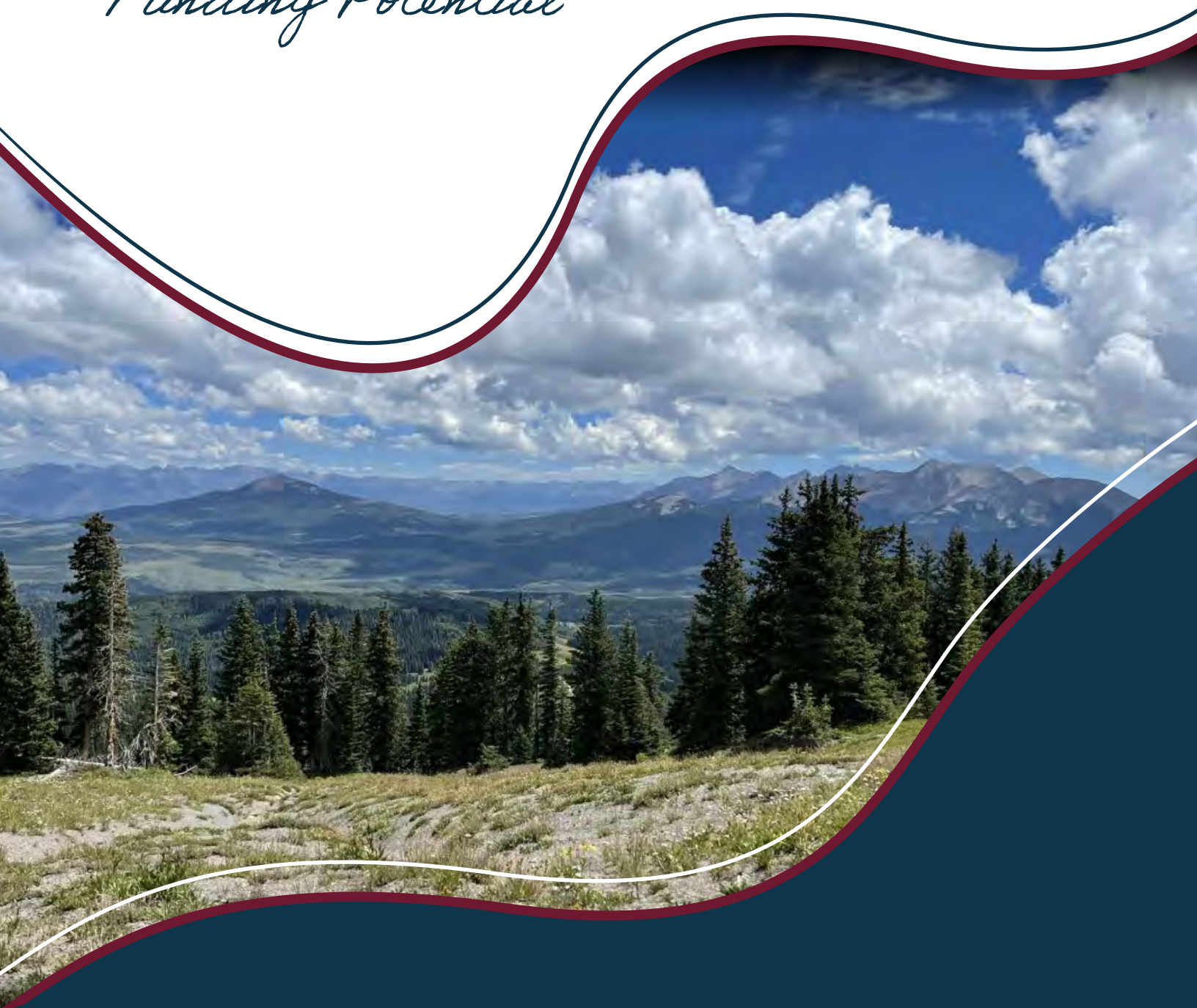


*Maximizing Your
Funding Potential*



STATEMENT OF QUALIFICATIONS
Norwood Water Commission Grant Writing Services

February 10, 2025



744 Horizon Court, Suite 140
Grand Junction, CO 81506
970.852.3222
www.GarverUSA.com

February 10, 2025

Norwood Water Commission
1670 Naturita Street
Norwood, CO 81423

RE: Grant Writing Services

Dear Ms. Pierce and Norwood Water Commission team,

Navigating the world of funding can initially seem like a daunting task for any project. From grants to loans, to federal, state, or privately-sourced funds, the options available today are abundant. The Norwood Water Commission (NWC) needs a partner who can efficiently guide them through various funding opportunities. **Garver has the experience to help maximize your funding potential through researching, identifying, and pursuing optimal funding opportunities for your projects.**

We have experience securing small town grants. Our funding team brings a wealth of expertise navigating the complexities of both public and private funding sources, ensuring that small towns, municipalities, and local organizations have access to the financial resources they need to thrive. Over the past five years, we have successfully secured more than \$483 million in grant and low-interest loan funding for our clients. Garver's funding team has consistently delivered results that help communities grow and prosper.

We have a streamlined process for identifying funding for various projects, not just one. Garver has developed a proven approach for identifying and securing funding for a wide range of projects. This is evident by our experience with clients like Union Water Supply Corporation in Texas, The City of Santa Rosa in Texas, and the Project 7 Water Authority in Montrose, Colorado. Our team will work closely with NWC to prioritize projects, aligning funding opportunities with your unique goals and timelines. This well-organized approach will allow us to navigate the complexities of multiple funding streams and secure financial support for your projects.

We maintain an extensive grant database with more than 100+ grant programs across federal and state governments. Garver's expansive database is an invaluable resource. This comprehensive database is continuously updated, providing the most current information on available funding opportunities. By leveraging this database, we can quickly identify relevant grants for your specific projects, saving you valuable time and effort.

Through these efforts, we'll help you identify and achieve funding that aligns with your strategies and long-term goals. We look forward to partnering with you for your funding needs and hopefully more in the future. If you have any questions, please contact me at 720-744-4755 or YEMendoza@GarverUSA.com.

Sincerely,
GARVER

Yuliana Porrás Mendoza
Strategic Funding Leader

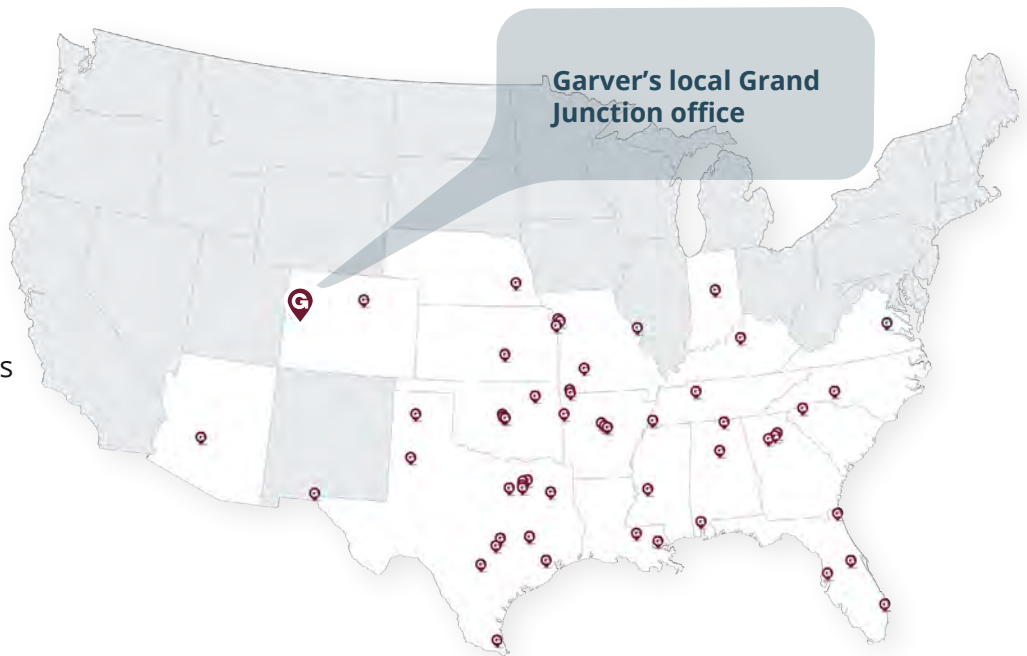


Qualifications and Experience

Firm Introduction

Garver's experts have dedicated their careers to the continued support of our industry's most pressing challenges.

We've grown tremendously since we first opened our doors in 1919, but one thing remains the same - providing expert, responsive services with custom solutions. With more than 1,400 employees in 59 offices across 22 states, Garver is a multi-disciplined company offering a wide range of services. For more than a century, we've been providing long-lasting solutions to treatment and infrastructure challenges, while meeting budgets and finishing projects on-time.



Garver's Colorado Presence

Garver's Colorado team is backed by experts who are well-equipped to support the projects we fund, with Greta Stetson, PE, playing a key role. Greta will provide invaluable consultation during the grant writing process and is fully capable of offering ongoing support for the projects we assist. Garver's local expertise will offer timely, personalized service, leveraging a deep understanding of the region's unique needs and resources to drive successful outcomes. With Greta and our team nearby, we're always ready to provide hands-on support when you need it most.

Our Funding Expertise

Yuliana Porras Mendoza brings over 20 years of expertise from the Bureau of Reclamation (USBR), where she was instrumental in creating the very programs that continue to shape our work today. When it comes to navigating these funding opportunities, there's simply no team with more experience than ours—no one even comes close.

Yuliana is supported by a dedicated team of funding specialists, including Tonya White, Kirby Young, and Adrienne Covington Graham. Together, we've helped clients around the world secure funding for a wide range of projects, consistently delivering results that exceed expectations.



Hi, I'm Yuliana

YOUR PRIMARY POINT OF CONTACT.

Yuliana Porras Mendoza
Strategic Funding Leader

Phone: 720-744-4755
YEMendoza@GarverUSA.com

I'll be your point of contact for all your questions and coordination for your funding needs.

Team Experience



Yuliana Porras Mendoza

Strategic Funding Leader

EDUCATION



Master of Science
in Environmental
Engineering

Master of Science
in Technology
Commercialization

Bachelor of Science in
Chemical Engineering

YEARS OF EXPERIENCE



23 years

Bio

Yuliana has spent her career working with Bureau of Reclamation, starting as a researcher, and advancing to water treatment research program management and strategic planning. While there she created and managed programs focused on funding research, planning, design, and construction of water/wastewater projects. As well as built strategies to share information across federal government departments and the water industry.

Driven by a passion for sharing knowledge, fostering industry collaboration, and securing funding for water projects, she now focuses on optimizing the process of applying for funding across various programs. As the strategic funding lead, she excels at identifying the best funding opportunities at both the federal and state levels, helping water projects become competitive in securing the necessary resources. By leveraging her experience as a program manager, she facilitates a comprehensive approach that aligns the needs of those seeking funds with the priorities of federal and state program managers.

Project Experience

Project 7 Ridgway Water Treatment Plant Owner's Advisor Services - Program Management Services | Montrose, CO

Technical advisor for Project 7 Water Authority program to provide a resilient water supply and delivery program using the Uncompahgre River and impounded in the Ridgway Reservoir. The program includes two large project elements: a new treatment facility phased to treat high hardness water and a new transmission pipeline, both of which increases system resiliency. Yuliana played a key role in assisting with funding and coordinating with federal agencies.

Santa Rosa Drought Resiliency Water System Improvements | Santa Rosa, TX

Technical advisor and lead on funding proposal for a new category under the US Bureau of Reclamation Drought Resiliency Program to leverage new water sources while adding new crucial water infrastructure components via one funding opportunity such as new ground and elevated storage tanks, new raw water reservoir, and new 8-inch 4,200 linear feet of waterline interconnect. This project would create access to an additional 657 million gallons of potable water and an additional 365 million gallons of raw water annually.



Tonya White

Funding Specialist

EDUCATION



Bachelor of Arts in
Mass Communications /
Public Relations

YEARS OF EXPERIENCE



30 years

Bio

Tonya has a long history of partnering with communities to secure federal and state funding for water and wastewater infrastructure. Tonya leverages her funding experience to familiarize her team with funding benefits and help them navigate the application process. Her expertise is instrumental in expanding and increasing the funding opportunities across Garver's footprint. For over nine years, Tonya served with the Oklahoma Water Resources Board (OWRB) to increase awareness and accessibility to loan and grant programs, such as the Oklahoma State Revolving Funds (SRFs). During this time, she used her marketing and outreach skills as a liaison between consulting professionals, OWRB, other agencies, lawmakers, the districts, and authorities to inform groups about funding opportunities through OWRB and strategize to help water and wastewater systems across Oklahoma address infrastructure needs.

Project Experience

Lawton Bureau of Reclamation Drought Grant| Lawton, OK

Assisted the City of Lawton with grant writing for an application through the Bureau of Reclamation WaterSMART Drought Response Program. Project targeted an alternative well water approach to be mixed with the system's sole surface water source to increase water security within the region.

Bryan County Rural Water District #2 Water and Wastewater Opportunities | Mead, OK

Funding specialist for this project via the Bureau of Reclamation Drought Response Program. Completed application for Bryan County #2 to address drought related water scarcity issue and promote water security for the area through a federal funding opportunity.

Davis Wastewater Treatment Plant Design| Davis, OK

Provided grant funding research and assistance to the City of Davis for the construction of a new WWTP facility. Managed the state and regulatory coordination to ensure funding assistance was available to the City of Davis for this \$2.8 million dollar project.

Eules Lead and Copper Rule Revisions| Eules, TX

Funding specialist responsible for Texas Water Development Board grant funding assistance to address lead and copper rule revisions in the City of Eules. Expertise services included coordination with the project team to establish grant funding expectations and assisted with meeting state and regulatory compliance related to the ruling on lead and copper line development.



Kirby Young, GIT

Funding Specialist

EDUCATION



Master of Science in
Water Management &
Hydrological Science

YEARS OF EXPERIENCE



9 years

Bio

Kirby's 9 years of funding experience involve working closely on funding pursuits with federal and state entities like the United States Environmental Protection Agency (EPA), United States Bureau of Reclamation (USBR), United States Department of Agriculture (USDA), Texas Water Development Board (TWDB), and Texas Commission on Environmental Quality (TCEQ). Kirby has managed both loan and grant funding opportunities for various types of water and wastewater projects including water quality, water quantity, treatment, and infrastructure improvements, among others. She has developed tools to expedite and streamline application processes for clients that also help to efficiently manage all required information and paperwork. She maintains consistent communication with the client, external consultants, and the applicable federal or state entity to ensure the funding process is as timely as possible. With a background in hydrology and water resources, Kirby combines this knowledge with her funding experience to assist clients with identifying, pursuing, and obtaining financial assistance that can help turn identified projects into reality.

Project Experience

Project 7 Water Authority Program Management | Montrose, CO

Funding coordinator for a water supply resiliency program to provide an affordable, efficient, and sustainable water source to six communities in the Uncompahgre/Gunnison River Valleys. The primary outcome of the resiliency program will be the development of a new greenfield water treatment plant below Ridgway Reservoir with a 6-mile raw water pipeline and energy recovery facility. Responsibilities included coordinating with the Client, consultants, and agencies to secure funding for this vital resiliency program. This included compiling funding source alternatives, completing funding applications, and coordinating with relevant governmental entities.

Bay City Water System Evaluation | Bay City, TX

Funding specialist responsible for assisting with leading efforts to apply and eventually be approved for funding through the Texas Water Development Board's Drinking Water State Revolving Fund (DWSRF). Responsibilities included the completing and submitting the Project Information Forms and applications during two separate TWDB funding cycles to rehabilitate and expand Bay City's existing water production, treatment, and distribution systems. Also responsible for coordinating efforts between the Client, TWDB, Garver, and consultants to efficiently and effectively obtain all required information for the funding application.



Adrienne Covington Graham

Funding Specialist

EDUCATION



Master of Arts in Human Relations, Organizational Development

Bachelor of Arts in Liberal Studies

YEARS OF EXPERIENCE



22 years

Bio

Adrienne Covington Graham is a grant writer and funding support specialist with more than 20 years of experience in researching, applying, and obtaining funding to support nonprofit and infrastructure projects. As an established grant writer, Adrienne is familiar working side by side with organizations to secure funds through effective grant writing and application processes meeting the needs of project goals. She develops narratives that clearly address the merit criteria and other requirements.

Project Experience

2023 City of Wichita Airport Area RAISE Grant Prep | Wichita, KS
Grant writer responsible for coordination of data collection and assembling project information. Provided writing and editing services for project description, merit criteria, ensured key points were met for each criterion, and worked with the team to craft a compelling narrative that encompassed the project benefits.

Elgin On-Call Services Work Order 1 | Elgin, OK
Grant writer responsible for coordination of efforts between engineering team and City of Elgin to retrieve information necessary to write and submit a Southwest Oklahoma Regional Transportation Planning Organization (SORTPO) Mini Planning Grant application. Compiled information, wrote and edited all narrative components to the grant application, coordinated with SORTPO to ensure initial grant submission met program requirements, coordinated with engineers and the City of Elgin to provide follow-up reporting and documentation to ensure client received grant funds after the project was completed.

ODOT CI-2382 TO7 Advanced Digital Construction Management System Grant | Oklahoma City, OK
Grant writer responsible for connecting Science, Technology, Engineering, and Math (STEM) curriculum specialists and nonprofits to help the client reach a broader audience and engage the next generation in advanced construction technology. Utilized nonprofit and higher education experience to provide letters of support templates, engage nonprofit education partners, and expand community support. Provided writing and editing services for project description and merit criteria and ensure project aligned with program goals.



Greta Stetson, PE

Consultant

EDUCATION



Master of Science
in Environmental
Engineering

Bachelor of Science
in Environmental
Engineering

LICENSES



Professional Engineer:
CO, 0061418

YEARS OF EXPERIENCE



12 years

Bio

Over the course of her career, Greta has developed extensive experience in infrastructure and treatment plant design, including feasibility studies, master planning, detailed design, and permitting. She believes that to make a project successful, she needs to understand the client’s system as well as they do, getting into the details of their data and how they manage processes.

Greta has substantial experience in water treatment plant design, particularly in mountain-town communities that must plan for seasonal fluctuations in flow, difficult construction sequencing, and limited budgets. She specializes in hydraulic design, energy efficiency, and water quality data management and analysis.

Project Experience

Project 7 Ridgway Water Treatment Plant Owner’s Advisor Services - Program Management Services | Montrose, CO

Project engineer responsible for assisting with permitting and easement acquisition for a new surface water treatment plant, 24-inch raw and finished water pipe, and distribution pipe. Work has included developing an overall permit schedule, writing permit applications, and coordinating with local and federal regulatory agencies. Conducted site visits to meet with local landowners to ease their concerns about the pipeline construction process and discuss the benefits of making the water supply in the Uncompahgre and Gunnison River Valleys more resilient. Worked with design builder to present project costs and proposed rate increases to the Board of Directors.

City of Aspen WTP Improvements | Aspen, CO

Project manager coordinating the design of a wide range of improvements to the Aspen Water Treatment Facility. The work includes upgrades to the plant’s filters, flocculation and sedimentation processes, residuals handling, chemical feed, and other ancillary systems. Greta is currently writing the Basis of Design Report and managing the project’s permitting process with the Colorado Department of Health and Environment. Provides detailed quality control checks on all calculations and deliverables and ensures design team is meeting client expectations. Conducted extensive jar testing at the WTF to assess the effectiveness of alternative coagulant and flocculant chemicals to improve the WTF’s pretreatment process. Conceptual design phase came in under budget.

Funding Experience

Garver's experience and success in winning funding is second to none.

Our funding support team has worked with clients across the country to win over \$483 million in grant and low-interest loan funding for our clients in the last five years. You can trust us to identify and efficiently apply for all funding opportunities that can support your potable reuse project. We've navigated funding processes on state and federal levels, giving us the experience to smoothly guide NWC through any relevant application.

Union Water Supply Corporation (UWSC)



Reference

Union Water Supply Corporation | **Jorge Bazan** | 956-487-3744 | unionwatersupply@yahoo.com

The project is for planning, design, and construction of new groundwater well and a groundwater treatment plant. Pilot well drilling and testing will be done at two locations near the existing treatment plant. The results of the piloting will be used to determine where to drill the permanent new well and the treatment process necessary to produce safe drinking water.

The intent is to secure up to 1 MGD of additional water supplies. This project would enable Union Water Supply Corporation (UWSC) to stop leasing additional water rights and become independent in supplying water to their service area.

Additionally, this project would improve the overall resiliency of their water system because they would not be solely dependent upon surface water from the Rio Grande River, which is in high demand throughout South Texas and is significantly impacted during periods of drought.

Garver assisted UWSC in setting up all of the required government accounts, such as their UEI number needed to be able to apply for grant

funding across any federal agency and setting up their ASAP.gov account to be able to receive their funds. Garver currently assists UWSC with management of their grant including setting up calls with the U.S. Bureau of Reclamation (USBR) grants representative and their technical team, discussing the project and permitting needs, and assisting with invoicing and reporting.

The funding team continues to seek additional funding sources for other water infrastructure projects and ready to support additional grant proposals once identified.

The total value of funding requested and awarded for the project is \$9,436,120. Funding is 100% grant without the need to leverage funds from other sources.



Project 7 Water Authority Program Management



Reference

Project 7 Water Authority | **Adam Turner** | 970-249-5935 | Project7@Montrose.net

The Project 7 Water Authority has hired Garver as its owner's advisor (OA) to manage each program component, which includes two large project elements: a new treatment facility downstream of the Ridgway Reservoir and a new transmission pipeline tie-in to Project 7's existing transmission system. The treatment plant is being phased to treat the high hardness water in alignment with customer quality and cost expectations. There will also be several smaller project components including energy recovery that support the community, timing, and budget goals of the Authority.

