prior to approving the recipient's request for an Operating Permit. Before a funded project is closed out, staff reviews a Project Closure Checklist to ensure the Division has received all required documentation and completed each step in the DWSRF process.

Drinking Water Project Needs

Rural Drinking Water Projects

Rural drinking water systems represent some of the most immediate need and greatest opportunity for investment when it comes to drinking water infrastructure in Utah:

- **Vulnerability in times of emergency and drought**: Unlike water systems on the Wasatch Front, rural systems do not have the ability to connect to another drinking water system in the event of an emergency or a shortage. They can also lack redundant water sources, making them far more vulnerable in times of drought or in the event of contamination.

    - In 2020 the state experienced 15 boil orders related to Escherichia coli (E. coli) for the entire year. In August 2021, there were 10 boil orders, nine of which were in rural Utah.

    - Over two-thirds of the significant deficiencies identified in drinking water systems over the last five years have occurred outside of the Wasatch Front. Significant deficiencies represent a direct public health risk.

    - Natural springs are more susceptible to drought and cross contamination. 25.66% of public drinking water systems tied to a spring are found in rural Utah.

- **Barriers to investment by local governments**: Rural communities often have less diverse revenue streams to draw from and fewer users, which means less revenue through fees. As a result, rural water systems can lack access to the funds needed to make a major capital investment, or even preventative maintenance or a full-time water system operator that would extend the full useful life of a system. This often means that existing infrastructure can fall into disrepair faster, and repairs are more expensive. DDW will work with water systems to develop asset management plans as part of their ARPA funding requests.

- **Improved economic opportunity and certainty**: The extreme drought that Utah experienced this year reinforced the importance of drinking water by putting at risk the ability of rural communities to sustain economic activity and provide safe, reliable drinking water to the homes and businesses they serve. In addition, growth pressure on rural Utah will demand expanded drinking water systems eventually. Without that investment, some water systems could be overwhelmed, while others will simply have insufficient water for the new growth.

Outcomes and Accountability

Safe and affordable drinking water is a fundamental necessity for all residents of Utah, yet not everyone in Utah has access to clean and safe drinking water. The outcome of this request will improve not only the health of the residents and children, but it will also improve economic vitality of communities, particularly in disadvantaged communities including rural and frontier Utah for generations to come.

DDW will prepare an annual report that will outline the total number of authorized projects and total authorized assistance amount, individual community/project names, project descriptions, total project cost for each project, ARPA funding awarded to each community/project, amount of funding used to date, project inspection results, and relevant engineering reports. Annual reports will also include significant project milestones including project authorization date, financial assistance award date, engineering plan submittal date, plan approval date, construction start and end dates, and a project close-out report.

$20 Million for Agricultural Water Optimization

Agricultural Water Optimization has been a priority for the Utah Department of Agriculture and Food (UDAF). Many farmers are finding that they're able to significantly reduce their water usage while increasing crop yields through irrigation improvement projects that are funded by this program. This $20 million will help to fund more water optimization projects through the already thriving Water Optimization Fund and bring Utah irrigation systems up-to-date.

History of Agricultural Water Optimization

In 2019, the Legislature appropriated $3 million one-time funding for the Water Optimization Program to the UDAF Conservation Division. This $3 million in funding was designed to support individual farmer projects that demonstrate a need and ability to reduce consumptive water use while maintaining or even improving agriculture production and productivity. UDAF also received one-time funding of $3 million in 2021 to provide grants to fund these projects.

General information

The following is how the Water Optimization Program operates and distributes money. The $20 million in funding will continue to operate under these same terms, but with additional funding we may be able to increase the grant limits.

