

WaterSMART

WATER AND ENERGY EFFICIENCY GRANTS FOR FY 2021

No. BOR-DO-21-F001

Funding Group I

STEINAKER SERVICE CANAL ENCLOSURE PROJECT –
REACHES I AND II AUTOMATION
UINTAH WATER CONSERVANCY DISTRICT

Vernal, Uintah County, Utah

William Merkley ■ General Manager

Uintah Water Conservancy District

78 West 3325 north

Vernal, UT 84078

435.789.1651

Bart Jensen, P.E.

Project Manager

Jones & DeMille Engineering, Inc.

38 West 100 North

Vernal, Utah 84078

435.781.1988

b.jensen@jonesanddemille.com

September 17, 2020

Table of Contents

Technical Proposal.....	1
Executive Summary	1
Project Location.....	2
Technical Project Description.....	2
Evaluation Criteria	4
Evaluation Criterion A: Quantifiable Water Savings	4
Evaluation Criterion B: Water Supply Reliability.....	9
Evaluation Criterion C: Implementing Hydropower	13
Evaluation Criterion D: Complementing On-Farm Irrigation Improvements	14
Evaluation Criterion E: Department of the Interior Priorities.....	16
Evaluation Criterion F: Implementation and Results.....	20
Evaluation Criterion G: Nexus to Reclamation Project Activities	24
Evaluation Criterion H: Additional Non-Federal Funding	24
Project Budget.....	25
Funding Plan and Letters of Commitment	25
Budget Proposal	26
Budget Narrative	28
Environmental and Cultural Resources Compliance.....	33
Required Permits or Approvals	34
Letters of Support	34
Official Resolutions.....	34
Appendix A - Letters of Support.....	37
Appendix B - Project Maps.....	39
Appendix C - Water Savings Data	42

Technical Proposal

Executive Summary

Start Date: July 2021

Applicant: Uintah Water Conservancy District

Location: Vernal, Uintah County, Utah

Project Title: Steinaker Service Canal Enclosure Project – Reaches I and II Automation

Project Summary:

The Uintah Water Conservancy District (District), located in eastern Utah, proposes to automate operations of Reach I and portions of Reach II of the Steinaker Service Canal. In 2016, Reach I was the first of multiple phases along the canal to be enclosed. As part of the 2016 project, valves and electronic meters were installed at each turnout and connected to the District's Supervisory Control and Data Acquisition (SCADA) system to report real-time flow rate data to the District office. This proposed automation project is the final element needed to complete Reach I and fully realize the benefits of a piped canal with automated operation and monitoring. Electric actuators capable of operating each valve automatically will be installed at 18 individual turnouts. Each actuator and flow meter will be connected to the existing SCADA system and the system will be upgraded to provide automatic monitoring and remote control of each turnout. This will greatly increase the efficiency of daily operations, log flow data via the SCADA system, and ultimately conserve the water that is currently being over-delivered. This project will be instrumental in conserving approximately 1,150 acre-feet of water annually. This project will help the District deliver water efficiently, timely, and accurately.

Length of Time: 12 Months

Completion Date: June 2022

Federal Facility Location: Reclamation headed the creation of the Thornburgh Diversion, Steinaker Feeder Canal, Steinaker Dam and Reservoir and Steinaker Service Canal as part of the Vernal Unit in the Central Utah Project. This project forms part of the Steinaker Service Canal and is directly connected and affected by the other facilities mentioned above.

Project Location

Provide detailed information on the proposed project location or project area including a map showing the specific geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g., northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}.

Reach I of the Steinaker Service Canal project is located in Uintah County, Utah approximately 4.5 miles south of Vernal City. The project latitude is 40°23' N and longitude is 109°31' W. See the attached project location map in Appendix B.

Technical Project Description

Provide a more comprehensive description of the technical aspects of your project, including the work to be accomplished and the approach to complete the work. This description should provide detailed information about the project including materials and equipment and the work to be conducted to complete the project. This section provides an opportunity for the applicant to provide a clear description of the technical nature of the project and to address any aspect of the project that reviewers may need additional information to understand.

Please do not include your project schedule and milestones here; that information is requested in response to the Readiness to Proceed criterion below. In addition, please avoid discussion of the benefits of the project, which are also requested in response to evaluation criteria. This section is solely intended to provide an understanding of the technical aspects of the project.

Please note, if the work for which you are requesting funding is a phase of a larger project, please only describe the work that is reflected in the budget and exclude description of other activities or components of the overall project.

The Steinaker Service Canal, located south of Vernal, UT, is managed by the Uintah Water Conservancy District (District). The canal delivers water stored in Steinaker Reservoir which is part of the Bureau of Reclamation's Vernal Unit of the Central Utah Water Project. In 2016 the District developed plans to enclose 11.2 miles of this canal from the southern end working upstream.

The first of three phases, namely Reach I, was completed in 2017 which enclosed the first 3.1-mile section on the southern-most end. In addition to piping the main line of the canal, the 2017 project included installing butterfly isolation valves, ultrasonic meters, and cam-centric plug valves at each of 16 turnout locations. The sizes of the valves on the turnouts consist of 12", 18", and 24" plug valves. A SCADA system was also installed and connected to each turnout to send real-time flow rate data from each meter back to the District Office. However,

the regulating valves (plug valves) at each turnout must be manually opened or closed each day to deliver the water users' ordered flow. Currently, the water master must get the total order of water to be delivered for the day, set the regulating gates on Steinkaker Dam to deliver that total flow, then travel to this piped section and manually set each turnout valve until the desired flow rate is achieved while observing the flow rate readout from the meter.

Due to the length of canal between the dam and the piped section, there is a lag of about 6 hours between when the adjustment is made at the dam, and when the change is realized at the entrance to the pressure pipe and turnouts. Although each turnout can be adjusted to deliver the ordered flow by the water master manually, due to the time lag and the constantly fluctuating head in the canal, the flow rate at each turnout constantly changes throughout the day. This makes it difficult to ensure the ordered flow rate is constantly and reliably delivered. Therefore, the water master increases the flow rate at each turnout to compensate for fluctuations that may occur later in the day and overnight in order to deliver, at minimum, the flow rate ordered at that turnout. This results in an over-delivery of water in almost every case. The only feasible way to avoid over-delivering water is to automate the valves, in conjunction with the flow meter, to adjust to accommodate the fluctuations throughout each day and night.

This project involves automating each of the 16 turnouts for Reach I, as well as 2 turnouts in Reach II. Reach II is adjacent and north to Reach I. Reach II begins where the open canal enters the pipe. Upon being awarded funding from this program, the District proposes to procure a design consultant (in accordance with the District Procurement Policy) to complete final design plans and specifications. Once these final plans and specifications are completed and approved, the project will be let out to contractors for bid in accordance with the District's Procurement Policy.

Once a qualified contractor is selected, an order will be placed for the actuators and appurtenances for each turnout. Due to the unavailability of line power (AC power) at most locations, a combination of AC and DC powered electric actuators will be required. Currently, it is anticipated that AC power will only be available for 6 of the turnout locations, with the remaining locations requiring adequate solar panels and batteries to operate the actuator and meter, as well as power the SCADA system to send and receive data from the District Office.

When the installation is complete, the system will be commissioned, calibrated, and tested as soon as water is available to be delivered in the canal.

Evaluation Criteria

The evaluation criteria portion of your application should thoroughly address each criterion and subcriterion in the order presented to assist in the complete and accurate evaluation of your proposal.

(See Section E.1. Technical Proposal: Evaluation Criteria for additional details, including a detailed description of each criterion and subcriterion and points associated with each.)

Evaluation Criterion A: Quantifiable Water Savings

*Up to **30 points** may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.*

Describe the Amount of Estimated Water Savings

For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project. Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.

The automation project will save an estimated 1,150 acre-feet per year. It should be noted that the water savings estimated for this modernization project exceed those water savings that have been realized by piping Reach I. This is due to the ability to accurately and efficiently monitor and control the flows at each turnout and avoid excess over-delivery.

Describe Current Losses

Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

The automation project will conserve water that is spilling over at the end of irrigation ditches and over-deliveries to irrigators. Currently, water users will send in their water order for the day or week. The District will adjust valve positions along the canal accordingly. Water adjustment at both the dam and each turnout occurs daily. Along Reach I, turnouts are adjusted around 1pm and set above the daily order.

The turnouts are set at higher flows to ensure there is not a shortage of water for irrigation users. Shortages of water can be caused by water level fluctuation throughout the day. The Reach I turnouts are more than eight miles away from the regulating gates at the dam. This distance causes delays for level adjustments made at the regulating gates to reach the turnouts.

Describe the Support/Documentation of Estimated Water Savings

Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.

(1) Canal Lining/Piping:

Canal lining and piping is **not applicable** on this project.

(2) Municipal Metering:

Municipal Metering is **not applicable** on this project.

(3) Irrigation Flow Measurement: Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators. Applicants proposing municipal metering projects should address the following:

(a) How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

Currently, the District has flow meters on each turnout, but does not have the ability within their current SCADA program to record the data collected by these flow meters along Reach I. However, the flow meters report flow-rate data to the office where it can be observed in real time. Data was collected on business days beginning on 8/26/20 and finished on 9/8/20. Flow rates were recorded manually every few hours during business hours on these days and consisted of flows for 16 turnouts along Reach I. Nine of the turnouts were being utilized during this time and used in the calculations for the water savings estimation. This data was compared to the daily water orders placed by irrigators to estimate the amount of over-delivery.

Figure 1 is an overview of the method used to estimate the amount of water this project will conserve.