Garver is supporting funding applications for various federal and state programs. These include grants through the United States Bureau of Reclamation, long-term and low-cost loans through the United States Environmental Protection Agency's (EPA) Water Infrastructure Finance and Innovation Act (WIFIA) Program and the Colorado Department of Public Health & Environment's (CDPHE) Interim Loan and Drinking Water Revolving Fund Programs, and other potential funding sources as the project continues to progress.



Garver has secured \$7 million from CDPHE Interim Loan program and is currently working towards securing a total of \$67 million from their drinking water revolving fund program. Proposals for funding were submitted to the U.S. EPA WIFIA program totaling \$79 million. Additionally, proposals were submitted to the U.S. Bureau of Reclamation WaterSMART program totaling \$30 million.

Santa Rosa Drought Resiliency Improvements



Reference

City of Santa Rosa, TX | **Ron Hernandez** | 956-636-1113 |
rhernandez@cityofsantarosatx.com

Garver is working with the City of Santa Rosa to design improvements to their water system and improve their drought resiliency. The project includes four main components: a 1.0 MG ground storage tank (GST), a 0.5 MG elevated storage tank (EST), a 7-day minimum storage raw water reservoir at their existing water treatment plant, and an 8-inch, 4,200 linear foot water line interconnection with the neighboring water supply entity.

The new GST will be located on the existing WTP site and will be made out of prestressed concrete. This portion will also include decommissioning the existing 0.5 MG steel GST. The new 0.5 MG EST will be composite built and will be located on a new site recommended by Garver.

The new reservoir will be built on the north side of their existing WTP site, adjacent to the existing canal. The reservoir will include new piping and pre-cast concrete structures for water diversion.

The 8-inch water line emergency interconnect will tie into the neighboring system of North Alamo Water Supply Corporation (NAWSC). This interconnection will include a metering vault, valves, and a mag-meter for the City to monitor flow. The new, 4,200 linear foot interconnection will also require easement acquisition which will be led by Garver.

One of the most important aspects of this project is the Garver-led permitting and funding coordination. We are leading TCEQ permitting assistance and coordinating the necessary reporting to the United States Bureau of Reclamation (USBR) for funding assistance.



The total requested and awarded grant from the USBR is of \$9,553,500 for this work. It is a 100% grant with no need to leverage or find other sources of funding.

Garver assisted City of Santa Rosa with setting up their ASAP.gov account to ensure they are able to receive their funds as required by the USBR. We are managing their grant and ensuring full compliance with the requirements set forth by the USBR, which includes assistance with submitting invoices, providing the required financial and technical reports, as well as being a point of contact to communicate with the USBR grants representative.

We are currently assisting City of Santa Rosa to identify new sources of funding for other water infrastructure projects and working towards an overall funding strategy for their needs.

Sharyland WSC WTP 2 Improvements




Reference

Sharyland Water Supply Corporation
| **Sherilyn Dahlberg** | 956-585-6081 |
sdahlberg@sharylandwater.com

Garver provided conceptual design for chemical injection points, piping, and chemical feed improvements at Sharyland WSC's WTP 2. The 8 MGD conventional surface water treatment plant relied on chlorine dioxide and chloramines for primary disinfection and chloramines to provide residual within the drinking water distribution system. Disinfectant dosing was limited to the rapid mix structure, where chlorine dioxide is injected for pre-oxidation and primary disinfection. Chloramines were used for primary and secondary disinfection and were formed within the rapid mix from chlorine solution and liquid ammonium sulfate (LAS).

This dosing scheme was a challenge because there was no means for operators to boost the residual or adjust the chlorine/ammonia mass ratio after the Rapid Mix structure. Sufficient monochloramine was required to be formed in the Rapid Mix structure to provide adequate residual throughout the WTP and distribution system. Excavation during an ongoing construction project at the plant provided an opportunity to install new chemical piping and storage facilities. Garver identified chemical injection points, piping, and chemical storage locations necessary to provide a robust disinfection system and operational flexibility.



For this project, Garver assisted the Sharyland Water Supply Corporation with securing more than \$50,000 in funding through SRF and WIFIA programs.

We have recently identified two WaterSMART programs with the Bureau of Reclamation that could provide funding for Sharyland towards a water supply plan and a design for PFAS treatment to remove this emerging contaminant. **These funding programs can provide between \$500,000 to \$3,000,000 in funding towards each of these two identified needs.**

Enid Alternate Water Supply Phase 2 - Program Management



Reference


City of Enid, OK | **Jerald Gilbert** | 580-234-0400 | jgilbert@enid.org

Garver is serving as program manager and lead designer for a multi-phased, \$315M program to deliver raw water from the Kaw Lake Reservoir (Arkansas River Watershed) to the City of Enid. The program provides the City with a new 50-year sustainable water supply to supplement its existing groundwater supply. It also involves a new intake structure in the Kaw Reservoir, 70 miles of 36- and 30-inch raw water pipeline with booster stations, up to 21 MGD advanced WTP, terminal storage reservoirs, and an optimized delivery system for proper blending with local groundwater.

Garver coordinated with regulatory and funding agencies as well as stakeholders to deliver this as the first municipal CMAR project in Oklahoma. The program required multi-agency review and approval with USACE for water rights, 404 and 408 permitting, NEPA agencies, multiple tribal interests, and coordination with existing energy infrastructure. We also completed a Triple-Bottom-Line (TBL) study focused on social, economic, and environmental considerations to evaluate and minimize unnecessary risks to establish infrastructure needs.

Development of the WTP involved close coordination with City staff to evaluate treatability challenges including disinfection-by-products, nutrients, and taste and odor for establishing treatment options. Extensive Kaw Lake water sampling and testing were completed to determine water quality objectives.

The new plant includes ozone pre-oxidation, conventional coagulation-flocculation-sedimentation-filtration with plate settlers, followed by granular activated carbon contactors. Two raw water storage reservoirs optimize treatment train production and provides for redundancy. Enid's existing ground well WTP will be repurposed for blending, CT, and as the main service distribution pump station. The plant is also designed for modular expandability from 10.5 to 21 MGD for future needs.


Garver assisted City of Enid to secure approximately \$205 million in funding working with the Oklahoma Water Resources Board and the Drinking Water SRF program.

Approach and Methodology

Experience with Successful Grant Applications, Award Documentation, + Project Management

To meet challenging grant deadlines, we follow a proven approach built on organization, communication, efficiency, and experience to aid our interactive work with our clients. We build compelling narratives supported by comprehensive benefit cases using quantitative approaches where possible. Our understanding of granting agencies' strategic goals positions us to present projects in the best light.

Garver excels in crafting compelling grant applications that will be tailored to the unique needs and objectives of NWC. We conduct thorough research, strategic planning, and precise writing to effectively communicate the project's significance and align it with funding priorities. Garver's professionals leverage their expertise to verify that proposals meet all necessary requirements and stand out to grant reviewers.

The Garver Team has assisted multiple municipalities with hundreds of grant applications under multiple federal programs. Our collaborative approach to the grant writing process provides our clients access to multiple subject matter experts to increase chances of grant awards.

When it comes to project scope, Garver's team of experts will work to identify the proper funding source that align with the project goals. If a project has potential but doesn't meet all of the criteria, we will work with you to determine if the project scope can be expanded to hit the key points in the Notice of Funding Opportunity (NOFO). **Garver's team of experts will work to identify the proper funding source that aligns with the project goals.**



Garver's funding team partnered with the City of Wichita to enhance the scope of their Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant, expanding its potential to create a larger and more lasting impact on the community.

Garver's Approach

Garver's strategic funding team has the experience needed to meet all four key areas in your identified scope of work. The experience and the various programs/funding sources are all in various water project areas such as research, planning, pilot testing, design, and construction. Our clients range from established cities such as Corpus Christi, TX to smaller communities such as Project 7 Water Authority in Montrose, CO.

Our approach to supporting funding services follows a comprehensive cradle-to-grave model. We begin by ensuring our clients are properly registered with federal government systems, enabling them to compete effectively for funding. From there, we strategically design a funding pathway tailored to water projects, guiding the preparation and submission of proposals.

Once grants are secured, we offer ongoing management and oversight throughout the life of the grant, ensuring compliance and progress. Our services extend through to the completion of the project, closing the grant agreement and delivering a thorough strategic plan and consultation for all identified water projects and/or Capital Improvement Plans (CIPs).

1 *Grant Research and Identification*

Garver's extensive database already allows for efficient grant research and identification for federal, state, and funding sources. With access to this database, Garver's strategic funding team will be able to identify funding sources that align with the Commission's objectives and its identified water projects. To properly search and identify a funding source is to first ensure NWC has registered with the federal government to be able to submit for grants utilizing grants.gov and/or any other federal system for grant proposal submittals.

This is a process that the Garver strategic funding team has experience in assisting other clients in going through and ensuring that those steps are completed to ensure eligibility. The second step is to meet with NWC and identify the various projects in need of funding and their timeline for expected completion. This information will then provide a guide as to which projects could wait for at least a year before getting started as the funding cycle for federal programs are typically annual. It typically takes from the moment a notice of funding opportunity is posted by the federal government to when selections are announced, and a financial assistance agreement is completed to start the flow of funds from 12 to 18 months depending on the program. A state or private funding source might be slightly shorter but will certainly still take around one year from the moment the funding opportunity is made available. Once NWC has identified which projects need additional funding sources, then the Garver strategic funding team would use its knowledge and database to provide guidance as to which funding sources are the best source to pursue funding and seek to submit a grant proposal.

Garver's expertise in this area is unique as our Strategic Funding Leader comes with over 20 years of experience with the Bureau of Reclamation where she worked as a reviewer and a creator of many of this agency's programs that fund water projects. The Bureau of Reclamation being the agency with more than 10 programs funding all areas of water projects from research, planning, piloting, design, and construction.

2 *Grant Proposal Development*

Once a funding source(s) is identified to pursue and the notice of funding opportunity is open to receive proposals, we will work with NWC to develop a grant proposal and have it submitted to the identified program. **Just last year, Garver's team was able to complete a total of 28 grant proposals for various clients in Texas, Kansas, Oklahoma, and Colorado.** Proposals were submitted to funding sources at federal, state, and non-profit organizations. These proposals totaled a request of \$163 million in grant funding. Most results from these funding sources have yet to be announced. So far, only six of the 28 proposals submitted have received outcomes. **To date, Garver has helped secure more than \$1 million in funding.**

Garver's strategic funding team has successfully developed over 40 grant proposals in the last two years alone. The various types of proposals have been for research, pilot testing, planning, design, and construction. Our clients vary in size but we have been very successful in securing funding for small communities such as Union Water Supply Corporation and the City of Santa Rosa in Texas. The two proposals we worked on and submitted for these two clients were for much needed water infrastructure projects of which they were granted over \$9 million each through the Bureau of Reclamation Drought Resiliency Program.

This team not only has the experience to develop a grant proposal but also has **templates and examples of successful proposals** which will be useful in assisting NWC in getting these proposals completed in an efficient and timely manner.

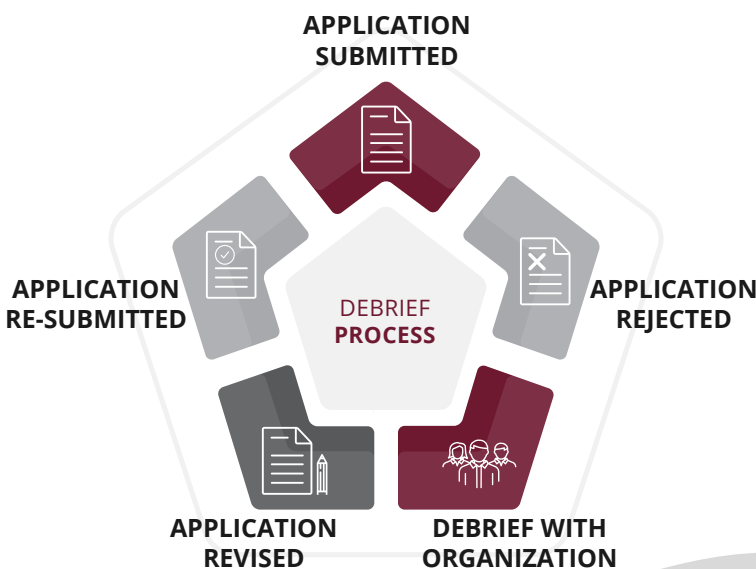
3

Grant Management Support

The number of proposals that can be developed for NWC in a given year depends on the identified water projects needing funding and the available funding sources. Due to changes in administration, the number of programs available in 2025 may differ from previous years, influenced by delays in current funding opportunities and the potential creation of new programs. Based on previous estimates of funding proposals for a single client, we anticipate developing two to four proposals per year. This estimate accounts for available funding sources, including state revolving fund loans, and state, federal, or private funds specific to each water project.

Most programs also have a debrief process, where if an application was not successful and not selected for funding, a debrief meeting can be scheduled to obtain information as to what was missing and have an opportunity to resubmit an application. This process is crucial to understand what areas of an evaluation criteria might need to be improved upon and be able to address the comments received by the review committee and have an opportunity to resubmit an application as well as information that can be used for any new project application that would be submitted to the same program in the near future. Our funding team would be able to set up these debrief meetings and improve upon any future proposals for the same or a new project identified by NWC.

Debrief Process



To successfully complete a project that has been funded by federal, state, or private funding sources, the management of that agreement is crucial. Each funding source comes with their own set of requirements and reporting that needs to be complied with to ensure the appropriate use of the funds. **Our team is currently managing the grants received from the Bureau of Reclamation through the Drought Resiliency Program for the Union Water Supply Corporation, the City of Santa Rosa in Texas, and Project 7 Water Authority in Montrose, Colorado.** Funding support for these projects is highlighted in the table below.

Entity	Grant/Loan	Amount
Union County Water Supply Corp	Grant	\$9,400,000
City of Santa Rosa	Grant	\$9,500,000
Project 7 Water Authority	Loan	\$7,000,000
Lake Thunderbird Watershed Alliance	Grant	\$300,000

The support needed to manage the grant is not only to comply with what is written in the financial assistance agreement once selected to receive the funding but also a need to create an accounting system and process for your invoicing and reporting. If the funding source is from the federal government, an account needs to be set up via their ASAP.gov system to submit invoices and receive payment for work done. All these steps are areas where our funding team has expertise in and will be able to work with NWC to meet all of these steps and develop a process to support the management of the grant.

Every funding source and/or program would have a set of requirements that need to be followed as to how the funds received may be spent and the reporting requirements that go along with the funding.

Depending on the type of work, for example for those projects that have a construction component, there are certain permitting and environmental compliance requirements that a funding source/program might require. All of these items would be identified by the funding team and managed accordingly to ensure compliance at all times. The funding team would be able to set up meetings as needed with the funding source/program entity to address any concerns or points of clarification as well as ensure that all other entities and/or partners identified for the work are in constant communication with NWC to ensure a successful execution of the project following the appropriate management of the funding.

4 Strategic Planning and Consultation

As part of the first task in terms of researching funding sources, this task of strategic planning and consultation becomes an extension of that work. As funding sources are being researched and identified for the various water projects, a strategy on how to best pursue and combine various funding sources would be a key step. Garver's strategic funding team will not only bring in our funding knowledge but also our engineering experts and services which can assist in planning strategically the various water projects that might be able to be combined into a larger project or vice-versa taking a larger project and breaking it down into phases to increase its probably of being selected for funding across various identified funding sources.

Garver's funding team has the knowledge and expertise to identify not only grant funding sources but also how other state grants and/or loan programs could be leveraged and combined with federal sources to fully fund a water project. This has been our experience with for example our Project 7 Water Authority project where funding has come from a state low interest loan, a congressional funded portion (earmark), as well as a completed proposal to the Bureau of Reclamation WaterSMART Title XVI program for grant funding. **These three different funding sources are strategically selected as they complement each other and can be used towards funding the same water infrastructure project for a small community in the state of Colorado.**



The consultation that our Garver team offers at the strategic planning stage is invaluable. It can help identify gaps in planning, feasibility studies, modeling, and other areas.

This support will enable NWC to not only pinpoint potential funding sources but also develop a strategic approach to executing the projects. Ultimately, our guidance will assist in securing the necessary funding to turn these projects into a reality.



Garver's track record of delivering tailored solutions, honed over a century of service, instills confidence in our ability to meet the grant writing needs of diverse communities, including NWC. With a portfolio spanning projects of varying scales, Garver stands as a dependable partner for municipalities seeking solutions and effective grant procurement strategies.

The Garver Approach

By strategically guiding NWC across various grant programs, we maximize your chances of success. The following describes our general approach for successful grant writing.

Approach	Key Issues	Value of the Garver Team
1 Review NOFO & Develop Criteria Matrix	Each NOFO release includes minor to major modifications to the project justification criteria or the benefit-cost analysis methodology	<ul style="list-style-type: none"> Respond promptly and efficiently to new grant program criteria. Develop criteria matrix based on comprehensive understanding of evaluation approach.
2 Assign Grant Writing Team	Grant particulars may demand subject matter and/or geographic expertise	<ul style="list-style-type: none"> Curate a team of Garver subject matter experts specific to grant needs Communicate project justification and benefits
3 Team Kick Off & Regular Coordination Meetings	Full team effort and extra time required for successful submission	<ul style="list-style-type: none"> Team mission and commitment from start Roles, communication lines, and schedule clarified Coordination meetings scheduled (usually weekly)
4 Develop Data Request Matrix	Data collection can be the most time-consuming aspect of grant development	<ul style="list-style-type: none"> Streamline and simplify data requests Responsibilities are clearly outlined, due dates are set Link for uploads to a central data repository are given
5 Draft Annotated Outline & Design Custom Elements	Significant detail in limited space, need for concise story-telling and benefit-cost analysis	<ul style="list-style-type: none"> Focus on key themes Incorporate infographics for easier reading Create custom cover and template branded to NWC
6 Develop BCA for the Projects	Benefit-Cost Analysis can show if project meets requirements of profitability/viability	<ul style="list-style-type: none"> Describe the analysis and cite sources used Document key assumptions Include supporting forecasts Perform sensitivity analysis on key inputs
7 Iterate Drafts as a Team	Short application time frames and concurrent analyses require multiple team members for input and review	<ul style="list-style-type: none"> Garver creates schedule that ensures NWC review of at least two working drafts and the final draft
8 QA/QC and NOFO Compliance	Meticulous scrutiny to identify any inconsistencies and ensure compliance	<ul style="list-style-type: none"> Garver assigns SMEs for each QA/QC pathway Spot checks for accuracy, flow, grammar, reasonableness of results and deliverables meet client expectations
9 Finalize Application	Creating a smooth flow toward submission	<ul style="list-style-type: none"> Garver and the City will finalize any last-minute needs to submit one day before deadline.

Fee Structure

Yuliana Porras Mendoza—Funding Lead Specialist (E-6)

Water Engineer (E-3)

Funding Specialist—Grants (AM-4)

Funding Specialist—Loans (AM-4)

Technical Writers (RS-2 and RS-3)

The following is Garver's pricing for the tasks identified. All rates are all based on labor hours for the identified team. A break down of the estimates made based on labor hours and our fee schedule are provided below.

Task 1: \$27,500

The work in task 1 will focus on utilizing Garver's funding database, updating, and enhancing any new funding sources that might be made available due to a new administration. This work is on-going as there is no set timeline as to when funding opportunities are posted by the federal government. An approximate total of 136 labor hours in one year for an estimated cost of \$27,500.

Task 2: \$93,000

Task 2 will focus on completing funding proposals that have been recommended and accepted to pursue for one or more water infrastructure projects. Some funding programs require more effort than others but with the

potential to write up to four (4) proposals with an average cost of \$23k per proposal, totaling approximately \$93,000.

Task 3: \$1,500

The management of the grant can be included in the cost of the project; therefore, minimal effort would be needed for this task as the funding would come from the grant itself. The fee here would be up to 8 labor hours to assist with any government registrations or opening of accounts with the federal government to pursue those funds, a total of approximately \$1,500.

Task 4: \$40,000

Task 4 will focus on meetings to discuss the water projects as well as for the development of a strategic funding plan to go along with the identified projects to be pursued. The total estimated labor hours are around 120 with a estimated total of \$40,000.

Total Cost: \$162,000

The number of hours estimated is based on our experience. With new administration beginning this year, there will be delays from federal funding sources. This will limit the number of proposals that can be pursued and completed this year. We estimate a total of up to 4 proposals. For all four tasks, the total estimated fee would be approximately \$162,000.

References

Union Water Supply Corporation

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Project 7 Water Authority

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Project7@Montrose.net

Sample Work Project 7 Water Authority



Project 7 Regional Water Supply Resiliency Program

September 30, 2024

Project 7 Water Authority

P.O. Box 1185

69128 East Highway 50

Montrose, Colorado 81402

Manager: Adam Turner

Phone: 970-249-5935

Fax: 970-249-2511

E-Mail: Project7@Montrose.net

Application for Bureau of Reclamation

WaterSMART: Title XVI WIIN Act

Water Reclamation and Reuse Projects for 2024,

NOFO R23AS00464

UEI CRBAA974TGB5

(Photo: Low water in Iola Basin, the Eastern portion of Blue Mesa. National Park Service, Matt Johnson).

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Section 1: Technical Proposal and Evaluation Criteria

Executive Summary

Date:	Name of Applicant:	Project Name	Location
9/30/2024	Project 7 Water Authority (P7WA)	Project 7 Regional Water Supply Resiliency Program	Montrose, Delta, Ouray Counties, Colorado (<i>Figure 1</i>)

Applicant eligibility: P7WA Member Agencies (referred to as entities) have water delivery authority within Colorado.

Amount of Water Reclaimed by the Project: The new water treatment plant (WTP) will supply approximately 6 million gallons per day (mgd) to P7WA entities, with a planned future capacity of up to 12 mgd. The 6 mgd supplies the minimum monthly demand for essential indoor water use in the communities Project 7 Water Authority (P7WA) serves.