- $250,000 grant cap: special consideration may be given for projects which are located within areas showing increased pressure on water resources, or provide exceptional optimization benefits.
- 50/50 cost share: Other funds may be used to match Water Optimization grant funds including in-kind match (in-kind match will be valued on NRCS EQIP cost list).
- Cultural Resource (SHPO) review is required on all projects that are funded: The applicant will provide a SHPO report prior to beginning work on the project, and no payment reimbursement will be processed until UDAF has received the SHPO report. Any invoices with dates prior to the SHPO date will not be paid.
- Each project must document water quality benefits and meet the criteria for State Revolving Fund (SRF) funding.

- 20% of the total grant funding will be withheld until: (1) the final project report has been submitted and reviewed; (2) the project is determined to be complete by onsite inspection; and (3) all grant requirements have been met.

- 2019 Projects

    - 17 applications for projects funded, 12 of which are already completed. The remaining projects should be completed by the end of 2021.

    - Once 2019 projects are completed, there will be an estimated savings of 27,910 acre-feet of water in their first year of operation – that's about 9.1 billion gallons of water.

- 2021 Projects

    - 81 applications were received for a total request of $10.8 with only $3 million of existing funding. $3 million worth of eligible applications have been ranked by UDAF

Utah Farmers Want and Need Water Optimization

Farmers and ranchers are eager to update their irrigation systems and implement new technologies to improve water efficiency. Cost is a huge barrier and programs like this go a long way toward helping producers upgrade their irrigation systems. Applications for the 2021 round of funding were up 300% from the previous year. There is an exponentially larger want and need for funding than what UDAF has been able to provide. With the increased funds, UDAF will be able to expand the grant amounts to up to $500,000. We anticipate the number and size of requests will increase even further with the larger cap. This also means an increased 50% match from the producers, which further stimulates the economy.

Project Examples

Agricultural Water Optimization projects include improving canal and ditch systems, upgrading irrigation systems, and improving pumps to ensure all systems are water efficient. (See photos of completed projects in Appendix D.)

$5 Million for Great Salt Lake to Address Low Water Levels and Rising Salinity

The Great Salt Lake is the largest saline lake in the Western Hemisphere and the eighth largest in the world. The ecology of the lake is an extraordinary example of the rich web of relationships between people, land, water, food and survival. Great Salt Lake benefits our economy, our environment, and our ecology. (See Appendix E.)

Great Salt Lake is an extremely important asset to the state of Utah economically, ecologically, and environmentally. For example, the lake:

- Contributes $1.3 billion to Utah's economy and provides over 7,700 jobs.
- Provides crucial habitat for over 10 million migratory birds each year.
- Produces all of the United State's supply of magnesium. Magnesium is used in the production of soda cans, car parts, and cell phones.

The 15,000 square miles of various water environments, remote islands, and shorelines, with 400,000 acres of wetlands, provide habitat for plants, brine shrimp, reptiles, amphibians, mammals, shorebirds, and waterfowl. Birds rely on the lake, a critical link in the Pacific Flyway between North and South America. Every year 10 million birds from 338 different species come to rest, eat, and breed during migrations of a thousand miles or more. Ecological, environmental, and economical balance can be found by working together as elected leaders, agencies, industry, stakeholders, and citizens. We must find ways to balance Utah’s growth with maintaining a healthy lake.

Lake Levels

While Great Salt Lake has been gradually declining for some time, drought conditions have accelerated its fall to a new historic low. Due to its shallowness (an average of 14 feet deep and a maximum of 35 feet deep), the water level can fall dramatically in dry years and rise during wet years. When snowpack melts in the spring, the lake usually rises about 2 feet. In

years with above-average snowpack, it can go up 3- to 4-feet. In 2021, the elevation only went up about 6 inches because of the poor snowpack and low runoff.

The lake's shallow, warm waters cause frequent, sometimes heavy lake-effect snowfall in the Wasatch Mountains, which contributes to snowpack (about 5 to 8%) and winter tourism. When the lake level is low, more lake bed is exposed, which can cause severe dust pollution. The dust carries heavy metals and chemicals into the air, which impacts air quality. At an average water level of 4,200 feet, the lake is approximately 75 miles long and 30 miles wide, with 335 miles of shoreline.