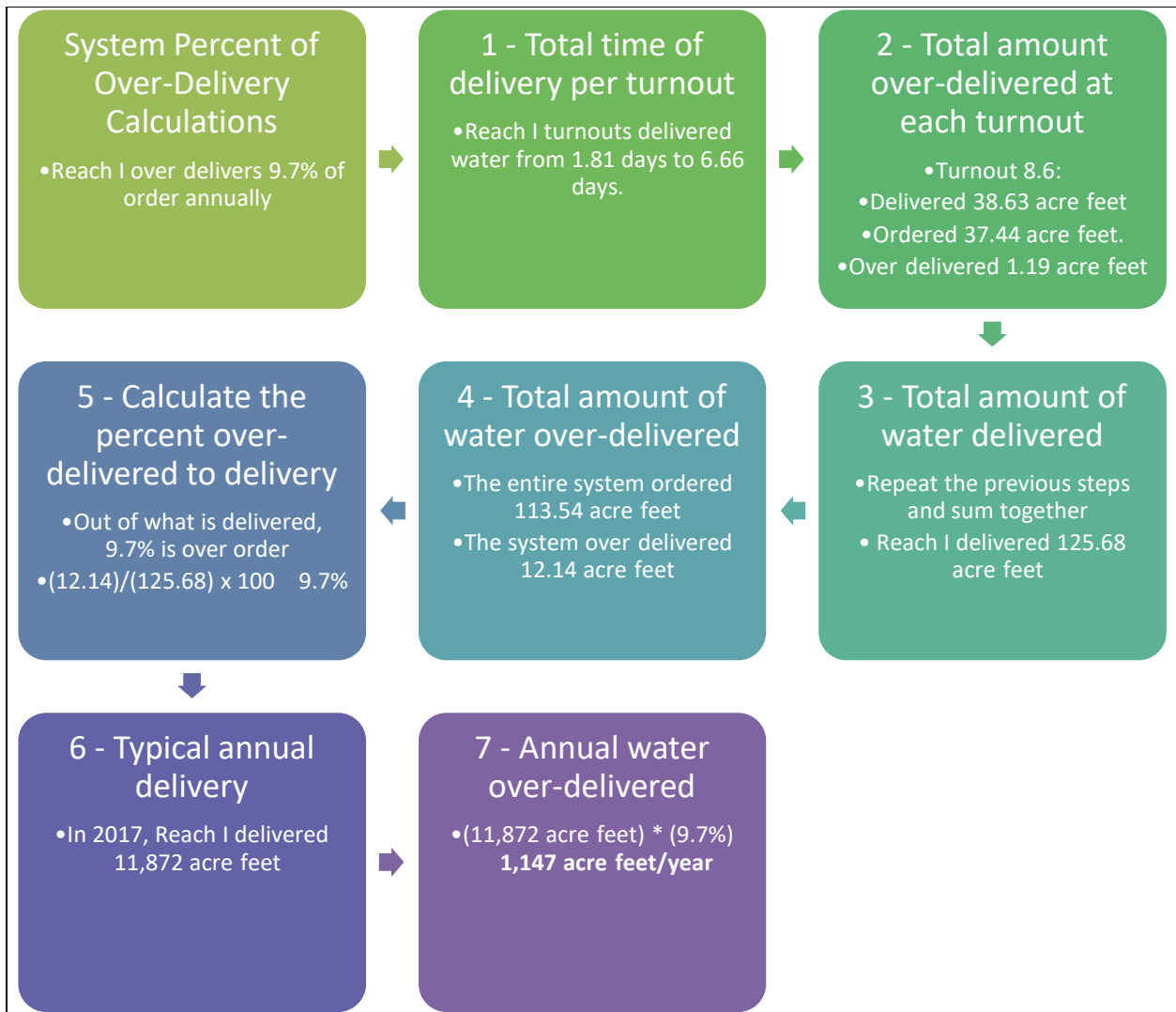


Figure 1 - Method overview for estimating water conservation

An overall percent of water loss for the canal due to over-delivery was estimated using this data. Total times and volumes were calculated and analyzed by subtracting the irrigator’s order (cubic feet per second) from what was delivered (cubic feet per second). This difference in flow rate was then multiplied by the time period to get the volume of water that was over-delivered. This was then compared to historical delivery data of the piped section to estimate the amount of annual water loss.

The total time each turnout delivered water during this data period was calculated. Total volumes of water delivered and water ordered were calculated at each turnout using:

$$Vol = \sum (Rate\ of\ flow) \times (Duration\ of\ flow)$$

For example, the turnout at canal mile marker (CMM) 8.6 delivered for a total time of 5.86 days, delivered 38.63 acre-feet, and ordered 37.44 acre-feet.

For Reach I, the previous volumes were added together for each turnout. The over-delivery was also calculated.

$$Total\ Vol = \sum (Vol\ at\ turnout)$$

$$Over\ Delivery = (Total\ volume\ delivered) - (Total\ volume\ ordered)$$

During this time period, Reach I delivered 125.68 acre-feet, ordered 113.54 acre-feet, resulting in 12.14 acre-feet being over-delivered.

The percent over-delivered compared to delivered volumes was calculated:

$$Percent = \frac{(12.14\ acre\ feet\ over\ delivered)}{(125.68\ acre\ feet\ delivered)} \times 100 = 9.7\%$$

During this time period, Reach I over-delivered 9.7 percent. This was compared to historical annual delivery data in 2017 provided by the water master. The delivery data provided included turnouts from CMM 3.7 to the end of Reach I. Reach I begins at CMM 8.6. The water master estimated 85 percent of the water was delivered in Reach I. Using this, it was estimated in 2017, there was 11,872 acre-feet delivered in Reach I.

The annual water savings was calculated by applying a 9.7 percent rate of water loss to the total amount of water delivery. This project anticipates to recover most of this water loss.

$$\begin{aligned} Total\ water\ savings &= (11,872\ acre\ feet\ delivered) \times (9.7\%) \\ &= 1,147\ acre\ feet\ over\ delivered \end{aligned}$$

This project will save an approximately 1,150 acre-feet of water annually.

It is assumed that the time frame for data was applied throughout the irrigation season without much variation. Any outlying data or otherwise untypical data (i.e. water shutoff or non-business day) was excluded from calculation. Missing data gaps were averaged. Water flow through each turnout was nearly continuous. By using this data, we estimated water loss.

Historical annual delivery data from 2018 or 2019 was not used due to non-typical water deliveries during these years. This was the result of the repair of Steinaker Dam during the

Bureau of Reclamation -Safety of Dams project. During 2018-2019, the water delivery was limited to flows that were passed-through the outlet works while the reservoir was at conservation pool elevation (no useable storage).

Please see Appendix C for supporting data.

(b) Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.

As stated above, current operational losses were determined per turnout. The total water loss is entirely due to operational losses.

(c) Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?

The flows at each turnout are measured by Eastech Vantage 4400 unidirectional strap on meters. These ultrasonic meters are externally mounted and provide plus or minus 1% accuracy when acoustic signals are capable of being transmitted through the pipe. The meters have an integrated data logger and are easily adapted to use with telemetry. They are capable of reading flows where velocities range from 0.1 feet per second to 40 feet per second and have a 0.25% repeatability. Third party calibration has been done. The District also has a portable, strap-on meter to verify flows.

(d) Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.

There are no additional proposed flow measurement devices for this project. Each turnout currently has a flow meter.

(e) Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?

Under current operating conditions, more water is delivered than necessary due to lack of monitoring and automated control abilities. It is anticipated that actual delivery volumes will be reduced when monitoring and automated control equipment is installed. Please reference section (3), Irrigation Flow Measurement, for how this reduction has been estimated. The timeliness of water delivery will also be greatly enhanced due to the ability to control the turnout valves instantaneously from a remote location.

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

Once the SCADA programming is updated and flows at each turnout are being both measured *and* recorded, we will have accurate and detailed usage data. This recorded data can then be compared to the orders that were placed by water users on those respective days and the “after project” over-deliveries can be calculated.

The “after-project” over-delivery volume will then be compared to the current over-delivery calculations to verify the overall annual water savings for the project.

(4) Turf Removal:

Turf removal is **not applicable** on this project.

(5) Smart Irrigation Controllers and High-Efficiency Nozzles: Applicants proposing smart irrigation controller or high-efficiency nozzle projects should address the following:

Smart Irrigation Controllers and High-Efficiency Nozzles are **not applicable** on this project. However, the reliability improvements will encourage more users to convert to sprinklers and provide water users with the ability to install high-efficiency nozzles. On farm improvements through NRCS EQIP program will enable farmers to install these types of efficient controllers and nozzles. The water user will have the potential to pipe from the turnout to the place of use. Farming systems will have consistent pressure, flow, and operation. Again, the extents of this project end at the flow meter and turnout.

Evaluation Criterion B: Water Supply Reliability

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g. proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

1) Will the project address a specific water reliability concern?

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

The Ashley Valley has been in a severe drought for many years. The drought classification was recently lifted for many areas, although drought is common in the area. Steinaker Reservoir is an off-channel reservoir and thus does not get excess flows during large precipitation years. Steinaker reservoir has also been under repair for two years and has missed out on being able to receive the typical allotted volume. Efficient delivery systems are critical to smart water usage when supply runs low. With Steinaker only allowed to receive 19,500 acre-feet per year, these water savings will help the District be able to store those losses in the reservoir for use during drought years. This stored/saved water also helps ensure adequate delivery to municipal and industrial users and lessens the burden put on irrigators to go without when water isn't available.

- *Describe how the project will address the water reliability concern? In your response, please address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

This project will conserve water and increase efficiency in delivery and measurement, which will directly affect all users of the Steinaker Service Canal. Accurately measured deliveries will help users be responsible for the water they receive and will allow the District to be a better steward of this natural resource. The conserved water will be stored in Steinaker Reservoir and will address shortages that often happen in drought years. This could potentially allow for a reduction of diverted water from Ashley Creek resulting in additional water being left in the Green River system.

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

Steinaker Reservoir can retain the water saved by eliminating over-delivery losses in this project area. This water may then be used to supply adequate demands for all users. This water is already being pulled from Ashley Creek and put into the reservoir. Delivery volumes will be able to be reduced directly related to the reduction in losses.

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

The conserved amount of water being able to be utilized for the intended purpose is the water that is currently being lost through over-delivery with an annual estimate of 1,150 acre-feet annually.

2) Will the project make water available to achieve multiple benefits or to benefit multiple water users?

- *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*
 - *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.*

Increased water levels in Steinaker Reservoir benefit the fish species that thrive there, including Rainbow Trout, Largemouth Bass, Bluegill, Green Sunfish, and other sport fish. Other wildlife species such as Osprey dwell very near the Reservoir and rely on the fish for survival.

- *Will the project benefit a larger initiative to address water reliability?*

The project will benefit primarily agriculture, but the District does deliver water for both municipal and industrial use in the Ashley Valley. There are numerous irrigation and other water exchanges that can benefit from having more water available in the reservoir. The additional water that the District can keep in the reservoir will also benefit recreation year-round as Steinaker Reservoir is one of Utah's very popular State Parks. Motor boating, water skiing, fishing (including ice fishing), birdwatching, and other outdoor recreation interests are all heavily influenced by the water level in the reservoir. When the reservoir drops to a certain elevation, it is difficult for boaters to access the boat ramp. With higher water levels, fish habitat and recreation areas will be more accessible and favorable.