Project Summary: The Project 7 Regional Water Supply Resiliency Program will treat an impaired water source (the Ridgway Reservoir) to develop a new source of clean drinking water for nearly 60,000 people who currently rely on an aging single-source system (Blue Mesa Reservoir) with many potential points of failure. This project improves water management flexibility for part of the Upper Colorado River, addresses salinity issues, and protects the community's access to potable water in a regional water supply emergency.

As these communities have no backup source, their sole water source (Blue Mesa Reservoir through 116-year-old Gunnison Tunnel) received via Fairview Reservoir cannot be dewatered for inspections or maintenance without jeopardizing community health and safety.

It is uncommon for such a large population center to rely on one water supply with no backup. The economic impacts of even temporarily losing this water supply from an infrastructure failure or other emergency would result in trucking in water, which would cripple the region's economy as well as cause major health and safety concerns. To address these challenges, P7WA is applying to the Title XVI Water Reclamation and Reuse Program for \$30,000,000 to finance the Regional Water Supply Resiliency Program, which will use existing water rights from the Ridgway Reservoir as a sustainable water supply for operational flexibility, infrastructure maintenance (Fairview Reservoir), health, and safety. This project builds from two prior planning grants awarded by the Bureau of Reclamation (Reclamation) for System Optimization and Water Purification Research.

P7WA is a cooperative effort among seven water entities to provide high-quality potable water to the municipalities and rural areas of the Uncompahgre River Valley. This project will prevent a catastrophic regional drinking water shortage by constructing a new WTP, a raw water transmission line to convey water from the Ridgway Reservoir to the new WTP, and a finished water transmission line to distribute potable drinking water to the P7WA service area. The Resiliency Program will allow the members of P7WA to directly access existing water rights they already hold in the Ridgway Reservoir and minimize their reliance on water trades. The new WTP will use an innovative softening method (pellet softening reactors [PSR]) followed by ultrafiltration [UF] membranes) to reclaim impaired water and deliver high-quality, finished water that meets required regulatory standards. This treatment will avoid any leftover salts or brine (termed "concentrate") that arise from other desalination processes. (See the completed 2024 Title XVI Feasibility study.) This project is based on the Title XVI Feasibility Study (Huggins, 2023)



Length of Project: 37 months

Estimated Completion Date: February 2028

Federal facilities/lands involvement: The Ridgway Reservoir and Blue Mesa are Reclamation reservoirs, and the Gunnison Tunnel is a Reclamation asset. Other federally involved lands are: Reclamation Parcel 425528000028 and Bureau of Land Management Parcel 425504200080.

Project Location

The proposed project is in Ouray County, Colorado, approximately 6 miles north of the Ridgway Reservoir (between Eldredge and Colona) on a 47-acre parcel of land called the Ford Site. The project's WTP is located at latitude 38°18'19.1"N, longitude 107°46'43.4"W. The WTP site was selected after a preliminary pipeline alignment and siting study in 2019 (Figure 1). The raw water transmission line is approximately 6 miles long, starting at the Ridgway Reservoir and traveling north to the WTP. The finished water transmission line is nearly 6 miles long, beginning at the WTP and traveling north to Government Springs Rd.

P7WA is a political subdivision composed of seven entities, including the City of Montrose, City of Delta, Town of Olathe, Tri-County Water Conservancy District (TWCD), Chipeta Water District, Menoken Water District, and the Uncompahgre Valley Water Users Association (UVWUA).

Technical Project Description [Relationship to Feasibility Study](#)

This project is described in the 2023 Feasibility Study. Alternative 2 Pellet Softening is the treatment selected.

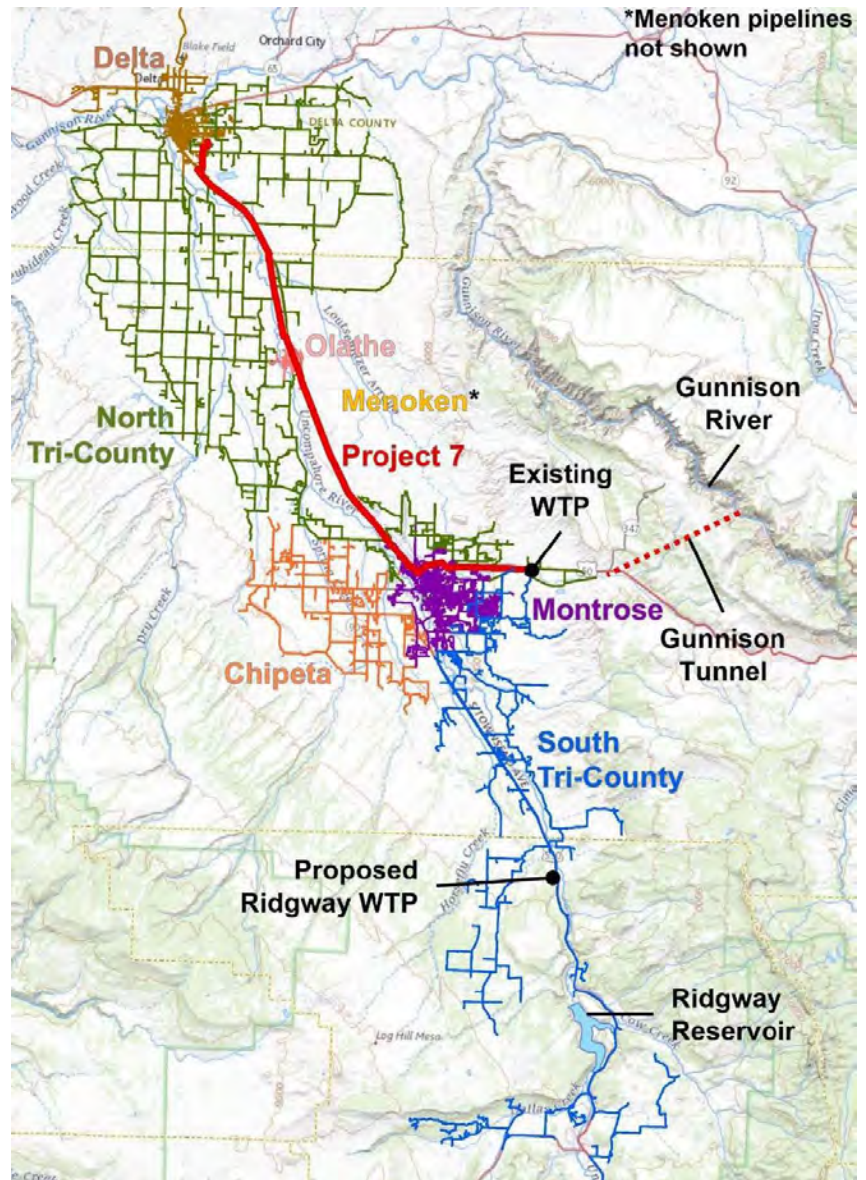


Figure 1. Project 7 service area and project map



Purpose and Need

Currently, all drinking water supplied by P7WA comes from one water source: the Blue Mesa Reservoir via the Gunnison River and the 116-year-old Gunnison Tunnel to Fairview Reservoir (P7WA's terminal reservoir), treated in a single WTP in Montrose. Water is then stored in two finished water storage tanks before being pumped to all consecutive systems through a single 24-inch ductile iron pipe (DIP) pipeline that runs roughly 25 miles from the WTP to Delta. The consecutive systems (Delta, Menoken, Chipeta, Montrose, Olathe, Tri-county) do not have any other water sources or treatment facilities. "Consecutive system" means a public water system that receives some or all of its finished water from wholesale systems.

Given the dependence on a single source and a single WTP, P7WA lacks the resiliency to provide safe and sustainable drinking water.

The single-source aging system cannot shut down for any time as this would leave the nearly 60,000 residents without a water supply other than trucking water into this mountainous area. The State Engineer provided a letter of support for inspection issues and need to dewater to repair this aging system. Without a secondary source and backup WTP, P7WA faces considerable uncertainty; indeed, any emergency, wildfire, or infrastructure issue for Blue Mesa or Fairview Reservoirs water could leave P7WA unable to provide potable water to the nearly 60,000 residents of the Uncompahgre Valley.

Will the Project alleviate pressure on existing water supplies and/or facilities?

Yes, the Ridgway Reservoir is the only viable secondary water source, and P7WA entities have existing rights to this water—but there is no existing infrastructure to use it. This project would build a new WTP and associated pipelines for resiliency within the system to:

- Improve efficiency. The project will primarily serve the South Tri-County and portions of the City of Montrose systems (shown in *Figure 2*) using gravity flows to minimize pumping requirements to the southern distribution system and increasing flows to northern consecutive entities.
- Provide flexibility. A secondary WTP and source would allow P7WA to meet base residential water demands and provide additional flexibility to Reclamation, which manages both pools of stored water (Blue Mesa and the Ridgway Reservoir), allowing distribution from either depending on existing conditions.
- Diversify the water supply. Without this project, any water shortage or interruption from the existing source at the Blue Mesa or Fairview Reservoir, including extended closing of the Gunnison Tunnel, would require trucking water into the area as there are no other available water supplies. There are multiple points of possible failure along the water supply route (see *Figure 2*) that could cause an interruption of service.

The critical importance of developing a secondary regional water source and new WTP has been recognized for some time. When the Ridgway Reservoir was completed in 1986, a penstock for connecting to a new WTP was built into the dam to be able to use this water source. The 2016 City of Montrose Water Conservation Plan identifies an emergency or secondary treated water source in the Gunnison River Basin as a priority infrastructure need, with this project (a secondary WTP downstream of the Ridgway Reservoir) as the leading candidate (City of Montrose Water Conservation Plan, 2016). In 2022, the Montrose County Multi-Jurisdictional Hazard Mitigation Plan (2018) also included a redundant water source and treatment plant as a necessary infrastructure project to build resiliency in the service area.

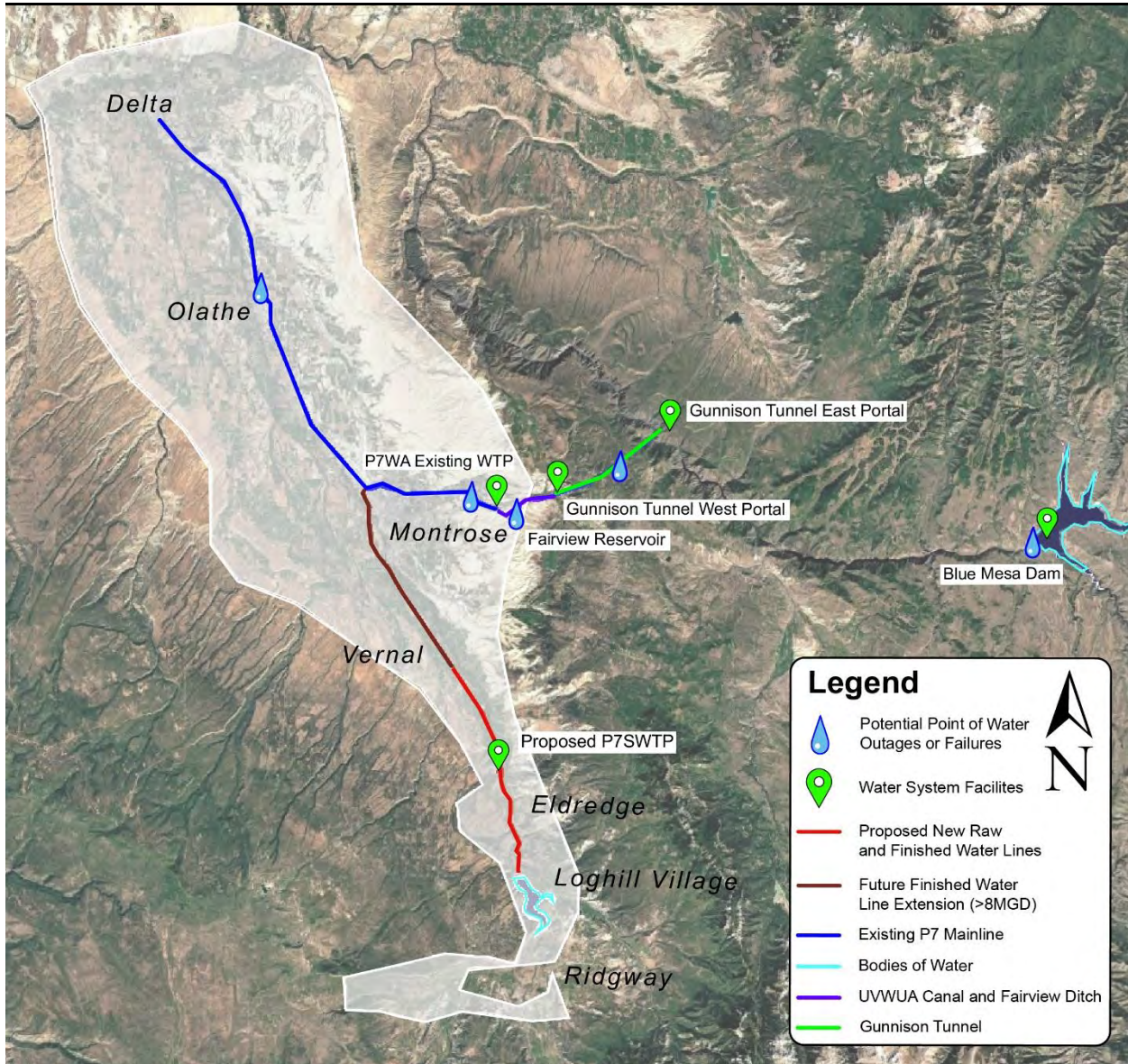


Figure 2. Water system route with identified risks.

Impaired Water Quality in the Ridgway Reservoir

Unlike many water sources throughout the high mountains of Western Colorado, the water available at the Ridgway Reservoir is considered impaired, and a conventional water treatment process cannot deliver finished water without a softening or reclamation measure. This impaired raw water is classified as “very hard” by the United States Geological Survey (USGS). It contains moderate to high total dissolved solids (TDS) levels that are significantly higher than the finished water from Blue Mesa Reservoir currently conveyed to P7WA’s service area. Due to the

Because the source water at Ridgway Reservoir is considered impaired, the project must incorporate softening technology to reclaim the natural resource, thereby qualifying this project for Title XVI funding as established in the feasibility study currently under Reclamation’s review.



difference in hardness and TDS levels, P7WA needs to include softening technology in its treatment process to ensure the finished water matches that of the existing WTP. Incorporating this technology is necessary to avoid disinfectant residual loss, scaling, corrosion, and aesthetic issues in the blending zones within the service area. Furthermore, without softening technology, customer acceptance of the finished water would decrease due to the change in water quality.

For reference, the hardness and TDS levels in the current finished water throughout the service area are, on average, 121 and 156 milligrams per liter (mg/L), respectively, and the Ridgway Reservoir demonstrates levels of 291 and 350 mg/L, as identified in *Appendix B. Water Quality*.

[Assessment of Potential Treatment Alternatives and Initial Selection](#)

In the spring and summer of 2021, P7WA hosted a series of workshops with stakeholders, which evaluated the various treatment process alternatives for a potential new water treatment facility, including membrane softening, pellet softening, and conventional lime softening. This engagement included the opportunity to rank value drivers based on their importance. The top three drivers in priority order are:

1. Ability to produce a finished water quality that can safely blend with the existing WTP water quality and account for seasonal changes.
2. Control and predictability for managing treatment capacity, operations, and maintenance.
3. Consider life cycle costs (design, construction, operations & maintenance).

Based on feedback from the 2021 workshop with stakeholders and P7WA's analysis, PSRs were preliminarily selected as the locally preferred alternative (See Evaluation Subcriterion 5b for participant details). However, recognizing that PSRs are a novel technology for surface water treatment in the United States, P7WA sought funding through Reclamation to perform a pilot study to inform the conceptual and final design.

[Treatment Process Pilot Study and Selection](#)

In the summer of 2022, P7WA piloted PSRs, followed by direct filtration via ultrafiltration (UF) membranes and granular media filters. The pilot results indicated that UF membranes outperformed granular media filter treatment efficiency and provided more operational flexibility to manage seasonal water quality changes due to ease of automation. The feasibility report for Title XVI eligibility outlined the relevant pilot study results.

PSR - UF membrane treatment train was determined to be effective for treating water from the Ridgway Reservoir.

[Assessment of Raw Water Delivery Options and Selection](#)

During the same workshops in the summer of 2021, P7WA evaluated three raw water delivery options: a raw water delivery line from the Ridgway Reservoir, alluvial wells, and an in-stream diversion and pumphouse. For raw water delivery options, stakeholders ranked the following three value drivers by priority:

1. Quality of source water and resistance to the possible effects of wildfire, runoff, and contamination
2. Control and predictability for managing raw water supply, operations, and maintenance
3. Reliability and environmental sustainability with decreased reliance on pumping and energy use

With stakeholder input and further consideration, P7WA selected a raw water delivery line as the preferred alternative. The raw water delivery line provides the highest quality water source and the most stable raw water source due to the buffering capacity of the reservoir, which stabilizes seasonal water quality changes.



It has the lowest operations and maintenance (O&M) costs and required staff. It has the highest resilience to wildfire events and the greatest control of raw water flow from the reservoir to the WTP by not depending on fluctuating river levels or unsustainable groundwater availability. It also eliminates costs associated with pumping due to gravity flow and allows for potential energy recovery through hydropower generation at a future phase.

Overview of Hydraulic Modeling and System Optimization Review Report

Finally, P7WA partnered with Reclamation to perform a Hydraulic Modeling and System Optimization Review. Through this opportunity, P7WA evaluated current and projected demands due to population growth. This study confirmed the required design flows for the proposed WTP based on current and future system demands, identified requirements for the raw and finished water lines, and developed and assessed design flow alternatives for the finished water line to the distribution system.

Capacity (current and future)

P7WA plans to develop the WTP at an initial design flow of 6 mgd using partner and Title XIV WIIN funding. The project will be designed to easily expand to 8 mgd and, ultimately, 12 mgd (with initial expansion plans beginning in the next decade). Thus, when the existing water source is interrupted or compromised, the new 6 mgd facility could adequately meet the minimum demand for all P7WA water users (Figure 3). This project will be built to accommodate a future 12 MGD facility that could meet the minimum monthly demand until approximately the year 2140, providing necessary resilience for over a century (Figure 4).

P7WA selected these design flows as a 6 mgd WTP would satisfy essential water use minimum month demand requirements for the entire service area.

The project's feasibility report documents this information in detail.

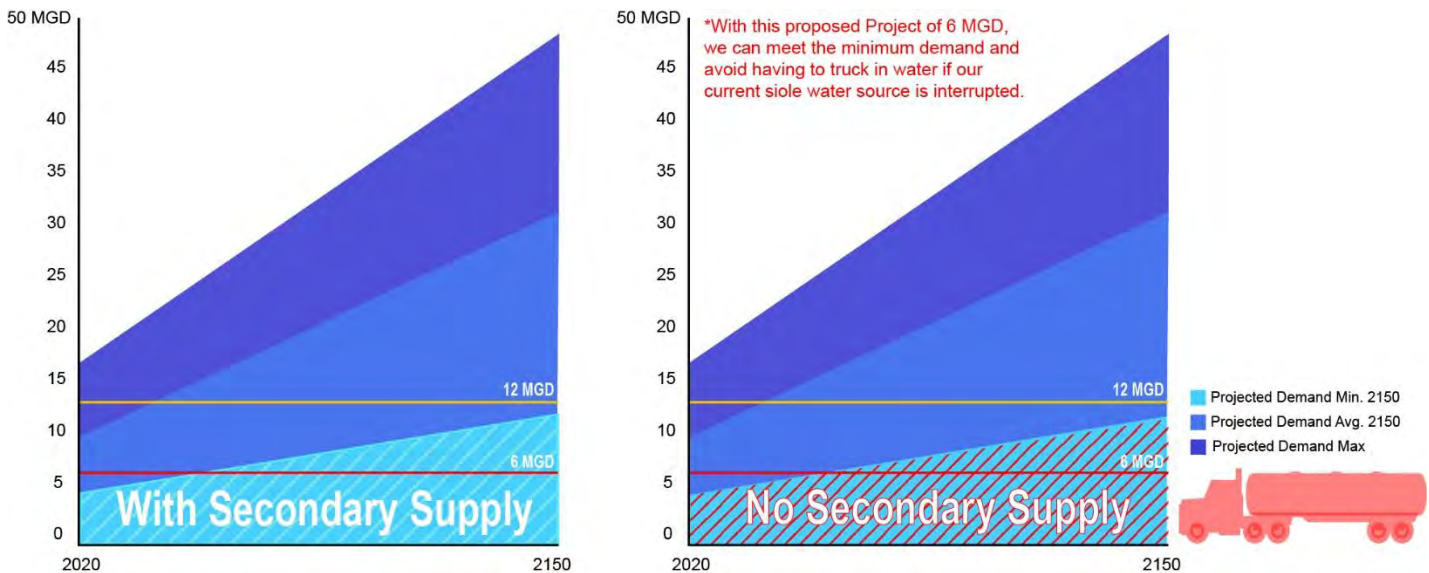


Figure 3. Secondary supply will meet projected minimum demands.

