



— BUREAU OF —
RECLAMATION



Roy Water Conservancy District

Secondary Water Metering Project Phase II

WaterSMART Grants: Small-Scale
Water Efficiency Projects
BOR-DO-20-F006

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Technical Proposal and Evaluation Criteria

Executive Summary

Applicant Information

Date: March 4, 2020

Applicant Name: Roy Water Conservancy District

City, County, State: Riverdale, Weber County, Utah

Project Manager:

Bryce Wilcox

Project Manager/Engineer, J-U-B Engineers, Inc.

801-547-0393

bkw@jub.com

Requested Reclamation Funding: \$75,000; **Total Project Costs:** \$150,000

Project Summary

Specify the work proposed, including how funds will be used to accomplish specific project activities. Briefly identify how the proposed project contributes to accomplishing the goals of this FOA.

Roy Water Conservancy District (RWCD) or “the District” is applying for a Secondary Metering Project Phase II to install 100 secondary water meters located within the Wildwood and Summer Pointe subdivisions in Hooper and Roy, located within the District’s service area. See Attachment 1 Roy Water Conservancy District Service Area Map and Attachment 2 Project Location Map.

Roy Water Conservancy District has a current policy that all new secondary water connections be metered. In addition to this policy, the District is aggressively working towards a goal to meter all secondary connections. The proposed Project is phase two of this process.

The Project includes public involvement and conservation education measures to help residents understand and implement better water management practices.

The Project will contribute to accomplishing the goals of this FOA in the following ways:

- Better management and allocation of 10,286 acre-feet of a limited water supply.
- Promote conservation through public involvement and conservation education.
- Achieve objectives listed in the District’s 2015 Water Conservation Plan. These objectives are outlined below under [Planning Efforts Supporting the Project](#).

Length of Time

State the length of time and estimated completion date for the proposed project.

RWCD is prepared to move forward with the Project as soon as funds are awarded. The District anticipates that the contract with Reclamation will be signed between June and September

2020, and plans to begin preparing the environmental document shortly thereafter in October 2020. The environmental process is expected to take two to three months to complete; October 2020 to January 2021. Project coordination, bidding, and installation is expected to take approximately eight to ten months to complete. Final reporting and Project close-out will occur by March 2022.

Federal Facility

Is the proposed project located on a Federal facility?

The Project is not directly located on a Federal facility; however, RWCD was constructed by the Bureau of Reclamation through the Small Reclamation Loan Act.

RWCD receives its water from Davis and Weber Counties Canal Company (DWCCC) and Weber Basin Water Conservancy District (Weber Basin), which receives water from Reclamation-owned reservoirs.

Background Data

Roy Water Conservancy District was originally Roy Water Conservancy Subdistrict, but due to a change in Utah Code, the Subdistrict became a District on April 30, 2007. The Subdistrict was established on February 16, 1965, and construction on the Subdistrict infrastructure began in 1974, and was completed in 1977. The Subdistrict was built as a small Reclamation project by the U.S. Bureau of Reclamation through the Small Reclamation Loan Act.

Roy Water Conservancy Subdistrict's secondary water system was built primarily for agricultural needs in the Roy City area, as pressurized irrigation was a secondary need. Today, the primary purpose of the secondary water system is to provide pressurized irrigation for domestic lawn and garden use, as well as to conserve, develop, and stabilize supplies of water for domestic, irrigation, power, manufacturing, and other beneficial uses. The District's service area is primarily Roy City, but has grown to include small portions of West Haven, Hooper, and Riverdale.

Source of water supply

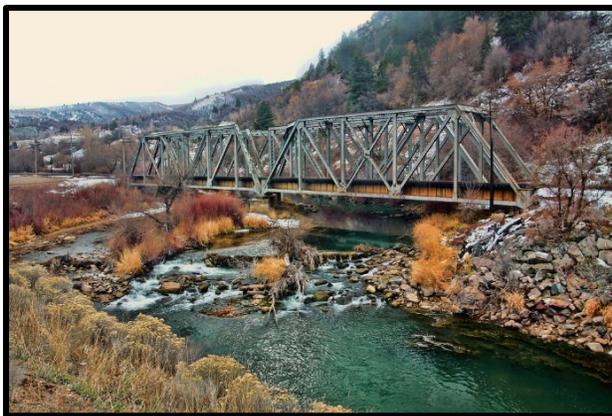


Figure 1 Weber River

RWCD receives a majority of its water from DWCCC, which receives its water from Echo and East Canyon reservoirs via the Weber River.

A small portion of RWCD's water is supplied by Weber Basin which receives water from seven major reservoirs on the Ogden and Weber Rivers.

Total quantity of water supply managed and supplied

RWCD currently manages 10,286 acre-feet of water during a normal year, and depending on the year, the District supplies approximately 7,250 acre-feet of water. Currently, the District annually diverts and uses less than the total quantity of water allocable to the District, according to their shares of DWCCC stock. DWCCC water in excess of the District's current needs is leased to other water users for beneficial use. However, as growth within the District continues, the balance of the DWCCC water to which the District is entitled will be called for and used by the District to serve newly developed properties. Water demand at build-out for the current service area is projected to be 16,094 acre-feet. See page 4 of Attachment 3 Water Conservation Plan.

Water rights involved

RWCD receives most of its water from DWCCC through 1,509.5 shares of stock that the District owns, and an additional 144 leased shares. The District has also contracted for an additional water supply from Roy City through an agreement with Weber Basin Water Conservancy District ("Weber Basin"). The District has obtained the right to divert and use 365 acre-feet of Weber Basin water under Roy City's contracts with Weber Basin.

Current water uses (i.e., agricultural, municipal, domestic, or industrial)

Existing connections serve approximately 1,808 irrigable acres of residential property and 985 irrigable acres of commercial, industrial, institutional, municipal and agricultural properties.

Number of water users served

The District serves approximately 42,000 residents with over 10,500 connections.

Current and projected water demand

Current water demand averages 7,250 acre-feet per year with a projected demand of 16,094 acre-feet at buildout. The District currently services only 2,346 irrigable acres of its total service area of over 5,300 acres.

If water is primarily used for irrigation, describe major crops and total acres served

RWCD water use is primarily municipal lawn and garden, commercial, industrial, institutional and municipal connections, with agricultural use making up about 10 percent of the RWCD service area, mainly in Hooper and West Haven. Major crops include alfalfa, corn, pumpkins, and a variety of other vegetables.

Potential shortfalls in water supply

Potential shortfalls in the water supply include loss of water due to overuse, growth, and drought conditions in one of the Nation's driest states. During a normal year, the District's water supply is 10,286 acre-feet, but in a drought year, when DWCCC does not have as much

water in their reservoirs, the District's water supply has been reduced by as much as forty percent! The RWCD service area is a fast-growing area with population growth of over 4,500 people in nine years. If the proposed and future meter installation phases are not completed (including water conservation education), the District's water supply will become even more limited. In 2011, the RWCD service area population was 37,101, and as of 2020, it is 41,773. The population at build-out is estimated to be 46,500.

Describe the applicant's water delivery or distribution system, as appropriate. For agricultural systems, please include the types and approximate total lengths of canals and laterals (e.g., unlined or lined open channel, pipe, including types of pipe and lining materials), the number of irrigation turnouts and other significant existing irrigation improvements (e.g., automated control structures, remote monitoring devices and SCADA systems). For municipal systems, include the total approximate length of distribution lines, number of sizes of storage tanks, number of pump stations and capacities, and the number of connections and/or number of water users served and any other relevant information describing the system.