- *Will the project benefit Indian Tribes?*

This project does not directly benefit Indian Tribes, although those living in the area may choose to recreate on the reservoir and individual property owners that belong to an Indian Tribe may receive water through the facility. The Ute Indian Tribe does have water interests in the Green River, of which Ashley Creek is a tributary. Indirect benefits could include less water diverted from the Ashley Creek into the reservoir which would result in more water staying in the Green River system.

- *Will the project benefit rural or economically disadvantaged communities?*

The area served by the canal is mostly rural and located in the unincorporated areas of Uintah County. These include the high agricultural areas in the Davis and Jensen vicinities where some of this water is delivered.

- *Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved will go and where it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

Conserved water will be utilized to meet irrigation needs that have previously been under-delivered, specifically near the end of the irrigation season. Exchanges made in conjunction with this canal and reservoir can also benefit from having the water available in the reservoir. The conserved water will also enhance the recreation and habitat at Steinaker Reservoir.

3) Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?

- *Is there widespread support for the project?*

Reclamation emphasizes smart and efficient use of natural resources, especially water, with growing populations as well as industrial and agricultural needs. The canal companies are also very supportive of the project as this system directly serves them and their shareholders. This project enables more precise, accurate, and timely deliveries of water to the end user. It also allows for accurate monitoring and accountability of water users in terms of the volume of water they utilize.

- *What is the significance of the collaboration/support?*

Support from Reclamation and the canal companies is paramount to the success of the project as they form a direct partnership with the District and the facility. The support from these and other stakeholders encourages the District to pursue projects that help achieve water conservation plans and the purposes set forth by Reclamation.

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

Several users on the service canal will be motivated to implement improvements to their on-farm systems that will increase efficiency and reliability in watering their crops. Affected canal companies will also be served by these improvements. This project will also aid in those canal

companies and irrigators seeking federal aid with the installation of the flow measurement devices and the ability to accurately report their deliveries and calculate their losses. This project could also serve as impetus to encourage other valley-wide water conservation measures as other irrigators hear about the success of the project.

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

The ability to accurately record and monitor water deliveries will help prevent conflict when water supplies may be low. This project will provide a less subjective and more data driven approach to monitoring and resolving water conflicts amongst irrigators.

- *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*

Reclamation is considered a partner as they are the owner of the facility that is being improved as well as the upstream facilities that feed this canal. Reclamation has turned the facility management over to the District.

4) Will the project address water supply reliability in other ways not described above?

The main water supply reliability concerns and benefits have been described above.

Evaluation Criterion C: Implementing Hydropower

Up to 18 points may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.

No Hydropower elements nor proposals are included in this project. However, solar power options are being proposed and promote energy savings.

Evaluation Criterion D: Complementing On-Farm Irrigation Improvements

Up to 10 points may be awarded for projects that describe in detail how they will complement on-farm irrigation improvements eligible for NRCS financial or technical assistance.

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- *Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.*
 - *Provide a detailed description of the on-farm efficiency improvements.*
 - *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*
 - *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*
 - *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

As previously noted, there are still a handful of irrigators in the system, either directly connected or through an attached canal/ditch, that have not converted over to sprinkler systems and still flood irrigate. Availability of a pressurized system has been one factor holding these individuals back. Although this project does not directly involve on-farm and related improvements, it will improve reliability of irrigation flows and stabilized pressures, which are two main obstacles.

- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*
 - *Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip irrigation. OR*
 - *Will the proposed WaterSMART Project complement the on-farm project by maximizing efficiency in the area? If so, how?*

Many of the users adjacent to this canal and others in the valley have difficulty building pressures to run a sprinkler system. Those that have been able to build ponds to supply head have been running pressurized sprinkler systems and others have elected to install pumps. This

project would directly affect all users who have previously, are currently, or plan on implementing on-farm improvements by providing a pressurized system with relatively clean water that can be connected to the on-farm systems. This will allow high efficiency nozzles and other advanced systems to be implemented and further reduce wasted water deliveries.

- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*
 - *Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.*

On-farm improvements that can potentially be realized are mainly in the form of conversion from flood irrigation to sprinkler systems. Inquiry is in progress for how many acres would potentially be converted in the coming two years and data is not available at this time.

- *Please provide a map of your water service area boundaries. If your project is selected for funding under this FOA, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.*

Please see Appendix B for a map of the water service area covered by the Uintah Water Conservancy District.

Evaluation Criterion E: Department of the Interior Priorities

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports Department and Reclamation priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

Department Priorities

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt.*
 - a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;*

Telemetry and automation elements in the proposed project to enhance efficiency include: data loggers, solar panels, SCADA, and setting up the potential to automate gates and valves in the future. These improvements are a perfect example of utilizing modern science for the efficient management our water resources.

- b. *Examine land use planning processes and land use designations that govern public use and access;*

This project does not directly affect land use designations or public access.

- c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards;*

The Steinaker Service Canal Modification Project was analyzed by Reclamation in an EA in 2014 (PRO-EA-13-003). Because the entire Steinaker Service Canal easement was considered in the EA (see Section 2.3.8 below), the proposed project-related impacts have been addressed. No additional NEPA analysis, environmental surveys, mitigation, or permitting will be required for this project. Limited environmental coordination will ensure that design and construction is within the authorized easement.

- d. *Review Department water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;*

Reclamation owned facilities such as Steinaker Reservoir, Steinaker Service Canal, and other irrigation infrastructure in the Uintah Basin and Ashley Valley specifically contribute to the District and their ability to deliver, store, and manage water. Increasing efficiency helps resolve conflicts resulting from water shortages, as well as expand capacity of the systems being improved.

- e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;*

The project delivers water via Steinaker Reservoir, which has become an important fishery for trout, bass, and bluegill. Recent improvements to the reservoir and Watershed planning has fostered an open dialog between the irrigation companies and the Utah Division of Wildlife Resources.

- f. Identify and implement initiatives to expand access to Department lands for hunting and fishing;*

Steinaker Reservoir is the main fishing destination for the Vernal, Utah area. Losses conserved from canal will on average increase the available water stored in the reservoir and therefore aquatic habitat. This enhances the fishing and waterfowl hunting opportunities in and around the reservoir.

- g. Shift the balance towards providing greater public access to public lands over restrictions to access.*

This project does not directly enhance public access to public lands.

2. Utilizing our natural resources

- a. Ensure American Energy is available to meet our security and economic needs;*
- b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;*
- c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;*
- d. Manage competition for grazing resources.*

Solar powered telemetry and SCADA is one way that renewable energy is being utilized for this project. The Uintah Basin provides an important economic resource with the oil and gas fields herein. The efficiency of the affected irrigated lands will allow farmers to put up more hay, establish and maintain quality forage for cattle and other livestock, which in turn reduces competition and shortfalls for grazing in the area.

3. Restoring trust with local communities

- a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;*
- b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*

Although tribal water does not get delivered through the District and Ashley Creek systems, their tributaries go to jointly utilized waters. Operations of the Steinaker Dam directly affect the recreation opportunities at the State Park and ongoing coordination with the Fish and Wildlife Office here in Vernal is critical. Reclamation and the District are supportive of the project and it follows their goals for efficiency in irrigation deliveries.

4. Striking a regulatory balance

- a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*
- b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*

Due to the nature of this project, no additional regulatory burdens are anticipated, such as additional NEPA compliance work. The previously completed NEPA work, as mentioned above, is anticipated to satisfy compliance requirements for this project.

5. Modernizing our infrastructure

- a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;*
- b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;*
- c. Prioritize Department infrastructure needs to highlight:
 - i. Construction of infrastructure;*
 - ii. Cyclical maintenance;*
 - iii. Deferred maintenance.**

The District serves and works alongside private irrigation companies like Ashley Water Users, Ashley Central Canal, and some smaller ditch companies to modernize the District irrigation infrastructure. Maintaining and improving the irrigation systems in the District and Vernal Unit service areas is a priority for both public and private groups in the Uintah Basin. This project is a perfect example of modernizing our infrastructure with the use of the latest technology to enhance efficiency, security, and reliability.

Reclamation Priorities

1. Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities

This project will enhance water reliability for irrigators and will result in an increase of water savings.

2. Streamline Regulatory Processes and Remove Unnecessary Burdens to Provide More Water and Power Supply Reliability

The NEPA process for this project has been met through a previously approved environmental assessment and therefore will not require a substantial effort to meet these requirements. It is anticipated that any regulatory processes should be simple and streamlined to get this project completed.

3. Leverage Science and Technology to Improve Water Supply Reliability to Communities

The use of modern technology for this project, namely: automated actuators and a functioning SCADA system, water supply reliability will be constant and accurate to those who use water along this section of the Steinaker Service Canal. It will also allow the District to monitor and control operations much more efficiently, as well as have a state-of-the-art data logging and recording system.

4. Address Ongoing Drought

Water savings will help the District to be able to store the current losses in the reservoir for use during drought years. This stored/saved water also helps ensure adequate delivery to municipal and industrial users and lessens the burden put on irrigators to go without when water is not available.

5. Improve the Value of Hydropower to Reclamation Power Customers

6. Improve Water Supplies for Tribal and Rural Communities

The area served by this project is mostly rural. The Uintah County population is approximately 35,700, with the largest city of Vernal having a population of 10,370. The irrigated lands that are served by this project are located in the unincorporated areas south and east of Vernal.

7. Implementation of new Title Transfer authority pursuant to P.L. 116-9

Evaluation Criterion F: Implementation and Results

Up to 6 points may be awarded for these subcriteria.

Subcriterion No. F.1: Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.

Provide the following information regarding project planning:

- (1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.*

The District has a Water Management and Conservation Plan. It was updated in March 2013. It can be found at: <https://www.untahwater.org/resources/pages/water-studies-and-development-plans>. The District is currently updating their Comprehensive Master Plan with an anticipated completion date of late 2020. The Steinaker Service Canal enclosure project, in all of its phases, has been a priority for the district for many years. It has been a priority for Reclamation as well. This project is well supported but needs additional funding to become a reality.

- (2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).*

The Utah State Water-Plan emphasizes water conservation and efficient management of developed water supplies as key strategies in providing for the present and future water needs in the state. This project meets the goals of the District and Reclamation to conserve water within their service areas. One of the major goals of the area is to encourage users to implement pressurized irrigation systems and develop underground delivery systems. This project will contribute to the ability for users to implement reliable pressurized systems and install underground delivery systems within the region.

Subcriterion No. F.2: Performance Measures

Points may be awarded based upon the description and development of performance measures to quantify actual project benefits upon completion of the project.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see Appendix A: Benefit Quantification and Performance Measure Guidance.

All Water and Energy Efficiency Grant applicants are required to propose a “performance measure” (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grant recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation up completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy efficiency Grants.