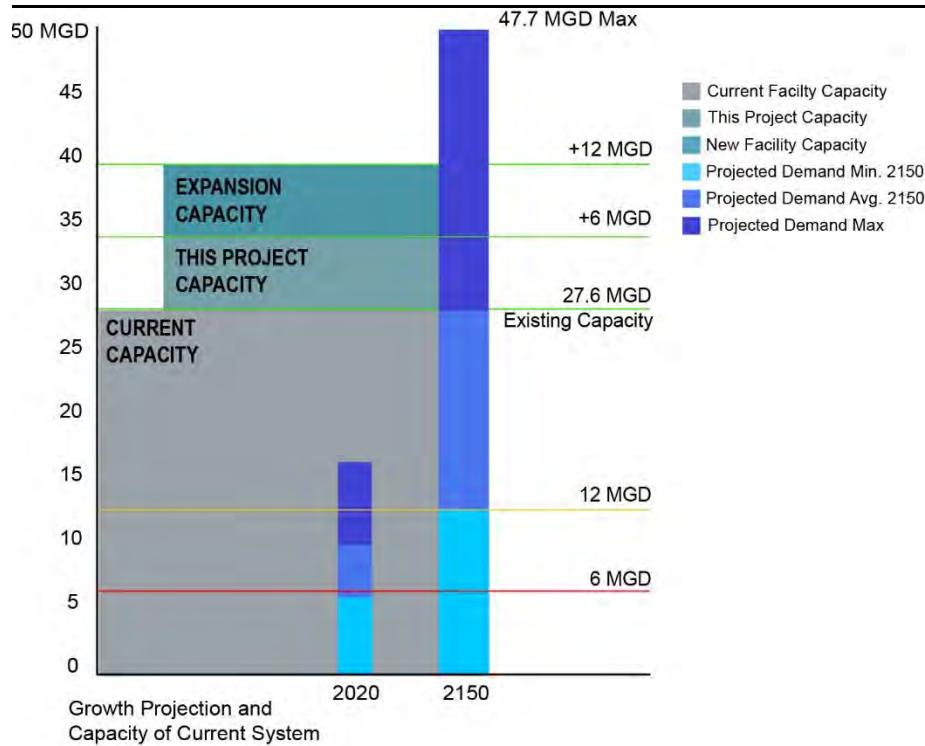


Figure 4. This project and design expansion could provide water supplies through 2150.

Treatment Needs and Objectives

The project goals are to improve the water quality of an impaired water source to develop a redundant source and emergency supply of water to the service area because the current single-source water supply, which serves 60,000 people, could fail at any time due to aging and currently unmaintainable infrastructure breakdowns or emergency. P7WA identified a set of baseline objectives for the new WTP's finished water quality, which are to:

P7WA developed design criteria for the new system based on historical Ridgway Reservoir water quality and historical P7WA WTP finished water quality.

- Meet all Safe Drinking Water Act (SDWA) and Colorado Department of Public Health and Environment (CDPHE) regulations.
- Ensure that disadvantaged communities have equitable and commensurate access to potable water that meets primary and secondary standards.
- Produce finished water compatible for blending with finished water from the existing WTP and distribution system infrastructure to avoid disinfectant residual loss, scaling, corrosion, or aesthetic issues in the blending zones.

Location and Distribution System

The site was selected for the new WTP location after a preliminary pipeline alignment and WTP siting study in 2019. Moreover, through emergency interconnects with the TWCD, P7WA can also supply water to the Town of Ridgway, the Town of Ouray, and the Dallas Creek water system. Design considerations for the



site layout include using the site's natural grade to allow most of the plant flow to move by gravity across the facility from northwest to southeast.

The raw water transmission line will consist of approximately 6 miles of pipe from the toe of the Ridgway Reservoir Dam north to the WTP. The finished water pipeline will consist of approximately 6 miles of pipe traveling north from the WTP to connect with the existing TWCD distribution system in Montrose County.

WTP Treatment Train and Design Criteria

The WTP's designed treatment train incorporates PSRs to remove calcium hardness, followed by UF membranes for turbidity and pathogen removal. The treatment process within the facility is as follows:

Raw water from the Ridgway Reservoir enters the WTP, which undergoes pre-oxidation with potassium permanganate. Next, the water goes through the pellet softening process in an up-flow fluidized bed reactor with seed material and chemical addition that removes hardness from the source water. Through this process, raw water enters the reactor's base along with a basic chemical, such as caustic soda, which raises the pH of the raw water. The raw water and caustic soda move upwards through a seed material, such as silica sand, added to the reactor to form the fluidized bed. The increased pH promotes calcium carbonate precipitation that deposits onto the seed's surface, creating pellets. As pellets reach maturity, their weight increases, and they collect at the bottom of the reactor. A consistent routine of wasting pellets from the base of the reactor and refilling with seed material at the top of the reactor maintains the conditions needed for hardness removal in the PSR. Table 1 highlights the design criteria of the WTP by phase.

Table 1: PSR Design Criteria

Parameter	Base Operating Conditions (3 MGD)	Phase 1 (6 MGD)	Phase 2 (9 MGD)	Phase 3 (12 MGD)
Number of Reactors with 2.0 MGD Capacity	3	3	5	6
Sand Addition (lb/day)	475	949	1,425	1,898

As a cost-saving measure, P7WA proposed designing the WTP to install three-stage flocculation and high-rate sedimentation without changing the site layout or hydraulic grade line if future excess turbidity and upstream organics make it necessary. Several considerations could influence the decision to install these processes in the future, including changes in water quality due to wildfire, algae, or other total-organic-compound (TOC)-producing events or if long-term operations indicate a cost benefit to adding additional pretreatment upstream of membranes.

P7WA expects the softened water to have very low alkalinity when leaving the PSRs. As such, carbon dioxide will be added to the softened water in re-carbonation basins to lower the pH to approximately 8.5 and stop the softening reactions.

Following this stabilization process, water flows into a feed wet well for the ultrafiltration feed pumps, and softened water is pumped through UF membranes, which remove turbidity and provide pathogen removal/inactivation credit. Design criteria for UF membranes are available in Table 2.



Table 2. Ultrafiltration Membrane Design Criteria

Parameter	Base Operating Conditions (3 MGD)	Phase 1 (6 MGD)	Phase 2 (9 MGD)	Phase 3 (12 MGD)
CDPHE Requirements				
Turbidity	≤ 0.1 NTU 95% of the time. Not to exceed 0.5 NTU			
<i>Giardia</i> Removal Credit	3.0 – log			
Ultrafiltration				
Solids Loading (lb/day)	63	126	189	251
Percent Solids Removal	100%	100%	100%	100%
Operating Pressure Range (psi)	15 – 20	15 – 20	15 – 20	15 – 20
System Operation	N+1	N+1	N+1	N+1
Number of UF Units	4	4	6	7
Number of Modules per UF Unit (gfd)	72	72	72	72
Average Flux (gfd)	32.2	32.2	32.2	32.2
Clean-In-Place (CIP) Interval (days)	30	30	30	30
Backwash Interval (min)	22	22	22	22

*Note that shaded areas represent future expansion potential and are not part of this proposed project.

After filtration, sodium hypochlorite is added before the disinfection contact basin, while liquid ammonium sulfate (LAS) dosing occurs afterward, providing a combined chlorine residual in the finished water storage tanks and pipeline. Residuals from the membrane backwash processes will flow to an equalization basin for settling. The supernatant is recycled to the head of the plant.

Table 3 gives the overall design criteria and Figure 5 shows the conceptual process flow.

Table 3. Treatment Plant Design Criteria

Parameter	Base Operating Conditions for Tri-County South	Phase 1	Phase 2	Phase 3
Design Flow (MGD)	3.0	6.0	9.0	12.0
Recycle Flow (MGD)	0.13	0.26	0.39	0.52
Influent Solids Load (lb/day)	75	149	224	299
Aluminum Coagulant Load (lb/day)	344	689	1,033	1,378
Influent Solids Load– Polymer Sludge Coagulant (lb/day)	52	104	157	209
Influent Hardness Load– Pellets (lb/day)	5,491	10,983	16,474	21,966
Total Influent Solids Load (lb/day)	5,963	11,925	17,888	23,851

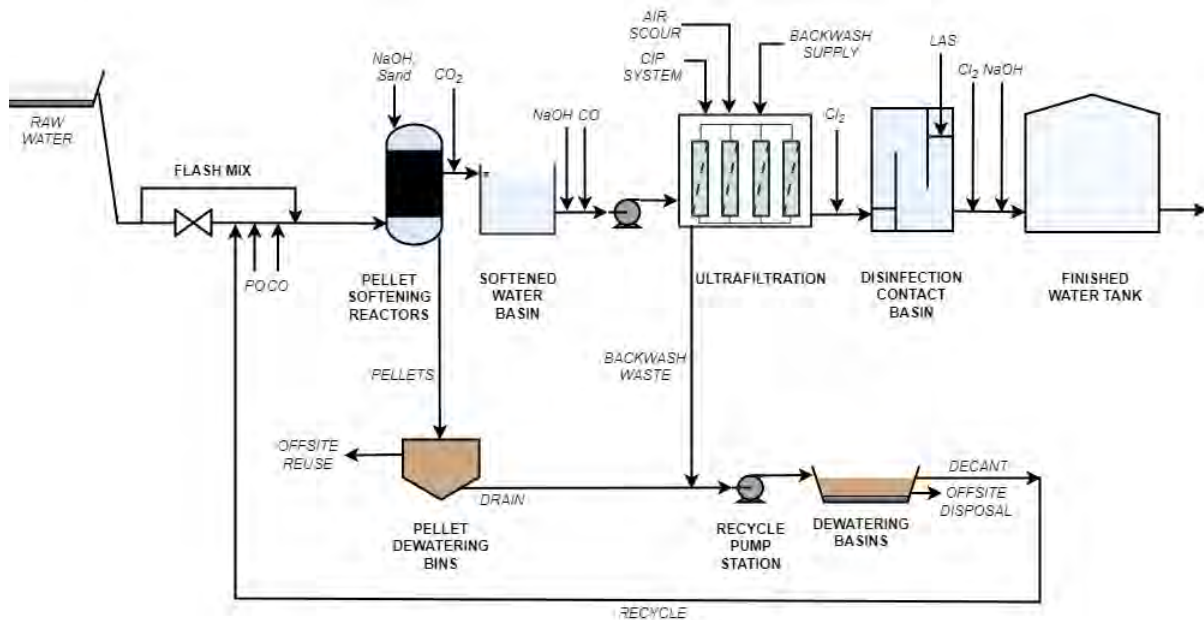


Figure 5. Treatment Train Conceptual Flow Process

Energy Recovery and Electrical

P7WA also proposes installing an energy recovery facility within the WTP to leverage the static head of the pipeline at an excess of ~270 feet. The energy recovery facility would benefit the new WTP by reducing the incoming pressure, protecting the downstream treatment facilities, and generating renewable energy to offset usage from the WTP through a hydro turbine. The initial design of the energy recovery facility is visible in Table 4. P7WA’s design team is currently evaluating the design and feasibility of the hydro turbines for a range of flows to ensure proper turndown capabilities while maintaining the ability to generate energy.

Table 4. Energy Recovery Facility Design Criteria

Parameter	Base Operating Conditions (3 MGD)	Phase 1 (6 MGD)	Phase 2 (9 MGD)	Phase 3 (12 MGD)
Number of Pipelines	1	1	1	2
Number of Turbines	2	3	4	4
Number of Active Turbines	1	2	3	2
Incoming WTP Hydraulic Head (ft)	257	223	243	224
Expected Pressure Reduction Through Turbines (ft)	242	208	228	209
Pipeline Velocity (ft/second)	1.6	3.3	2.5	3.3
Power Output (kW)	70	100	200	240
Estimated Annual Energy Credit* (\$/yr)	38,300	54,700	109,500	131,400

*Note: the estimated annual energy credit assumes 24/7 operation and a large commercial energy credit from the Delta-Montrose Electric Association.

Upon initial distribution, the WTP will be connected to the electrical grid with service provided by San Miguel Electric Cooperative. However, if a hydro turbine is installed to leverage the influent pressure of the



water, the WTP will be able to generate most of the necessary electricity for operations onsite. Depending on flow rates and net head, excess power generated could be sold back to the power grid through net metering.

Residuals and Disposal

Solids produced by the treatment process include pellets produced by the PSRs and solids from backwash and CIP waste at the UF system. A CIP uses a high concentration of chemicals to remove foulants from the surface of the UF membranes and would be run on a monthly to biannual basis, depending on the propensity of the feed waters to foul the membranes.

After softening, mature pellets are transferred to pellet dewatering containers, where they readily dewater to approximately 95% solids and are hauled away in containers. There is potential for beneficial reuse of these pellets, including partial reuse as seed material for PSRs, land application as a soil amendment, and agricultural or animal feed/supplement purposes. P7WA is currently assessing the feasibility of each option. Routine backwash cycles and CIPs will generate residuals from the UF membranes. During both cleaning routines, the foulants or particles accumulating on the membrane surface are scoured off by high-pressure air or water and chemicals. The particles are then flushed to the backwash equalization basin through a solid settling process.

Raw Water Line Specifications

The raw water line will consist of approximately 27,500 linear feet (LF) of 24-inch nominal pipe, a diameter necessary to limit velocities in the pipeline to just above 5 feet per second while still allowing for a future design flow of 12 mgd. Materials under consideration for the pipe include high-density polyethylene (HDPE), polyvinyl chloride (PVC), ductile iron pipe (DIP), and steel.

The proposed raw water alignment is west of and parallel to U.S. 550 for approximately 6 miles from the toe of the Ridgway Reservoir Dam to the new WTP south of Colona. *Figure 6* shows the proposed raw water line alignment.

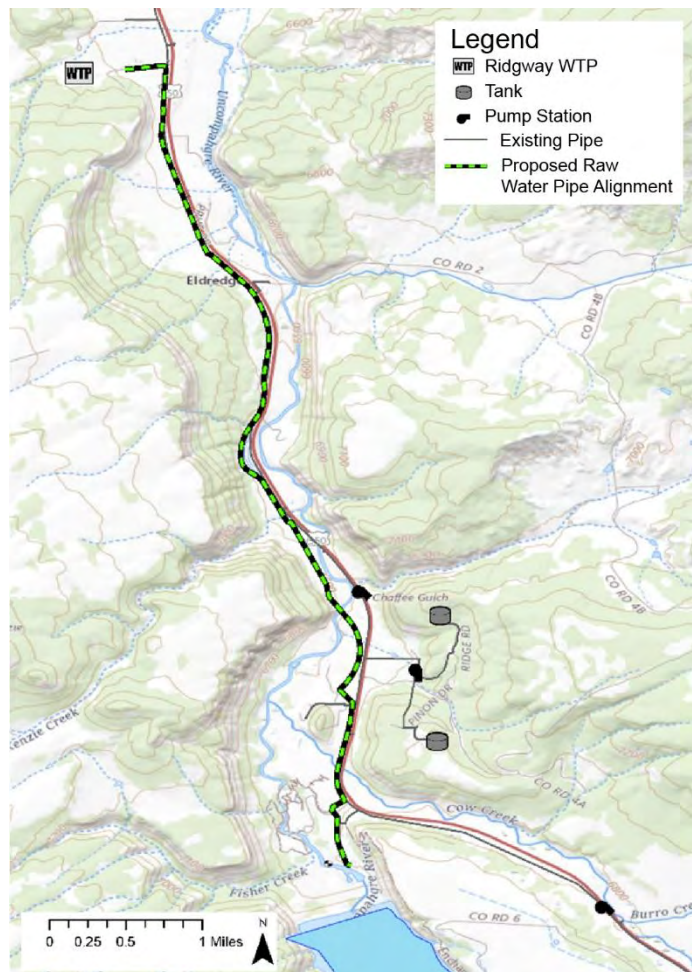


Figure 6. Proposed raw water line alignment.

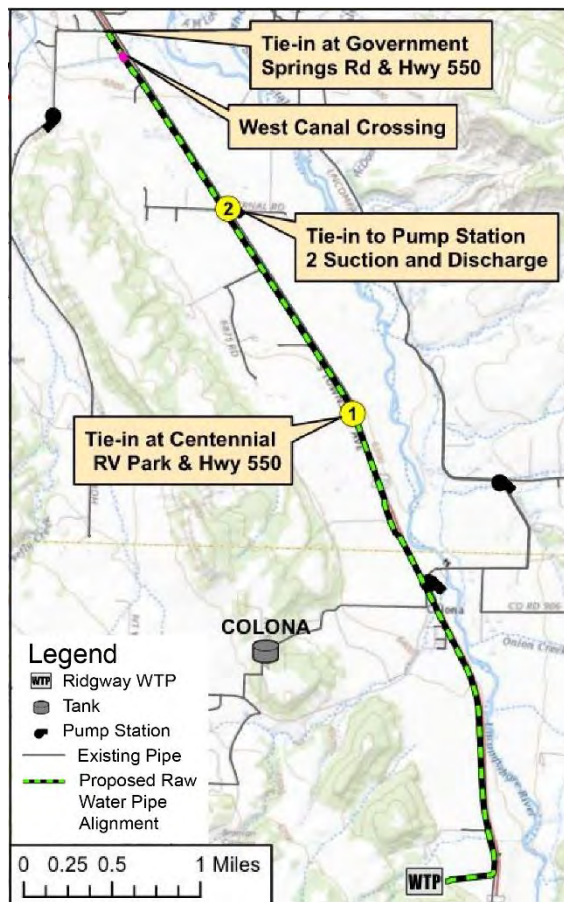


Figure 7. Proposed finished water line alignment.

Finished Water Line Specifications

As part of its Hydraulic Modeling and System Optimization Review, P7WA conducted hydraulic evaluations of the finished water line improvements necessary to supply the entire P7WA system from the new WTP at design flows of 6 and 12 mgd. The results informed the project design.

To reach a design flow of 6 mgd for the finished water transmission line, P7WA will use approximately 31,100 LF of 24-inch pipe extending from the new WTP to approximately Government Springs Rd. The pipe's material (HDPE, PVC, DIP, or steel) will be confirmed during design.

Five peripheral sites will require work to integrate both WTPs' supply distribution. The pipeline will tie in three locations within TWCD's existing distribution system: Pump Station 3, located adjacent to the Town of Colona at Buckhorn Road and U.S. 550; the suction and discharge sides of Pump Station 2; and the TWCD pipe at Government Springs Rd and U.S. 550. Additionally, P7WA will install a new master flow meter at the South Tri-County and Montrose junction at Otter Rd. Lastly, modification to the Miami and U.S. 550 vault will require a master meter and a pressure sustain valve, where the distribution from the WTPs can alternate the flow direction. P7WA will also install five supervisory control and data acquisition (SCADA)-controlled pressure

reducing valves at the following locations: the Ridgway tie-in, Pump Station 2, Riverside Pump Station, Riverside West Pump Station, and the Miami and U.S. 50 master meter, as well as one SCADA-controlled pressure-sustaining valve at Otter Rd and 6725 Rd. The pipe alignments and locations referenced are visible in Figure 7.

Contract Procurement Activities

P7WA hired Garver to serve as Program Manager and Owner's Advisor, a role it has held since 2019. Garver developed the project's feasibility study for the Title XVI opportunity in 2019. In 2022, P7WA hired a joint venture design builder, McCarthy-CDM Smith Joint Venture. Garver will continue to manage the program and support P7WA in design reviews and evaluations of the guaranteed maximum price. Garver will also facilitate P7WA's Risk Management Program during design and construction, provide third-party construction observation for quality control, and assist with the project's closeout.



Project 7 – Recent Working Relationships with the Bureau of Reclamation

As part of the Resiliency Program, Reclamation has awarded P7WA grant money for:

- Funding opportunity announcement BOR-UC-20-F002 (WaterSMART Water Conservation Field Services Program (WCFSP) – Upper Colorado Basin Region – Financial Assistance for Fiscal Years 2020-2021)
 - Amount awarded: \$25,000
 - P7WA performed a comprehensive Hydraulic Modeling and System Optimization Review, which allowed P7WA to confirm the design flow, develop system schematics, update and calibrate the hydraulic model, perform hydraulic evaluations, perform alternative evaluations of the finished water transmission system, perform a review of the system to identify opportunities to supplement the region's water supply and locate potential system interconnects to improve system reliability.
- Notice of Funding Opportunity No. R22AS00010 (Desalination and Water Purification Research Program: Research Projects)
 - Amount awarded: \$612,059
 - Using the funding provided as part of this grant, P7WA performed the pilot study described above, confirming the feasibility of a treatment train incorporating PSRs followed by UF membranes.

The collaborative relationship developed with Reclamation has assisted P7WA in furthering this resiliency project that has already been decades in the making.

Evaluation Criteria

Evaluation Criterion 1—Water Supply

Subcriterion No. 1a—Stretching Water Supplies

1a. How many acre-feet of water are expected to be made available each year upon project completion?

This project, cost-shared through this grant opportunity, would yield 6 mgd (6,725 acre-feet per year [af/y]). However, the plant will be easily expandable to meet future needs and will facilitate access to use all of the 28,100 af/y of the available municipal and industrial (blue in Table 8) water rights held by P7WA entities within the reservoir.

This project will provide the overall infrastructure with an initial flow rate of 6 mgd, which will deliver up to 6,725 af/y.

Each P7WA entity owns water rights in the Ridgway Reservoir but cannot access these directly due to a lack of existing infrastructure (e.g., water line or treatment facility). *Table 5* shows the active pools currently within the Ridgway Reservoir, separated by allocation to each P7WA member.



Table 5. Ridgway Reservoir Water Allocation

Ridgway Reservoir Pool				Acre-Feet/Year		
Active	Unallocated			19,996		
	Allocated	Irrigation			11,200	
		Recreation			100	
		Municipal and Industrial	City of Montrose			10,000
			City of Delta			3,700
			Tri-County			12,860
			Town of Olathe			300
			Menoken Water District			640
			Chipeta Water District			600
Municipal and Industrial Total			28,100			
Total				59,396		

(Note: shaded fields indicate members of P7WA)

To understand the system's future needs for plant sizing, in 2021, P7WA performed a Hydraulic Modeling and System Optimization Review. During this review, P7WA identified recent demands to determine the necessary design flow of the WTP, which are highlighted in Table 6.

Table 6. P7WA Distribution Demands (Overall)

Year	Minimum Month Demand (mgd)	Average Demand (mgd)	Maximum Month Demand (mgd)
2019	5.0	8.3	13.6
2020	5.4	9.4	16.0
2021	4.9	8.9	14.3

1b. What percentage of the present and/or future annual demand in the project sponsor's service area will the Project's reclaimed water provide upon Project completion?

