TOWN OF CHERAW

SMART METER INSTALLATION FOR WATER CONSOLIDATION PROJECT

FOR THE

BUREAU OF RECLAMATION

WATERSMART WATER AND ENERGY EFFICIENCY GRANTS FY24

NOFO: R24AS00052

Town of Cheraw

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FEBRUARY 22, 2024

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EXECUTIVE SUMMARY

Submission Date: February 22, 2024
Applicant: Town of Cheraw
Applicant City, County, State: Cheraw, Otero County, Colorado
Applicant Task Area: Task B: Project Design Grant
Applicant Category: Category A
Project Title: Smart Meter Installation for Town of Cheraw Water Consolidation Project

The Town of Cheraw (Town) is applying for the U.S. Bureau of Reclamation WaterSMART Water and Energy Efficiency Grant opportunity for $789,500 in funding for smart meter installation as part of their water consolidation project. There are four communities that have committed to consolidation with the Town's water system: Beehive Water Association (PWSID CO0145030), East End Water Association (PWSID CO0145120), South Side Water Company (PWSID CO0145660), and Holbrook Center Soft Water Company (PWSID CO0145330). These four water systems are all operating under enforcement orders from CDPHE for exceeding the maximum contaminant level (MCL) for combined radium and lack the financial resources to treat for radium on their own. Additionally, all four consolidating water systems do not have water meters at each tap, so water losses are unaccounted for. Funding from the WaterSMART program will be used to install smart meters for each tap in the Town and the four consolidating water systems. The proposed smart meter installation project will help the Town quantify water losses and assist staff with leak detection throughout the consolidated service area. Additionally, as the consolidating systems transition to the Town's usage-based rate structure, meters will better inform and educate customers on their water use and encourage water conservation. The proposed smart meter installation project is expected to provide an estimated water savings of 19.5 acre-feet per year (ac-ft/year) and meets the goals of the WaterSMART program by resulting in quantifiable water savings, improving system reliability, increasing water conservation efforts, and improving overall water system reliability. The smart meter installation project is anticipated to start in September 2024 and is expected to be completed by September 2025. The proposed project is not located on federal facilities or land.

PROJECT LOCATION

Cheraw is located in Otero County, Colorado, approximately 70 miles east of Pueblo and approximately 10 miles north of La Junta. The existing distribution systems of the four consolidating water systems are located within 1.5 miles of the Town's service area and are shown in Figure 1. The Cheraw water treatment facility (WTF)'s latitude is 38°6.5'N and longitude is 103°30.7'W.

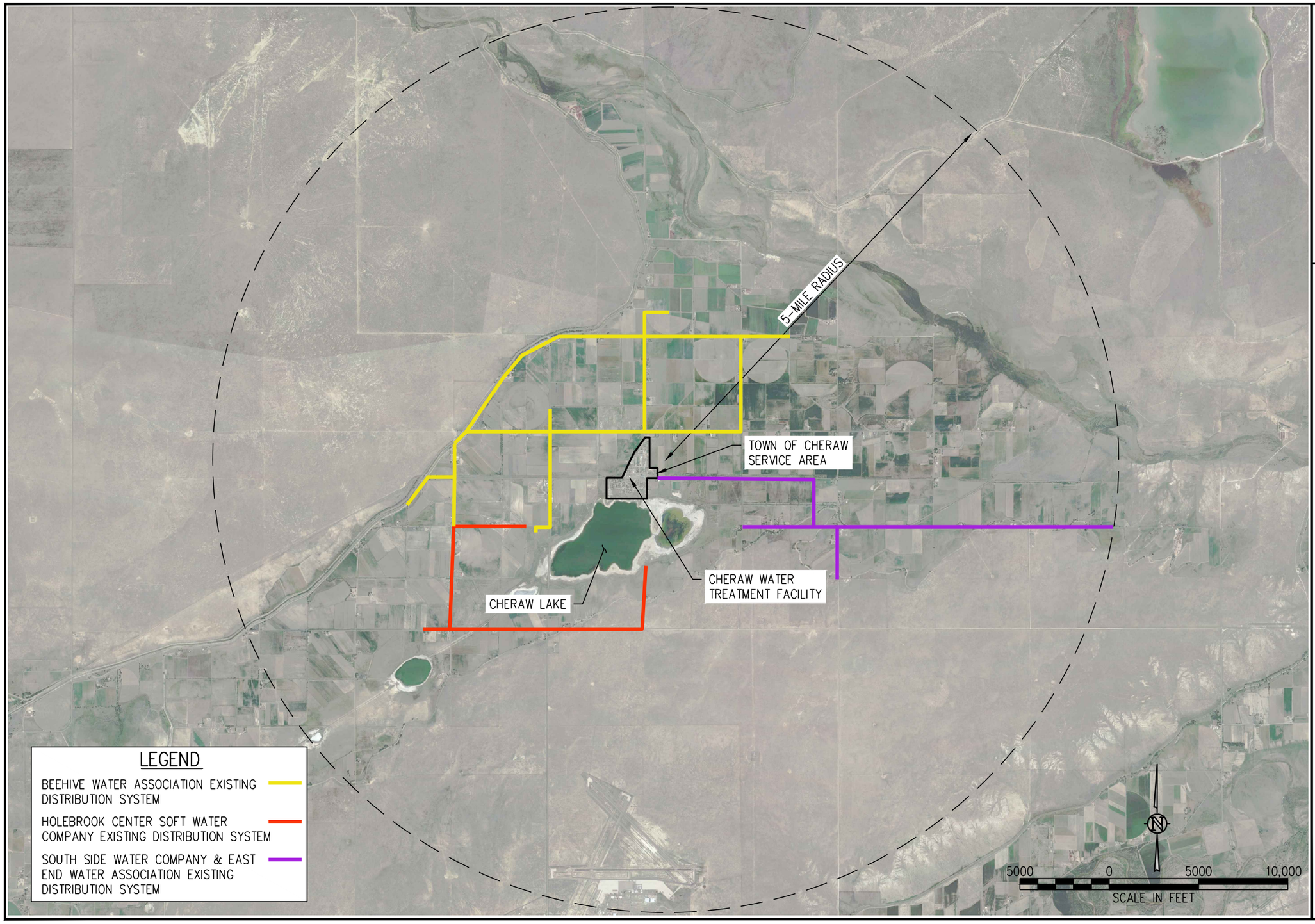

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FIGURE 1 - PROJECT LOCATION
CHERAW WATER CONSOLIDATION
FEBRUARY 2024