Record Low Lake Levels

In July 2021, Great Salt Lake hit a new new record low, with average daily water levels dropping about an inch below the previous record (*see SaltAir gauge*). Lake levels continued to drop over a foot until fall storms moved in and agricultural irrigation ended for the season. The previous record was set in October 1963, with an elevation of 4191.35, rounded to 4191.4 to conform with current data collection and a recorded size of 950 square miles. (In 1963, levels were measured to the hundredth. Today, they are measured to the tenth of a foot.) In 1986, the surface area was at the historic high of 3,300 square miles and an elevation of 4,211.65. USGS keeps records of the lake dating back to 1847 when the pioneers first settled in Utah.

Geography & Infrastructure

The geography of the lake combined with infrastructure has created a diversity of lake environments varying from the extremely salty North Arm (almost 28%) to the less salty South Arm (fluctuating between 6 and 27%). The Lucin Cutoff is a railroad line that runs across the lake, crossing the southern end of the Promontory Peninsula. The mostly solid causeway supporting the railway divides the lake into three arms: the northeast, northwest, and southern. The causeway obstructs the normal mixing of the lake's waters because no major streams flow directly into the northwest arm, making it substantially saltier than the rest of the lake. This saltier environment promotes different types of algae than those growing in the southern part of the lake, leading to a marked color difference on the two sides of the causeway.

Economic Benefit

The Jordan, Weber, and Bear rivers flow into the lake and deposit a few million tons of dissolved solids (salts and minerals) in the lake each year. The economic output of GSL is $1.32 billion annually, with a total labor income of $375.1 million and total employment of

7,706 jobs. The industries that operate on the lake contribute significantly to the world supply of magnesium, sulfate of potash, and brine shrimp. Mining companies extract nearly 2 million tons of minerals per year. Water is removed from diked ponds by evaporation. There are over 85,000 acres of diked evaporation ponds in the Great Salt Lake – comprising an area twice that of San Francisco.

Funding Availability

DNR recommends using $5 million of ARPA funds to help preserve and restore GSL. The funds will provide money for critical infrastructure for low water levels and address rising salinity. Protecting the health of the lake is of critical importance to our state.

Funding

$5 million for Great Salt Lake preservation and restoration that will provide money for two projects that present an immediate need:

- Physical Infrastructure to Address Rising Salinity $2.5 million

  After the creation of the causeway across the lake, there have been fluctuations in salinity levels in the north and south arms of the lake. Currently, water from the hyper-saline Northwest Arm is flowing through the breach into the Southern Arm of the lake, increasing salinity levels in the Southern Arm. It is proposed that we take 2.5 million dollars of ARPA funds to construct temporary infrastructure modifications to manipulate the flows from north to south. By increasing the height of the rock berm currently within the causeway breach, the state could prevent further hyper-saline flows into the South Arm of the lake. Those flows should also be further monitored to identify more long-term solutions for salinity controls.

- Dredging Great Salt Lake Marina $2.5 million

  As water levels have dropped in Great Salt Lake, the marinas accessing the lake from the southern end of the lake have become unusable for all but the smallest water craft. This causes significant concern in that vehicles necessary to conduct search and rescue and other operations are currently unable to utilize the marina. This money will be used to permit, design, and dredge the marina to allow for emergency watercraft access and other watercraft access into the lake.