RWCD maintains approximately 135 miles of pressurized pipe, a 169-acre-foot storage reservoir (136-acre-foot max operational capacity), and services approximately 5,528 acres of ground. Of this area, it is estimated that approximately 2,346 acres are irrigable. The District's current boundaries are shown on the Service Area Map in Attachment 1 and in Figure 2 on the right. Existing connections serve approximately 1,808 irrigable acres of residential property and 985 irrigable acres of commercial, industrial, institutional, municipal, and agricultural properties. The District maintains over 10,500 secondary water connections and serves approximately 42,000 residents.

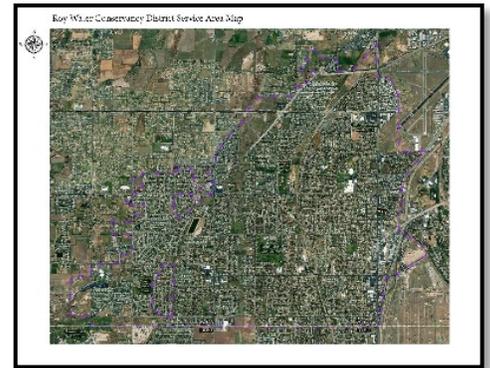


Figure 2

Identify any past working relationships with Reclamation, including date(s), description of the relationship(s) with Reclamation, and a description of the project(s).

The District was created in February 1965, and the District's Board of Trustees immediately went to work on securing a loan from the Bureau of Reclamation to build the District's secondary water system. A project loan repayment contract between the District and Reclamation was signed in September 1971. The secondary water system was completed in early 1977 and the first water was delivered in April 1977. The District completed payment of its contract obligations to Reclamation in 1988.

Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location.

The Project takes place within RWCD’s service area. See Attachment 2 Project Location Map and Figure 3 on the right. The District’s service area is primarily Roy City, but has grown to include small portions of West Haven, Hooper, and Riverdale; all in Weber County, Utah. Meters will be installed at the Wildwood subdivision (approximately 41°09’24.26” N, 112°05’20.69” W) in Hooper, and the Summer Pointe subdivision (approximately 41°11’19.84” N, 112°02’33.93” W) in Roy.

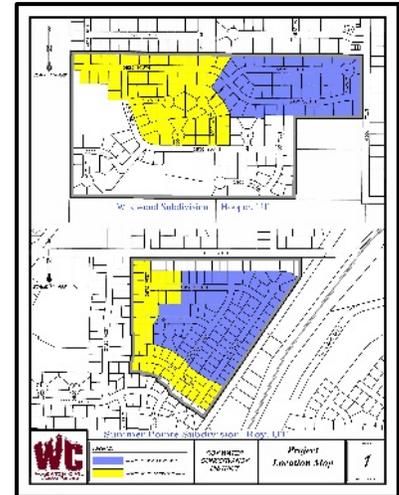


Figure 3

Technical Project Description and Milestones

Describe the work in detail, including specific activities that will be accomplished. The description shall have sufficient detail to permit a comprehensive evaluation of the proposal. Include milestones for the completion of the project, including, but not limited to, environmental compliance, permitting, final design, and construction. If non-Federal cost share is not yet secured, the milestones should identify when the applicant anticipates that the funds will be available.

Problems and needs

RWCD’s water supply is limited by three main factors; overwatering, growth, and drought. Water supplied by DWCCC and Weber Basin on normal years is about 10,000 acre-feet, but in a drought year, when reservoir levels are low, the District’s water supply has been reduced by as much as forty percent! Drought is a major concern for the District, being located in one of the Nation’s driest states; however, growth is an even more pressing matter that needs to be addressed. In order to conserve water to help meet future water demands, RWCD needs to continue to install meters on secondary water connections within its service area. Many water districts and companies throughout the state of Utah are installing secondary water meters due to an increasing need for water conservation and the need to understand individual water use. This critical conservation measure has become the norm, and RWCD seeks to do its part through the installation of water meters on all new and existing connections. By so doing, the District will gain the knowledge to help promote, educate, and implement better water management practices. The District recognizes the importance of this issue and plans to hold themselves and its users accountable for their water use and do their part in contributing to the District’s and the State of Utah’s shared water conservation goals.

How the project is intended to address the problems and needs

The Project will begin to address the problems and needs outlined above by continuing the ongoing effort to meter the entire RWCD service area. 100 additional secondary water meters will be installed on existing connections within the Wildwood subdivision in Hooper and the

Summer Pointe subdivision in Roy. The proposed metering Project will continue to help RWCD and residents understand individual water use. This knowledge will then be used to help educate and promote water use accountability throughout the area and to encourage better water management practices. Public involvement and conservation education will be the most important step in realizing actual water savings by encouraging a more sustainable way of life that will ensure a more reliable source of water for years to come as the community continues to grow.

Expected outcomes

The expected outcome of the proposed Project is to produce significant reductions in secondary irrigation water usage. The water savings realized from metered connections will improve water levels in Echo and East Canyon reservoirs, allowing larger amounts of water to be held in the reservoirs for longer periods of time. Water savings due to metered connections will also help the District meet future water demands in a rapidly growing community. Conserving water in this way will allow for a more sustainable way of life, balancing the District's needs with that of the natural environment.

Evaluation Criteria

Evaluation Criterion A – Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project.

- *What are the benefits to the applicant's water supply delivery system?*

As secondary water connections are metered:

- An additional 39 acre-feet per year of water savings will be realized. As previously stated, the proposed Project is the second phase of many that will eventually install meters on all existing RWCD service area connections. 50 acre-feet of water is anticipated to be conserved from the 130 secondary meters that were installed during Phase I of the Project. When all phases are complete, greater water savings will be realized.
 - RWCD's water supply delivery system will be able to stretch the water further into the irrigation season, providing all of its service area with a fair allocation of water, especially since water supply is becoming more limited as the years go by.
 - Overuse of water will be reduced as users are educated on their actual water use and held accountable to use only the required amount for their landscape.
 - The effects of drought, though inevitable, will be less of a burden as the District and its water users work together to better manage their valuable water supply.
- *If other benefits are expected explain those as well. Consider the following:*
 - *Extent to which the proposed project improves overall water supply reliability*

Upon completion of the proposed Project, RWCD will be able to monitor water use on its metered connections at the Summer Pointe and Wildwood

subdivisions. Other subdivisions will follow as more connections are metered in future phases. Metered connections will allow the District to understand how much of the available water supply each individual connection is using and allow the District to keep its users accountable for their water use. Doing so will conserve water, allowing valuable DWCCC water supply to be held up in Echo and East Canyon Reservoirs for longer in the season.

- *The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)*

Conserved water will stay within the reservoir and river system for longer periods of time. As the District continues to develop more secondary water meter phases, the Weber River Basin will realize more benefits and help to implement water supply reliability during low water years.

- *Extent to which the proposed project will increase collaboration and information sharing among water manager in the region*

The proposed metering Project will continue to help RWCD and residents understand individual water use. This knowledge will then be used to help educate and promote water use accountability throughout the area and to encourage better water management practices. Public involvement and conservation education will be the most important step in realizing actual water savings by encouraging a more sustainable way of life that will ensure a more reliable source of water for years to come as the community continues to grow.

- *Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)*

Metering the secondary irrigation system will continue to secure the water supply for RWCD in times of drought. As previously mentioned, greater water security will be realized as future phases are completed. This will benefit the agricultural users by providing water for a longer irrigation season. Conserved water will be able to stay in Echo and East Canyon Reservoirs and in the Weber River, improving the environment and providing recreation opportunities.

- *Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.*

The Project will support RWCD as they better manage their secondary irrigation system and educate the users of their system on their water use. There are no anticipated EQIP projects on their system.