PROJECT DESCRIPTION

The smart meter installation project will help quantify water losses and assist staff with leak detection as the four water systems consolidate with the Town's service area. The Town's existing water system serves approximately 110 residential taps and 5 municipal and commercial taps, with an average annual water production of 36.7 ac-ft/year. The Town has a uniform usage-based rate structure, and each tap within the existing water service area is metered. However, these existing meters are outdated analog meters and need to be replaced. In 2023, unaccounted for water across the Town's existing distribution system were evaluated and observed to be an average of 22 percent over the past three years. The Town has pursued funding for leak detection services in its existing service area, which is expected to be completed in June 2024.

The proposed service area encompasses 5,400 acres within Otero County, with a total of 171 additional water taps to be served by the Town's water system through consolidation. The four consolidating water systems have master distribution meters, but do not have water meters at each tap. The consolidating water systems are generally more agricultural than the Town's users. Beehive Water Association (Beehive) has 79 residential taps and 9 non-residential taps. East End Water Association (East End) has 32 total taps. South Side Water Company (South Side), which shares a distribution main with East End, has 20 residential taps and 6 non-residential taps. Holbrook Center Soft Water Company (Holbrook Center) has 24 total taps. Based on master meter reading, the four consolidating water systems produce an average of 77.5 ac-ft/year.

The Town will solicit competitive bids from contractors for the smart meter installation project, which involves the purchase and installation of 286 smart water meters. Meters will be installed at each tap from the Town and the four consolidating water communities. These meters will be installed within existing rights-of-way and utility easements. The Town will not be replacing production or distribution system meters as a part of this project.

The contractor for the overall consolidation project will be solicited in a separate bid process.

EVALUATION CRITERIA A – QUANTIFIABLE WATER SAVINGS

1) 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.

Currently, taps within the Town's existing service area have outdated analog meters. This metering data allowed the Town to calculate an average water loss of 22 percent across the distribution system and pursue additional leak detection and repair efforts, which is expected to reduce unaccounted for water to less than 10 percent.

The proposed smart meter installation project involves the purchase and installation of smart water meters at each service line from the Town and the four consolidating water communities, which were originally constructed without meters around the same time as the Town's service lines. Assuming a similar leakage rate reduction can be achieved by referencing new metering data and

leak detection/repair efforts, it is estimated that 13.7 ac-ft/year may be saved as a direct result from this project. The Town will not be replacing production or distribution system meters as a part of this project.

In addition to water savings from leak detection and repair, several studies suggest that the use of smart water meters encourages customers to reduce water consumption between 6.4 to 9 percent.[1] Both reduced leakage and reduced water consumption from the installation of smart water meters is expected to result in estimated water savings of 19.5 ac-ft/year.

2) Describe current losses. Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:

- **Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?**
- **If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?**
- **Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?**

Current water losses seep into the ground. There are no known benefits associated with seepage water. Drill logs from the Town and four consolidating water systems indicate that the wells from this area's aquifer are typically over 700 feet deep and are generally capped by a 100-foot-deep layer of shale. Shale material typically contains small pores, and likely restricts infiltration flow back to the groundwater table. It is possible that the existing water losses are not able to return to the aquifer, at least locally. These water losses are not only a waste of a precious resource and the energy that is required to pump and treat it, but also represent an operational and financial burden on these small, rural, and disadvantaged communities.

3) Describe the support/documentation of estimated water savings. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.

Each of the four consolidating water systems provided recent water production data to the Town in 2023. East End provided master meter readings from 2018 to 2022, while the Town, South Side, and Beehive each provided the total volume of water produced from 2020 to 2022. Holbrook Center provided the total volume of water produced in 2022. This water production data was used to estimate the total volume of water produced by the Town and the four consolidating water systems, which is approximately 114.2 ac-ft/year.

Since the Town and the four consolidating water systems installed their distribution system piping around the same time, it was assumed that the four consolidating water systems currently have a similar water loss rate as the Town. The proposed smart meter installation project will help quantify water losses and provide essential data for future leak detection and repair efforts, which

[1] https://doi.org/10.1002/2014WR015812
https://www.nature.com/articles/s41545-021-00119-0
https://eta-publications.lbl.gov/sites/default/files/lbnl-1005988.pdf

is expected to reduce water losses from 22 percent to 10 percent. This represents an estimated water savings of 13.7 ac-ft/year from reduced leakage.

As mentioned previously, several studies suggest that the use of smart water meters encourages customers to reduce water consumption. Using an estimated reduction in water consumption of 6.4 percent, an additional 5.8 ac-ft/year will be saved from reduced water consumption. This results in a total estimated water savings of 19.5 ac-ft/year from both reduced leakage and reduced consumption from the installation of smart water meters. These supporting calculations of estimated water savings are included in Appendix A.

4) Please address the following questions according to the type of infrastructure improvement you are proposing for funding. See Appendix A: Benefit Quantification and Performance Measure Guidance for additional guidance on quantifying water savings.