Appendix A

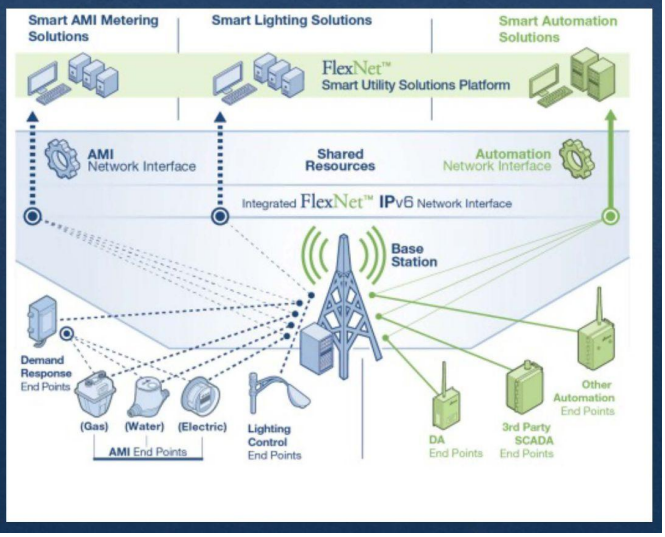
Automated Metering Infrastructure

Weber Basin Water Conservancy District

Automated Metering Infrastructure (AMI)

AMI – an integrated system of smart meters, communication networks and data management that enables 2-way communication.

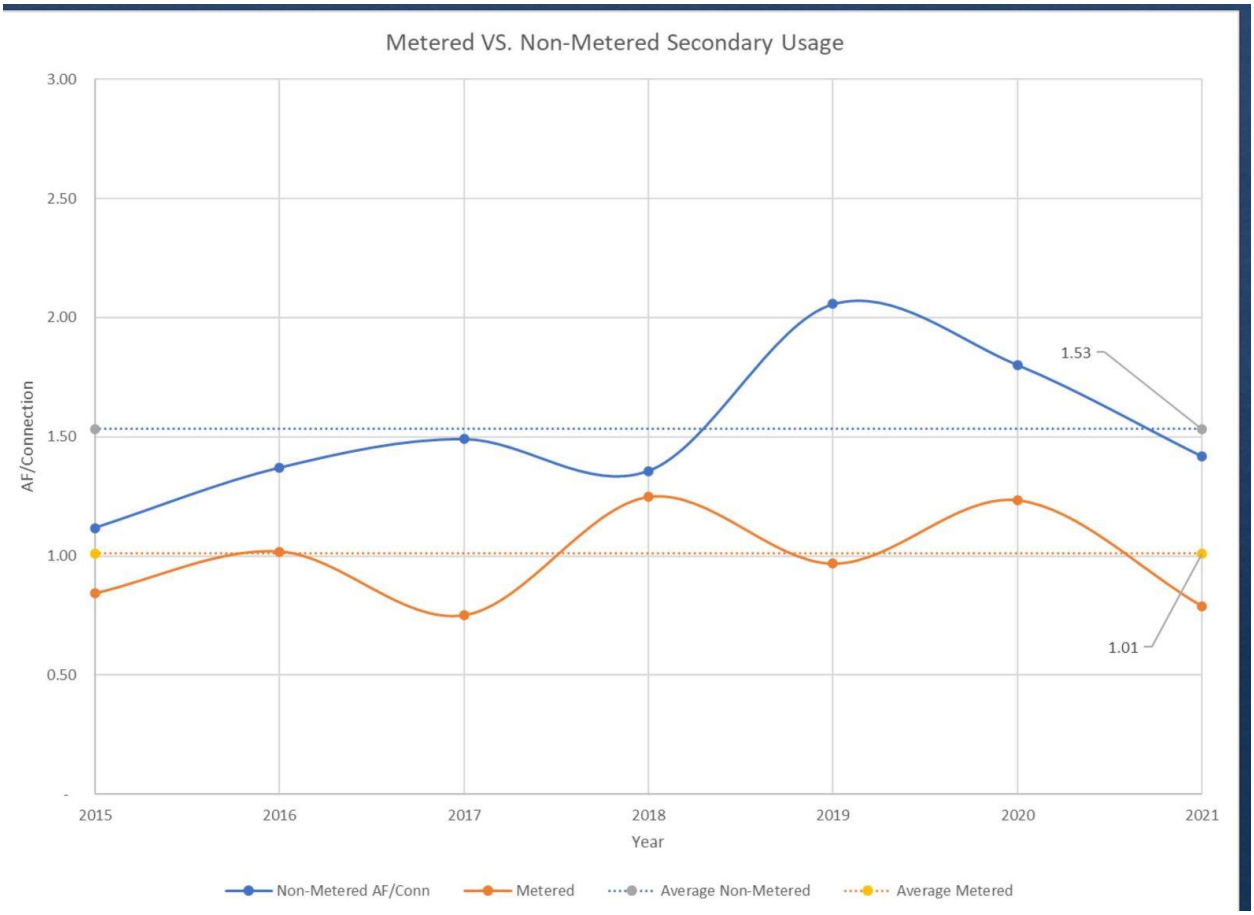
- Allows the District to collect hourly water use data
- "Real-time" data is made accessible to customers to better educate and encourage conservation
- Potential to gather system pressure data remotely
- Use AMI in WBWCD's Culinary Water System