The performance measures that will be utilized to determine the benefits of this project will include calculating the water savings the first year after the project is complete. This will be done by analyzing the recorded water delivery data from the new SCADA system, and comparing it to how much water was ordered. This will be compared with the current data that has been acquired to determine how much water was saved. This will illustrate the overall benefit of this project to reduce over-deliveries with metering and automation on each turnout. The final report will document these elements after the first season of use.

Subcriterion No. F.3: Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement. Please note, if your project is selected, responses provided in this section will be used to develop the scope of work that will be included in the financial assistance agreement.

Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

- *Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section*

D.2.2.4.; this section should be focused on a summary of the major tasks to be accomplished as part of the project.

The District has identified these objectives for major completion tasks:

- 1) Contract Award and Procure Engineer
- 2) Final Design and Specifications
- 3) Bidding and Contractor Selection
- 4) Installation of Automation Equipment
- 5) System Programming and SCADA Integration
- 6) Project Commissioning and Testing
- 7) Project Closeout

See Figure 2 below for the project schedule. Environmental coordination will be ongoing throughout the design and construction of the project.

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

The environmental surveys for the entire length of the Steinaker Service Canal Modification Project were completed previously, and the NEPA analysis was completed and approved in September of 2014 (PRO-EA-13-003; <https://www.usbr.gov/uc/envdocs/ea/steinaker/ServCanal/finalEA.pdf>).

Since the NEPA for the project is complete, the environmental schedule assumes that no additional environmental surveys or mitigation would be required. Further, no permitting will be required with the U.S. Army Corps of Engineers (USACE; see above-referenced environmental assessment). Some environmental coordination would be required to complete the project.

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

The District and Reclamation have previously completed design and construction of Reach I of the Steinaker Service Canal. Additional planning, such as the NRCS Watershed Plan-EA, Canal Safety Plans, and NEPA work have been completed or are being completed to cover a wide variety of planning goals and purposes.

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

The District and Reclamation have put in place a partnership that has worked well in the past. No additional administrative actions are anticipated.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete).

Please see Figure 2 for a proposed project schedule.

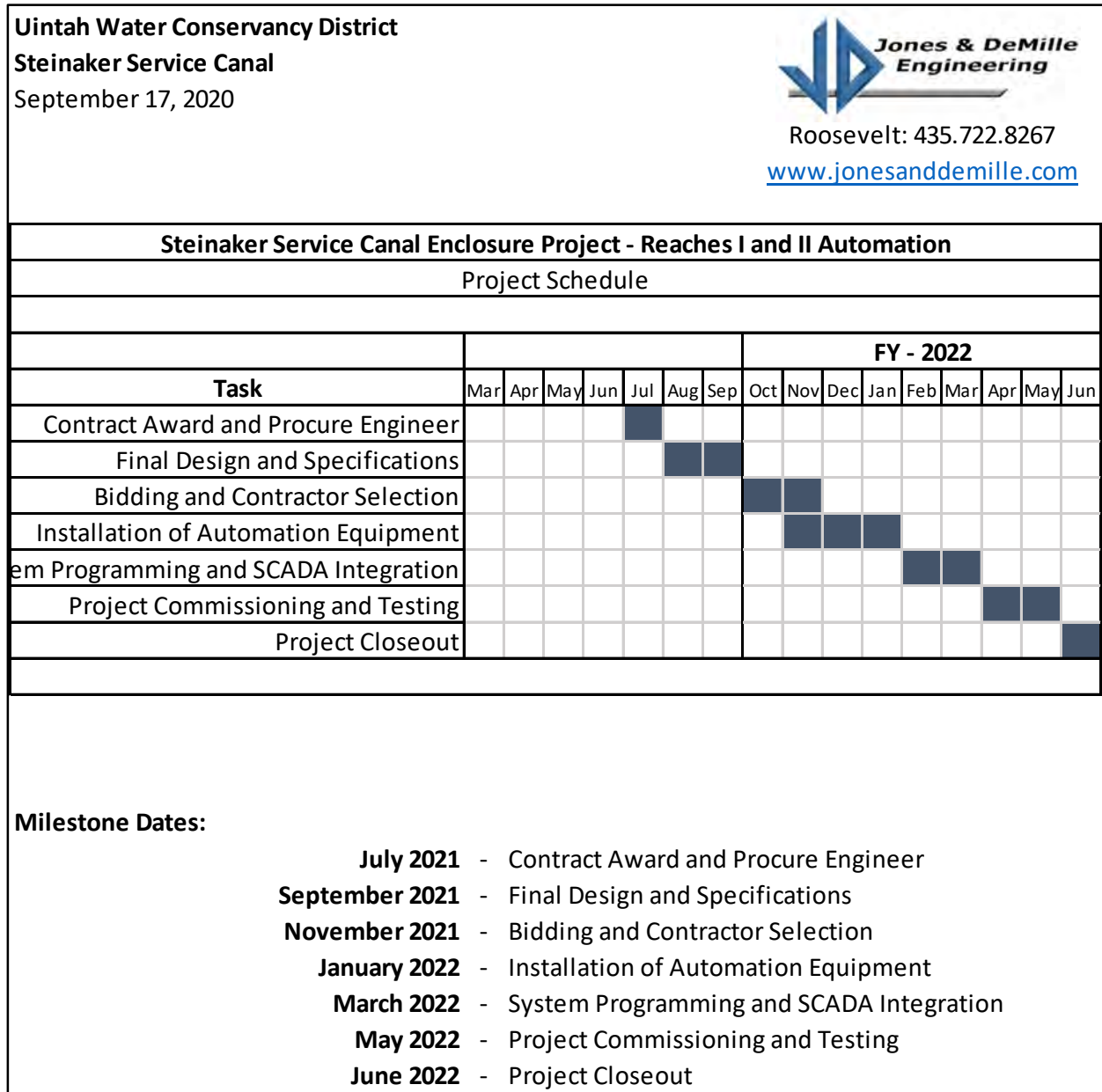


Figure 2 - Project schedule

Evaluation Criterion G: Nexus to Reclamation Project Activities

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

- *Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:*
 - *Does the applicant receive Reclamation project water?*
 - *Is the project on reclamation project lands or involving Reclamation facilities?*
 - *Is the project in the same basin as a Reclamation project or Activity?*
 - *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The Steinaker Service Canal is part of the Vernal Unit of the Central Utah Project and is owned by Reclamation with the District operating and maintaining the canal. Reclamation owns the water rights being diverted from Ashley Creek, stored in Steinaker Reservoir (also a Reclamation facility), and delivered by the Canal. This proposed project is contributing to this basin where Reclamation has been actively engaged.

- *Will the project benefit any tribe(s)?*

The Ute Tribe has some interest and rights in the Green River, of which Ashley Creek is a tributary. Water savings from this project may provide an indirect benefit on the amount of water needing to be diverted into Steinaker Reservoir which could potentially be left in the river system.

Evaluation Criterion H: Additional Non-Federal Funding

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\text{Non – Federal Funding}}{\text{Total Project Cost}} = \frac{\$235,950}{\$471,900} = 50.0\%$$

The percentage of non-Federal funding in this proposal is currently 50.0% of the project costs.

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:

- The amount of funding commitment*
- The date the funds will be available to the applicant*
- Any time constraints on the availability of funds*
- Any other contingencies associated with the funding commitment*

Commitment letters from third party funding sources should be submitted with your project application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or state grants), should be secured and available to the applicant prior to award.

Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.

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

- Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*
- Any costs that will be contributed by the applicant*
- Any third party in-kind costs (i.e., goods and services provided by a third party)*
- Any cash requested or received from other non-Federal entities.*
- 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.*

In addition, please 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*
- The date of cost incurrence*
- How the expenditure benefits the Project*

The total project cost is \$471,900. The District understands that the Federal cost share cannot exceed 50% and will ensure that this does not occur. The 50% cost share from the District will be funded by their Capital Project Reserve Fund.

Budget Proposal

The total project cost (Total Project Cost), is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project.

Table 1 – Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal Funding	\$235,950
Costs to be paid by the applicant	\$235,950
Value of third-party contributions	\$0
TOTAL PROJECT COST	\$471,900

The budget proposal should include detailed information on the categories listed below and must clearly identify all items of cost, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs. Unit costs must be provided for all budget items including the cost of services or other work to be provided by consultants and contractors. Applicants are strongly encouraged to review the procurement standards for Federal awards found at 2 CFR §200.317 through §200.326 before developing their budget proposal. If you have any questions regarding your budget proposal or eligible costs, please contact the grants management specialist identified in Section G. Agency Contacts.

It is also strongly advised that applicants use the budget proposal format shown on the next page in Table 2 or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs. It is not necessary to include separate columns indicating which cost is being contributed as non-Federal cost share or which costs will be reimbursed with Federal funds.

Table 2 – Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
None	-	-	-	-
Fringe Benefits				
None	-	-	-	-
Travel				
None	-	-	-	-
Equipment				
None	-	-	-	-
Supplies and Materials				
None	-	-	-	-
Contractual/Construction				
Engineering Design	\$ 17,800	1	EA	\$ 17,800
Construction Engineering	\$ 8,900	1	EA	\$ 8,900
Environmental Coordination	\$ 3,000	1	EA	\$ 3,000
AC Powered Electric Actuator with vandal proof cover, mounting hardware, and integrated communication card	\$ 10,500	6	EA	\$ 63,000
DC Powered Electric Actuator with vandal proof cover, mounting hardware, and integrated communication card	\$ 15,400	12	EA	\$ 184,800
240V AC Actuator Installation including power and communication wire, panels, and other appurtenances	\$ 7,500	6	EA	\$ 45,000
24V DC Actuator Installation including solar panels, batteries, power and communication wire, panels, and other appurtenances	\$ 11,700	12	EA	\$ 140,400
SCADA Upgrade Programming	\$ 150	60	HR	\$ 9,000
Third-Party Contributions				
None	-	-	-	-
Other				
None	-	-	-	-
TOTAL DIRECT COSTS				\$ 471,900
Indirect Costs				
None	-	-	-	-
TOTAL ESTIMATED PROJECT COSTS				\$ 471,900

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsection. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Salaries and Wages

Indicate the Project Manager and other key personnel by name and title. The Project Manager must be an employee or board member of the applicant. Other personnel should be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates must identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task.

The budget proposal and narrative should include estimated hours for compliance with reporting requirements, including final project and evaluation. Please see Section F.3. Program Performance Reports for information on types of frequency of reports required.

Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs, they should be included in this section; however, a justification should be included in the budget narrative.