Municipal Metering: Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tiered pricing and when existing individual user meters are replaced with advanced metering infrastructure (AMI) meters. To receive credit for water savings for a municipal metering project, an applicant must provide a detailed description of the method used to estimate savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:

a. **How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.**
b. **How have current system losses and/or the potential for reductions in water use by individual users been determined?**
c. **For installing end-user water service meters, e.g., for a residential or commercial building unit., refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.**

   Each of the four consolidating water systems provided recent water production data to the Town in 2023. This water production data was used to estimate the total volume of water produced by the Town and the four consolidating water systems, which is approximately 114.2 ac-ft/year. Since the Town and the four consolidating water systems installed their distribution system piping around the same time, it was assumed that the four consolidating water systems currently have a similar water loss rate as the Town. The proposed smart meter installation project will help quantify water losses and provide essential data for future leak detection and repair efforts, which is expected to reduce water losses from 22 percent to 10 percent. The installation of smart water meters is also expected to reduce customers' water consumption by 6.4 percent. This results in a total estimated water savings of 19.5 ac-ft/year. As mentioned previously, these supporting calculations of estimated water savings are included in Appendix A.

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

The proposed smart meter installation project involves the installation of 286 Sensus iPERL® smart water meters, or accepted substitution.

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

Upon completion of the smart meter installation, master meter readings will be compared to the total volume of water billed to all customers to quantify the water losses at the Town and each consolidating water system. The Town is planning to pursue funding for leakage detection services and repair for the four water systems as part of the overall water consolidation project. After leakage repair efforts have been completed, the actual water savings can be calculated and verified.

EVALUATION CRITERION B – RENEWABLE ENERGY

SUBCRITERION B.2 – INCREASING ENERGY EFFICIENCY IN WATER MANAGEMENT

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).

- **If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.**

  Water savings from the proposed smart meter installation project is expected to result in energy savings of 19,934 kilowatt hours per year (kWh/year). These were calculated based on historical annual energy use at the WTF and the energy required to treat each gallon of water. The supporting calculations of estimated energy savings are included in Appendix A.

- **How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.**

  The production of electricity that is used at the WTF involves the emission of greenhouse gases, which contribute to climate change. Water savings from the proposed smart meter installation will result in energy savings, therefore reducing greenhouse gas emissions. According to the United States Environmental Protection Agency (EPA) Greenhouse Gas Equivalencies Calculator, the energy savings of 19,934 kWh/year from the proposed smart meter installation project is equivalent to reduced greenhouse gas emissions of approximately 30,701 pounds of carbon dioxide.

- **If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?**

  The WTF currently uses two, 10 HP centrifugal pumps to feed the pressure filters used to remove radium and fill the Town's 200,000-gallon elevated water storage tank. Water

savings from the proposed smart meter installation project will result in reduced pumping as less water needs to be produced to meet demand. The two filter feed pumps at the WTF are expected to operate less frequently, therefore reducing energy usage.

- **Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.**
  The energy savings estimate is based on the energy used to treat water at the WTF.

- **Does the calculation include any energy required to treat the water, if applicable?**
  Yes. The supporting calculations included in Appendix A are based on the estimated energy saved at the WTP that would have otherwise been used to treat water.

- **Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.**
  Not applicable.

- **Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).**
  Not applicable.

Evaluation Criterion C – Other Project Benefits

Resilience and Sustainability Benefits

Describe recent, existing, or potential drought or water scarcity conditions in the project area. Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?

Otero County has suffered from drought conditions ranging from abnormally dry to exceptional drought in the past 23 years. According to the National Integrated Drought Information System (NIDIS) in Figure 2, periods ranging from severe to exceptional drought have occurred from 2002-2004, 2011-2015, 2018, and 2020-2021.[2] Figure 2 shows the drought conditions in Otero County, with D0 through D4, representing abnormally dry through exceptional drought. In the last five years, Otero County has experienced abnormally dry, moderate, severe, and extreme drought conditions.