Appendix B

Metered Vs Non-Metered Secondary Usage

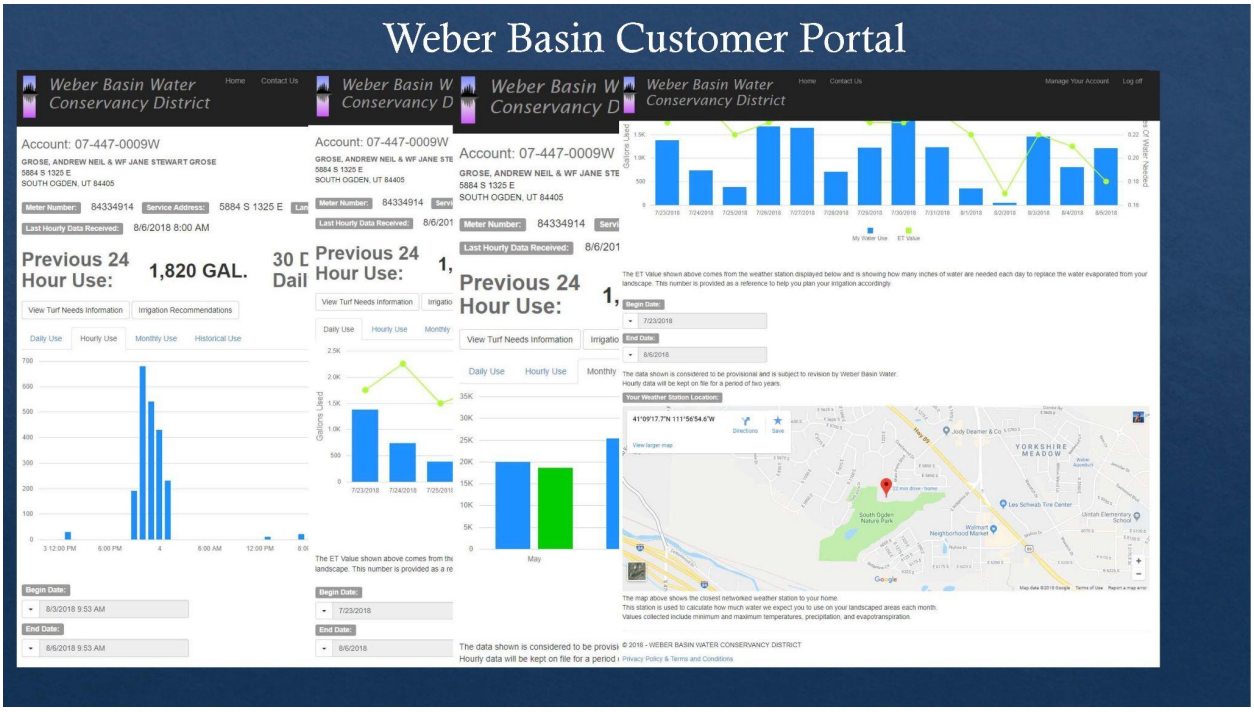
Weber Basin Water Conservancy District