Based on these assessments, P7WA designed a system with an initial flow of 6 mgd, which is about two-thirds of the present average demand. Based on initial calculations with the existing WTP offline, a system of this size will meet the baseline level of service (minimum demand); specifically, this flow exceeds the minimum month demand of 2020 levels by approximately 11% for the entire distribution system.

The new infrastructure can meet 100% of minimum demand at the initial capacity for this project. This size will allow the primary source to be interrupted for maintenance and emergencies.

P7WA also performed population growth projections as part of the Systems Operation Review to confirm the ideal expanded WTP design flow. As background, the minimum monthly demand and maximum monthly demand have grown by approximately 1% and 1.5% per year, respectively, a growth that has remained relatively steady over the past two decades. Average demands have risen by 1.4%. Using this historical data, P7WA developed 130-year demand projections. Assuming these demand growth rates remain constant (1% minimum, 1.4% average, and 1.5% maximum), minimum monthly demand is estimated to be approximately 12 mgd in 2140—a calculation P7WA used to design the future flow of the WTP. Figure 8 shows the estimated demand projections with reference lines indicating the existing plant



capacity, the planned WTP capacity (at both 6 and 12 mgd), and the augmented supply combining the capacities of both facilities.

This project will build in flexibility to expand this capacity to meet the distribution system's baseline needs for the next 130 years. These design flow rates were intentionally designed as part of this Resiliency Program—identifying capacities necessary to continuously supply minimum-level demand in case of an incident that compromises the existing WTP or source at Blue Mesa Reservoir.

Finally, recognizing the current active storage contracted in the Ridgway Reservoir to P7WA entities (28,100 acre-feet or 25 mgd), existing water rights are not a limitation on the usage of the WTP. To use more than the expanded design flow of 12 mgd, P7WA would require additional infrastructure beyond the scope of this current project, but this project is designed so that these expansions could be built in the future if needed.

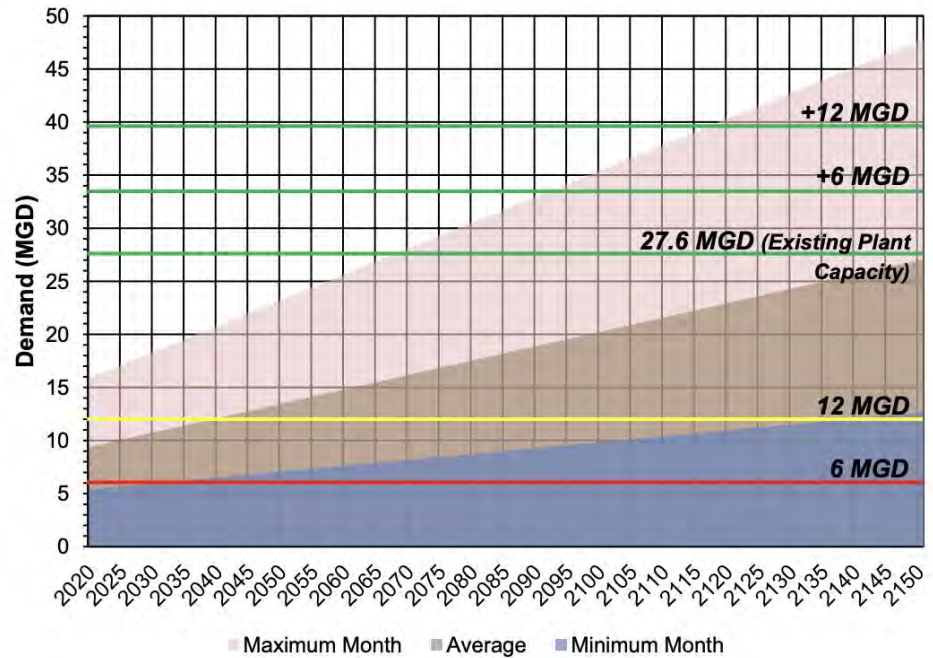


Figure 8. Estimated P7WA Demand Projections

2. Will the Project reduce, postpone, or eliminate the development of new or expanded non-recycled water supplies? Explain.

Yes. P7WA's new WTP and source at the Ridgway Reservoir would eliminate the need for additional capacity within the distribution system overall and provide up to 28,000-acre-feet of capacity. Not only would this additional capacity serve needs for the next century, but the project also reduces the expanded development of non-recycled waters from Blue Mesa Reservoir.

P7WA's members own water rights in the Ridgway Reservoir, but there is no infrastructure in place to access it. P7WA relies on a water exchange agreement with the UVWUA which manages the agricultural irrigation needs in the valley. The exchange agreement allows P7WA to use waters from Blue Mesa Reservoir (UVUWA's water rights) in exchange for UVUWA's use of P7WA's water from the Ridgway Reservoir. UVUWA serves its irrigation needs by sending water from the Ridgway Reservoir via the Uncompahgre River, which eventually meets the Gunnison River and Colorado River. By using the Ridgway Reservoir water, the project will:

- Allow other downstream uses for Blue Mesa Reservoir. This alternative source would provide desperately needed operational flexibility for the Colorado River system. Reclamation was a key



agency supporting the Drought Response Operations Agreement (DROA) which was in response to the crisis point in 2018 when water levels in Lake Powell and Lake Mead reached dangerously low water levels. DROA specifically named Blue Mesa Reservoir as a key upstream reservoir to support water levels in Lake Powell.

- Reduce reliance on existing infrastructure. By providing an additional source of 6 mgd, the project will provide operational flexibility and reduce the P7WA's dependence on Colorado River water.
- Alleviate pressure on groundwater. As groundwater is an extremely limited and unsustainable supply in this area, this project will help avoid aquifer overdrafts.
- Minimize the need for expensive infrastructure and repairs. Operational flexibility will allow P7WA to proactively inspect and repair the existing infrastructure, avoiding costly breakdowns. This is not possible now.

"Blue Mesa has reached some of its lowest levels on record last year with those emergency releases last year for the drought-response operation. 2021 emergency releases from Blue Mesa dramatically reduced its levels but helped keep Lake Powell's hydroelectric power plant generating." —Aspen Public Radio

This project will avoid a possible alternative project using non-recycled waters, which our analysis had eliminated as too expensive and as threatening an endangered water supply. This possible alternative project would have developed the use of water rights on Grand Mesa. On a good year, sufficient water supplies may exist on Grand Mesa that could be accessed near the City of Delta via the Gunnison North Fork or Surface Creek. Historical Grand Mesa water rights owned by Delta are currently used for irrigation and there are insufficient water rights to serve as a regional water source. More water rights would need to be purchased from irrigators or other BOR projects, such as Paonia Reservoir or the Fruit Grower's Reservoir. Historically, water from Grand Mesa is the most variable and drought prone water supply in this region of the state, and Grand Mesa has been identified as a critical point of climate change impact (<https://www.washingtonpost.com/business/interactive/2022/colorado-river-crisis/>). Further development of this resource is not a sustainable or environmentally responsible solution; however, it is technically feasible.

As part of the Systems Operation Review, P7WA assessed The City of Delta's Water Rights on Grand Mesa as a possible water supply other than the Ridgway Reservoir. Before the formation of P7WA, Delta's primary raw water source was on Grand Mesa. They transported raw water approximately 20 miles to their now-retired WTP. This represents the single possible option for a non-recycled/reclaimed water supply other than the Ridgway Reservoir. However, this water supply is quite problematic and poses extreme challenges, including:

- Drought and unsustainable water supplies. Delta has experienced periods of extreme drought in the Grand Mesa watershed; as such, this source would likely not provide the supply reliability necessary for P7WA.
- Expensive infrastructure. If sufficient water rights could be purchased, a new WTP could be built in Delta, or the former City of Delta WTP could be recommissioned and expanded to 6 mgd. Water would then need to be pumped approximately 35 miles uphill (875 feet in additional elevation) to the major population center, the City of Montrose. This would entail constructing up to 5 miles of additional 30-inch water line to connect to the existing P7WA finished water transmission line terminus in Delta. Delta accounts for 10% of regional water demand, while Montrose, Menoken, Chipeta, and the southern



portion of TWCD account for approximately 70% of water demand. This means that a substantial length of existing P7WA transmission line would need to be upsized to 30-inch to facilitate the movement of more water, uphill, to Montrose. Multiple 6-12 mgd booster pump stations would be needed. All existing pressure reducing vaults on the P7WA transmission line would need to be expanded to facilitate pumped bypass. The estimated cost of this project is between \$350-million and \$500-million and it would provide fewer benefits than the proposed P7WA WTP and waterlines project for which funding is requested.

3. Will the Project alleviate pressure on existing water supplies and/or facilities? If so, please describe the existing water supplies, identify the supplies and/or facilities that will be impacted and explain how they will be impacted by the Project, including quantifications where applicable.

Yes. P7WA's terminal reservoir, the Fairview Reservoir, is supplied via the Gunnison Tunnel and Blue Mesa Reservoir. It was commissioned in 1968 and is classified as a high-hazard dam. The initial design of the inlet pipes did not include guard gates, which resulted in pressurized inlet pipes through the dam. Because the Fairview Reservoir cannot be shut down with the year-round demand and the lack of guard gates, the inlet piping cannot be thoroughly inspected. As this infrastructure surpasses the typical design lifespan of 50 years, the lack of proper inspections raises concerns about the inlet pipe integrity and the possibility of a leak that could damage the dam's integrity. This project will allow P7WA to stop the flow from Fairview to dewater the reservoir to install guard gates and perform thorough inspections of piping.

P7WA will initially construct the proposed plant with the capacity of 6 mgd required for minimum monthly demands to supplement or replace the existing WTP. The new WTP will serve the south TWCD and City of Montrose systems regularly and be available to meet minimum demands on an emergency basis for the entire region. In addition, as the community grows, the WTP can expand to treat up to 12 mgd, meeting expected baseline demands for the next 130 years. Ultimately, any water treated at or distributed from the proposed plant will alleviate pressure on the existing plant. As such, 6 mgd treated at the new plant at the Ridgway Reservoir alleviates 6 mgd (6,720 af/y) of demand from the existing plant at Blue Mesa Reservoir.

Additionally, the project will alleviate pressure on the sole existing water supply, the Blue Mesa Reservoir through the Gunnison Tunnel. Should a prolonged drought decrease water levels or a wildfire compromise the water supply at the Blue Mesa Reservoir, P7WA can rely on a new WTP and source without concern about meeting baseline service area needs. This, in turn, provides additional flexibility to Reclamation, which manages both water supplies (Blue Mesa and the Ridgway Reservoirs). Reclamation will be able to distribute from either source, depending on existing conditions, to meet contractual obligations.



4. What performance measures will be used to quantify actual benefits upon completion of the Project?

The most significant performance measures are qualitative:

- Improved operational flexibility. The new facility will function to augment the existing distribution infrastructure and even replace distribution capacity using reclaimed water should unforeseen events damage the current WTP at Montrose. As such, P7WA will gauge success by the project's capacity to deliver up to 6 mgd of safe and high-quality water as needed throughout the service area.
- Improved maintenance reliability and water supply resiliency. There is a high potential for an event, such as wildfire, drought, or aging infrastructure, to cause a failure that will compromise the Blue Mesa and Fairview Reservoirs or the existing water treatment facility. Without this project, such an event could cut off the supply of essential indoor water for 60,000 people in an area with no alternative other than bottled water.
- Improve dam safety and hazard mitigation. This project will allow P7WA to dewater Fairview Reservoir to install necessary guard gates not only to perform State Engineer request inspections but also to provide the ability to alleviate pressure and flows through inlet pipes should a leak occur that would damage the dam integrity. Currently, the only option if a leak occurs is to watch the dam erode. There is no safety shut-off to provide preventive or necessary maintenance or repairs. During the installation of guard gates, while Fairview is dewatered, P7WA will perform the required emerging that will increase the reservoir's storage capacity.

This project will effectively, proactively, and permanently prevent a catastrophic regional drinking water crisis – with incalculable economic, health, and human damages – for nearly 60,000 people across Delta, Montrose, and Ouray counties.

Although immeasurable using quantitative metrics, the assurance of water delivery throughout the service area is a crucial benefit of this resiliency-focused reclamation project.

The failure of the high-hazard Fairview Reservoir dam would be immeasurable as it relates to loss of life. The rebuilding or repairs of that dam would cost between \$5 to \$50 million, depending on the complexity.

P7WA will use other quantitative measures to gauge project success and the resulting benefits upon implementation.

- Reduced energy use and emissions. P7WA can construct the WTP with an energy recovery facility with one or more hydro turbines. As such, the new WTP will be able to generate electricity through influent pressure. P7WA will deem the project a success if it manages to lower the energy consumption and emissions that would have been produced by the current treatment plant. A hydro turbine may also decrease or eliminate the need for large emergency generators. P7WA can gauge success by the reduction in emergency responses caused by power grid shortages.



Subcriterion No.1b—Contributions to Water Supply Sustainability

1. Will the Project make water available to address a specific concern?

Yes. This project addresses multiple concerns.

- Water supply shortages. In 2021, Blue Mesa was used to send additional water supplies to Lake Powell to ensure hydropower operations could function. Blue Mesa is one of the largest reservoirs in the Colorado Basin and has been an option for Reclamation to use in support of downstream reservoirs. As the demand for water supplies from the Colorado River grow and drought related issues persist, it will be critical for Reclamation to access supplies of upstream reservoirs to support current operations. This project will reduce the reliance on Blue Mesa Reservoir and allow the UVWUA flexibility in operations when Blue Mesa needs to supplement downstream uses.
- Water supply reliability. This project builds resiliency within a system that currently relies on only one source and supply of water in Western Colorado. Blue Mesa and the Ridgway Reservoirs use source water from two distinct basins, the Gunnison and Uncompahgre, respectively. One basin may experience a low snowpack year while the other experiences a higher one, allowing one reservoir to augment the other, increasing drought resiliency.
- Groundwater depletion. Treating this surface water supply will alleviate the water demand pressure to drill new wells in an extremely limited and unsustainable aquifer.
- Water quality issues. As Reclamation’s Colorado River Basin Salinity Control Program notes *“The Colorado River and its tributaries provide municipal and industrial water to about 40 million people and irrigation water to 5.5 million acres of land in the United States. The river also serves about 2.3 million people and 500,000 acres in Mexico. The threat of salinity is a major concern in both the United States and Mexico. Salinity affects agricultural, municipal, and industrial water users. The threat of salinity is a major concern in both the United States and Mexico.”* By softening the Ridgway Reservoir waters using PSRs, this project would remove 500 tons of salts per year from the overall system. Removing salts from the watershed directly benefits the local economy and ecosystem. Excessive salts can build up in soils and reduce watering and fertilizing effectiveness. Soil with excessive salts can result in more agricultural runoff near the Uncompahgre River. Both agriculture and outdoor recreation, specifically fishing, are high-value local industries. Montrose County agricultural production equates to a market value of \$81 million dollars per year. Furthermore, Colorado Parks and Wildlife (CPW) estimates that fishing contributes an estimated \$930,000 annually to the region. Additionally, the Resiliency Program addresses severe water quality concerns using the selected reclamation technology. Without a softening/reclamation technology (in this case, PSRs followed by UF membranes), the Ridgway Reservoir water would not be a usable source of potable water for the distribution system. Considering this, P7WA has incorporated this technology to build resiliency within its distribution system.

This project will provide the operational flexibility needed to incrementally alleviate operational and climate change pressures on the Colorado River system.

This project directly removes Ridgway Reservoir’s harder water and its salts, which will minimize the flow of Ridgway waters to the Colorado River and increase the flow of softer waters from Blue Mesa.



- Natural disasters that may impact water supply infrastructure. Through this project, water will be available to address the concern of natural disasters, such as wildfires, which could damage the existing infrastructure and water supply. Both wildfire and infrastructure failure are valid concerns; Section 6 of the 2021 Annex Update to Montrose County's Multi-Jurisdictional Hazard Mitigation Plan indicates both as having a high relative risk ranking, and the likelihood of wildfire will continue to grow in tandem with a changing climate.
- Heightened competition for water supplies. As populations increase in the West, the demand for the Colorado River supply, which is already under stress, will also increase. P7WA is proactively mitigating this issue by developing a water source, typically undesired due to high hardness/salt levels compared to fresh mountain streams, to supplement and offset treatment operations. Developing the Ridgway Reservoir to be used as a municipal source will alleviate pressure on the Blue Mesa Reservoir.
- Availability of alternative supplies. There are no other feasible water sources available to P7WA in the area. This project would provide an alternative source to Blue Mesa.
- Increasing cost of water supplies, infrastructure, and potential trucking options. With water becoming increasingly scarce in the West and no other feasible sources available, this project could prevent the need for prohibitively expensive cross-border solutions (if such options are even feasible). As the costs of water treatment and planning continue to increase, finding a solution that can scale to meet demands through 2150 will help minimize future expenses for new infrastructure. Additionally, as transportation expenses increase, having a flexible solution that eliminates the need for emergency water trucking will also mitigate costs.

This project would augment the supply and allow P7WA to meet the minimum monthly demands without interruption in potable water delivery to the service area if a wildfire were to damage the current water treatment plant or the water supply in Blue Mesa Reservoir.

2. Will the project help create additional flexibility to address drought? Will water made available by this Project continue to be available during periods of drought? To what extent is the water made available by this Project more drought resistant than alternative water supply options? Explain.

Yes. The project will create additional flexibility to address drought. Drawdowns from the Blue Mesa Reservoir have been conducted recently to ensure adequate water levels at downstream facilities affected by drought. By securing access to a separate water source, P7WA will have the flexibility to use multiple sources, depending on need and availability. Should drought continue to affect the Gunnison River Basin, P7WA will be able to draw water from the Ridgway Reservoir (within the Uncompahgre River Basin) and not be impacted by DROA emergency uses of Blue Mesa Reservoir.

Given the growing scarcity, unpredictability, and competition for water supplies in the West, this project represents a cost-efficient approach to using established and innovative technologies to obtain drinking water from surface sources.

Furthermore, the selected action would perform better or similarly to the potential alternatives (as described in Subcriterion No. 3a—Cost Effectiveness) to provide drought resistance and water supply resilience.

Applying this innovative process through the Title XVI Program in the headwaters of rural western Colorado will provide a pioneering model for western states to follow as climate change and aridification pressures increase across the Colorado River Basin.

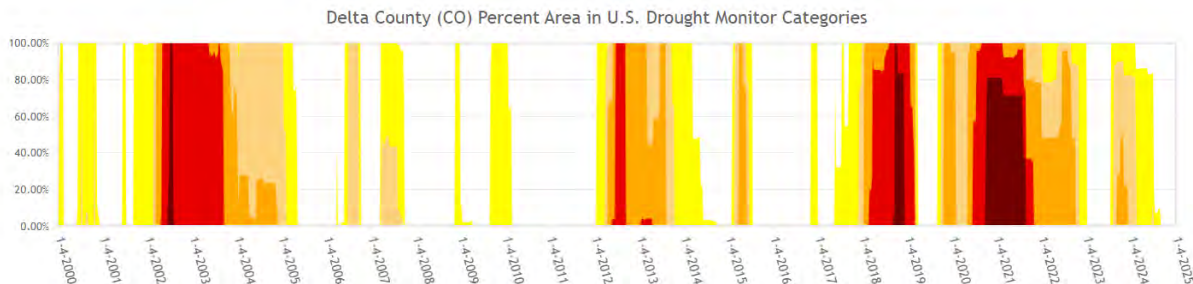


3. Has the area served by the Project been identified by the United States Drought Monitor as experiencing severe, extreme, or exceptional drought at any time in the last four years?

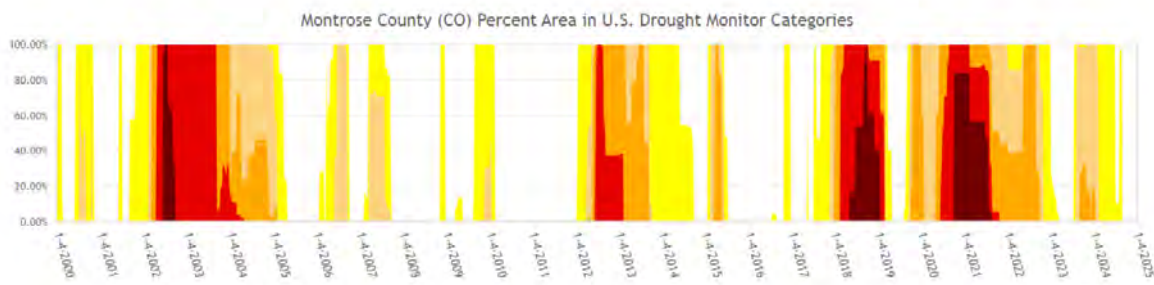
Yes. The United States Drought Monitor shows that all three counties have experienced exceptional (D4) droughts with increasing severity and frequency (dark brown in Figure 9). By the end of the summer of 2022, a large area within all three counties was still experiencing severe drought. Although the statewide snowpack was over 140% of the average in early 2023, the P7WA service area is at the epicenter of a 23-year drought considered the worst in nearly 1,200 years. Because of the intensity of the drought, the USDA designated the three counties served by this project—Ouray, Montrose, and Delta Counties—as primary natural disaster areas in 2022.

In 2020 and 2021 all three counties within the P7WA service area (Delta, Montrose, and Ouray) had exceptional drought, the most severe categorization. The P7WA sees this project as integral in building the resiliency necessary to face worsening drought conditions in the future.