Evaluation Criterion B – Planning Efforts Supporting the Project

Describe how your project is supported by an existing planning effort.

- *Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?*

Yes, according to the Water Conservation Plan, the District's goal is to reduce future water use while maintaining a financially viable System. Utah's M&I Water Conservation Plan states that the State has a goal of reducing per capita water use by 25 percent between 1995 and 2050. Total water consumption within the District's service area between 1995 and 2015 has been reduced by approximately 34 percent. The District's water conservation goal is to continue to conserve water where possible. It is anticipated that this goal will be achieved by continued existing control measures and the implementation of metered secondary connections. See Attachment 3 Water Conservation Plan.

- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.*

Metering secondary water is a priority in RWCD's Water Conservation Master Plan since many secondary users over water their lawns and gardens. Within the Plan, an evaluation of the best water conservation practices was assessed. The simplest alternative for obtaining additional water source capacity without developing additional sources is to decrease the amount of water used annually to irrigate each acre of ground. Secondary water metering was listed as the most cost effective as well as facilitated the conservation of the most water throughout the irrigation season.

Evaluation Criterion C – Project Implementation

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

The District is ready to move forward as soon as the Project is awarded. The anticipated schedule is as follows.

- Sign contract with Reclamation: June to Sept 2020
- Update the environmental document: Oct 2020 to Jan 2021
- Project coordination and bidding: Feb to Mar 2021
- Project construction: April to Dec 2021
- Project closeout: Jan to Mar 2022

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

A street excavation permit from Roy and Hooper Cities will be required. All work will be within Roy and Hooper City road right-of-way.

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

RWCD has created a standard meter connection detail for meter installations. This design drawing will be used as the basis for the new meter installations.

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

No new policies will need to be created. The District has an existing policy that requires all new connections to be metered.

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

The environmental compliance has been estimated based on previous meter installation projects from Weber Basin Water Conservancy District and Davis and Weber Counties Canal Company.

Evaluation Criterion D – Nexus to Reclamation

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

- *Does the applicant receive Reclamation project water?*

Yes. RWCD receives its water from DWCCC, which receives its water from Echo and East Canyon reservoirs via Weber River, which are Reclamation projects.

- *Is the project on Reclamation project lands or involving Reclamation facilities?*

No. The Project does not *directly* involve Reclamation project lands or facilities.

- *Is the project in the same basin as a Reclamation project or activity?*

Yes. The Project is within the Weber Basin Project area.

- *Will the proposed work contribute water to a basin where a Reclamation project is located?*

Yes. RWCD will conserve water in the Weber Basin Project Area.

Will the project benefit any tribe(s)?

No, the Project will not benefit any tribes.

Evaluation Criterion E – Department of the Interior Priorities

Creating a conservation stewardship legacy second only to Teddy Roosevelt

Phase II of RWCD's proposed Project will continue to contribute to creating a conservation stewardship by metering residential and commercial water users. The Project will educate users on water needs and overuse and conserve an estimated 39 acre-feet of water per year.

Concern over water conservation in Utah – the second driest state in the nation – is taken very seriously. Because of a history of extended droughts, water distributors and users know the importance of conservation measures and are for the most part willing to contribute where possible. RWCD is actively working to protect Utah’s water resources and to ensure that these resources are made available to sustain those living within their service area for years to come.

Modernizing our infrastructure

Secondary metering became a viable option with the development of electromagnetic meters. These meters can now be installed to track, monitor, and educate homeowners on water usage, allowing water distributors the ability to understand the amount of water that is being used by individual users. In the past, this has only been a guess, and all distributors could do is provide guidelines for smart water management practices with the hope that water users would hold themselves accountable.

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained.

The non-federal cost share will come from the operating budget of RWCD.

Identify the sources of the non-Federal cost share contribution for the project, including:

- *Any monetary contribution by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*

RWCD will provide cash from their annual operating budget.

- *Any costs that will be contributed by the applicant*

NA

- *Any third-party in-kind costs (i.e., goods and services provided by a third party)*

NA

- *Any cash requested or received from other non-Federal entities*

NA

- *Any pending funding requests (i.e. grants or loans) that have not yet been approved, and explain how the project will be affected if such funding is denied*

There are no pending funding requests.

In addition, identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

- *The project expenditure and amount*

NA

- *The date of cost incurrence*

NA

- *How the expenditure benefits the Project*

NA

Budget Proposal

Table 1 – Total Project Cost Table

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$75,000
Costs to be paid by the applicant	\$75,000
Value of third-party contributions	\$0
Total Project Cost	\$150,000

Table 2 – Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
Salaries and Wages				\$0
Fringe Benefits				\$0
Equipment				\$0
Supplies and Materials				\$0
Contractual /Construction				\$150,000
Meters/Automation	\$1,370	100	EA	\$137,000
Public Involvement/Construction Management	\$10,000	1	LS	\$10,000
Environmental Review	\$3,000	1	LS	\$3,000
Third-Party In-Kind Contributions				\$0
Other				\$0
Total Direct Costs				\$150,000
Indirect Costs				\$0
Type of rate	Percentage	\$base		\$0
Total Estimated Project Costs				\$150,000

Budget Narrative

Salaries and Wages

No RWCD salaries or wages will be included. All services will be contracted.

Fringe Benefits

No fringe benefits will be required.

Travel

No travel will be necessary.

Equipment

Equipment will be part of the contracted portion of the Project.

Materials and Supplies

Materials and Supplies will be part of the contracted portion of the Project and will be documented as required.

Contractual

Contractual will include the purchase and installation of meters, radios and lids, public involvement/construction management, and environmental review. The installation of meters will be competitively bid. The costs in the Project budget are based on previous meter installations by RWCD.

Third-Party In-Kind Contributions

No third-party in-kind contributions will be required.

Environmental and Regulatory Compliance Costs

The entire Project will take place in the existing street right-of-way in front of existing homes and will follow up on environmental reviews previously completed in the area for Phase I of the Project. It is anticipated that a Categorical Exclusion can be done to satisfy the NEPA requirements. 24 hours at \$125 = \$3,000 has been included in the Project for the Categorical Exclusion.

Other Expenses

No other expenses will be associated with the Project.

Indirect Costs

No indirect costs will be associated with the Project.

Total Costs

Total Project Costs: \$150,000; Federal Cost Share: \$75,000; Non-Federal Cost Share: \$75,000

Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Impacts will be those associated with installing meters in front of existing homes. The proposed Project improvements will take place entirely within the existing street right-of-way.

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?

RWCD is not aware of any impacts concerning threatened or endangered species in this area.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

No.

When was the water delivery system constructed?

Construction on RWCD’s water delivery system was completed in 1977 when the District was called a Subdistrict. Since then, many improvements have been made.

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, the proposed project will install 100 new water meters on existing secondary water connections located in two subdivisions in RWCD’s service area.

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.

Are there any known archeological sites in the proposed project area?

No.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No.

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.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

A street excavation permit from Roy and Hooper Cities will be required as part of the Project. This permit will be obtained by the contractor prior to construction.

Letters of Project Support

Include letters from interested stakeholders supporting the proposed project.