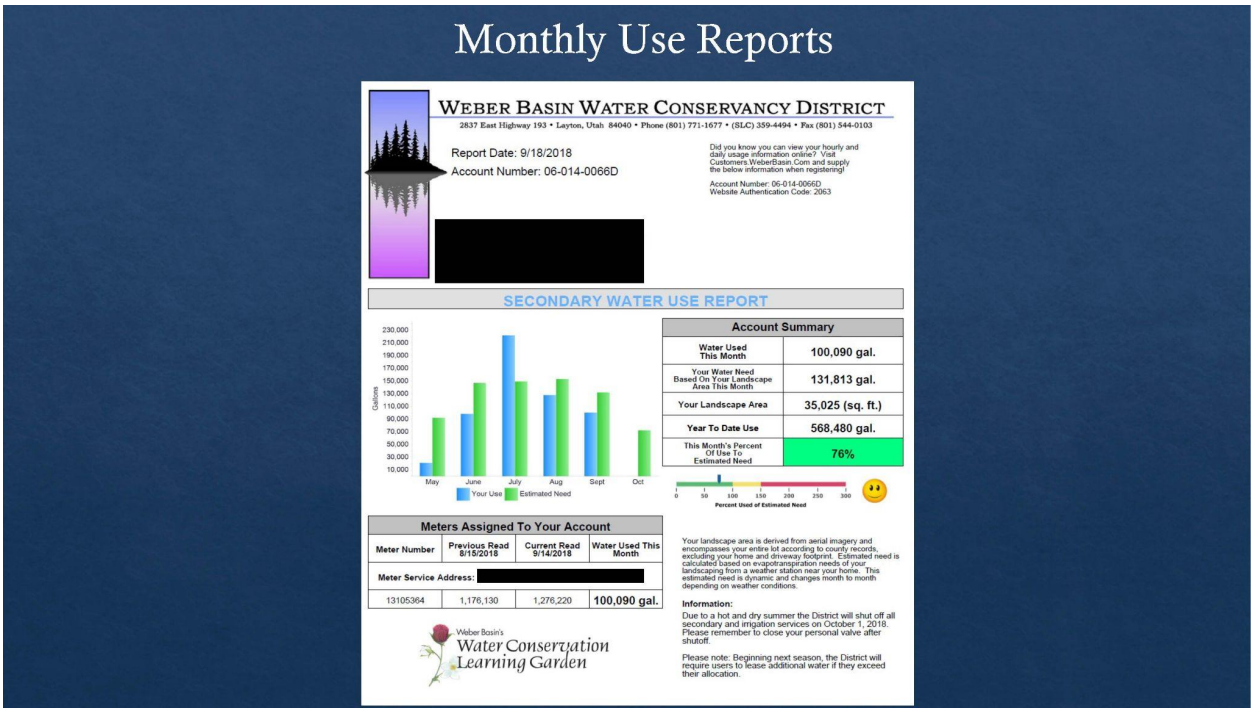


Appendix C

Customer Portal & Monthly Use Report

Weber Basin Water