See Contractual rates. The salaries and/or reimbursements of the District staff are not included in this budget nor are they anticipated to be a part of it.

Fringe Benefits

Indicate rates/amounts, what costs are included in this category, and the basis of the rate computations. Federally approved rate agreements are acceptable for compliance with this item.

All fringe benefits are fixed rates for billing through engineering and construction contracts.

Travel

Include the purpose of each anticipated trip, destination, number of persons traveling, length of stay, and all travel costs including airfare (basis for rate used), per diem, lodging, and miscellaneous travel expenses. For local travel, include mileage and rate of compensation.

Travel costs will be part of the contracted portion of the project.

Equipment

If equipment will be purchased, itemize all equipment valued at or greater than \$5,000. For each item, identify why it is needed for the completion of the Project and how the equipment was priced. Note: If the value is less than \$5,000, the item should be included under materials and supplies.

If equipment is being rented, specify the number of hours and the hourly rate. Local rental rates are only accepted for equipment actually being rented or leased. If the applicant intends to use their own equipment for the purposes of the project, the proposed usage rates should fall within the equipment usage rates outlined by the United States Army Corps of Engineers (USACE) within their Construction Equipment Ownership and Operating Expense Schedule (EQ 1110-1-8) at www.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/313131302D312D38.

Note: If the equipment will be furnished and installed under a construction contract, the equipment should be included in the construction contract cost estimate.

Equipment will be part of the contracted portion of the project. No in-kind cost share of equipment is proposed by the sponsor.

Material and Supplies

Itemize supplies by major category, unit price, quantity, and purpose, such as whether the items are needed for office use, research, or construction. Identify how these costs were estimated (i.e., quotes, engineering estimates, or other methodology). Note: If the materials/supplies will be furnished and installed under a contract, the equipment should be included in the construction contract cost estimate.

Materials and supplies will be part of the contracted portion of project and will be documented as required. Costs were estimated through quotes from suppliers and contractors and were compiled into an engineer's opinion of probable cost.

Contractual

Identify all work that will be accomplished by consultants or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. For each proposed contract, identify the procurement method that will be used to select the consultant or contractor and the basis for selection. Please note that all procurements with an anticipated aggregate value that exceeds the Micro-Purchase Threshold (currently \$10,000) must use a competitive procurement method (see 2CFR §200.320 – Methods of procurement to be followed). Only contracts for architectural/engineering services can be awarded using a qualifications-based procurement method. If a qualifications-based procurement method is used, profit must be negotiated as a separate element of the contract price. See 2 CFR §200.317 through §200.326 for additional information regarding procurements, including required contract content. Note: A modification to an

existing contract for services without first obtaining multiple quotes or proposals is considered a noncompetitive procurement, regardless of the method used to award the existing contract.

An engineering consultant will be contracted through the District’s procurement process using a qualification-based selection to perform the design and construction engineering, as well as environmental coordination for this project. Jones & DeMille Engineering has assisted in the preparation of this application and the budgetary estimate of time and rates. The selected consultant will prepare bid packages for the project, facilitate the bidding process, and assist the District in reviewing submitted bids and selecting a contractor. They will monitor progress during construction to provide quality assurance with plans and specifications. The table below includes the design, construction, and environmental engineering labor classifications, billing rates and estimated number of hours.

Table 3. – Estimated Design, Construction, and Environmental Engineering Hours & Rates

Role/Position	Rate	Hours	Total
Principal	\$ 190.00	17	\$ 3,230
Senior Project Manager	\$ 175.00	17	\$ 2,975
Project Engineer	\$ 122.00	20	\$ 2,440
Graduate Engineer	\$ 103.00	24	\$ 2,472
Senior CAD Designer	\$ 140.00	24	\$ 3,360
CAD Technician	\$ 73.00	24	\$ 1,752
Construction Engineering Technician	\$ 95.00	94	\$ 8,900
Environmental Project Manager	\$ 120.00	25	\$ 3,000
Administrative Assistant	\$ 71.00	22	\$ 1,571
TOTAL		267	\$ 29,700

Qualified contractors will be procured utilizing the District’s competitive, price-based selection to provide the materials/equipment, perform the construction/installation tasks, and upgrade the programming on the District’s SCADA system to integrate with the new elements of this project.

Third-Party In-Kind Contributions

Identify all work that will be accomplished by third-party contributors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Third-party in-kind contributions, including contracts, must comply with all applicable administrative and cost principles criteria, established in 2 CFR Part 200, available at www.ecfr.gov, and all other requirements of this FOA.

At this time, no third-party in-kind contributions are expected, solely monetary contributions by the District utilizing Capital Project Reserve Funds. District staff will assume the project upon completion and be instrumental in tracking the performance measures with existing and proposed telemetry and flow measurement devices.

Environmental and Regulatory Compliance Costs

Prior to awarding financial assistance, Reclamation must first ensure compliance with Federal environmental and cultural resources laws and other regulations (“environmental compliance”). Every project funded under this program will have environmental compliance activities undertaken by Reclamation and the recipient.

Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the recipient. Where environmental or cultural resources compliance requires significant participation by Reclamation, costs incurred by Reclamation will be added as a line item to the budget during development of the financial assistance agreement and cost shared accordingly (i.e., withheld from the Federal award amount). Any costs to the recipient associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement.

Staff at the local Reclamation office were consulted regarding the development of environmental project costs; those general guidelines for developing environmental project costs have been considered in this application’s budget. Environmental costs were developed by Jones & DeMille Engineering (JDE) environmental staff after reviewing the locations and scope of the proposed project. JDE environmental staff have extensive experience in NEPA, ESA, NHPA, CWA, and other environmental regulations. This specific project has a very limited environmental component as the NEPA analysis for the entire length of the Steinaker Service Canal easement has been completed and approved, and no permitting with USACE would be needed for the project (see project environmental assessment). The total budget allocated to environmental costs includes \$3,000, which only includes environmental coordination for the consultant and Reclamation to ensure that the project design and construction area are within the scope of the 2014 EA.

Other Expenses

Any other expenses not included in the above categories shall be listed in this category, along with a description of the item and why it is necessary. No profit or fee will be allowed.

Not Included.

Indirect Costs

Indirect costs are costs incurred by the applicant for a common or joint purpose that benefit more than one activity of the organization and are not readily assignable to the activities specifically benefitted without undue effort. Costs that are normally treated as indirect costs include, but are not limited to, administrative salaries and fringe benefits associated with overall financial and organizational administration; operation and maintenance costs for facilities and equipment; and, payroll and procurement services. If indirect costs will be incurred, identify the proposed rate, cost base, and proposed amount for allowable indirect costs based on the applicable cost principles for the applicant's organization. It is not acceptable to simply incorporate indirect rates within other direct cost line items. If the applicant has never received a Federal negotiated indirect cost rate, the budget may include a de minimis rate of up to 10 percent of modified total direct costs. For further information on modified total direct costs, refer to 2 CFR §200.68 available at www.ecfr.gov.

If the applicant does not have a federally approved indirect cost rate agreement and is proposing a rate greater than the de minimis 10 percent rate, include the computational basis for the indirect expense pool and corresponding allocation base for each rate. Information on "Preparing and Submitting Indirect Cost Proposals" is available from the Department, the Interior Business Center, and Indirect Cost Services, at www.doi.gov/ibc/services/finance/indirect-cost-services. If the proposed project is selected for award, the recipient will be required to submit an indirect cost rate proposal with their cognizant agency within three months of award. Reimbursement of indirect costs will not be allowable until the recipient enters into the indirect cost rate agreement.

Not Included.

Environmental and Cultural Resources Compliance

All projects being considered for award funding will require compliance with the NEPA before any ground-disturbing activity may begin. Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, the Clean Water Act (CWA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), consultation with potentially affected tribes, and consultation with the State Historic Preservation Office.

Reclamation will be the lead Federal agency for National Environmental Policy Act (NEPA) compliance and will be responsible for evaluating technical information and ensuring that natural resources, cultural, and socioeconomic concerns are appropriately addressed. As the lead agency, Reclamation is solely responsible for determining the appropriate level of NEPA compliance. Further, Reclamation is responsible to ensure that findings under NEPA, and consultations, as appropriate, will support Reclamation's decision on whether to fund a project. Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the recipient. Where environmental or cultural resources compliance requires significant participation by Reclamation, costs anticipated to be incurred by Reclamation will be added as a line item to the budget during development of the financial assistance agreement and cost shared accordingly. Any costs to the recipient associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement.

Reclamation's estimated cost to complete environmental and cultural compliance activities will be withheld from the initial obligation of Federal funding. After compliance activities are completed, any remaining Federal funding will be obligated to the Agreement.

Note, if mitigation is required to lessen environmental impacts, the applicant may, at Reclamation's discretion, be required to report on progress and completion of these commitments. Reclamation will coordinate with the applicant to establish reporting requirements and intervals accordingly.

Under no circumstances may an applicant begin any ground-disturbing activities (e.g., grading, clearing, and other preliminary activities) on a project before environmental and cultural resources compliance is complete and a Reclamation Grants Officer provides written notification that all such clearances have been obtained. This pertains to all components of the proposed project, including those that are part of the applicant's non-Federal cost-share. An applicant that proceeds before environmental and cultural resources compliance is complete may risk forfeiting Reclamation funding under this FOA. Costs incurred for ground-disturbing activities performed prior to award are not eligible for reimbursement or cost share unless the recipient can provide documentation that Federal environmental and cultural resource clearances were obtained for the project prior to the commencement of the activities.

Due to the nature of the project, very little, if any ground disturbance will be required for this project. Because the entire Steinaker Service Canal easement was previously covered under the aforementioned NEPA analysis, it is assumed that the project would not require any further

NEPA analysis, environmental surveys, mitigation, or permitting. The project would require some environmental coordination between the consultant and Reclamation staff.

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.

Note that the improvements to Federal facilities that implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the federal facility and any improvement that is integral to the existing operations of that facility. Please see P.L. 111-11, Section 9504(a)(3)(B). Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR Section 429, and that the development will not impact or impair project operations or efficiency.

Because the entire Steinaker Service Canal easement was previously covered under the aforementioned NEPA analysis, it is assumed that the project would not require any NEPA analysis, environmental surveys, mitigation, or permitting (Subcriterion No. F.3: Readiness to Proceed). There would be some environmental coordination during the design and construction process to ensure that the project stayed within the scope of the authorized EA.

Letters of Support

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/ partnership letters as an appendix. Letters of support received after the application deadline for this FOA will not be considered in the evaluation of the proposed project.