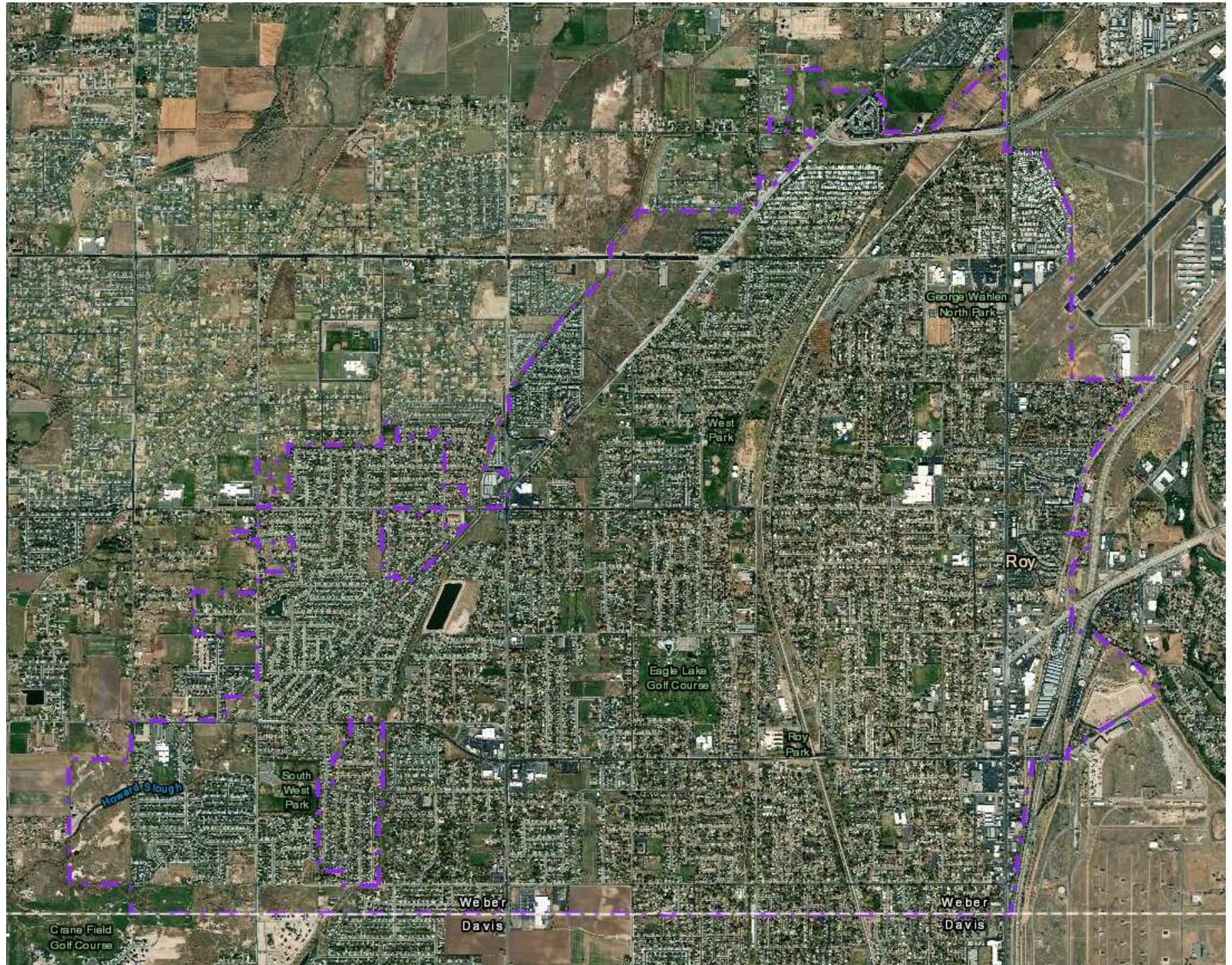
Letters of support are attached from Davis and Weber Counties Canal Company and Weber Basin Water Conservancy District. See Attachment 4 Letters of Support

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body. The official resolution may be submitted up to 30 days after the application deadline.

The Official Resolution for RWCD's Secondary Water System Metering Project will be signed at the next Board Meeting on March 4th and submitted within 30 days of the application deadline.

Attachment 1 Roy Water Conservancy District Service Area Map





LEGEND

METERS PREVIOUSLY INSTALLED

METERS TO BE INSTALLED Phase II

ROY WATER
CONSERVANCY
DISTRICT

Attachment 2
Project
Location Map

SHEET:
1
OF 1 SHEETS

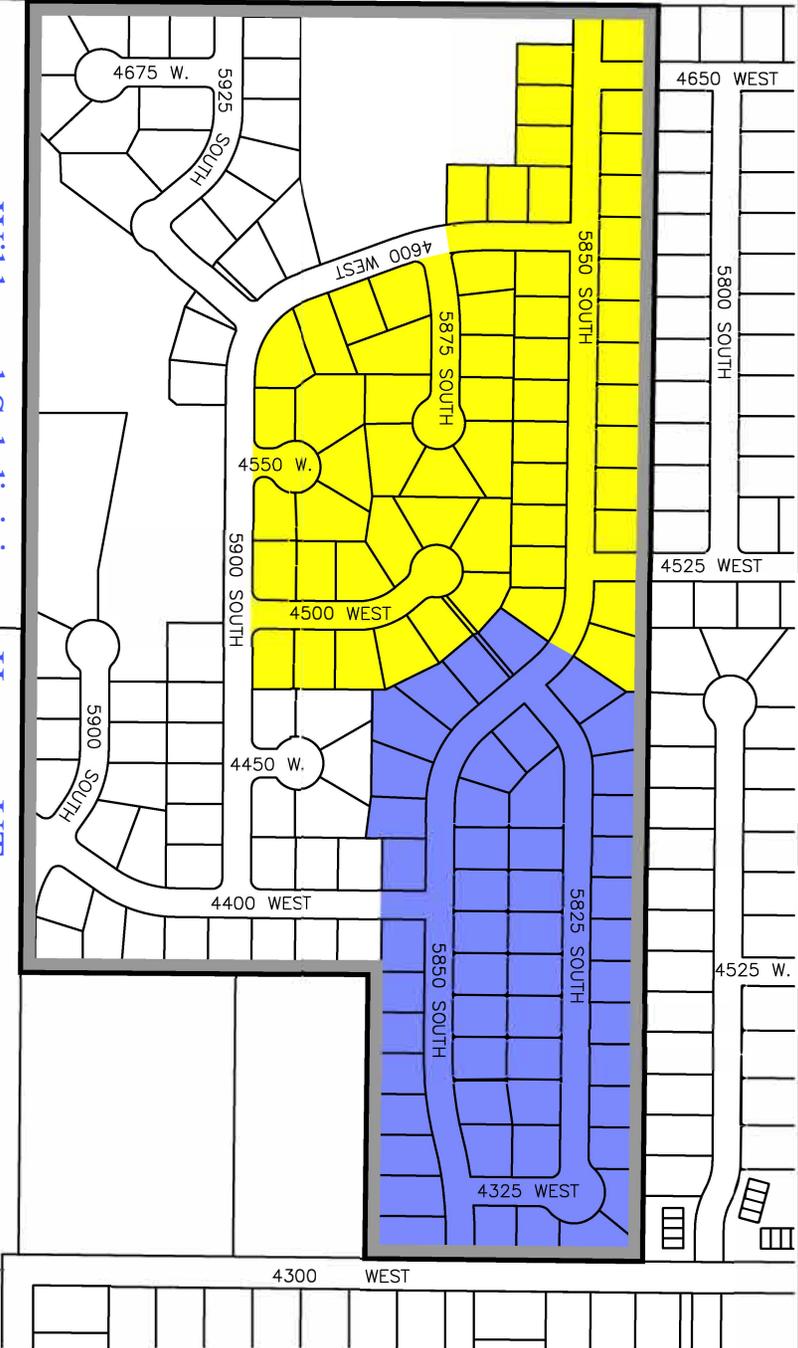
Summer Pointe Subdivision Roy, UT



SCALE: 1" = 400'



Wildwood Subdivision
Hooper, UT



SCALE: 1" = 400'



Attachment 3 Water Conservation Plan

SECTION I

INTRODUCTION

THIS ROY WATER CONSERVANCY DISTRICT WATER CONSERVATION PLAN, 2015 (the "Water Conservation Plan"), is submitted by Roy Water Conservancy District, a water conservancy district organized under the Utah Water Conservancy Act (the "District"), pursuant to and in conformance with the requirements of Section 73-10-32, Utah Code Annotated, 1953, as amended (the "Act").