[2] https://www.drought.gov/location/Cheraw,%20CO,%20USA

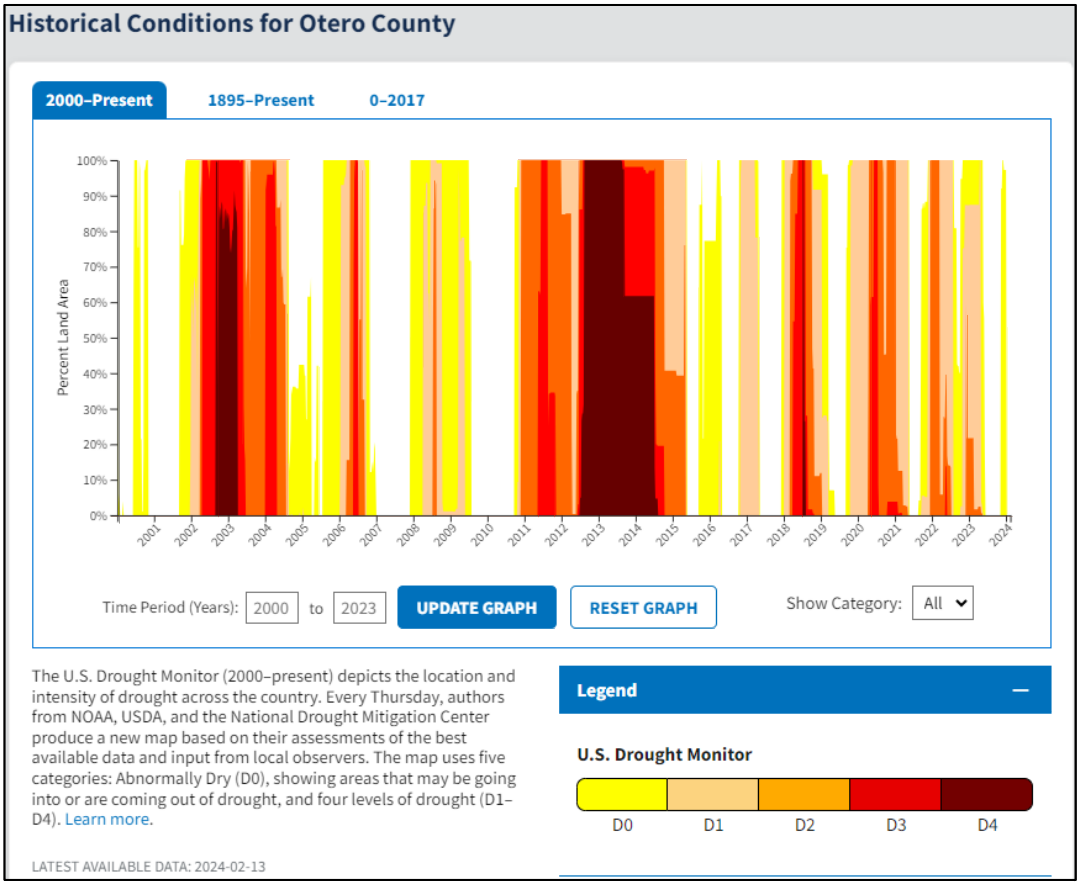

Figure 2 – Otero County Historical Drought Data

Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available).

The Colorado State Forest Service states, "Most climate projections … indicate that droughts and wildfires will increase in frequency and severity in Colorado by 2050, mainly as a consequence of continued warming."[3]

Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.

Not applicable.

Please describe how the project will directly address the concern(s) stated above.

The Town has adequate water quantity from its groundwater wells to meet present needs. However, without knowledge of leaks in the current system, aging infrastructure may lead to loss of water within the distribution system. Water reliability is impacted during periods of drought,

[3] https://csfs.colostate.edu/colorados-forests-changing-climate/

such as those the Town of Cheraw has experienced in the past 23 years as shown in Figure 2. The proposed project contributes to drought resilience by promoting water conservation.

Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

By better understanding water usage, the Town can develop policies to strategically target higher water users for conservation interventions and develop rate structures to encourage water savings.

Please address where any conserved water as a result of the project 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.

Annual water savings will allow reduced groundwater pumping, which will reduce local drawdown in the groundwater aquifer. When excessive groundwater is pumped, negative impacts include lowering of the water table and land subsidence, which can damage human infrastructure.[4] By decreasing pumping from the groundwater aquifer sources through the water metering project, the Town can proactively mitigate these negative impacts.

Were the Town to participate in the Bureau of Reclamation Arkansas Valley Conduit (AVC) in the future, which will bring clean drinking water from Pueblo Reservoir to 50,000 residents east of Pueblo including the Town, any water savings will directly benefit the rest of the AVC participants.

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

The proposed smart meter installation project is expected to provide an estimated water savings of 19.5 ac-ft/year.

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

The saved water will remain in the local groundwater aquifer, instead of being evaporated through leaks in the system or wasted by customers through water overuse.

Will the project assist States and water users in complying with interstate compacts?

Not applicable.

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

[4] https://www.usgs.gov/special-topics/water-science-school/science/groundwater-decline-and-depletion

The Arkansas River Basin has many water users, ranging through Colorado, New Mexico, Texas, Kansas, Oklahoma, Missouri, and Arkansas, as shown in Figure 3. Water conservation efforts in the Town of Cheraw will have positive impacts for the rest of the river basin. Collaboration across the entire river basin is necessary to increase resilience during periods of drought.

Figure 3 – Arkansas River Basin Map

ECOLOGICAL BENEFITS

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 or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

This project will not likely have a measurable impact on species.

Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels, recreational benefits, etc.).

No.

Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?

This project will not likely have a measurable impact on species.

Please describe any other ecosystem benefits as a direct result of the project.

Not applicable.

Climate Change

Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?

Annual water savings will allow reduced groundwater pumping, which will reduce local drawdown in the groundwater aquifer. When excessive groundwater is pumped, negative impacts include lowering of the water table and land subsidence, which can damage human infrastructure.[5] By decreasing pumping from the groundwater aquifer sources through the water metering project, the Town can proactively mitigate these negative climate impacts.

Does the project seek to improve ecological resiliency to climate change?

Not applicable.

Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?

The groundwater in the Town of Cheraw is currently contaminated with radium. By reducing water used by the Town, less water will be used and therefore less radium will be pulled out of the groundwater aquifer. This will reduce hazardous waste produced from the WTF and potential for leakage of contaminants.

Does the proposed project include green or sustainable infrastructure to improve community climate resilience?

Installation of smart water meters will reduce daily water usage, which decreases the time spent heating water for Town properties. In addition, since the meters will send their own data, less staff is needed to search for leaks in the pipeline system. In addition, water savings from this project will reduce demand on the Town of Cheraw WTF, resulting in lower treatment costs. These actions overall lower the environmental impact of the Town.

Does the proposed project contribute to climate change resiliency in other ways not described above?

No.

[5] https://www.usgs.gov/special-topics/water-science-school/science/groundwater-decline-and-depletion

EVALUATION CRITERION D – DISADVANTAGED COMMUNITIES AND TRIBAL BENEFITS

SUBCRITERION D.1 – DISADVANTAGED COMMUNITIES

Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map -Climate & Economic Justice Screening Tool (screeningtool.geoplatform.gov/en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project.