Delta



Montrose



Ouray

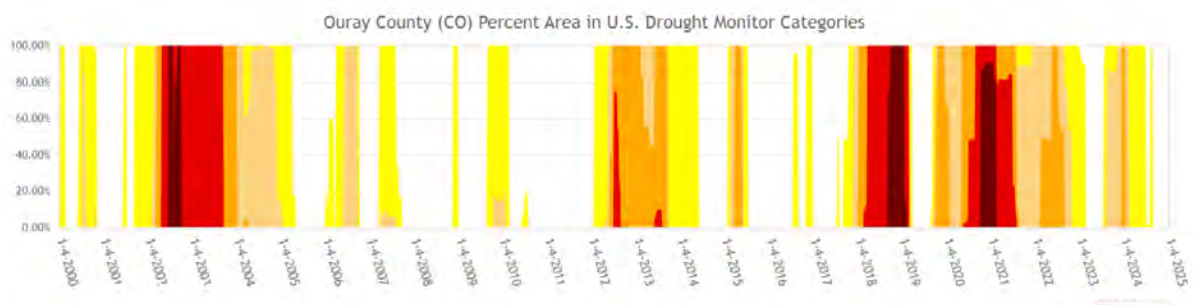


Figure 9. Drought Monitor for Three Counties



4. Has the Project area been designated as a drought disaster area by the State in the last four years?

Yes. In June 2021, Colorado Governor Jared Polis issued a drought emergency for Western Colorado by Proclamation of the Governor. Although the 2022 water year relieved some of these conditions, experts from the Colorado Snow Survey Program still note that this won't lessen long-term drought conditions without heightened precipitation levels for several years.

Evaluation Criterion 2—Environment and Water Quality

1. Will the Project improve the quality of surface water or groundwater? If so, how?

Yes. The project will treat an impaired water source and remove salts from the watershed up to 500 tons annually. The selected project will positively impact water quality in several ways.

- Treating impaired water and removing salinity from the Uncompahgre watershed. P7WA will access impaired surface water in the Ridgway Reservoir and use innovative treatment technology to provide high-quality drinking water to the service area while simultaneously capturing resources (calcium carbonate via PSRs) that can be beneficially reused for agricultural purposes. This process ultimately makes this surface water source usable for residential purposes and removes up to 500 tons of salt annually from the Uncompahgre River.
- Avoid groundwater drawdown. By developing a raw water line to draw water from a surface water source (the Ridgway Reservoir) to which P7WA owns water rights, this project will avoid the extraction of groundwater through the construction of wells, which is unnecessarily damaging and deemed cost-ineffective for this project due subsurface geology and low yields.
- Improved concentrate management. By selecting PSR technology instead of membrane softening, P7WA eliminates the creation of residuals from the softening process (called "brine" or "concentrate") that have more environmentally detrimental discharge requirements. Projects that produce brine must discharge it to injection wells, which poses environmental concerns, including the potential for surface spills or injection into underground drinking water sources. The other evaluated alternative to PSR softening was using nanofiltration (NF). NF residuals would have been discharged to the nearby river, as permitted by the National Pollutant Discharge Elimination System (NPDES) permit, and would have resulted in adding 100 tons of salts annually to the basin. P7WA's leadership is an active participant in the Gunnison Basin Roundtable and is acutely aware of the salinity issues that challenge the basin. One of the goals of the Resiliency Program is to be an exemplary partner in tackling salinity issues and ending the cycle of passing problems on to future generations; PSRs were selected as the preferred alternative over NF despite higher costs than an NF facility. PSRs will remove up to 500 tons of salt per year compared to adding 100 tons of salt annually from NF.
- Improve environmental and agricultural water quality. It is possible that this project will tangentially benefit riparian and river habitats as well. As P7WA entities gain access to the Ridgway Reservoir through this project, their reliance on Gunnison River water will decrease. The UVVUA will use more Gunnison River water than the Ridgway Reservoir water for irrigation. It is important to note that water from the Gunnison River is slightly softer than water in the Ridgway Reservoir. Irrigation with hard water can cause a buildup of mineral deposits on the soil, which may dry out the soil and reduce the water's ability to infiltrate, leading to more overland flow rather than groundwater recharge. As UVVUA increases the use of softer water from the Gunnison River, there will be less surface water runoff of agricultural chemicals into nearby rivers and streams and greater groundwater recharge. In addition, softer water from the Gunnison River may benefit



agricultural users because fewer nutrients will be bound up with the minerals in the hard water, leaving more nutrients available for plant uptake. *(Note: the real-world dynamics of groundwater recharge, nutrient availability, and irrigation with hard water versus soft water would be highly site-specific and affected by the natural hydrogeology, agricultural practices, the existing ecology, and other factors.)*

2. Will the Project improve effluent quality beyond levels necessary to meet State or Federal discharge requirements?

Yes. While this project is focused on treating an impaired water source to potable water standards, the resulting effluent from the wastewater will be improved as residents will not be relying on impaired water sources. Also, see answers for improving environmental and agricultural water in Question 1 in this Evaluation Criteria.

3. Will the Project improve flow conditions in a natural stream channel? If so, how?

This project is not intended to directly improve flow conditions in a natural stream channel. However, as noted above, the UVWUA will begin to rely on softer water from the Gunnison River for agricultural purposes, leading to less agricultural chemicals draining into nearby rivers and streams.

4. Will the project restore or enhance habitat for non-listed species? If so, how?

The project will not directly restore or enhance habitat for non-listed species. However, the feasibility study considers the possible impacts on wildlife and habitat and identifies actions to mitigate any potential adverse effects. Non-listed species will equally benefit from the actions and considerations for the environmental commitments and mitigation efforts for federally listed species outlined in the next question.

5. Will the Project provide water or habitat for federally listed threatened/endangered species? How?

Pursuant to the results of a Threatened & Endangered Species Memorandum developed under regulations set forth by Section 7 of the Endangered Species Act (see 50 CFR 402.03), it has been determined that there are no critical habitats within the project area. In addition, of the ten species assessed within the memo, it has also been determined that the project will have no detrimental effect on most, including the gray wolf, Gunnison sage-grouse, Mexican spotted owl, bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker. The project is not likely to adversely affect the yellow-billed cuckoo and is not likely to jeopardize the monarch butterfly and the silverspot.

The project will not directly restore or enhance habitat for listed species. However, it considers their needs and identifies actions to mitigate any potential adverse effects.

Regardless, P7WA has identified several environmental commitments and mitigation efforts as part of this project to support the species assessed, as outlined below:

- Yellow-billed cuckoo (YBC) – Species-specific surveys for the YBC will be conducted based on a 2015 study by Halterman, Johnson, Holmes, and Laymon, who provide that Western YBCs require structurally complex riparian habitat with tall trees and a dense, woody vegetation understory.
- Silverspot butterfly – Surveys for perennial wetlands, bog violet, and incidental sightings of silverspot butterflies will be conducted in the spring prior to construction.



- During dust suppression, water will not be applied to surfaces in volumes that would flow into drainages.
- All herbicides used in the vicinity of drainages will be non-toxic to fish and other aquatic organisms. If the use of non-toxic herbicides is not possible, other measures, such as biological or mechanical measures, will be used to control noxious weeds.
- If trench dewatering water is discharged, it will be discharged to an upland area at least 150 feet from jurisdictional Waters of the United States to infiltrate the ground without causing erosion.

Furthermore, UVWUA's use of softer water will reduce the runoff of agricultural chemicals to adjacent streams. P7WA has not quantified the associated impacts on wildlife, but it can be assumed this will positively affect riparian species.

Evaluation Criterion 3—Economic Benefits

Assessing the cost-effectiveness of this project, which aims to eliminate the need to truck in water if the aging infrastructure of the current sole water source fails, must take into account the potentially disastrous expenses of lacking a flexible supply for necessary maintenance on the existing system. Refer to the support letter from the State Engineer regarding inspection issues and the necessity of dewatering to maintain this deteriorating system. Thus, a purely numerical cost-benefit analysis does not capture the full scope of the system's needs.

Subcriterion No. 3a—Cost Effectiveness

To calculate cost per acre-foot: (a). The total estimated construction costs, by year, for the Project.

Construction costs by year are outlined in *Table 7*.

Table 7. Estimated Construction Costs by Year

Calendar Year	Construction Cost	Percent of Project Costs
2025	\$36,672,152	21%
2026	\$79,716,094	45%
2027	\$58,268,767	33%
2028	\$1,927,596	1%

(b) The total estimated or actual costs to plan and design the Project.

The total cost to plan and design the project is \$20,290,198. This cost includes the planning, design, and engineering from initial planning studies through construction (contracts with McCarthy/CDM Smith as the Design-Build team and Garver as the Owner's Representative).

(c) The estimated expected average annual operation and maintenance costs for the life of the Project.

Annual operation and maintenance costs (not including periodic replacement costs) are estimated at an average of \$ \$276,441 per year over the 50-year lifecycle.

(d) The year the Project will begin to deliver reclaimed water.

The project will begin to deliver reclaimed water from the Ridgway Reservoir in 2028.

(e) The projected life that the Project is expected to last.

This generational project is targeted to provide the initial expandable infrastructure capable of serving the valley for the next 130 years. The infrastructure's components are expected to have at least 50 years of useful life before requiring extensive maintenance, repair, or improvements.



(f). All estimated replacement costs by year as shown in the provided Table 8.

P7WA is anticipating the annual replacement cost to be approximately 1-2% of installed mechanical equipment costs, which includes the annualized costs of membrane replacement as well.

Table 8. Replacement Costs by Year

	Description of Replacement Requirement	Year	Cost
1	Mechanical equipment and membrane replacement	2032	\$277,800
2	Mechanical equipment and membrane replacement	2036	\$256,200
3	Mechanical equipment and membrane replacement	2040	\$166,000
4	Mechanical equipment and membrane replacement	2044	\$288,200
5	Mechanical equipment and membrane replacement	2048	\$324,200
6	Mechanical equipment and membrane replacement	2052	\$364,600
7	Mechanical equipment and membrane replacement	2056	\$410,200
8	Mechanical equipment and membrane replacement	2060	\$461,400
9	Mechanical equipment and membrane replacement	2064	\$519,000

(g) The maximum volume of water that will be produced annually upon completion of the Project.

The project will produce up to 6,720 af/y upon completion of the first phase, with plans to eventually double the capacity with facility expansion.

To compare cost per acre-foot with non-reclaimed alternatives (a). Provide a description of the conditions that exist in the area and projections of the future with, and without, the Project.

The existing WTP, drawing water from the Blue Mesa Reservoir, can treat 27.6 mgd. However, maximum monthly demand is projected to exceed this number as soon as the year 2070 (see Figure 4), at which time, a new water source and supply will be necessary to meet maximum rates unless P7WA implements additional conservation measures. If P7WA implements conservation measures and makes substantial infrastructure investments in the current treatment plant, it will be able to meet the average monthly demand for the next 130 years; after this point, a new treatment plant will be necessary to supply the system.

The only other viable alternative is to truck in water if the sole source is disrupted (See answer to Evaluation Criterion 1b Question 2).

Currently, the development of the Resiliency Program will not alleviate any economic problems. However, this remains true only in a scenario where the water source or infrastructure remains operational and uncompromised. Given the concerns of wildfire, drought, and more, it would be short-sighted to assume this scenario is realistic.

Future Conditions without the Project

The existing WTP and the main transmission pipeline that supplies the Uncompahgre Valley potable water needs were commissioned in 1977, with portions of the WTP dating back to the 1930s. The terminal reservoir for the WTP is the Fairview Reservoir via Blue Mesa Reservoir. Waters from Blue Mesa are routed along the Gunnison River before entering the 116-year Reclamation-owned Gunnison Tunnel to reach its final destination of the Fairview Reservoir. The Fairview Reservoir was built in 1968; the infrastructure is 56 years old and has a designed storage capacity of 540 acre-ft. The Fairview

Aging infrastructure will not be able to be dewatered for inspection or maintenance.



Reservoir is considered a high-hazard dam because failure or mis-operation will probably cause loss of human life. Due to this classification, the State Engineer must routinely inspect the dam to conduct condition assessments and ensure community safety.

Routine inspections by the State Engineer indicate the dam is conditionally satisfactory. Due to the age of the infrastructure, which has exceeded the typically given life span of approximately 50 years, the state has requested a more thorough inspection of the inlet pipes routed through the dam. The head of the reservoir water surface elevation pressurizes these pipes, increasing the likelihood of aging pipe wall damage resulting in leaks. The main concern with the integrity of these pressurized pipes is that a leak occurring without infrastructure to stop the flow, such as guard gates, would damage the integrity of this high-hazard dam, and the results could be catastrophic.

There are two significant obstacles in the way for pipe condition inspections to be performed. First, the original design of the dam inlet structure did not include guard gates that could be used to alleviate the pressure in the pipes and shut down flow. Secondly, the Fairview Reservoir is the only source of water available to P7WA to meet the demand of the entire Uncompahgre Valley. For reference, the minimum monthly demand is 5.4 mgd. Even if there were guard gates, the inspections would take approximately three days, assuming no condition concerns are found. There is a bypass pipe that is undersized for the plant's needs that could provide approximately 3 mgd during a reservoir shutdown, but that would only be 55% of the minimum month demand. Shutting down or reducing water production would have a significant impact on users and could lead to water shortages and disrupted supply within a week.

Another consequence of depending solely on a single-source reservoir lacking adequate infrastructure or guard gates is the buildup of natural sediments and postponed dredging maintenance. The initial design capacity of the Fairview Reservoir was 540 acre-feet; however, over time, without dredging, the reservoir capacity has been reduced approximately 43% to 305 acre-feet. This reduced capacity reduces the flexibility of P7WA to operate when the 116-year-old Gunnison Tunnel is shut down for inspections and repairs. Furthermore, the WTP's operational capacity will be heavily restricted if a wildfire affects Blue Mesa or the Gunnison River. The treatment process would face significant difficulties in dealing with wildfire-contaminated waters, and increased silt deposits in Fairview Reservoir are expected. The current capacity of the reservoir, due to sediment accumulation, only allows P7WA to meet 7 days of demand in the summer and 14 days of demand in the winter. After dredging occurs, the reservoir capacity would be increased and allow P7WA to increase summer supplies by 70% or by 5 days for a total of 12 days of storage, and for winter, it would double their available supplies to meet 28 days of storage.

Events that could disrupt water supplies include a wildfire that damages the water quality in Blue Mesa Reservoir, the existing WTP's lack of accessible water due to Fairview Reservoir-related issues, or the Gunnison Tunnel's failure. The extent of the economic, health, and human damage this would cause to the community is incalculable and would vary based on the event in question and its severity. During such an event, P7WA would need to immediately identify a separate source of drinking water (likely shipping in water from elsewhere) and take action to secure and transport the water to its facilities for distribution—a costly endeavor

If P7WA does not implement this resiliency program and an unforeseen event compromises the water source or damages the water treatment or delivery infrastructure, the nearly 60,000 residents in the service area would be without potable water for an undetermined amount of time.



carrying various risks and with varying challenges depending on the scenario (e.g., road closures could hamper the transport of water).

The only other conceivable alternative would be to construct a new storage reservoir, surface WTP, and substantial infrastructure on Grand Mesa. This would involve the area's most endangered watershed and would be expensive as it would require pumping up the gradient. Pre-appraisal project cost estimates are over \$300 million for this alternative. See the additional discussion in Subcriterion 1b, answer 2.

Future Conditions with the Project

With the project, P7WA can us two water sources to:

- Meet maximum monthly demands of the service area beyond 2070
- Meet average monthly demands for the next 130 years
- Build redundancy in the system, ensuring a secondary source and supply exists in the event of an outage
- Provide peace of mind and security for tens of thousands of rural Coloradans as well as helping to regulate operations within the Colorado River. (Operational flexibility will provide a more resilient water delivery system throughout the region).

P7WA depends on building the new system to alleviate these pressures so they can perform critical maintenance and inspections. The new system, the WTP and waterlines, would be capable of providing more than the minimum month's demand to users while the Fairview Reservoir is shut down for maintenance or in the event of any other significant failure of the existing system.

This program builds resiliency and invests in the future water security of an entire region within the Uncompahgre River Valley. Through the development of this program, tens of thousands of rural Coloradans will have continued access to potable water regardless of circumstances.

This project will effectively, proactively, and permanently prevent a catastrophic regional drinking water crisis for nearly 60,000 people across Delta, Montrose, and Ouray counties.

(b). The cost per acre-foot of other water supply alternatives that could be implemented by the non-federal Project sponsor in lieu of the Project. This must include, but is not limited to, one non-reclaimed water alternative that would satisfy the same demand as the Project. Other water supply alternatives beyond one non-reclaimed water alternative are not required but may be provided where available to demonstrate the cost effectiveness of the Project.

Delta's existing water rights in the Grand Mesa were identified as a potential secondary water source. While P7WA did perform a cost analysis on this as an alternative, due to concerns about drought and associated supply reliability and the significant transportation distance (i.e., 20 miles from Grand Mesa to Delta's retired WTP), this was not considered a feasible alternative to the Ridgway Reservoir. In comparison, the Grand Mesa source water project pre-appraisal estimates over \$300 million versus the proposed Ridgway Reservoir source water project at \$182 million.

Raw Water Delivery Alternatives

P7WA assessed multiple water delivery alternatives, including a raw water delivery line (the preferred alternative), a riverbank diversion system with a pumphouse, and an alluvial well system. *Table 9* shows the cost comparison of each alternative based on the figures calculated in 2021 using the flow rate initially assessed for the proposed WTP of 10 MGD.



Table 9. Economic Analysis of Raw Water Delivery Options

Alternative	Net Present Value (NPV)	\$/AF
Raw Water Transmission Line	\$15,866,000	\$70.82
River Diversion and Pumphouse	\$10,292,000	\$45.94
Alluvial Well System	\$16,129,000	\$72.00

Although the river diversion and pumphouse appear to be the most cost-effective for the system, P7WA selected the raw water transmission line because it is the most aligned with the need for a resilient, predictable, and cost-effective option. The raw water delivery alternative secures the flow and provides stable water quality due to the buffering capacity provided by the reservoir.

In addition, P7WA determined that the riverbank diversion system with a pumphouse would require more energy due to pumping water to the plant as opposed to the gravity-fed pipeline in the preferred alternative. In addition, a riverbank diversion system would have higher maintenance requirements due to pump rehabilitation, riverbank and structure stabilization, and maintenance. This alternative uses source water from the Uncompahgre River, which would be more susceptible to runoff and contamination, leading to a less stable water supply and reduced water quality, requiring a more robust and costly treatment system in the long run given the historic mining and agricultural activities in the watershed.

Separately, the alluvial well system, in addition to being the most expensive, was infeasible for this project not only because of the estimated cost for construction but also due to low well yields/constrained raw water capacity, which would require a significant increase in size and cost for the expanded plant.

Water Treatment Train Alternatives

P7WA also performed an alternatives analysis on water treatment technology options, each deemed capable of achieving the project’s goals (i.e., meeting SDWA and CDPHE guidelines and ensuring customer satisfaction). The analysis included PSRs (the preferred alternative) and low and high recovery membrane softening. Table 10 shows the initial cost comparison of each treatment technology, which includes raw and finished water pipelines, direct and indirect construction costs as well as other project costs; an approximate 20-year lifecycle cost that includes O&M; and a calculation of cost per acre-foot.

Table 10. Capital Cost Comparison of Treatment Technologies

Costs	Capital Costs	Lifecycle Cost	\$/AF
Pellet Softening (with Ultrafiltration)	\$167,087,460	~\$174 million	\$1,294
Low Recovery Membrane Softening	\$153,291,583	~\$164 million	\$1,220
High Recovery Membrane Softening	\$177,580,261	~\$190 million	\$1,414

*Note: Table 13 capital cost comparison was developed during project conceptual design, membrane softening project costs have not been further evaluated.



(c) The cost per acre-foot of a water supply project with similar characteristics to the Project.

P7WA is not aware of another water supply project with similar characteristics other than the alternatives discussed above. There are no other water supplies locally available. Therefore, if this project is not built, water supplies would need to be trucked in any time that Blue Mesa Reservoir, Gunnison Tunnel, or Fairview Reservoir, the primary water source, is unavailable (i.e., maintenance, wildfires, other emergencies). People can contract various companies to deliver water over the mountains and across the project delivery area. Using this scenario, P7WA used Costco Wholesale (www.costcowater.com) to obtain estimated costs for a cost analysis. The most economical option for the P7WA location was a 5-gallon bottled water delivery from Deep Rock Bottled Purified Water for \$7.49. In this case, to satisfy the minimal need of 5.4 mgd and as no other water source is available, the cost would be \$8 million a day. In just two months, the cost would be approximately \$493 million, which far exceeds the life cycle cost of this project.

P7WA depends on building the new system to alleviate these pressures so they can perform critical maintenance and inspections. The new system, the WTP and waterlines, would be capable of providing more than the minimum month's demand to users while the Fairview reservoir is shut down for maintenance or in the event of any other significant failure of the existing system.

Additional costs are challenging to quantify, such as the significant carbon footprint of bi-weekly truck delivery and the waste created by the manufacture and disposal of the 5-gallon plastic bottles. There is a potential health risk from purchasing purified bottled water from an industry that is not regulated to the level that water utilities are.

(d) The degree to which the Project is cost-effective.

The two assets of critical concern to serving potable water to the Uncompahgre Valley are the 116-year-old Gunnison Tunnel and Fairview Reservoir. The Gunnison Tunnel is shut down annually during winter for two weeks at a time to allow for maintenance and repair. If the Gunnison Tunnel's maintenance or repair lasts longer than two weeks, this would result in the WTP being shut down and water being trucked in daily until the tunnel was reopened. Currently, the Fairview Reservoir can only store 305 acre-feet of water, which allows P7WA to supply a two-week or a 14-day water demand during winter. The ability to meet water demands in the winter is in jeopardy without this project. As water demands increase, the amount of water stored for the 14-day shut down period will increase. Furthermore, sediment accumulation is actively reducing the amount of water that can be stored without shutting down and dewatering Fairview Reservoir to conduct dredging. Both cases reduce the time available to perform maintenance on the aging Gunnison Tunnel because P7WA will need more water from the tunnel more often without dredging. Based on the current Fairview Reservoir reduced capacity per year and demand projections, it is anticipated that by 2030, storage capacity will be reduced enough to require the maintenance window of the Gunnison Tunnel to be shorter than two weeks to meet supply needs. By 2030, if the Gunnison Tunnel's maintenance time frame is not reduced by one day approximately every 2.5 years, the Fairview Reservoir will not be able to meet demands. In 2030, it will cost about \$400K per day to supplement flows with trucked-in water if the tunnel's maintenance shutdown is not reduced and an average of \$1 million per day over the next five years should maintenance shut down time frames not be reduced.