PURPOSE

Rapid growth and limited water resources in the State of Utah have raised concerns about the future water supply availability in the State as well as the costs that will be required to develop additional water sources. In response to these concerns the Utah State Legislature passed the Water Conservation Act (House Bill 418) in the 1998 legislative session. It was revised in 1999 (House Bill 153) and again in 2004 (House Bill 71), and codified under the Act. The Act requires retail water providers serving more than 500 culinary water connections and water conservancy districts to submit a water conservation plan to the Utah Division of Water Resources.

BACKGROUND

The District's previous water conservation plan submitted by the District, entitled *Roy Water Conservancy District Water Conservation Plan, May 2010* (the "Previous Conservation Plan"), was prepared by Wasatch Civil Consulting Engineering. This Water Conservation Plan and the Previous Conservation Plans include both a long-term water conservation plan and an emergency water conservation plan. This Water Conservation Plan is prepared and filed as an update to the Previous Conservation Plan as required by the Act, and is intended to fulfill the requirements for long-term and emergency water conservation plans.

Information used in the preparation of this Water Conservation Plan was obtained from District personnel, District operational records, and information set forth in the Previous Conservation Plan. In order to make this Water Conservation Plan complete, applicable information previously presented in the Previous Conservation Plan is repeated in this document.

CONTACT INFORMATION

System: Roy Water Conservancy District
5440 Freeway Park Drive
Riverdale, Utah 84405

Contact: Rodney Banks, District General Manager
801-825-9744

SECTION 2

DESCRIPTION OF WATER SYSTEM

SECTION 2

DESCRIPTION OF WATER SYSTEM

HISTORY AND DEMOGRAPHICS

The District is located in Weber County, Utah and covers an area of about 8 square miles. The area was settled in 1873 and was initially established as a small farming community. Growth was slow until the 1940s and 1950s when, due to its close proximity to Hill Air Force Base and other military supply depots, the community began its transition from agricultural to residential land use. Throughout the past seventy years, residential growth has continued, and businesses, schools, churches, fire and police departments, sewer and water systems have continued to expand to serve the growing population. The District was established in 1965 as a subconservancy district, but pursuant to recent statutory amendments, the District has been redesignated as a conservancy district by law.

Consistent with the purpose of the Utah Water Conservancy Act, the District was organized in order to conserve, develop and stabilize the existing supplies of water within the District boundary. At that time conservation was primarily accomplished by allowing sources of high quality treated water to be used for culinary purposes rather than for irrigation. With funding from the U.S. Bureau of Reclamation, the District constructed a pressurized irrigation system to provide pressurized secondary irrigation water to residences as well as agricultural activities in the Roy City area. The current service area now includes most of Roy City as well as portions of the cities of Riverdale, West Haven, Hooper and portions of unincorporated Weber County. Through the years as agricultural land has developed into residential and commercial uses, agricultural customers have been replaced by residential and commercial customers. The rate of growth within the District's service area has slowed in recent years as the District approaches build-out.

The District is currently governed by a Board of five trustees (the "Board") each representing one of five geographical divisions. The trustees meet regularly to conduct the affairs of the District. The Board appoints one of its members to act as a chairman and hires a General Manager to oversee the day-to-day operations and business of the District. Maintenance and office personnel are also hired to perform administrative tasks and to operate the system.

SYSTEM OVERVIEW

The District's secondary water system currently provides irrigation water to a total area of approximately 5,333 acres of ground. Of this area, it is estimated that approximately 2,263 acres are irrigable. The District's current boundaries are shown on the Service Area Map in Appendix A. Existing connections serve approximately 1,808 acres of residential property and 985 acres of commercial, industrial, institutional, municipal and agricultural properties.

Water Storage

The District owns operates and maintains a concrete lined water storage reservoir (the "District Reservoir"), located northeast of the District's administrative offices. The District Reservoir has a maximum capacity of approximately 169 acre-feet (when measured at a depth of 16 feet).

Water Distribution

The District's pressurized irrigation water distribution system (the "System") is generally divided into two zones consisting of an upper pumped zone and a lower gravity zone. As the name indicates, the upper zone uses pumps to produce the required pressure and flows. The main lines for the pumped zone within system vary in size from 30" diameter trunk lines to 4" diameter distributions lines. The lower zone uses gravity to achieve the required flows and system pressures. The main lines for the gravity zone vary in size between 48" diameter trunk lines to 6" diameter distributions lines. An overall system map is included in Appendix B.

Population

The service area population estimates for the past 5 years as well as a projected population at build-out are given in Table 2-1. Estimates indicate a relatively constant population with limited change over the past 10 years. The average rate of rate of growth during this period is approximately 0.70 percent per year. The build-out population was estimated based on a review of proposed land use maps and an examination of aerial photographs. An analysis of the photographs indicate approximately 90% of the available property in the District is currently developed.

TABLE 2-1. POPULATION ESTIMATES

Year	Population
2011	37,101
2012	37,360
2013	37,621
2014	38,884
2015	40,166
Build-Out	46,500

System Connections

The District maintains approximately 10,248 service connections to the System, including residential, agricultural, commercial, industrial, institutional and municipal connections.

WATER RESOURCES INVENTORY

Existing Water Sources

The District's primary source of water supply consists of shares of stock owned by the District in the Davis and Weber Counties Canal Company ("D&WCCC") and shares leased by the District from time to time. D&WCCC water is diverted from the Weber River and carried by canal to various points throughout the county where it is delivered to its shareholders for use. The canal passes near the District Reservoir into which the District's portion of the water is

diverted and stored. Over the past 20 years, the annual diversion of water from the D&WCCC canal into the District Reservoir has varied from a low of 4,927 acre-feet to a high of 9,458 acre-feet.

The District has also contracted for an additional water supply from Roy City through an agreement with Weber Basin Water Conservancy District (“Weber Basin”), the District has obtained the right to divert and use 365 acre-feet of Weber Basin water under Roy City’s contracts with Weber Basin. This water supply is delivered by Weber Basin to the District through the D&WCCC canal into the District Reservoir.

Currently, the District annually diverts and uses less than the total quantity of water allocable to the District pursuant to the shares of D&WCCC stock owned or controlled by it. D&WCCC water in excess of the District’s current needs is placed into the D&WCCC rental pool for beneficial use. However as growth within the District continues, the balance of the D&WCCC water to which to District is entitled will be used called for and used by the District to serve newly developed properties. Additional water sources may also be required. The current yield for all District sources is presented in Table 2-2.