The Town of Cheraw, which is part of Tract Number 08089968500 in Otero County, is a disadvantaged census tract according to the Climate and Economic Justic Screening Tool because it meets more than one burden threshold and the socioeconomic threshold for low income households, as shown in Table 1.[6]

Table 1 – Climate and Economic Justice Screening Data

Metric	Cheraw Tract	Benchmark
Identified as disadvantaged	Yes	-
Completely surrounded tract	Yes	-
Formerly used defense sites	Yes	-
Adjusted low income	62th percentile	Above 50th percentile
Expected population loss due to natural hazards each year	93rd percentile	Above 90th percentile

The Town is also classified as a disadvantaged community per the Colorado Department of Local Affairs (DOLA) State Revolving Fund (SRF) Disadvantaged Community tool. The data in Table 2 was obtained to assess the City's status as a disadvantaged community.[7]

Table 2 – 2023 SRF Disadvantaged Community Data

Metric	Town of Cheraw	Benchmark
Median Household Income	$47,500	≤ $64,147 (80% of State Median)
Median Home Value	$106,300	≤ $397,500 (100% of State Median)
County 10-Year Jobs Change	-4	≤ 0

The City meets the State Revolving Fund (SRF) criteria for a disadvantaged community with both the median household income and median home value below 80 percent of the State median. This allows the City to qualify for low interest loans, principal forgiveness, and grants through the State Revolving Fund, Department of Local Affairs, and United States Department of Agriculture, Rural Development (USDA).

If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health

[6] https://screeningtool.geoplatform.gov/en/#11.09/39.2877/-106.3044
[7] https://coloradodemography.github.io/disadvantaged_communities/

and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?

The proposed smart meter installation project will help the Town quantify water losses and assist staff with leak detection throughout the Town and consolidated service area. Additionally, as the consolidating systems transition to the Town's usage-based rate structure, meters will better inform and educate customers on their water usage and encourage water conservation, which provides resilience during periods of drought, such as those the Town has experienced in the past couple decades. The proposed smart meter installation project is expected to provide an estimated water savings of 19.5 acre-feet per year and meets the goals of the WaterSMART program by resulting in quantifiable water savings, improving system reliability, increasing water conservation efforts, and improve overall water system reliability.

The overarching project involves consolidation of four neighboring small water associations located within 1.5 miles of the Town's water service area that are operating under an enforcement order from CDPHE and are out of compliance for exceeding the MCL for combined radium. This will include development of a map and assessment of the four communities' existing distribution systems, designing system efficiencies with looping and upsizing pipelines, installing new meters for each tap, and hydraulic modelling. Measurable outcomes of the project as a whole include a higher water conservation rate, lower energy use and costs from pumping filtered water due to leaks, reduced water contamination risk, improved distribution system resiliency, and lowered combined radium levels in drinking water.

Evaluation Criterion E – Complementing On-Farm Irrigation Improvements

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.**

All four consolidating water systems currently have agricultural users. However, it is not known if there are any ongoing projects to improve on-farm efficiencies.

Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.

- **Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?**

The proposed smart meter installation project will be a crucial first step to maximizing efficiency in the area. Metering data is essential to quantifying water losses, and the Town is currently pursuing funding for leak detection and repair services for the proposed consolidated service area. With minimized water losses, less energy is needed to pump and treat water. These water savings benefit the entire community, including agricultural users.

Additionally, the availability of water metering data will enable farmers to track water usage with respect to evapotranspiration and other climactic factors. As the four consolidated water areas transition to a usage-based rate system, agricultural users will be incentivized to implement water savings measures and increase water use efficiency.

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.**

Since it is not known if there are any ongoing projects to improve on-farm efficiencies within the proposed consolidated service area, the potential on-farm water savings are included in the total estimated water savings of 19.5 ac-ft/year. This number includes water savings across the Town's service area and proposed consolidated service area, which includes agricultural, residential, municipal, and commercial users.

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

Figure 1 shows the Town's existing water service area and the existing distribution systems of the four consolidating water systems.

EVALUATION CRITERION F – READINESS TO PROCEED

Identify and provide a summary description of the major tasks necessary to complete the project. Note: Do not repeat the more detailed technical project description provided in Section D.2.2.2 Application Content. This section should focus on a summary of the major tasks to be accomplished as part of the project.

The major tasks necessary to complete the proposed smart meter installation project include:

1. Complete Final Design (November 2024)
2. Bid Publication (January 1, 2025)
3. Bid Review (January 15, 2025)
4. Notice of Award (January 31, 2024)
5. Notice to Proceed (January 31, 2025)
6. Submittal Review and Procurement (February 1, 2025)

7. Construction (February to December 2025)

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

No permits are required for the installation of meters for each new tap for the Town and the four consolidating water systems. The proposed meters will be placed in existing utility easements or rights-of-way.

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

A Preliminary Engineering Report (PER) was developed for the first phase of the overall consolidation project. This PER identified the needs and benefits of installing smart water meters, and included cost estimates for the overall project.

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

The implementation of this project will require budget approval from the Town Board.

Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.

The proposed smart meter installation project is at the final stage of design, which includes the development of drawing details and specifications. As shown in the table below, the final design phase is expected to start in June 2024 and be completed by November 2024.

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). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

At the time of anticipated funding award, the proposed project will have completed 90 percent design and will move towards developing bid sets with the intention of a construction start date of September 1, 2024. The requested WaterSMART funding is for the construction phase of the project. The Contractor will be required to provide a schedule to the Engineer for review. The table below provides a milestone task schedule summary. Some milestone tasks included in the table do not have a determined date, as they will be submitted by the selected Contractor.