The Fairview Reservoir's pressurized inlet pipes within the dam structure are at risk of leaking or internal seepage due to age, and without the needed guard gates, these pipes cannot be inspected to prevent it.



Leaking from the pipes would degrade the structure's integrity and could ultimately fail the high-risk dam. Repairs could take anywhere from 6 months to 2 years. A 6-month closure of the existing WTP due to a lack of source water availability would result in water trucking; given the example above, it would cost approximately \$1.5 billion to serve the minimum monthly demand of customers.

Subcriterion No. 3b—Economic Analysis and Project Benefits

Summarize the economic analysis performed for the Project including information on the Project's estimated benefits and costs. Describe the methodologies used for the analysis that has been conducted.

1a. Quantified and monetized Project costs, including capital costs and O&M costs.

The project costs include \$182,977,205 in capital, approximately \$16,250,000 in O&M, and roughly \$8.3 million in replacement costs over the 20-year NPV.

To arrive at these estimates, P7WA (through McCarthy-CDM Smith) developed an opinion of probable cost (OPCC) at the 30% design completion milestone. OPCCs, developed at the Association for the Advancement of Cost Engineering Class 3 level, are intended for strategic business planning and have accuracy ranges from plus 20% to minus 30%. The OPCC for each phase included two major components:

- Installation costs which include equipment, materials, and labor for each proposed facility in the design. Unit costs were taken from vendor quotes for major equipment and data from projects that were recently bid.
- Other construction costs which include bonding, insurance, management, mobilization, testing and startup, construction surveying, contractor per diem, design progression contingency, contractor overhead, and profit. The costs of these items were estimated by applying industry-standard multipliers to the installation costs.

Other project costs include construction engineering, interest, program management, and escalation during construction, which were estimated by applying multipliers to the OPCCs.

1b. Quantified and monetized Project benefits, including benefits that can be quantified and expressed as a monetized benefit per acre-foot and 1c. A comparison of the Project's quantified and monetized benefits and costs.

Because quantified and monetized benefits for cost avoidance and flexibility are not able to be calculated in a traditional manner, the project's costs must be weighed against other benefits, as described elsewhere in these criteria, as well as cost avoidance. Should the water supply be halted (e.g., a Gunnison Tunnel collapse or shut down for an extended period of time), this would result in accruing \$8 million per day for trucking in water, using the purchased water from Costco as mentioned above. As infrastructure ages, the maintenance time frames during winter months may need to be extended. This project would allow for the critical maintenance required for the Fairview Reservoir to occur and dredging. Dredging the reservoir back to full capacity of 540 acre-feet would equate to up to 28 days of reservoir storage, allowing the tunnel to be shut down for up to 25 days conservatively before Fairview needed a refill.

Efficiency

The project would reduce pumping, saving approximately 205,000 kilowatt-hours (kWh) of energy annually. The cost would be approximately \$98,000 at \$0.15 per kWh.



2. Describe any economic benefits of the Project that are difficult to quantify and/or monetize.

Some of the benefits to the community are not easy to either quantify or monetize, but nevertheless support the well-being of P7WA and the entities within the service area:

- Provide water supply flexibility, reliability, and resilience. The project's primary objective is to develop resiliency within the water distribution system. This project would achieve this goal by developing new infrastructure and avoid total reliance on a single-source, allowing for operational flexibility for maintenance and emergencies. This project will offer peace of mind for the service area, knowing there is a redundant water supply and source in the event of an outage. Nearly 60,000 rural Coloradans receive water from P7WA through a single water source – the Blue Mesa Reservoir through the Gunnison Tunnel – and a single treatment facility, which draws raw water once it reaches the Fairview Reservoir via the South Canal. Should anything compromise one or more components of this system (i.e., failure of the Gunnison Tunnel or other critical infrastructure, impairment of the watershed from wildfire, reduced flows in the Gunnison River due to drought), the entire P7WA service area would be without potable water for an undetermined amount of time.
- Economic benefits. Job creation, local impacts on residents (with a stable and secure water supply tourism could be further developed).
- Water quality. The project will remove 500 tons of salt from the basin per year. By removing salts from the Uncompahgre River which is a primary source of irrigation water for the \$81 million agricultural economy in the region soil quality will be improved and mineral buildup on soil surfaces will reduce agricultural runoffs by allowing nutrients to permeate soils.
- Recreation. Promoting water quality health by removing salts supports the fisheries maintained by CPW. The Uncompahgre River is a popular location for anglers; CPW estimates anglers contribute \$930,000 annually to the region.
- Flood risk mitigation. This flexibility will mitigate the risk of flooding damages to the Gunnison Tunnel and other current infrastructure. Currently, if a flood occurs that damages the sole source infrastructure, costs would be high, as noted in Evaluation Criterion 3. Fairview Reservoir's pressurized inlet pipes have no guard gates to restrict flow through the inlet pipes within the dam structure. The lack of guard gates poses two compounding concerns. First, aging pressurized piping can lead to an increase in the likelihood of leaks that will directly degrade the integrity of the dam structure. Secondly, if the leak occurs there is no emergency shutoff to the inlet pipes to minimize the damage for repairs.
- Land benefits. This project will indirectly improve the soils by reducing mineral buildup resulting from irrigating with harder waters on a portion of the 1,135 farms located within Montrose County.
- Address health and safety concerns. An emergency source and supply of water not only helps to ensure the physical health and well-being of thousands of residents but also provides ongoing reassurance that potable water will still be available in the event of unforeseen hazards.
- Reduce emissions. As part of this Resiliency Program, P7WA will use the natural topography to draw water from the Ridgway Reservoir using gravity, thereby reducing any emissions related to pumping. In addition, P7WA may also incorporate an energy recovery room within the WTP, using a hydro turbine to generate renewable electricity. This way, the project location reduces overall power demand while meeting the remaining demands with an emission-free power source.

These two components (the gravity-fed raw water line coupled with a hydro turbine) can also provide an added layer of resilience against electricity outages. By not relying on pumps to transport raw water and



instead using a gravity-fed system with a hydro turbine, the plant can be better positioned to react to power outages resulting from wildfires or other infrastructure failures.

- Reduce lifecycle costs. The operation of the hydro turbine will substantially offset lifecycle energy costs for the new WTP. *Table 4. Energy Recovery Facility Design Criteria* outlines the estimated annual energy credits.
- Serve as a model for others. By pioneering this first-of-its-kind treatment train (PSRs followed by UF), P7WA will demonstrate the feasibility of a softening measure with lower electricity and less complex residual disposal requirements. This, in turn, will act as a model for other rural utilities seeking to augment their supplies from secondary surface water sources.

As water scarcity increases across the western United States, rural utilities will need to seek other sources of raw water to meet the needs of their service areas. As in the case of P7WA, many will encounter surface waters with high salinity, hardness, metals, or natural organic matter, present individually or in some combination. The USGS identifies surface water hardness classifications, highlighting that “very hard” water is present from Southern California to Kansas and from Montana down to the Rio Grande Valley.

Multiple softening measures exist aside from PSRs, including conventional lime softening, reverse osmosis, or nanofiltration (NF) membranes. However, concentrate management from these processes can pose challenges for communities in rural and mountainous terrain where space and options are limited. Most inland softening facilities discharge concentrate into a large sanitary sewer, which returns it to the hydrologic cycle. However, this isn't feasible for many rural or developing areas where such sewers are unavailable.

- Generate Beneficially Reusable Residuals. As described in this project's technical description, PSRs create a residual of readily dewaterable pellets that can be beneficially reused for agricultural purposes, including as a soil amendment. Where PSR technology is in use in Europe, pellets are used as a soil amendment, in carpet production, as a sand substitute in concrete production, and in garden fertilizer. The pilot study by P7WA suggested that pellets from the Ridgway Reservoir source water could be suitable for beneficial reuse.
- Reduce Water Supply Vulnerabilities. This project will meet goals of Montrose County Multi-Jurisdictional Hazard Mitigation Plan. Section 6 of the 2021 Annex Update to the Montrose County Multi-Jurisdictional Hazard Mitigation Plan explains prevalent hazards within the County and how hazards may affect population and property differently within participating jurisdictions. The plan also identifies mitigation strategies that respond to vulnerabilities and provides prescriptions or actions to achieve the most significant vulnerability reductions. The plan identified the P7WA Regional Water Supply Resiliency Program as necessary to protect community members from hazards such as drought and wildfire.
- Establish and Reinforce Collaborative Partnerships. P7WA has demonstrated successful collaboration between its member entities since September 29, 1977, when it was formed under the provision of Colorado Revised Statutes (CRS) 1973, 29-1-203.2 as its own separate and unique entity. Its formation resulted from the current P7WA entities' desire to resolve common problems arising from water shortages due to insufficient treatment capacity during peak demand periods. For the past four decades, P7WA entities have worked collaboratively to manage the system, which has seen multiple improvements, including construction of two 5 MG reservoirs in 1995. P7WA has helped strengthen the



already existing bonds between these rural communities in the Uncompahgre River Valley; the implementation of this Regional Water Supply Resiliency Program will continue to do the same. This project will continue to foster a long-standing relationship between rural water providers. See response to Evaluation Subcriterion No. 5b—Watershed Perspective.

Evaluation Criterion 4— Presidential and Department of the Interior Priorities

Subcriterion No. 4a—Climate Change

1. Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

As Reclamation's 2012 Basin Study notes "*The amount of water available and changes in the demand for water throughout the Basin over the next 50 years are highly uncertain and depend on a number of factors. The potential impacts of future climate change and variability further contribute to these uncertainties.*" (Reclamation 2012) To help address these uncertainties, this project will provide operational flexibility by moving away from an aging and threatened sole source of water on the Colorado River to a two-source water supply to augment Colorado River operations.

The Project is centered around building resiliency and flexible water supplies for a vulnerable and underserved rural population in the face of climate change challenges.

In sum, this project aligns with Reclamation's Climate Change Adaptation Strategy goals:

- Goal 1 (Improve Water Management Flexibility) – by developing a second water source P7WA and Reclamation's water management activities will have more flexibility to respond to climate variability.
- Goal 2 (Increase Water Supply Reliability) – by developing a second source water supply this project will promote the water reuse of impaired waters and be able to install guard gates at Fairview Reservoir to provide additional storage capacity and safety measures to protect the dam.
- Goal 3 (Foster Climate-Informed Decision Making) – by incorporating climate change impacts and considerations in infrastructure investment decision-making, P7WA is building an exemplary project for Western water utilities to be proactive and develop projects to promote resiliency and salinity reductions.
- Goal 4 (Promote Resilient Infrastructure) – incorporating hydropower to generate additional renewable energy supplies and utilizing a water source that is geographically isolated from Blue Mesa ensures resiliency during climate-related sessions.

In 2021 and 2022, P7WA performed a hazard mitigation process following the guidelines suggested by the Federal Emergency Management Agency and the Colorado Division of Homeland Security Emergency Management, the results of which were incorporated into an annex update (Section 6) to the Montrose County Multi-Jurisdictional Hazard Mitigation Plan.

Climate change and other risks associated with a changing climate are ranked as significant concerns with affects including drought/water shortages and wildfire.

- Drought. There have been severe droughts over the past two decades, and these are increasing in severity and frequency as shown in Figure 9. Drought has already significantly impacted P7WA's existing water supply. In 2021, the water supply at the Blue Mesa Reservoir was depleted to meet Drought Contingency Plans established to keep Lake Powell's water elevation above 3,525 feet – the



target level identified to provide a buffer to hydropower generation. Although the 2023 water year resulted in unprecedented amounts of precipitation, placing Blue Mesa at 653,650 or 69% of full capacity, this is not likely to be sustained. Furthermore, while Reclamation has no immediate plans to release additional stores from Blue Mesa for Lake Powell's operations, any future cuts could jeopardize P7WA's sole existing water supply.

In addition, drought is the driving factor behind Commissioner Camille Touton's statement to the U.S. Senate Committee on Energy & Natural Resources that the Colorado River Basin states must conserve an additional 2 to 4 million acre-feet of water to protect critical levels in 2023. A May 2023 agreement reduces Lower Basin water usage by approximately 13%. However, with the agreement set to expire in 2026, the future is uncertain. In the face of this uncertainty, P7WA is developing this program to proactively respond to short or long-term water shortages in the Gunnison River Basin by facilitating access to a new reservoir to add capacity to the supply.

- Wildfires. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact P7WA's current raw water supply in Blue Mesa Reservoir by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality.
- Snowpack. Grand Mesa snowmelt is a critical point of climate change in the Upper Basin. Snowpack storage and small reservoirs account for irrigation water and drinking water for around 150,000 people. Since 1990's this has been the most unreliable and drought prone water supply in western CO. City of Delta joined P7WA due to drought drying up their historical Grand Mesa water supply in the 1970s. It's only gotten worse. Using Grand Mesa water supply would not improve the drought resiliency of P7WA but could address some of the system reliability issues, at great cost.

2. Does this proposed project strengthen water supply sustainability to increase resiliency to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?

Yes. This project contributes to climate change resiliency in the project area and the Colorado River by allowing for operational flexibility and addressing aging infrastructure repairs from the current sole source system. *Furthermore, this project will:*

- Use renewable energy through hydro turbines. P7WA hopes to capture the electricity that the hydro turbine generates from the influent pressure. Renewable energy produced above operational requirements could be sold back to the grid, thus adding to the region's energy portfolio. Moreover, P7WA would decrease emissions otherwise associated with pumping at the existing WTP.
- Decrease emissions through remote operation. P7WA will incorporate a SCADA connection to allow WTP operators to remotely adjust the flow control valves, decreasing emissions otherwise produced when traveling to the physical sites.
- Develop beneficially reusable residuals. PSRs, the innovative reclamation technology used in the facility, produce a residual from the treatment process that can be reused for agricultural or other purposes. In doing so, P7WA will reduce waste and the manufacture of these materials from virgin sources.



Subcriterion No.4b—Disadvantaged or Underserved Communities

Please use the White House Council on Environmental Quality’s interactive Climate and Economic Justice Screening Tool to identify any disadvantaged communities that will benefit from your project. If applicable, describe how the project benefits those disadvantaged or underserved communities identified using the tool.

P7WA serves six different water entities, two of which are disadvantaged communities as classified by Department of Local Affairs criteria. These areas are identified through the federal government’s Climate and Economic Justice Screening Tool (Figure 10). The proposed projects benefit the disadvantaged communities by improving water quality and reducing further economic strain on the low-income communities (and the broader community) by avoiding future high costs associated with no action. Without this project, when the sole source of water is discontinued for maintenance or emergencies, low-income populations would be forced to pay for trucked in water, which would represent substantially more than the EPA threshold of 2.5% of their income.

Multiple census tracts within P7WA’s service area are considered disadvantaged.

More information is provided in Appendix A. Disadvantaged communities.



Figure 10. Disadvantaged areas identified in the White House Council on Environmental Quality’s interactive Climate and Economic Justice Screening Tool

2. If applicable, describe how the project benefits those disadvantaged or underserved communities identified using the tool.

As this area is disadvantaged, all project benefits described in Evaluation Criteria 1, 2, and 3 will serve these communities.



Subcriterion No. 4c—Tribal Benefits

Does the proposed project directly serve and/or benefit a Tribe?

The proposed project does not directly serve or benefit a Tribe specifically. However, the improved operational resiliency and water quality benefits outlined throughout this application benefit all residents and water users. P7WA will support Reclamation’s Tribal trust responsibilities and can meet with Tribal leadership regarding the project if necessary or desired.

Evaluation Criterion 5—Reclamation’s Obligations and Watershed Perspective

Subcriterion No. 5a— Reclamation’s Legal and Contractual Water Supply Obligations

1. Explain how the Project relates to Reclamation’s mission and/or serves a Federal interest.

This will serve Reclamation and Federal interests as:

- Improving water operational resilience and sustainability in the Colorado River. As this project is part of the upper Colorado River system, it is vital to save water to meet the current and any future Compacts. This will avoid over-storage and thus allow more water to stay in the river for Lower Basin use. Specifically, an additional WTP for the Ridgway Reservoir allows Reclamation to meet demands, if necessary, through releases from Blue Mesa without impacting P7WA’s new drinking water supply. Operational flexibility will allow for long-term improvements and maintenance for Blue Mesa Reservoir, thus ensuring more efficient Reclamation operations.

The existing water source (Blue Mesa Reservoir) and the proposed water source (Ridgway Reservoir) are both Reclamation facilities.

- Fully using existing water rights. The Ridgway Reservoir is a Reclamation facility that is not being used to its full effective delivery potential with existing water rights. By gaining access to existing rights to an underused, impaired body of water to develop a sustainable water source, both offsetting demand in the Blue Mesa Reservoir and building resiliency within the system.

In addition, this project supports the Department of the Interior Strategic Plan Strategic Objective 3.3: Land, Water and Non-Energy Mineral Resources Support the Diverse Needs of Communities, Performance Goal 3.3.1: Residents of the western United States have a sustainable water supply to address impacts of drought and climate change.

Through this project, Project 7 may as a model for other communities throughout the West that are dealing with similar water scarcity and concerns.

Removing this salinity from the Upper Basin would allow Reclamation entities and stakeholders in the Lower Basin more operational flexibility for salinity management.

Finally, this project directly aligns with Reclamation’s Climate Change Adaptation Strategy, as outlined previously.

Subcriterion No. 5b—Watershed Perspective

1. Does the Project Implement a regional/state water plan or integrated resource management plan?

Yes. The Colorado Water Plan, originally developed in 2015, was most recently updated in January 2023. Within the plan is a detailed assessment of each river basin in the state and the grassroots approach of the basin roundtables and associated committees and workgroups that enable residents within the basin to share their vision for Colorado’s water future. This includes the Gunnison Basin, which provides the current



source water to the P7WA service area. The Gunnison Basin Implementation Plan (BIP) (Volumes 1 and 2) identifies two particular challenges that are addressed by this project.

Specifically, from a watershed perspective, the plan notes that *"protecting existing supply infrastructure after wildfire is a concern that has not been adequately addressed."* The P7WA Regional Water Supply Resiliency Program directly addresses this challenge; recognizing that the number and severity of wildfires are growing (with 835 wildfires burning 45,732 acres in 2022 alone in Colorado, according to data from FEMA), this project will create new infrastructure and gain access to a new source of raw water as a mitigation effort. If a wildfire damages the existing WTP or compromises source water within the Blue Mesa Reservoir, P7WA will still be able to distribute high-quality potable water drawn from the Ridgway Reservoir and treated at a new facility.

The Gunnison BIP notes that projected conditions in the basin may result in a *"4 to 16 percent reduction in natural flow (i.e., streamflow absent the effect of humans)."* Similarly, natural flow in the Uncompahgre River at a gauge location near Colona (approximately 10 miles north of the Ridgway Reservoir) is projected to decrease up to 25% per year in the most extreme climate conditions. At the same time, the population in the Gunnison Basin itself is expected to increase between 19 and 99% within the next 30 years, some of which will inevitably occur within P7WA's service area. By implementing this Resiliency Program, P7WA will balance the demand for this precious natural resource while meeting the needs of a growing community and supporting the BIP.

The plan identifies one of the biggest challenges: "climate-driven changes to hydrology [which] may impact the reliability or resiliency of historical municipal supplies."

To address the challenges, the Gunnison BIP outlines nine specific goals; P7WA's Regional Water Supply Resiliency Program aligns with two in particular:

- Identify and address municipal and industrial water shortages.
- Restore, maintain, and modernize critical water infrastructure.

The Regional Water Supply Resiliency Program is included as a project in CWCB's database under "Gunnison Basin Identified Projects" (formerly known as the "Identified Projects and Processes" list) as "Project 7 -10 MGD Water Treatment Plant at the Ridgway Reservoir."

In addition, the proposed project also meets a need identified by the Tri-County Water Conservancy District 2010 Water Conservation Plan. The plan (pg. 21-22) recognizes the need for a new WTP near the Ridgway Reservoir to provide redundancy of supply and reduction of pumping demands, as a failure in the Gunnison Tunnel or the existing WTP would result in a total loss of service in this area.

2. Does the Project help meet the water supply needs of a large geographic area, region, or watershed?

Yes. The P7WA service area includes portions of three counties (Delta, Montrose, and Ouray) and serves six individual water providers: the City of Delta, the City of Montrose, the Town of Olathe, the Chipeta Water District, the Menoken Water District, and the Tri-County Water Conservancy District. This project would help serve nearly 60,000 Coloradans who live in rural areas from Delta to Colona, a nearly 35-mile stretch connected by the unique cooperation embodied by P7WA.

3. Does the Project promote collaborative partnerships with multiple stakeholders representing diverse interests? Yes.



Collaborative Partnership

The P7WA is a collaborative partnership. It was formed in 1977, pursuant to the provisions of CRS 1973, 29-1-203.2, as a separate governmental entity to collaboratively solve water shortage issues across six communities with distinct and diverse interests in rural portions of the Uncompahgre River Valley. Since this inception date, these six entities have continued to work together to self-sufficiently and proactively mitigate potential water shortages in the event of unforeseen hazards, building necessary resiliency into the system while balancing demand on one of Western Colorado's most precious natural resources. P7WA maintains a Board of Directors, each representative of one entity that makes up the cooperative water authority.

Together, these six entities recognize the importance and power of collaborative efforts in building community resiliency through this effort to reclaim impaired water in Ridgway Reservoir and are jointly investing in a project that will help secure resources for future generations.