Conservancy District





Appendix D

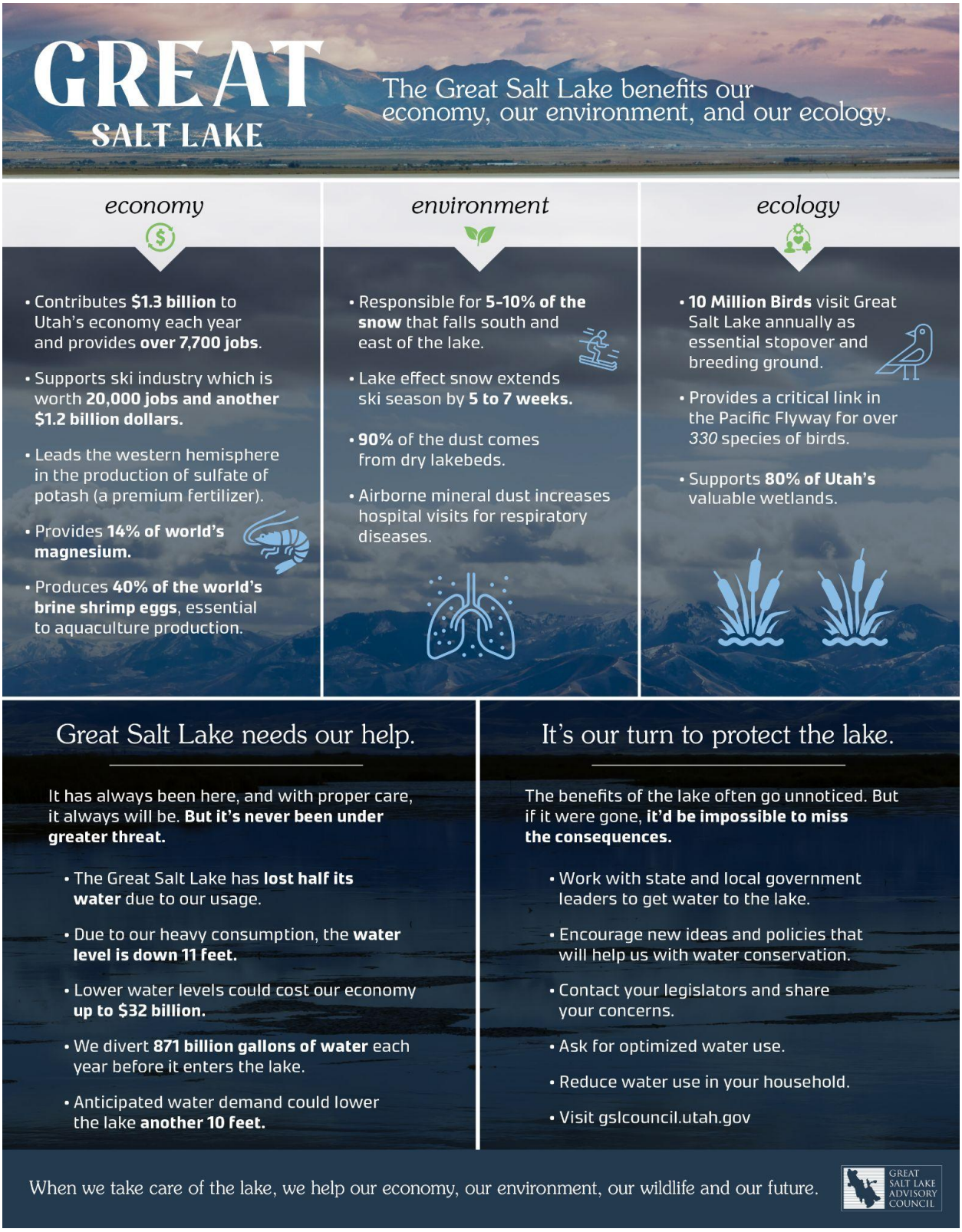
Completed Agricultural Water Optimization Projects