Table 3 – Milestone and Task Schedule

Milestone/Task	Date	Deliverable	Responsible Party
0 to 15 Percent Design	10/15/2023 (Completed)	Preliminary Design Report, Alternatives Analysis	JVA, Town
Final Design	6/15/2024-11/1/2024	Bid Set Drawings/Specs	JVA, Town
Bidding	1/1/2025	-	JVA, Town

Milestone/Task	Date	Deliverable	Responsible Party
Begin Construction (Requested WaterSMART Funding for this phase)	2/1/2025	-	Schedules to be Submitted by Contractor
Task 1 – Schedule of Submittals	TBD	-	
Task 2 – Equipment Procurement Dates	TBD	-	
Task 3 – Substantial Completion	TBD	-	
Construction Completion	12/31/2025	-	

EVALUATION CRITERION G – COLLABORATION

Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

Yes. The proposed smart meter installation project is part of an overall water consolidation effort. The four water systems that have committed to consolidation with the Town are Beehive Water Association (PWSID CO0145030), East End Water Association (PWSID CO0145120), South Side Water Company (PWSID CO0145660), and Holbrook Center Soft Water Company (PWSID CO0145330). These four consolidating water systems have provided a letter of support, which is included in Appendix B. Smart meters will be installed at each tap for the Town and the four consolidating water systems. The Otero County Board of Commissioners has also expressed support for the overall water consolidation effort, and has provided a letter of support which is included in Appendix B.

There are also several state agencies that have been involved in the overall water consolidation effort, which includes the proposed smart meter installation project. The Engineering Section of the Colorado Department of Public Health and Environment (CDPHE) approved design of the Town's new elevated water storage tank, which was sized to include demand from consolidation, and the transfer of ownership of several groundwater wells from the consolidating water systems to the Town. CDPHE's Grants & Loans Unit has also worked with the Town on the overall water consolidation effort and is in the process of reviewing funding.

The Las Animas Office of USDA worked with the Town on the overall water consolidation effort, and funded development of a PER and Environmental Report through a Special Evaluation Assistance for Rural Communities and Households (SEARCH) grant.

The Town has also worked with their Regional Manager of the Colorado Department of Local Affairs (DOLA) for both the smart meter installation project and the overall water consolidation effort. DOLA was involved with funding the engineering and design of the overall consolidation effort through an Energy/Mineral Impact Assistance Fund (EIAF) Grant. The Town is also planning to fulfill the non-Federal match requirement for the smart meter installation project through DOLA's Local Match Program.

Finally, Senator Hickenlooper has also supported this project by allocating Congressionally Directed Spending toward the first phase of the overall consolidation effort.

What is the significance of the collaboration/support?

The four consolidating communities lack the operational and financial resources to pursue the smart meter installation project, nor treat for radium on their own. The overall water consolidation effort, which includes the proposed smart meter installation project, has been made possible because of collaboration with the Town. Additional local support has also been provided by the Otero County Board of Commissioners.

Additionally, the Town is a small, rural community with a disadvantaged status. Support from CDPHE, USDA, DOLA, and Senator Hickenlooper will help fund the overall water consolidation effort, which the proposed smart meter installation project is part of.

Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

Yes. The proposed smart meter installation project is a regional effort that will directly impact the Town and the four consolidating communities. It will not only serve as a positive example for Otero County, but also for other small, rural water systems seeking to improve their water system efficiency.

Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

Yes. The proposed smart meter installation project will benefit multiple sectors, as the Town and the four consolidating water systems serve water to agricultural, municipal, commercial, and residential users

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Letters of support are included in Appendix B.

EVALUATION CRITERION H – NEXUS TO RECLAMATION

Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?

No.

If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?

The Town does not currently receive water through Reclamation. It is possible, however, in the future when the Arkansas Valley Conduit (AVC) is completed, that the Town will receive its water from this Reclamation project.

Will the proposed work benefit a Reclamation project area or activity?

The Town of Cheraw is located in the Arkansas River Basin, approximately five miles from the Arkansas River.

The Arkansas Valley Conduit (AVC) is a major Bureau of Reclamation project that aims to bring 7,500 acre-feet of clean drinking water from the Pueblo Reservoir to communities east of Pueblo via 121 miles of trunkline. The Town of Cheraw, Beehive Water, East End Water Association), South Side Water Company, and Holbrook Center Soft Water Company are active participants and may connect to the AVC in the future.[8] A map of the project area is shown in Figure 4.

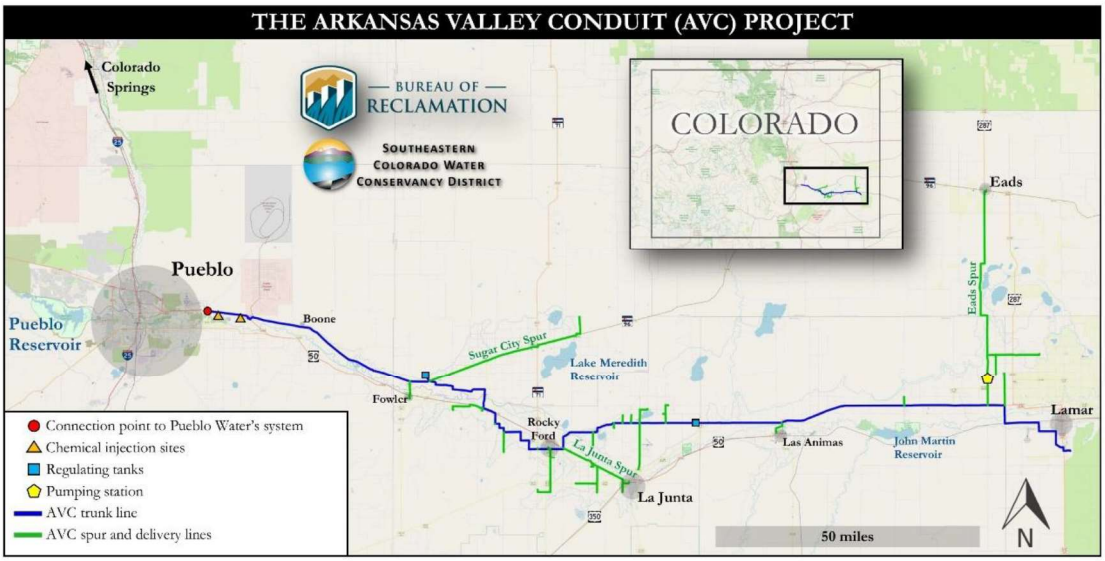

Figure 4 – Arkansas Valley Conduit Project Map

Additionally, the Town of Cheraw is part of the Southeastern Colorado Water Conservancy District, which is the repayment entity for the Fryingpan-Arkansas Project, a Bureau of Reclamation effort that provides supplemental water supply to municipal and agricultural users in the Arkansas River Basin.