Letters of support are included in Appendix A.

Official Resolutions

Include an official resolution adopted by the applicant's board of directors or governing body, or, for state government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- The identity of the official with legal authority to enter into an agreement.*
- The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted.*

- *The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan.*
- *That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.*

***An official resolution meeting the requirements set forth above is mandatory.** If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline, via email to the contact listed in Section D.1. of this FOA.*

See attached Resolution signed by Todd Thacker, Chairman of UWCD.

RESOLUTION
Resolution No. 2020908

THE APPLICATION FOR BUREAU OF RECLAMATION
WATERSMART GRANTS: WATER AND ENERGY EFFICIENCY GRANTS
FOA No. BOR-DO-21-F001

FOR

STEINAKER SERVICE CANAL ENCLOSURE PROJECT – REACHES I AND II
AUTOMATION

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has announced the *WaterSMART Water and Energy Efficiency Grants* in order to prevent water supply crises and ease conflict in the western United States, and has requested proposals from eligible entities to be included in the WaterSMART Program;

WHEREAS, the Uintah Water Conservancy District (District) is an Eligible Applicant by virtue of being the sponsoring entity for the Vernal and Jensen Units of the Central Utah Project constructed by the Bureau of Reclamation; and

WHEREAS, the District desires to submit a proposal for funding assistance.

NOW, THEREFORE, BE IT RESOLVED that the District Board of Trustees agrees and verifies that:

1. The District Board of Trustees has reviewed and supports the application submitted;
2. The District is capable of providing the amount of funding and/or in-kind contributions specified in the funding plan;
3. If selected for a WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement; and
4. The District Official signing this document has the legal authority to enter into this agreement.

DATED: 09/08/2020

SIGNED: 
NAME: R. Todd Thacker TITLE: Chairman, UWCD

ATTEST: 
NAME: William Merkley TITLE: Secretary/Treasurer

Appendix A - Letters of Support

Ashley Central Irrigation
Ashley Valley Reservoir Co.
Island Ditch Company

Ashley Upper Irrigation
Highline Canal Company
Rock Point Canal & Irrigation

ASHLEY WATER USERS

44 WEST 100 NORTH
VERNAL, UT 84078
(435) 789-3212 FAX (435) 781-0515
ashleywater@stratanet.com

April 6, 2020

RE: Steinaker Service Canal Enclosure Project

To Whom it May Concern,

We as a group would like to make known our support for the Service Canal Project. We as an Association service 5 of the Canals here in the Basin, along with Ashley Valley Reservoir Company. We utilize the Steinaker Service Canal as a delivery system to facilitate the delivery of water to our shareholders. In addition to delivering project water, it supports delivery to a larger number of users when canals have reached their capacity or when the natural flow in Ashley Creek has dropped off.

We feel this project will enhance what we are trying to accomplish with regards to our own canals. As we experience growth as a community, we deal with encroachment, seepage, loss and safety issues along the open canals. Water quality improves when we no longer deal with people using the canals to dispose of yard clippings and other items. We currently have two canals in pipe and are in the environmental stages of piping the remaining three.

Understanding the importance of water to our community is paramount to the success of our community. This Association supports this project as a step forward and one way to conserve our greatest natural resource.

Sincerely,



Curt Smitin, President
Highline Canal Company



Wayne Simper, President
Ashley Central Irrigation Company



Billy Cook, President
Ashley Upper Irrigation Company



for Morgan Batty, President
Island Ditch Company

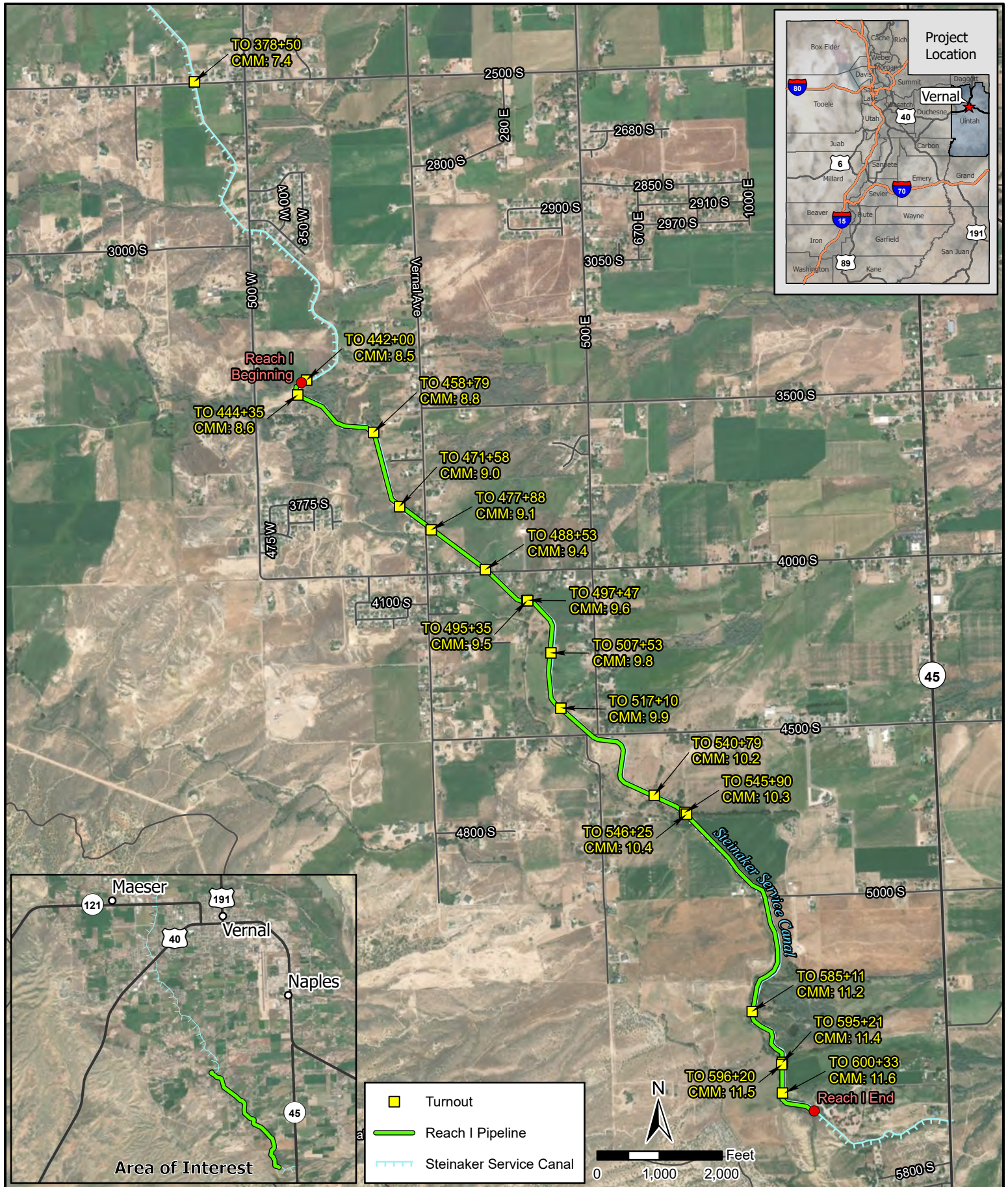


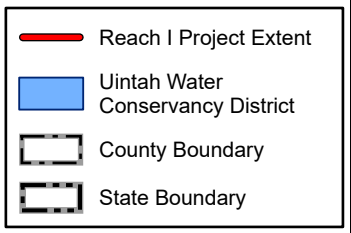
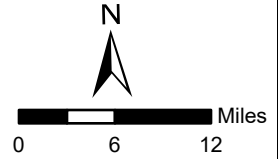
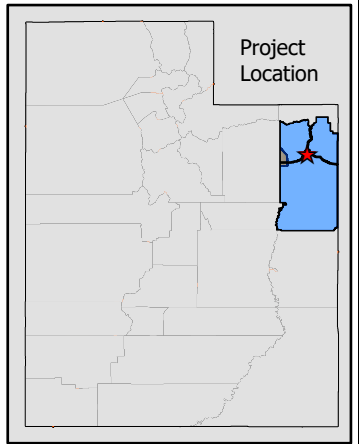
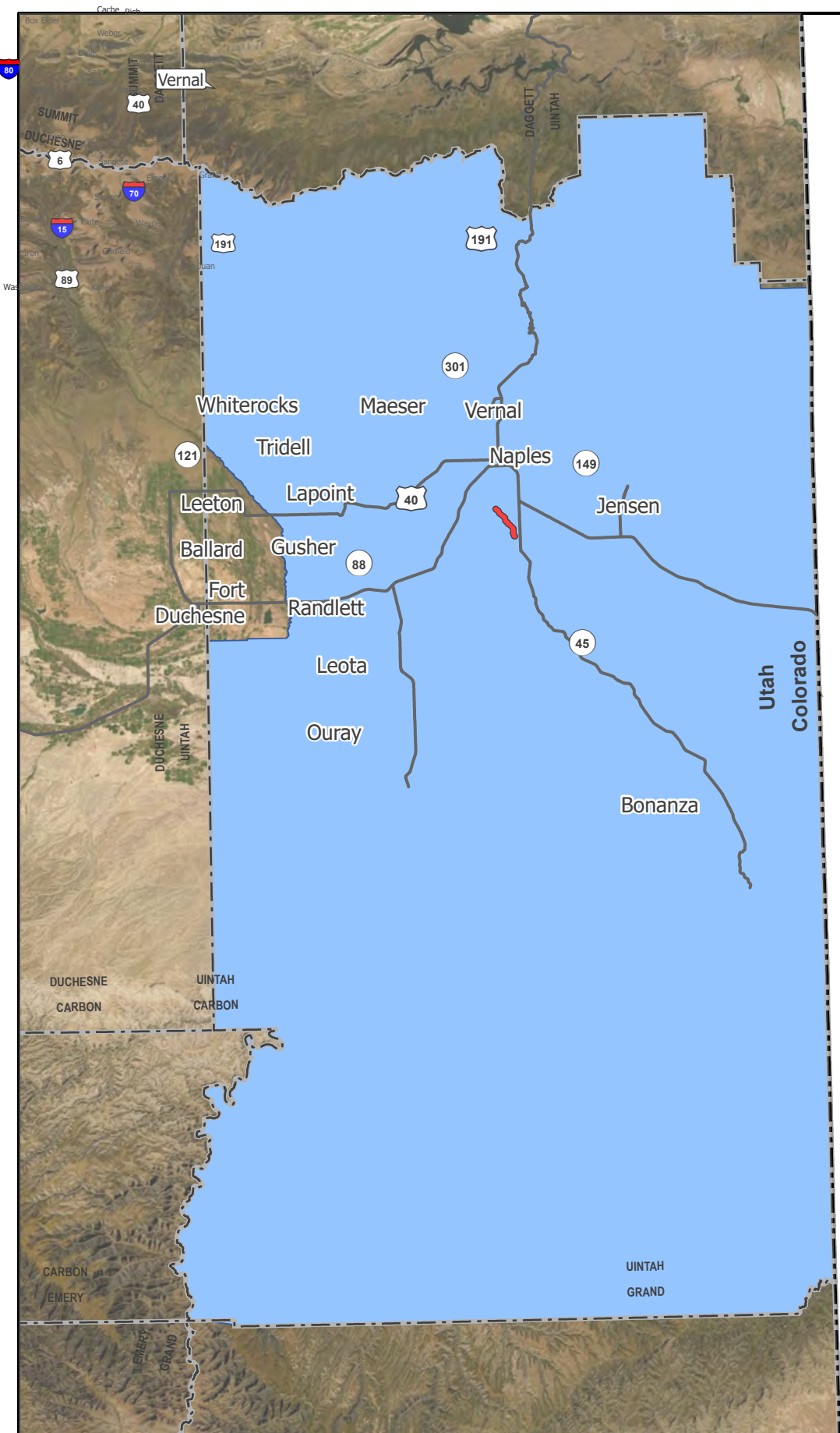
Leon Kidd, President
Rock Point Canal & Irrigation Company