Irrigation Piping Improvement Project

Surge Irrigation Project

Surge Irrigation Electronic Head Gate

Appendix E


GREAT
SALT LAKE
The Great Salt Lake benefits our economy, our environment, and our ecology.
economy
• Contributes $1.3 billion to Utah's economy each year and provides over 7,700 jobs.
• Supports ski industry which is worth 20,000 jobs and another $1.2 billion dollars.
• Leads the western hemisphere in the production of sulfate of potash (a premium fertilizer).
• Provides 14% of world's magnesium.
• Produces 40% of the world's brine shrimp eggs, essential to aquaculture production.
environment
• Responsible for 5-10% of the snow that falls south and east of the lake.
• Lake effect snow extends ski season by 5 to 7 weeks.
• 90% of the dust comes from dry lakebeds.
• Airborne mineral dust increases hospital visits for respiratory diseases.
ecology
• 10 Million Birds visit Great Salt Lake annually as essential stopover and breeding ground.
• Provides a critical link in the Pacific Flyway for over 330 species of birds.
• Supports 80% of Utah's valuable wetlands.
Great Salt Lake needs our help.
It has always been here, and with proper care, it always will be. But it's never been under greater threat.
• The Great Salt Lake has lost half its water due to our usage.
• Due to our heavy consumption, the water level is down 11 feet.
• Lower water levels could cost our economy up to $32 billion.
• We divert 871 billion gallons of water each year before it enters the lake.
• Anticipated water demand could lower the lake another 10 feet.
It's our turn to protect the lake.
The benefits of the lake often go unnoticed. But if it were gone, it'd be impossible to miss the consequences.
• Work with state and local government leaders to get water to the lake.
• Encourage new ideas and policies that will help us with water conservation.
• Contact your legislators and share your concerns.
• Ask for optimized water use.
• Reduce water use in your household.
• Visit gslcouncil.utah.gov
When we take care of the lake, we help our economy, our environment, our wildlife and our future.
GREAT SALT LAKE ADVISORY COUNCIL

Works Cited

Department of Environmental Quality, “Median Adjusted Gross Income.” (2019)
https://deq.utah.gov/drinking-water/magi-zip-code

Great Salt Lake Advisory Council, “Great Salt Lake Fact Sheet.” (2021)
https://documents.deq.utah.gov/water-quality/standards-technical-services/gsl-website-docs/DWQ-2021-013131.pdf

Kem C. Gardner Institute, “Utah’s Long-Term Demographic and Economic Projections Summary.” (2017)
https://gardner.utah.edu/wp-content/uploads/Projections-Brief-Final-Updated-Feb2019.pdf?x71849

Utah Division of Water Resources, Board of Water Resources, “Funding Application.”
https://water.utah.gov/development-branch/funding/

Utah Division of Water Resources, “Utah’s Regional M&I Conservation Goals.” (2019)
https://conservewater.utah.gov/wp-content/uploads/2021/05/Regional-Water-Conservation-Goals-Report-Final.pdf

Utah State Legislature, “SB 51 Secondary Water Requirements.” (2020)
https://le.utah.gov/~2020/bills/static/SB0051.html

Utah State Legislature, “SB 52 Secondary Water Requirements.” (2019)
https://le.utah.gov/~2019/bills/static/SB0052.html

Utah State Legislature, “S.J.R. 101 Joint Resolution Approving the Acceptance of Federal Funds.” (2021)
https://le.utah.gov/~2021S1/bills/static/SJR101.html

Utah State Legislature, “SB 199 Water Amendments.” (2021)
https://le.utah.gov/~2021/bills/static/SB0199.html

Utah State Legislature, “HB 0381 Utah Water Optimization.” (2018)
https://le.utah.gov/~2018/bills/static/HB0381.html

United States Congress, “H.R.1319 – American Rescue Plan Act.” (2021)
https://www.congress.gov/bill/117th-congress/house-bill/1319/text

United States Treasury, “The American Rescue Plan will Deliver Immediate Economic Relief to Families.” (2021)

ttps://home.treasury.gov/news/featured-stories/fact-sheet-the-american-rescue-plan-will-deliver-immediate-economic-relief-to-families

Weber Basin Water Conservancy District, “Secondary Metering Project.” (2021) https://www.weberbasin.com/PublicResources/SecondaryMetering

USU, UDWRe, SLCC, WDWR, “White Paper: *Impacts of Water Development on Great Salt Lake and the Wasatch Front*.” (2016) https://qcnr.usu.edu/pdfs/publications/Great%20Salt%20Lake%20Water%20Level_Feb%2024%202016.pdf