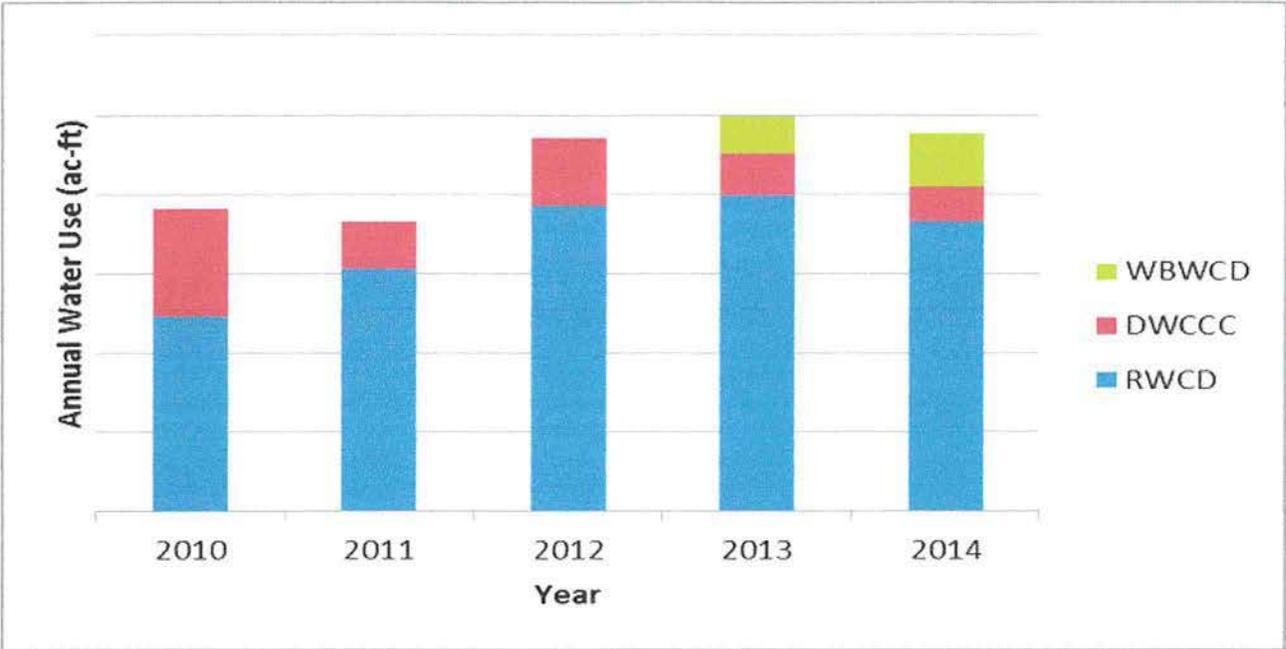
TABLE 2-2. SUMMARY OF WATER SOURCES

Name of Source	No. of Shares	Quantity (acre-feet)	Irrigated Area (acres)
Owned D&WCCC Shares	1,493.5	8,961	2,636
Leased Shares	123	738	217
Weber Basin Water Conservancy District	NA	365	107
Total	1,493.5	10,064	2,965

CURRENT WATER USE AND DELIVERIES

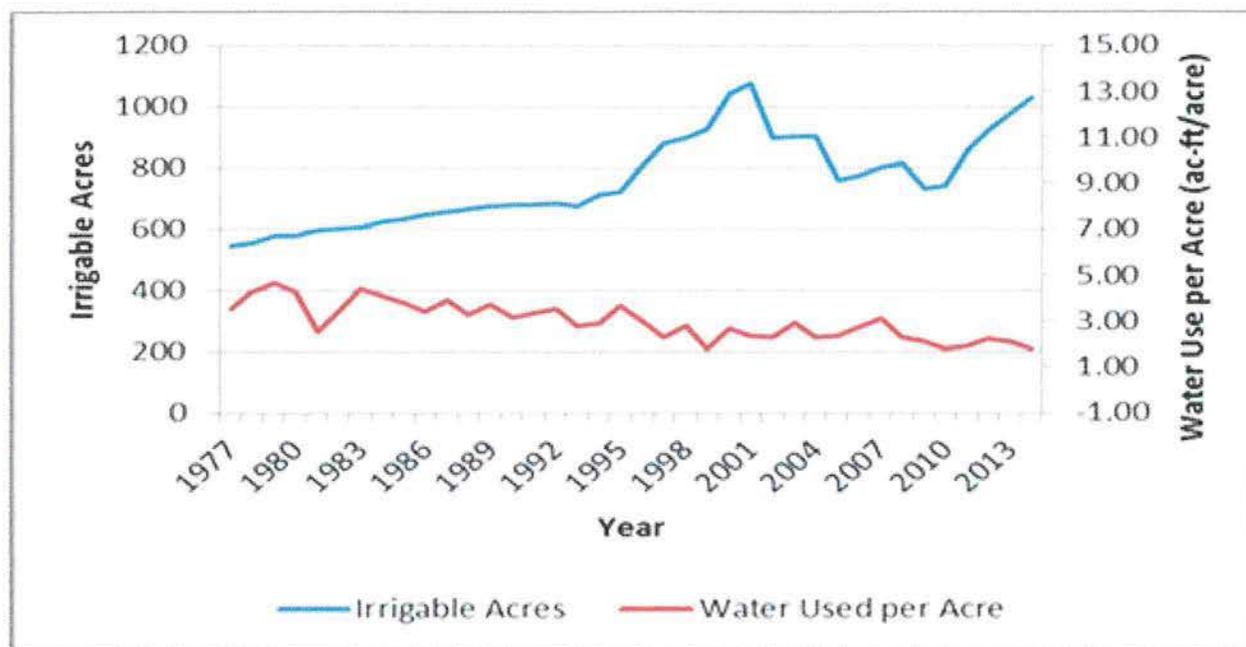
Water use by the District was determined by reviewing historical flow records. Actual water used by the District is obtained by subtracting the quantity of water wheeled through the system for the D&WCCC from the total quantity used by the District for the year. The quantity used by the District is shown in Figure 2-1 by the blue and green areas. The quantity that is wheeled through the District’s system for use by D&WCCC is represented by the red areas. For the purposes of this study the losses due to evaporation from the District Reservoir were assumed to be relatively minor and were neglected. A summary of water use data is presented in Figure 2-1.

FIGURE 2-1. ANNUAL WATER USE



In order to determine the effectiveness of current conservation measures, it is useful to determine water consumption per irrigable acre. This is done by dividing the water use for the year by the total irrigable acreage. Using District water use records, the water consumption was determined for each year beginning in 1977 and continuing through 2015. The results were then graphically compared with the change in water use per acre for each corresponding year. The results are presented below in Figure 2-2.