Cody Jenkins, President
Ashley Valley Reservoir Company

Appendix B - Project Maps





**Jones & DeMille
Engineering**

- Shaping the Quality of Life -
800.748.5275 www.jonesanddemille.com

Uintah Water Conservancy District

**Steinaker Service Canal Reach 1 - WaterSMART
Conservancy District Boundary Overview**

Map Name: H:\JD\Proj\2007-007\Design\GIS\Projects\Applications\2007-005.PR_Application.aprx - Esh UWCD Boundary Overview 8.5x11P

Project Number: 2007-007 Drawn by: JEM 09-20 Last Edit: 09/08/2020

Uintah County

Scale: 1" = 12 miles

1

Appendix C - Water Savings Data

Table D.1 – Summary of Calculations

Turnout	Time (Days)	Total Delivered (AF)	Total Ordered (AF)	Total Over-Delivered (AF)	% Over
TN 08.6	5.86	38.63	37.44	1.19	3%
TN 08.8	0.00	0.00	0.00	0.00	0%
TN 09.0	0.00	0.00	0.00	0.00	0%
TN 09.1	0.00	0.00	0.00	0.00	0%
TN 09.4	0.00	0.00	0.00	0.00	0%
TN 09.5	2.05	2.76	2.34	0.42	18%
TN 09.6	6.66	36.88	43.80	6.92	-16%
TN 09.8	5.86	8.16	6.95	1.21	17%
TN 09.9	6.66	5.30	4.06	1.24	31%
TN 10.2	6.40	33.10	32.70	0.40	1%
TN 10.3	0.00	0.00	0.00	0.00	0%
TN 10.4	0.00	0.00	0.00	0.00	0%
TN 11.2	6.66	12.58	8.95	3.63	41%
TN 11.4	1.81	2.76	2.14	0.61	29%
TN 11.5	3.04	20.52	17.64	2.88	16%
TN 11.6	1.97	1.87	1.32	0.54	41%
TOTALS		125.68	113.54	12.14	9.7%

Table D.1 shows a summary of calculations at each turnout. Total time, total acre-feet delivered, total acre-feet ordered, and total acre-feet over-delivered were calculated for each turnout. These were used to calculate similar totals for the entire system and a percentage of water loss. Note that at the end of the season there was a limited supply of water. Therefore, turnout 9.6 did not receive what was ordered. Several turnouts were not turned on at this time.

Table D.2 - Meter Flow Data (CF/S) Part 1 of 2

Date and Time	TN 08.6	TN 08.8	TN 09.0	TN 09.1	TN 09.4	TN 09.5	TN 09.6	TN 09.8	TN 09.9
8/28/20 11:08 AM	2.93	0.00	0.00	0.00	0.00	0.82	3.49	1.45	1.94
8/28/20 12:03 PM	2.95	0.00	0.00	0.00	0.00	0.82	3.43	1.43	1.93
8/28/20 12:59 PM	3.08	0.00	0.00	0.00	0.00	0.83	3.39	1.39	1.93
8/31/20 7:55 AM	3.03	0.00	0.00	0.00	0.00	0.60	2.78	0.42	1.24
8/31/20 11:05 AM	3.21	0.00	0.00	0.00	0.00	0.61	2.64	0.49	1.19
8/31/20 12:13 PM	3.11	0.00	0.00	0.00	0.00	0.61	2.79	0.50	1.20
8/31/20 1:39 PM	3.14	0.00	0.00	0.00	0.00	0.59	2.70	0.48	1.19
8/31/20 3:52 PM	3.15	0.00	0.00	0.00	0.00	0.60	2.73	0.52	0.33
9/1/20 7:45 AM	3.22	0.00	0.00	0.00	0.00	0.59	2.16	0.49	0.33
9/1/20 8:57 AM	3.06	0.00	0.00	0.00	0.00	0.59	2.69	0.51	0.30
9/1/20 10:31 AM	3.08	0.00	0.00	0.00	0.00	0.59	2.67	0.50	0.28
9/1/20 2:16 PM	3.03	0.00	0.00	0.00	0.00	0.59	2.65	0.53	0.28
9/1/20 3:05 PM	3.01	0.00	0.00	0.00	0.00	0.60	2.64	0.53	0.30
9/1/20 4:23 PM	2.97	0.00	0.00	0.00	0.00	0.00	2.55	0.53	0.31
9/1/20 5:31 PM	2.96	0.00	0.00	0.00	0.00	0.00	2.67	0.52	0.31
9/2/20 7:50 AM	3.00	0.00	0.00	0.00	0.00	0.00	2.71	0.55	0.33
9/2/20 11:28 AM	2.96	0.00	0.00	0.00	0.00	0.00	2.95	0.50	0.30
9/2/20 12:54 PM	2.96	0.00	0.00	0.00	0.00	0.00	2.79	0.50	0.31
9/2/20 1:45 PM	2.89	0.00	0.00	0.00	0.00	0.00	2.72	0.49	0.31
9/2/20 3:22 PM	2.91	0.00	0.00	0.00	0.00	0.00	2.93	0.50	0.30
9/2/20 4:22 PM	2.98	0.00	0.00	0.00	0.00	0.00	2.86	0.52	0.32
9/3/20 7:44 AM	2.86	0.00	0.00	0.00	0.00	0.00	2.91	0.47	0.29
9/3/20 9:10 AM	2.82	0.00	0.00	0.00	0.00	0.00	2.93	0.52	0.26
9/3/20 10:50 AM	2.97	0.00	0.00	0.00	0.00	0.00	2.98	0.52	0.28
9/3/20 12:47 PM	2.88	0.00	0.00	0.00	0.00	0.00	2.74	0.60	0.30
9/3/20 2:08 PM	4.37	0.00	0.00	0.00	0.00	0.00	3.35	0.89	0.00
9/3/20 3:15 PM	4.40	0.00	0.00	0.00	0.00	0.00	3.40	0.92	0.00
9/3/20 4:06 PM	4.46	0.00	0.00	0.00	0.00	0.00	3.39	0.92	0.00
9/4/20 8:45 AM	4.23	0.00	0.00	0.00	0.00	0.00	2.73	0.67	0.00
9/4/20 1:25 PM	4.20	0.00	0.00	0.00	0.00	0.00	3.46	0.70	0.00
9/8/20 8:50 AM	1.86	0.00	0.00	0.00	0.00	0.00	1.91	0.60	0.00
9/8/20 4:11 PM	0.00	0.00	0.00	0.00	0.00	0.00	1.68	0.00	0.00
9/9/20 11:23 AM	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00	0.00

Table D.3 – Meter Flow Data (CF/S) Part 2 of 2

Date and Time	TN 10.2	TN 10.3	TN 10.4	TN 11.2	TN 11.4	TN 11.5	TN 11.6
8/28/20 11:08 AM	3.72	0.00	0.00	3.28	2.75	0.00	0.68
8/28/20 12:03 PM	3.70	0.00	0.00	3.30	0.91	0.00	0.68
8/28/20 12:59 PM	3.73	0.00	0.00	3.29	0.97	0.00	0.68
8/31/20 7:55 AM	2.83	0.00	0.00	1.02	0.00	0.00	0.38
8/31/20 11:05 AM	3.22	0.00	0.00	1.02	0.00	0.00	0.36
8/31/20 12:13 PM	3.08	0.00	0.00	1.02	0.00	0.00	0.37
8/31/20 1:39 PM	3.43	0.00	0.00	1.03	0.00	0.00	0.36
8/31/20 3:52 PM	3.38	0.00	0.00	1.02	0.00	0.00	0.36
9/1/20 7:45 AM	3.53	0.00	0.00	1.01	0.00	0.00	0.38
9/1/20 8:57 AM	3.22	0.00	0.00	0.93	0.00	0.00	0.38
9/1/20 10:31 AM	3.09	0.00	0.00	0.93	0.00	0.00	0.38
9/1/20 2:16 PM	2.91	0.00	0.00	0.72	0.00	3.44	0.00
9/1/20 3:05 PM	2.82	0.00	0.00	0.74	0.00	3.77	0.00
9/1/20 4:23 PM	3.00	0.00	0.00	0.75	0.00	3.70	0.00
9/1/20 5:31 PM	2.21	0.00	0.00	0.75	0.00	3.36	0.00
9/2/20 7:50 AM	3.80	0.00	0.00	0.75	0.00	3.50	0.00
9/2/20 11:28 AM	3.12	0.00	0.00	0.66	0.00	3.57	0.00
9/2/20 12:54 PM	2.96	0.00	0.00	0.74	0.00	3.53	0.00
9/2/20 1:45 PM	3.18	0.00	0.00	0.72	0.00	3.40	0.00
9/2/20 3:22 PM	3.16	0.00	0.00	0.69	0.00	3.38	0.00
9/2/20 4:22 PM	3.16	0.00	0.00	0.69	0.00	3.49	0.00
9/3/20 7:44 AM	1.30	0.00	0.00	0.71	0.00	3.59	0.00
9/3/20 9:10 AM	1.98	0.00	0.00	0.71	0.00	3.48	0.00
9/3/20 10:50 AM	1.99	0.00	0.00	0.71	0.00	3.50	0.00
9/3/20 12:47 PM	1.63	0.00	0.00	0.70	0.00	3.51	0.00
9/3/20 2:08 PM	2.09	0.00	0.00	0.70	0.00	3.62	0.00
9/3/20 3:15 PM	1.97	0.00	0.00	0.71	0.00	3.54	0.00
9/3/20 4:06 PM	2.04	0.00	0.00	0.70	0.00	3.38	0.00
9/4/20 8:45 AM	1.77	0.00	0.00	0.71	0.00	3.46	0.00
9/4/20 1:25 PM	1.36	0.00	0.00	0.70	0.00	3.52	0.00
9/8/20 8:50 AM	2.26	0.00	0.00	0.68	0.61	0.00	0.00
9/8/20 4:11 PM	1.90	0.00	0.00	0.00	0.57	0.00	0.00
9/9/20 11:23 AM	0.00	0.00	0.00	0.00	0.60	0.00	0.00