The proposed metering project will increase water conservation by the Town, reducing overall groundwater use within the system. This will benefit the Reclamation and its project areas by combating groundwater depletion in the Arkansas River Basin area, preventing land subsidence and impacts to the larger region's water table. If the Town connects to the AVC in the future, water savings from this water metering project will directly contribute to Reclamation activity through water savings to other active participants involved in the AVC.

Water conservation efforts in the Town of Cheraw will have positive impacts for the rest of the river basin and therefore will benefit Reclamation activities. Upstream 75 miles from Cheraw is the Pueblo Dam Powerplant and Reservoir, both managed by the Bureau of Reclamation. Downstream 350 miles of the Town is the Wichita Project, consisting of the Cheney Dam and

[8] https://www.usbr.gov/gp/ecao/avc/

Reservoir. Collaboration across the entire river basin is necessary to increase resilience during periods of drought.

Is the applicant a Tribe?

No.

SECTION 2 – PROJECT BUDGET

Table 3 provides a summary of non-federal and federal funding sources. Table 4 provides a summary of total project costs. The Budget Detail and Narrative and Engineer's Opinion of Probable Cost have been uploaded with the application in addition to the summary tables and budget narrative below.

Table 4 – Summary of Non-Federal and Federal Funding Sources

Summary **Figures in this summary table are calculated from entries made in subsequent categories, only blank white cells require data entry.**			
6. Budget Object Category	**Total Cost**		
a. Personnel	**$0**		
b. Fringe Benefits	**$0**		
c. Travel	**$0**		
d. Equipment	**$343,200**		
e. Supplies	**$0**		
f. Contractual	**$0**		
g. Construction	**$1,235,800**		
h. Other Direct Costs	**$0**		
i. Total Direct Costs	**$1,579,000**	**Federal Estimated Amount**	**Non-Federal Estimated Amount**
i. Indirect Charges	**$0**		
Total Costs	**$1,579,000**	**$789,500**	**$789,500**
Cost Share Percentage		**50%**	**50%**

Table 5 – Total Project Costs Table

Sources	**Amount**
Cost to be reimbursed with requested federal funding	$789,500
Cost to be paid by the applicant	$789,500
Total Project Cost	**$1,579,000**

BUDGET NARRATIVE

The Town has requested funding through the DOLA Local Match (LOMA) Program for this project.

PERSONNEL

The Town will oversee management of the project and will be hiring the selected Contractor. However, the Town is not using in-kind contributions as part of the matching funds and as such, no salary, fringe, or other in-kind contributions are documented as part of this funding application. JVA, Inc. is the contracted engineer for the project. However, engineering contractual costs are outside of the scope of the requested construction phase for WaterSMART funding.

Key Personnel include:

Town of Cheraw: Mayor David Howard will oversee contract management with the Engineer. Will take part in construction meetings with Engineer.

JVA, Inc. Principal and Project Manager: Josh McGibbon, P.E. will manage the overall project as outlined in Table 3.

JVA, Inc. Design Team: Design team consisting of Project Manager, Project Engineer, Design Engineer, and Designers. Responsible for the design and development of all drawings, specifications, and cost model.

TRAVEL

No travel expenses are anticipated. Any travel expenses for the consulting engineer will be included in the overall design fee.

EQUIPMENT

Equipment has been itemized in the Budget Detail attachment. The equipment includes the meters and meter boxes.

MATERIALS AND SUPPLIES

Materials and supplies are not an applicable cost for the construction phase of the project.

CONTRACTUAL

Contractual costs are not an applicable cost for the construction phase of the project.

CONSTRUCTION

Construction costs total $1,579,000, which currently includes a contingency of $229,000 and a Contractors General Conditions and Overhead and Profit of $206,000. Construction costs are detailed in the Engineer's Opinion of Probable Cost.

Construction and equipment costs will be monitored, tracked, and reviewed monthly via a monthly *Contractor's Application for Payment* in accordance with the Engineers Joint Contract Document Committee, as specified in the Bid Documents and Agreement between Owner and Contractor.

Third-Party In-Kind Contributions

There are no Third-Party In-Kind contributions for the proposed project.

Other Expenses

There are no other expenses needed for this project.

Indirect Costs

There are no other expenses needed for this project.

SECTION 3 – OTHER APPLICATION ELEMENTS

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

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

The project is not anticipated to negatively impact plant or wildlife habitats, as water meter installation will occur underground within existing rights-of-way and utility easements on previously disturbed ground. No other earth-disturbing activities will occur that could negatively impact soil, air, water, or animal habitat in the project area. The project will reseed any disturbed areas, mitigating temporary impacts.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

The project area was assessed for potential habitat for threatened, endangered, and candidate species under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). Federally threatened and endangered species are protected under the ESA. Significant adverse effects to a federally listed species or its habitat require consultation with the Fish and Wildlife Service (FWS) under Section 7 or 10 of the ESA.

An IPaC Trust Resources Report and official species list were generated for the proposed project area. Both documents state that there are no critical habitats within the project area.

According to the maps and habitats provided on the Colorado Parks & Wildlife State Endangered, Threatened, and Special Concern Species Profiles database, there are also no state-listed species in the project area.