FIGURE 2-2. WATER USE HISTORY

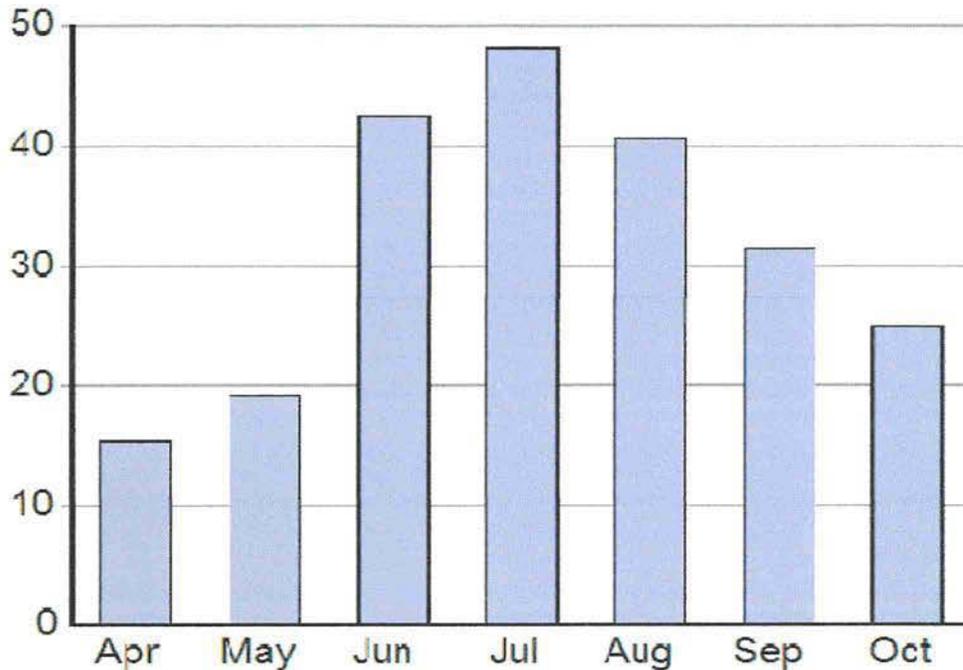


Since water use can vary greatly from year to year due to seasonal variations in precipitation and temperature, water use data was slightly modified to show general trends. As indicated in Figure 2-2, a corresponding increase in water use was seen as agricultural acreage was brought into the District. In the early 1990s, water use per acre began to drop even as additional land began to be irrigated. This trend corresponds to the transition of land from agricultural use to the irrigation of residential and commercial properties. It is also likely to reflect the implementation of initial conservation measures.

As indicated previously, annual water use can vary greatly from year to year due to natural variations in precipitation and temperature. Consumption has been as high as 4.07 acre-feet/acre in 2007 and as low as 1.79 acre-feet/acre in 2014. The average water consumption per acre for the past 10 years is approximately 2.53 acre-feet/acre. It is important to note that the water use per acre but has been steadily decreasing.

In secondary water systems, individual services are not typically metered, consequently, no data is available for water use per connection. However, monthly flow records give an indication of daily and monthly variations in water use. The flow data shows an expected seasonal water use pattern that reflects variations in temperature and rainfall in the spring and fall months versus the hotter and drier summer months. The maximum monthly flow for the year 2015 is presented in Figure 2-3.

FIGURE 2-3. 2015 MONTHLY MAXIMUM FLOW (CFS)



The flow patterns presented in Figure 2-3 are generally typical with lower flow rates during the spring and fall and higher flows in the hotter summer months. Annual maximum flow data for the past 5 years are presented in Table 2-3.

TABLE 2-3. MONTHLY FLOW DATA

Month ¹	Flow (cfs)				
	2011	2012	2013	2014	2015
April	2.11	17.4	15.1	18.4	13.10
May	6.87	36.0	29.6	37.6	15.21
June	35.7	48.9	42.1	41.6	44.09
July	44.4	50.8	56.1	45.6	43.62
August	48.9	39.2	43.4	34.6	36.92
September	33.8	24.8	31.1	33.2	34.13
October	31.7	17.4	24.5	20.3	30.65

1. The District irrigation season begins April 15th and ends October 15th of each year

FUTURE WATER REQUIREMENTS

Future water requirements were calculated assuming that water use patterns and water consumption per acre remain relatively constant. For the purposes of this calculation, the 10 year average of 3.4 acre-feet/acre was used. An estimate of future water requirements are presented in Table 2-4.

TABLE 2-4. FUTURE WATER REQUIREMENT

Year	Average Water Use (ac-ft/acre)	Irrigable Acreage	Required Water (ac-ft)
2014	3.4	4,410	14,994
Build-out	3.4	5,734	16,094

As indicated in Tables 2-2, the yearly water demand at build-out conditions is projected to be approximately 1,100 acre-feet more than is current yield of the District's water sources. The simplest alternative for obtaining additional water source capacity without developing additional sources is to decrease the amount of water used annually to irrigate each acre of ground. Other options include acquiring additional D&WCCC shares, or increasing water purchases from Weber Basin by either of the following: (1) assuming more of the excess water supply that Roy City is already contracted to purchase from Weber Basin or (2) by contracting for additional water from Weber Basin directly.

COMPARISON TO STATE ENGINEER'S REQUIREMENT

The Utah State Engineers office has stated that the "duty" for irrigation within the state of Utah varies from 6.0 acre-feet/acre in the dryer parts of the state, to 3.0 acre-feet per acre in the high mountain areas. The District is located in an area where the State Engineer has determined to use a duty of 4.0 acre-feet per acre. As stated, the average consumptive use in the District's service area has varied in the past 10 years from a high of 3.07 acre-feet/acre in 2007, to a low of 1.80 acre-feet/acre in 2010. The average use for the past 15 years is approximately 3.4 acre-feet per acre. This is well below the 4.0 acre-foot per acre duty for irrigated land in the District's service area as determined by the State Engineer.

SECTION 3

SYSTEM PROBLEMS, CONSERVATION AND GOALS

SECTION 3

SYSTEM PROBLEMS, CONSERVATION AND GOALS

IDENTIFIED PROBLEMS

This Water Conservation Plan identifies several problems with regard to water conservation issues. These items are as follows:

1. There are currently no effective ways to determine individual water use within the District.
2. Agricultural irrigation flows are often based on traditional flows rather than flow rates based on shares owned by the user.
3. Many of the water users in the District lack the understanding of how to efficiently water landscaped areas. Their practices are based on convenience, or habit instead of the needs of the vegetation.
4. The water rate structure does not have incentives or penalties that will encourage conservation.

WATER CONSERVATION GOAL

The goal of the Water Conservation Plan is to reduce future water use while maintaining a financially viable System. A review of "*Utah's M&I Water Conservation Plan - Investing in the Future*" reveals that the state has a goal of reducing per capital water use by 25% between 1995 and 2050. Total water consumption within the District's service area between 1995 and 2015 has been reduced by approximately 34%. The District's water conservation goal for the next 5 years consists of a reduction in water use by an additional 2%. It is anticipated that this goal can be achieved by continuing the existing control measures and implementing the additional control measures indicated in this section. A 2% reduction in water use could result in an estimated savings of approximately 415 acre-feet each year.

CURRENT WATER CONSERVATION MEASURES

Current water conservation measures include the following: public education; internal training and education; water use restrictions; pipeline replacement; reservoir maintenance; leak detection; and the water conservation learning garden.

It is difficult to evaluate the effectiveness of individual conservation measures due to the natural variation in water use from year to year. However, the combination of the existing conservation measures appears to be at least moderately effective. A review of water use records indicate that per acre use has decreased from approximately 3.6 acre-ft/acre use in 1994 to approximately 1.8 acre-ft/acre in 2014.

Public Education

Several pamphlets and publications promoting water conservation are made available to residents at the District Office. These pamphlets describe various water conservation practices that customers can use to reduce their water consumption. This literature is not only made

available to the public at the District Office but it is also routinely distributed at city functions, special school and university programs and pursuant to special requests by other organizations. Copies of the available literature is included in Appendix E.

Internal Training and Education

The District is currently actively participating in several organizations that work with state and local governments on ongoing conservation efforts. District personnel routinely attend seminars and conferences that promote water conservation. These organizations, seminars and conferences provide information regarding newly developed equipment, instrumentation, methods and techniques as well as how they can be applied to conservation efforts in the District.

Water Use Restriction

It is well documented that watering landscaped areas and turf grass between 10 p.m. and 6 a.m. can greatly reduce water losses due to evaporation. Along with encouraging proper watering techniques, the District has a policy that restricts the watering of lawns and landscaping between the hours of 10 a.m. and 6 p.m. An initial violation results in a verbal warning and is followed by a written warning if necessary. Repeated violations can result in the District terminating water service.