Table D.4 – Order Flow Data (CF/S) Part 1 of 2

Date and Time	TN 8.6	TN 8.8	TN 9.0	TN 9.1	TN 9.4	TN 9.5	TN 9.6	TN 9.8	TN 9.9
8/28/20 11:08 AM	3.00	0.00	0.00	0.00	0.00	0.75	4.50	0.75	1.50
8/28/20 12:03 PM	3.00	0.00	0.00	0.00	0.00	0.75	4.50	0.75	1.50
8/28/20 12:59 PM	3.00	0.00	0.00	0.00	0.00	0.75	4.50	0.75	1.50
8/31/20 7:55 AM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	1.00
8/31/20 11:05 AM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	1.00
8/31/20 12:13 PM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	1.00
8/31/20 1:39 PM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	0.25
8/31/20 3:52 PM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	0.25
9/1/20 7:45 AM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	0.25
9/1/20 8:57 AM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	0.25
9/1/20 10:31 AM	3.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	0.25
9/1/20 2:16 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/1/20 3:05 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/1/20 4:23 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/1/20 5:31 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/2/20 7:50 AM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/2/20 11:28 AM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/2/20 12:54 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/2/20 1:45 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/2/20 3:22 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/2/20 4:22 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/3/20 7:44 AM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/3/20 9:10 AM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/3/20 10:50 AM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/3/20 12:47 PM	3.00	0.00	0.00	0.00	0.00	0.25	4.00	0.50	0.25
9/3/20 2:08 PM	4.00	0.00	0.00	0.00	0.00	0.25	2.50	0.75	0.00
9/3/20 3:15 PM	4.00	0.00	0.00	0.00	0.00	0.25	2.50	0.75	0.00
9/3/20 4:06 PM	4.00	0.00	0.00	0.00	0.00	0.25	2.50	0.75	0.00
9/4/20 8:45 AM	4.00	0.00	0.00	0.00	0.00	0.25	2.50	0.75	0.00
9/4/20 1:25 PM	4.00	0.00	0.00	0.00	0.00	0.75	2.00	0.75	0.00
9/8/20 8:50 AM	2.00	0.00	0.00	0.00	0.00	0.25	2.00	0.50	0.00
9/8/20 4:11 PM	4.00	0.00	0.00	0.00	0.00	0.25	2.00	0.25	0.00
9/9/20 11:23 AM	4.00	0.00	0.00	0.00	0.00	0.25	2.00	0.25	0.00

Table D.5 – Order Flow Data (CF/S) Part 2 of 2

Date and Time	TN 10.2	TN 10.3	TN 10.4	TN 11.2	TN 11.4	TN 11.5	TN 11.6	TN 11.6
8/28/20 11:08 AM	3.00	0.00	4.50	2.75	0.75	0.00	0.50	0.68
8/28/20 12:03 PM	3.00	0.00	4.50	2.75	0.75	0.00	0.50	0.68
8/28/20 12:59 PM	3.00	0.00	4.50	2.75	0.75	0.00	0.50	0.68
8/31/20 7:55 AM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.38
8/31/20 11:05 AM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.36
8/31/20 12:13 PM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.37
8/31/20 1:39 PM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.36
8/31/20 3:52 PM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.36
9/1/20 7:45 AM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.38
9/1/20 8:57 AM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.38
9/1/20 10:31 AM	3.00	0.00	3.00	0.50	0.00	0.00	0.25	0.38
9/1/20 2:16 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/1/20 3:05 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/1/20 4:23 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/1/20 5:31 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/2/20 7:50 AM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/2/20 11:28 AM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/2/20 12:54 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/2/20 1:45 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/2/20 3:22 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/2/20 4:22 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 7:44 AM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 9:10 AM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 10:50 AM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 12:47 PM	3.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 2:08 PM	2.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 3:15 PM	2.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/3/20 4:06 PM	2.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/4/20 8:45 AM	2.00	0.00	0.00	0.50	0.00	3.00	0.00	0.00
9/4/20 1:25 PM	2.00	0.00	0.00	0.50	0.75	0.00	0.00	0.00
9/8/20 8:50 AM	2.00	0.00	0.00	0.50	0.50	0.00	0.00	0.00
9/8/20 4:11 PM	2.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
9/9/20 11:23 AM	2.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00

Table D.6 – Daily Delivery (Acre-Feet) in 2017 From CMM 3.7 and Down

Date	Amount (AF)	Date	AF	Date	AF	Date	AF	Date	AF
Total	13967	13-May	129.0	25-Jun	142.0	7-Aug	107.0	19-Sep	27.5
1-Apr	0.0	14-May	123.5	26-Jun	146.5	8-Aug	108.5	20-Sep	26.5
2-Apr	0.0	15-May	129.0	27-Jun	137.0	9-Aug	102.0	21-Sep	25.5
3-Apr	0.0	16-May	130.0	28-Jun	147.0	10-Aug	107.5	22-Sep	33.5
4-Apr	0.0	17-May	130.5	29-Jun	157.5	11-Aug	100.5	23-Sep	30.5
5-Apr	0.0	18-May	104.5	30-Jun	137.5	12-Aug	90.0	24-Sep	28.0
6-Apr	0.0	19-May	95.5	1-Jul	111.0	13-Aug	88.5	25-Sep	25.0
7-Apr	0.0	20-May	106.0	2-Jul	105.0	14-Aug	82.0	26-Sep	20.5
8-Apr	0.0	21-May	105.0	3-Jul	107.5	15-Aug	67.0	27-Sep	19.0
9-Apr	0.0	22-May	92.0	4-Jul	93.0	16-Aug	65.5	28-Sep	17.0
10-Apr	0.0	23-May	95.5	5-Jul	86.5	17-Aug	59.5	29-Sep	16.5
11-Apr	0.0	24-May	98.5	6-Jul	85.0	18-Aug	64.0	30-Sep	17.0
12-Apr	0.0	25-May	91.5	7-Jul	84.0	19-Aug	66.0	1-Oct	18.0
13-Apr	0.0	26-May	92.0	8-Jul	81.5	20-Aug	64.0	2-Oct	15.0
14-Apr	0.0	27-May	94.5	9-Jul	87.5	21-Aug	71.5	3-Oct	6.0
15-Apr	0.0	28-May	90.0	10-Jul	96.5	22-Aug	87.5	4-Oct	6.0
16-Apr	0.0	29-May	84.0	11-Jul	86.5	23-Aug	92.0	5-Oct	6.0
17-Apr	0.0	30-May	86.0	12-Jul	95.0	24-Aug	88.5	6-Oct	9.5
18-Apr	0.0	31-May	84.5	13-Jul	95.5	25-Aug	96.0	7-Oct	12.0
19-Apr	0.0	1-Jun	91.0	14-Jul	99.5	26-Aug	94.5	8-Oct	9.5
20-Apr	0.0	2-Jun	88.0	15-Jul	98.0	27-Aug	86.0	9-Oct	11.5
21-Apr	0.0	3-Jun	87.0	16-Jul	100.5	28-Aug	95.5	10-Oct	0.0
22-Apr	0.0	4-Jun	86.5	17-Jul	93.0	29-Aug	85.5	11-Oct	0.0
23-Apr	0.0	5-Jun	79.0	18-Jul	93.0	30-Aug	85.0	12-Oct	0.0
24-Apr	0.0	6-Jun	81.0	19-Jul	98.0	31-Aug	82.5	13-Oct	0.0
25-Apr	0.0	7-Jun	83.5	20-Jul	99.5	1-Sep	61.5	14-Oct	0.0
26-Apr	0.0	8-Jun	88.5	21-Jul	92.0	2-Sep	63.5	15-Oct	0.0
27-Apr	38.5	9-Jun	99.0	22-Jul	83.0	3-Sep	62.5	16-Oct	0.0
28-Apr	41.5	10-Jun	104.0	23-Jul	90.0	4-Sep	57.5	17-Oct	0.0
29-Apr	52.0	11-Jun	108.0	24-Jul	95.0	5-Sep	67.0	18-Oct	0.0
30-Apr	53.5	12-Jun	110.0	25-Jul	97.5	6-Sep	79.0	19-Oct	0.0
1-May	62.5	13-Jun	107.5	26-Jul	93.5	7-Sep	72.5	20-Oct	0.0
2-May	67.0	14-Jun	109.0	27-Jul	94.0	8-Sep	75.0	21-Oct	0.0
3-May	71.5	15-Jun	115.5	28-Jul	94.5	9-Sep	77.5	22-Oct	0.0
4-May	94.0	16-Jun	122.0	29-Jul	88.5	10-Sep	72.5	23-Oct	0.0
5-May	110.0	17-Jun	111.0	30-Jul	90.0	11-Sep	62.5	24-Oct	0.0
6-May	118.0	18-Jun	112.0	31-Jul	87.0	12-Sep	64.0	25-Oct	0.0
7-May	115.5	19-Jun	114.0	1-Aug	95.5	13-Sep	60.5	26-Oct	0.0
8-May	115.0	20-Jun	110.5	2-Aug	101.5	14-Sep	60.5	27-Oct	0.0
9-May	113.0	21-Jun	117.0	3-Aug	113.5	15-Sep	58.5	28-Oct	0.0
10-May	115.5	22-Jun	126.0	4-Aug	114.5	16-Sep	51.5	29-Oct	0.0
11-May	122.5	23-Jun	128.5	5-Aug	115.0	17-Sep	48.0	30-Oct	0.0
12-May	124.0	24-Jun	137.5	6-Aug	111.5	18-Sep	45.0	31-Oct	0.0