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

According to the National Wetlands Inventory (NWI) and the IPaC Trust Resources Report, the Town's proposed service area is not located in a delineated wetland area. There will be no negative environmental consequences associated with the wetlands as it is anticipated that no potential wetlands or waters of the U.S. occur within the project area.

When was the water delivery system constructed?

The Town currently owns three groundwater wells for raw water supply. Well 1 (Permit No. 3011-F) was drilled in 1961 and has a capacity of 85 gallons per minute (gpm). Well 2 (Permit No. 4837-F) was drilled in 1963 and has a capacity of 80 gpm. Well 3 (Permit No. 18445-F) was drilled in 1974 and has a capacity of 65 gpm. Beehive currently uses three wells, which are to be transferred to the Town. The KK Well (Permit No. 52053-F) was drilled in 2000 and has a capacity of 44 gpm. The JJ5 Well (Permit No. 77237-F) was drilled in 2013 and has a capacity of 88 gpm. The LL Well (Permit No. 171-WCB) was originally drilled in 1956 and has a capacity of 23 gpm. East End and South Side currently own the Cheraw Well, which is located inside the Town and is not currently permitted.

East End currently owns one well. No. 1 Well (Permit No. 179-WCB) was drilled in 1956 and has a capacity of 35 gpm. South Side currently owns two wells. Well No. 1 (Permit No. 238-WCB) was drilled in 1957 and has a capacity of 30 gpm. The JJ Well (Permit No. 23059-F) was drilled in 1977 and has a capacity of 20 gpm. Holbrook Center currently uses one well. No. 1 Well (Permit No. 22728-F) was drilled in 1955 and has a capacity of 22 gpm.

Water treatment for each of the four consolidating water systems consists of chlorine disinfection of raw water from their respective wells and clearwells for chlorine contact time. Beehive, East End, South Side, and Holbrook Center are currently using wells that have been drilled in the 1950s and have been reporting sample results of their respective water systems to CDPHE since the early 1980s.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

A letter was sent to the Colorado Historical Society Office of Archaeology and Historic Preservation for their comment on the proposed water consolidation project for the Town of Cheraw and four neighboring water systems. Upon further coordination with the Town and USDA, the Colorado State Historical Preservation Office (SHPO) determined that a cultural resource survey would be needed under the National Historic Preservation Act (Section 106). The results of the cultural resource survey conducted by ERO Resources Corporation were provided to SHPO on August 17, 2023. In a letter dated September 13, 2023, SHPO concluded that the defined APE was not eligible for inclusion in the National Register of Historic Places and that the proposed project will result in no adverse effect to historic properties.

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

No.

Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?

Based on EJScreen results, the proposed project would not have disproportionately adverse effects on minorities and low-income communities. In addition, is anticipated that there will be minimal impacts on public transportation as a result of the proposed project.

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

No.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No.

Required Permits and Approvals

No permits are required for the installation of smart meters for each new tap for the Town and the four consolidating water systems. The proposed smart meters will be placed in existing utility easements or rights-of-way.

Overlap or Duplication of Effort Statements

This application is to assist with funding for installing smart water meters, which does not overlap or duplicate any other active or anticipated project activities. Other funding requests to other entities would be for costs outside of what is outlined in this funding request.

Conflict of Interest Disclosure Statement

No actual or potential conflict of interest exists at the time of this submission.

Uniform Audit Reporting Statement

The Town expended less than $750,000 in Federal award funds in 2022 and was not subject to the A-133 single audit.

SF-LLL: Disclosure of Lobbying Activities (required, if applicable)

Not applicable.

Letters of Support

Letters of support from Beehive Water Association (PWSID CO0145030), East End Water Association (PWSID CO0145120), South Side Water Company (PWSID CO0145660), Holbrook

Center Soft Water Company (PWSID CO0145330), and the Otero County Board of Commissioners has been included in Appendix B.

APPENDIX B – LETTERS OF SUPPORT

February 16, 2023

To whom it may concern,

On behalf of the communities that are served by our water systems, we humbly request the support of the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office to allocate funds through the WaterSMART program to the Town of Cheraw's meter installation project as part of the overall water consolidation effort.

Our communities are currently operating under enforcement orders and compliance schedules from CDPHE for high radium levels in drinking water. Supporting this project would allow residents of our community to access clean and reliable drinking water through consolidation with the Town, and the installation of water meters will help quantify water losses, assist with leak detection, and educate customers on water savings. Additionally, funding will help soften the financial impact on this small, rural, and disadvantaged community. Thank you for your consideration.

Sincerely,

Beehive Water Association

East End Water Association

South Side Water Company

Holbrook Center Soft Water Company

Rob Oquist - Commissioner Dist. 1
John Hostetler - Commissioner Dist. 2
Jim Baldwin - Commissioner Dist. 3
Nathan Shultz - County Attorney
Amy White-Tanabe - County Administrator

Office of the Commissioners

April 4, 2022

Dear Senator Hickenlooper,

Otero County Board of Commissioners humbly request the support of your Office to allocate Congressionally Directed Spending towards the Town of Cheraw's water project. The Town and nearby communities are currently on enforcement orders and compliance schedules from CDPHE for high radium levels in their drinking water. The Town is currently in design for treatment improvements at their water treatment facility for radium compliance and for a new elevated water storage tank. The Town will be able to deliver clean water to these nearby communities and close out the Enforcement Orders.

Thank you for your consideration of this matter as clean water is the most basic and crucial of needs for a healthy and thriving community. Your help would also serve to bolster the local economy, something that cannot be measured in its positive effects for this small, rural community.

Sincerely,

Jim Baldwin, Chair | John Hostetler | Rob Oquist

(719) 383-3000 *13 W. 3rd Street, Room 212* *La Junta, CO 81050* *(719) 383-2456 TDD*