Pipeline Replacement

Maintenance of aging waterlines, valves and fittings with repeated leaks are promptly identified and scheduled for repair or replacement. The priority and schedule of replacement or repair is based upon the severity of the leak and the potential for property damage. The annual maintenance plan is reviewed and adjusted annually.

Reservoir Maintenance

The District Reservoir is maintained on a regular basis. At the end of the irrigation season, the water is drained, any accumulated sediment is removed and the concrete liner is inspected for damage. Joints and cracks are sealed, or re-sealed on an as needed basis. Currently, a program has been initiated that will replace all of the aging sidewall concrete liner within the next 5 years.

Leak Detection

In an effort to conserve water and protect adjacent facilities, the District has installed a leak detection system adjacent to the reservoir. This leak detection system is actually made up of two separate components as follows:

Groundwater Monitoring System - Seven piezometers have been constructed along the north and east sides of the reservoir. Each of the piezometers contain monitoring equipment that automatically detect changes in groundwater elevation indicating a possible leak. The data is the transmitted electronically to a recording device.

Sand Drain - A sand drain system is located under the concrete liner along the northeast sidewall of the reservoir. If water leaks through cracks or joints in the liner, it will travel through the sand drain where it is captured by a piping system and diverted into a manhole were it is stored. Automatic monitoring equipment continually record water levels in the manhole.

Although changes in groundwater elevations occur and water is occasionally measured in the drain manhole, any water that accumulates in the manhole is mainly due to condensation, seasonal precipitation and changes in barometric pressure. To date, no significant leaks have been detected.

Water Conservation Learning Garden

Currently Roy Water Conservancy District is located within the jurisdictional boundary of Weber Basin Water Conservancy District. Weber Basin Water operates an extensive water conservation learning garden that is open to the public. By visiting the garden, individuals can see how to use beautiful water-wise landscaping in a semi-arid environment. Since the Weber Basin garden is so extensive, The District refers customers who have an interest, to their facility.

ADDITIONAL WATER CONSERVATION MEASURES

Additional water conservation measures that could be implemented by the District are presented below.

1. **Public Information Program Improvements.** Continue to develop new ways to improve the current public education program. Continue to encourage efficient watering of lawns and gardens, landscaping with drought resistant plants, and other water saving practices. If residents can be encouraged thorough public education to adopt water saving practices, the water savings can be significant. Research by the Utah Division of Water Resources indicates that a typical household in the Salt Lake City area can reduce outdoor water use by approximately 25,000 gallons per year by efficient watering of lawns and gardens. (Utah Division of Water Resources, 2002).
2. **Water Conservation Newsletter.** Provide water saving and conservation information to each customer through a periodic newsletter. The conservation information specific to the District could be provided to each customer in a newsletter format. The newsletter could also reference other more general information such as what is found on-line from the Utah Division of Water Resources at <http://www.conservewater.utah.gov>. This web site also provides links to other water conservation web sites. Examples of water saving tips from the Division of Water Resources web site are provided in Appendix C.
3. **Universal Metering.** At least once during the time this Water Conservation Plan is active, the District will examine the feasibility of installing metering devices on all District connections. In order to install meters on all connections, a financially viable solution must be made available. Currently due to the high cost of installing meters on each connection, District funds would be better spent on implementation of other conservation measures.

It should be noted that in August of 2013, the District adopted a policy requiring all new developments to install meters on each of their service laterals. The District has also modified its construction standard and specifications accordingly.

4. **Incentive Pricing.** Currently, it would be very difficult to implement a pricing system that would give incentives to reduce water use. At least once during the time this Water Conservation Plan is active, the District will consider the feasibility of implementing a pricing structure that will provide incentives for water conservation.

5. **“Smart” Sprinkler Control Panels.** The District has been testing the use of various types of “smart” controllers. These devices have been installed on District owned facilities as well as at the homes of several District employees. These types of systems are used in the agricultural industry and designed to automatically control sprinkler systems. Some of these controllers operate the sprinklers based on soil moisture, while others monitor weather conditions to determine when to activate sprinkling systems. To date, the operation of the systems based on soil moisture sensors have proved relatively unreliable or too expensive. The weather-based systems are still being tested within the District. The District will continue to work with the manufacturers and supplier of these devices to recommend production of a more reliable product at a reasonable cost.

6. **Water Audits.** In order to assist customers in developing good conservation practices with regard to watering their landscaped areas, the District may consider implementing a program of water audits. A water audit will help educate the customer to know how much water their sprinkler system is providing to each area of their landscaping. This information can then be used to set sprinkler timers to the proper time interval, thereby reducing over-watering. The District could produce literature that will assist property owners in completing their own only water audit, or provide information on where the customer can go to find additional information.

7. **Learning Garden.** Roy Water Conservancy District could use of the existing landscaped area around the administrative offices to display soil moisture sensors and/or smart panels and explain how they are used, display and demonstrate different types on sprinklers as well as explain their applications, as well as provide additional helps and materials as individuals visit the District's facility.



Attachment 4 Letters of Support

Davis and Weber Counties Canal Company

138 West 1300 North ▲ Sunset, Utah 84015-2918 ▲ Office: (801) 774-6373 ▲ Fax: (801) 774-5424 ▲ davisweber.org

February 12, 2020

Mr. Rodney Banks
General Manager
5440 S. Freeway Park Dr.
Riverdale, UT 84405

Dear Rodney,

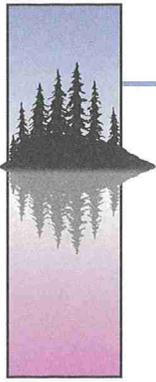
The Davis and Weber Counties Canal Company is pleased to write this letter in support of your grant application that is being submitted to the WaterSMART program of the Bureau of Reclamation to install secondary water meters. We are an advocate to meter use in order to better educate the end user on water use. We applaud your efforts to increase accountability for secondary water use.

We strongly support your grant application and are willing to provide any insights that we've gained or learned as we've begun to meter ourselves.

Sincerely,
Davis and Weber Counties Canal Company

A handwritten signature in blue ink that reads 'Rick Smith'.

Richard (Rick) D. Smith, P.E.
General Manager



WEBER BASIN WATER CONSERVANCY DISTRICT

2837 East Highway 193 • Layton, Utah 84040 • Phone (801) 771-1677 • (SLC) 359-4494 • Fax (801) 544-0103

February 18, 2020

Tage I. Flint
General Manager/CEO

Rodney Banks, District Manager
Roy Water Conservancy District
5440 Freeway Park Drive
Riverdale, UT 84405

Board of Trustees:

Paul C. Summers
President
Davis County

Kym O. Buttschardt
Weber County

Jay V. Christensen
Weber County

Kerry W. Gibson
Weber County

Marlin K. Jensen
Weber County

P. Bret Millburn
Davis County

John Petroff Jr.
Davis County

Dave Ure
Summit County

Dee Alan Waldron
Morgan County

Dear Rodney,

Weber Basin Water Conservancy District (WBWCD) is pleased to provide written support of your grant application to the Bureau of Reclamation for a Small-Scale Water Efficiency Project. We applaud your efforts to increase the efficiency of your system to conserve valuable water through secondary water metering. We have implemented similar secondary metering projects and have documented significant water savings as consumers are made aware of their water use.

WBWCD recognizes the importance of water conservation in our often water-short basin. The water saved through these improvement projects will provide benefit to water users and the regional environment. Roy Water Conservancy District continues to be a valuable partner promoting wise water uses in our area.

We strongly support your grant application and appreciate the advancements it will make in water savings and improving water efficiencies in the District boundary of Weber Basin Water Conservancy District.

Sincerely,

Tage I. Flint, PE
General Manager/CEO

TF/JP/sm