Project Supporters

This project enjoys bipartisan support from Colorado's Congressional Delegation and many other local, regional, and federal stakeholders. Appendix C (D2.2.10) provides letters from P7WA members and project supporters, including U.S. Senator Michael Bennet and John Hickenlooper, U.S. Representative Lauren Boebert, Colorado Governor Jared Polis, State Senator Cleave Simpson, State Senator Perry Will, State Representative Marc Catlin, Colorado River District, Region 10 League for Economic Assistance & Planning, Inc., and Montrose County Board of County Commissioners

In addition to providing a letter of support for this Title XVI opportunity, the Colorado River Water Conservation District, through its newly developed Accelerator Grant program, provided capacity-building grant funding to P7WA to develop and apply for the Title XVI funding program. This monetary contribution highlights the River District's project support and commitment to success.

4. Does the Project include public outreach & opportunities for the public to learn about the project?

Yes. The benefits of the P7WA community involvement program helped guide the design team.

In early 2021, P7WA hosted three workshops attended by residents and staff from all member entities. The workshops provided information to participants and worked with them to collaboratively develop goals and values for the project. As part of the series of workshops, attendees were encouraged to give feedback on the raw water line delivery system and the softening process by assessing the benefits, drawbacks, and key questions that may remain. Based on group input, a set of value drivers was developed to identify factors most important to the community and was ranked across the groups. P7WA selected the preferred project alternative, using feedback on the value drivers from workshop participants and in combination with other technical analyses.

P7WA engaged in an extensive stakeholder engagement and public involvement process to ensure that community members were aware of and could provide feedback on the proposed project.

Beyond the workshops described above, P7WA has performed further actions to engage residents and other stakeholders:

- Community open house/tours
- Presentations to government bodies



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- Small group meetings
 - Distribution of program materials
 - Leadership tours of the treatment plant and resiliency facility site with Congressional staff, state legislators, county commissioners, city council members, agency and local government staff, and local media
 - Project permitting and hazard mitigation planning meetings with Ouray County, Montrose County, Delta County, and the State Emergency Management Office
 - Press coverage of P7WA and the Resiliency Program in the local media

In addition, P7WA distributed an Environmental Assessment Scoping Letter on April 12, 2022, ahead of its work to comply with National Environmental Policy Act (NEPA) requirements.



Acronyms and Abbreviations

BIP	Basin Implementation Plan
BLM	Bureau of Land Management
BMP	best management practices
CASPER	Community Assessment for Public Health Emergency Response
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CIP	clean-in-place
CPW	Colorado Parks and Wildlife
CRS	Colorado Revised Statutes
CWA	Clean Water Act
D&RG	Denver & Rio Grande
DIP	ductile iron pipe
DROA	Drought Response Operations Agreement
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
LAS	liquid ammonium sulfate
LF	linear feet
M&I	municipal and industrial
mg/L	milligrams per liter
mgd	million gallons per day
MHI	Median Household Income
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
OPCC	opinion of probable construction cost
P7WA	Project 7 Water Authority
PSR	pellet softening reactor
ROW	right-of-way



SCADA	supervisory control and data acquisition
SDWA	Safe Drinking Water Act
SMCL	secondary maximum contaminant levels
TDS	total dissolved solids
TOC	total organic compounds
TWCD	Tri-County Water Conservancy District
UF	ultrafiltration
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UVWUA	Uncompahgre Valley Water Users Association
WIFIA	Water Infrastructure Finance and Innovation Act
WOTUS	Waters of the United States
WTP	water treatment plant
YBC	yellow-billed cuckoo



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Section 2: Project Budget

Project Costs

The total cost for the Title XVI project, including planning, design, and construction, is projected to be \$182,977,205. Costs will be broken into phases, beginning with design and engineering and concluding with construction. Planning and design will occur between May 2023 and December 2024, and construction is estimated to begin in January 2025 with procurement services.

Sources of Funding

P7WA has identified multiple funding sources, as outlined in *Table 11* and the narrative below, to ensure fiscal responsibility while completing this resiliency project.

Table 11. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Colorado State Drinking Water Revolving Fund Direct Loan	\$3,000,000
2. Colorado State Drinking Water Revolving Fund Construction Loan	\$27,000,000
3. EPA's Water Infrastructure Finance and Innovation Act (WIFIA) Loan	\$63,900,000
4. Public Placement of Bonds	\$59,077,205
Non-Federal Subtotal	\$152,977,205
Requested Reclamation Funding	\$30,000,000

Reclamation's WaterSMART Title XVI Program

With an approved feasibility study, P7WA is eligible to compete for up to 25% of project costs or a cap of \$30 million. To complete the project and deliver up to 6,725 acre-feet of water per year, P7WA requests the maximum federal contribution of \$30,000,000, which is matched with non-federal funding described below.

EPA's Water Infrastructure Finance and Innovation Act (WIFIA)

P7WA has applied for the WIFIA program, which has committed to fund up to 80% of project costs through board approval as a portion of the non-federal cost share. Loan execution is planned to occur in January 2025.

Colorado State Drinking Water Revolving Fund Construction and Direct Loans

P7WA has secured a \$3 million direct loan to fund design. CWRDPA's August 21, 2024, board meeting authorized P7WA's request for a \$27 million construction loan; loan execution is planned to occur by the end of 2024. This funding source is a non-federal cost share.

Public Placement Bonds

P7WA million plan to issue a public placement bond to balance financing for the Resiliency Program; this will provide flexibility to minimize financing costs and repayment structuring.

Rate Increases

Rate increases will be used to repay the loans described above. Furthermore, since the inception of P7WA in 1977 and the implementation of the regional water system to treat and distribute drinking water, P7WA has kept rates below inflation-adjusted levels through efficient management. To secure the revenue necessary to cover debt obligations and provide the required matching funds for grant opportunities, P7WA



increased the price from \$1.30 per kGal in 2022 to \$1.45 per kGal in 2023 and \$1.95 per kGal in 2024 and committed to increase to \$2.45 in 2025. After 2025, annual increases will approximately match inflation-adjusted wholesale rates. However, this is the minimum expectation; upon developing updated project costs, P7WA will reevaluate this schedule to determine if the additional rate increase is necessary.

Budget Narrative

The budget summary table is shown here, the detailed budget narrative content can be found on the attached Budget Detail and Narrative spreadsheet.

Table 12: Budget Summary

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	Federal Estimated Amount	Non-Federal Estimated Amount
a. Personnel	\$402,944		
b. Fringe Benefits	\$201,472		
c. Travel	\$10,729		
d. Equipment	\$254,874		
e. Supplies	\$1,885,000		
f. Contractual	\$26,028,248		
g. Construction	\$153,943,923		
h. Other Direct Costs	\$0		
i. Total Direct Costs	\$182,727,191		
i. Indirect Charges	\$250,015		
Total Costs	\$182,977,205	\$30,000,000	\$152,977,205
	Cost Share Percentage	16%	84%



Section 3: Regulatory Statements

D.2.2.4. 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.

Impacts on the surrounding environment and any mitigation/minimization efforts are outlined by category below:

Earth Disturbing Work

Pipeline construction will involve temporary surface disturbance of approximately 178 acres. Construction of the WTP will result in 9 acres of permanent soil disturbance.

Air Impacts

Generally, the winds that frequent the western part of Colorado disperse odors and emissions. However, construction-related emissions may temporarily impact air quality, which may include exhaust from construction vehicles and equipment, on-road construction worker commuter vehicles, and on-road construction equipment delivery vehicles; and fugitive dust from travel on unpaved roads, earthmoving activities, and sandblasting emissions; and chemical odors.

The project would contribute less than 0.1 percent to existing emissions of regulated pollutants.

Note that the emissions associated with the project would represent an inconsequential amount but an incremental increase over the existing emissions impacting air quality in the area. Project construction would not contribute to a regional trend in air quality due to the general absence of long-term impacts on air quality and no long-term use of stationary combustion engines (compressors).

Soil and Vegetation Impacts

Pipeline construction disturbance (which would involve a temporary surface disturbance of approximately 178 acres) would include removal of surface vegetation and grading the entire surface area (including topsoil segregation), followed by excavation of the pipeline trench to a depth of 6 to 8 feet. The trench excavation area and associated disturbance to subsoil layers would be confined to the extent of the trench line within the permanent right-of-way (ROW). The temporary workspaces impacts would be limited to surface impacts associated with grading, topsoil segregation, soil compression from vehicles, and the temporary deposition of spoil material on the surface.



There is a high likelihood of wind- or water-driven soil erosion in the project area. Using best management practices (BMPs) for stormwater control and dust suppression will be necessary. Since the construction will remove surface vegetation, any biological soil crust components that might be present will be removed, and construction activities may loosen and expose subsoil during the construction process. In some areas, there is a risk of wind erosion during and after pipeline construction, especially during the early spring seasons.

Impacts on soil resources will be reduced by standard practices such as using existing surface disturbance areas (e.g., existing roads), minimizing vehicular use, placing parking and staging areas on hardened areas, and quickly establishing vegetation on reclaimed areas.

Water Impacts (Quality and Quantity)

The only potential temporary impacts on surface water quality may be temporary stormwater and in-channel discharges. The project is applying for and following a stormwater management plan and using BMPs to minimize the risk of stormwater discharges. If accidental discharges occur from otherwise unplanned events (such as a large thunderstorm), effects are anticipated to be temporary, discrete, and minor. As the pipeline would carry raw and finished water, any ruptures or unanticipated releases would consist of clean waters, and no significant impacts on local water quality would be anticipated.

The pipelines and WTP facility are not expected to have long-term impacts on surface water or groundwater quality or quantity of the surrounding aquifers. Short-term surface water impacts may occur during construction, including increased risk of stormwater runoff and discharges. During construction, P7WA will implement erosion and sediment controls to minimize erosion and sedimentation and maintain water quality. The raw water pipeline crossing of the approximately 200-foot-wide Cow Creek channel (as measured from the edges of the ordinary high-water mark) may entail an approximately 40-foot-wide construction corridor to install the pipeline. This would result in approximately 0.18 acres of temporary disturbance within the ordinary high-water mark. At the Uncompahgre River, the crossing will result in about 0.06 acres of temporary disturbance within the ordinary high-water mark.

Additionally, at the upstream edge of the construction corridor, P7WA will construct a temporary dam using sandbags and plastic sheeting and install a temporary culvert/flume pipe to route water through the construction corridor. This dam and culvert will temporarily impact flows through the construction areas but will maintain downstream waters and potentially aquatic life movement. P7WA will also use a pump to dewater the pipeline trench; these waters will likely be very silty with high suspended sediment loads. P7WA will pump the trench waters outside of the ordinary high-water mark to temporary settling basins in upland areas for upland discharge.

The installation of the dam and culvert and excavation within the channel will mobilize fine sediments; this process will not cause most of these sediments to wash down-river, as P7WA will dewater the construction area using the dam and culvert and dewatering pump in the trench. Workers will regrade the channel to match pre-construction topography. Once workers remove the temporary dam and culvert, the initial water flowing through the construction corridor will temporarily flush fine sediments down the river. P7WA anticipates the entire process of crossing Cow Creek and the Uncompahgre River to take five days (per crossing).



McKenzie Creek and Wildcat Creek will be crossed during no-flow conditions. As such, the risk of increased sediment delivery to surface waters will be much less; however, flow events will likely flush loose sediments from the construction zone into downstream reaches of the Uncompahgre River.

Increased sediment loads will likely temporarily infill interstitial spaces within the Cow Creek and the Uncompahgre River channels and may have temporary impacts on aquatic macroinvertebrates. However, flows within the two rivers are expected to flush out sediments shortly after construction. Springtime high flows the following spring will flush any residual fine sediment from the rivers. No long-term or significant impacts on aquatic macroinvertebrates, fish, or habitat are anticipated.

Animal Habitat Impacts

The project mainly occurs within previously disturbed areas, so the project will only impact a small amount of native habitat during construction. There will be a temporary increase in construction noise, dust, and emissions and a general increase in human activity during the summer construction seasons. The increased human presence may displace wildlife, and nesting/reproduction, foraging, sheltering, and other wildlife activities may also be diminished within an area of up to a few hundred feet of the construction area during the seasons of construction. Once construction is complete, the habitat conditions will be substantially like existing habitat conditions. The project is not expected to significantly degrade the habitat conditions supporting general wildlife species. The project may temporarily contribute to regional trends in wildlife habitat disruption due to increased human activity but will not contribute to these trends once construction is complete.

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?

Pursuant to the requirements set forth in Section 7 of the Endangered Species Act (see 50 CFR 402.03), P7WA must consult with the United States Fish and Wildlife Service (USFWS) regarding potential effects on listed species. Through agreement among the CDPHE, Reclamation, and the Bureau of Land Management (BLM), Section 7 consultation with USFWS will be carried out by Reclamation on behalf of the project and cooperating agencies.

To develop a Biological Assessment for submittal to USFWS, P7WA developed a Threatened & Endangered Species Memorandum, which considered and evaluated listed and candidate wildlife species identified by USFWS as potentially occurring in the project area. The species listed in the table below were considered for the project.

It is important to note that no critical habitats are within the project area.

Species and Status	Occurrence	Habitat Association
MAMMALS		
Gray wolf (<i>Canis lupus</i>) Endangered	One, dispersing gray wolves may be present throughout Colorado	Variety of habitats, generally away from population centers



Species and Status	Occurrence	Habitat Association
BIRDS		
Gunnison sage-grouse (<i>Centrocercus minimus</i>) Threatened	Gunnison Basin, Pinon Mesa, San Miguel Basin, Dove Creek, Crawford area, CO. San Juan County, UT	Sagebrush steppe
Mexican spotted Owl (<i>Strix occidentalis lucida</i>) Threatened	Southwestern Colorado, Pike & San Isabel NF	Deep, steep-walled canyons with little canopy cover with mature and old-growth forests
Yellow-billed cuckoo (<i>Coccyzus americanus</i>) Threatened	Willow and cottonwood forests along rivers from southern Canada south to the Greater Antilles and Mexico	Large cottonwood stands along larger rivers
FISHES		
Bonytail (<i>Gila elegans</i>) Endangered	Green River of Utah and perhaps in the larger Colorado River water bodies.	Prefer backwaters with rocky or muddy bottoms and flowing pools, although they have been reported in swiftly moving water.
Colorado pikeminnow (<i>Ptychocheilus lucius</i>) Endangered	Mainstem of the Colorado, Gunnison, and Yampa Rivers in Colorado, downstream through Utah	Colorado River, Green River, Lower Yampa, and White Rivers
Humpback chub (<i>Gila cypha</i>) Threatened	Portions of the Colorado River; Green River, Yampa River, White River, and Little Colorado River.	Not well understood but associated with a variety of habitats ranging from turbulent pools to no or little current; a variety of substrates; and depth ranging from 1 meter to as deep as 15 meters.
Razorback sucker (<i>Xyrauchen texanus</i>) Endangered	Mainstem of the Colorado, Gunnison, and Yampa Rivers in Colorado, downstream through Utah	Colorado River, Green River, Lower Yampa, and White Rivers
INSECTS		
Monarch butterfly (<i>Danaus plexippus</i>) Candidate	Potential to occur throughout the entire region	Open fields, meadows, and mesic depressions. Breeding depends on presence of milkweeds (<i>Asclepias</i> spp)
Silverspot (<i>Speyeria nokomis nokomis</i>) Proposed Threatened	19 colonies from 10 known extant populations in Conejos, Costilla, La Plata, Mesa, Montrose, Ouray, San Miguel, Mora, and Taos counties. 5,000 to 8,500 feet	Perennial spring-fed meadows, seeps, marshes, and boggy streambanks. Larval host plant is <i>Viola nephrophylla</i> (bog violet)



Of those species assessed, the project would not affect seven of the ten species. The three affected species are:

- Yellow-billed cuckoo (*Coccyzus americanus*) – the project may affect but is not likely to adversely affect
- Monarch butterfly (*Danaus plexippus*) – the project is not likely to jeopardize
- Silverspot (*Speyeria nokomis nokomis*) – the project is not likely to jeopardize

To mitigate any potential effects, P7WA is committed to performing species-specific surveys for the yellow-billed cuckoo following Halterman (et al. 2015) and performing surveys for perennial wetlands, bog violet, and incidental sightings of silverspot butterflies before construction. In addition, during dust suppression, water will not be applied to surfaces in volumes that would flow into drainages. Furthermore, all herbicides used near drainages will be non-toxic to fish and other aquatic organisms. If the use of non-toxic herbicides is not possible, other measures, such as biological or mechanical measures, shall be used to control noxious weeds. Finally, if trench dewatering water is discharged for additional mitigations, it shall be discharged to an upland area at least 150 feet from jurisdictional Waters of the United States (WOTUS) to infiltrate the ground without causing erosion. Landowner approval of the discharge location and proposed BMPs shall be obtained before discharging hydrostatic test water to an upland area.

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

Surface water features in the project area include Cow Creek and the Uncompahgre River, in addition to some other open canals and smaller ditches, as outlined further below. P7WA will pursue an NWP-58 permit due to impacts on wetlands or WOTUS.

Cow Creek and Uncompahgre River Crossings

The surface water features in the project area under CWA jurisdiction as WOTUS include Cow Creek and the Uncompahgre River. The Cow Creek and the Uncompahgre River crossing will use an open trench crossing, which will require a temporary dam and temporary culverts (flumes) to route water flows through the workspace. Per requirements outlined by Colorado Parks and Wildlife (CPW), the size of the temporary culvert will accommodate anticipated in-stream flows; supplemental pumps will only be used to handle trench dewatering needs. Based on the proposed activity, the disturbance will extend across the entire width of the 40-foot easement to accommodate the necessary equipment and trenching activity. The pipeline will be trenched and buried, with topsoil segregated and stockpiled outside the ordinary high-water mark during excavation, replaced during burial, and restored to the original contour surface.

P7WA must acquire a U.S. Army Corps of Engineers (USACE) 404 permit for compliance with the CWA. The selected contractor will also be required to produce a stormwater management plan and obtain a CDPHE Construction Stormwater Permit. Appropriate erosion and sediment controls will be used per USACE General Condition #12 to stabilize the site properly and prevent erosion and siltation into other down-gradient waters and wetlands. The contractor will install the erosion and sediment controls around the project area before beginning earthmoving activities. Construction would need to occur in the late fall during low flow conditions.



When was the water delivery system constructed?

The water delivery system was constructed in 1980, with additional improvements made since then.

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.

There will be no modifications or effects to individual irrigation systems in the project area.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places (NRHP)? Are there any known archeological sites in the proposed Project area?

The Class III investigation's inventory resulted in the official recording of five Isolated Finds (IFs) and 20 sites or site segments (see the table below). Additionally, investigators did not encounter five previously documented resources. Newly documented sites within the survey area include one segment of the historical Government Springs Road (5MN13517.1), one segment of the historic Chaffee Ditch and flume (5OR2394.1), one historical artifact scatter (5OR2396), and one prehistoric artifact scatter (5OR2397). Newly documented segments of previously recorded historical linear sites include segments of the Denver & Rio Grande (D&RG)-Ouray Spur (5OR130.5, 12, 14, and 15), one segment of the Salt Lake Wagon Road (5OR1843.1), one segment of the Upper Uncompahgre Ditch (5OR2089.3), the Old Agency Ditch (5OR2090.3), two segments of the Homestretch Ditch (5OR2357.1 and 5OR437.2), and two segments of the U.S. Highway 550 (5OR294.16 and 5OR294.17). Investigators revisited previously documented historic sites or segments, including one segment of the West Canal (5MN1852.1), the Los Piños Agency #2 (5MN9110/5OR139), the Smith Ranch Centennial Farm (5OR769), the Colona School (5OR1173), and a historical artifact scatter (5OR2358).

The following table highlights the Class III cultural resource survey summary of sites recorded:

Site No.	Site Type and Name	NRHP Eligibility Recommendation	Management Recommendation	Landowner
5MN1852.1	Historical West Canal	Eligible: non-supporting	No further work	Private
5MN9110/ OR139	Historical Los Piños Agency #2	Eligible	No further work	Private
5MN13517.1	Historical Government Springs Road	Eligible: non-supporting	No further work	Private
5OR130.5	Historical D&RG Railroad segment	Eligible: non-supporting	No further work	Private
5OR130.12	Historical D&RG Railroad segment	Eligible: non-supporting	No further work	CDOT, BLM-UFO, Private
5OR130.14	Historical D&RG Railroad segment	Eligible: non-supporting	No further work	Reclamation
5OR130.15	Historical D&RG Railroad segment	Eligible: non-supporting	No further work	Private



Site No.	Site Type and Name	NRHP Eligibility Recommendation	Management Recommendation	Landowner
5OR294.16	Historical U.S. Highway 550	Eligible: non-supporting	No further work	Reclamation
5OR294.17	Historical U.S. Highway 550	Eligible: non-supporting	No further work	Reclamation
5OR769	Historical Smith Ranch (Centennial Farm)	Eligible: non-contributing	No further work	Private
5OR1173	Historical Colona School	Eligible	Avoided; no further work	Private
5OR1843.1	Historical Salt Lake Wagon Road	Eligible: supporting	Avoided; no further work	Reclamation
5OR2089.3	Historical Upper Uncompahgre Ditch	Eligible: non-supporting	No further work	Private
5OR2090.3	Historical Old Agency Ditch	Eligible: non-supporting	No further work	Private
5OR2357.1	Historical Homestretch Ditch	Not eligible	No further work	Private
5OR2357.2	Historical Homestretch Ditch	Not eligible	No further work	Private
5OR2358	Historical artifact scatter	Not eligible	No further work	BLM-UFO
5OR2394.1	Historical Chaffee Ditch and flume	Not eligible	No further work	Private
5OR2396	Historical artifact scatter	Not eligible	No further work	Private
5OR2397	Prehistoric artifact scatter	Not eligible	No further work	Private

* Site 5OR131 has a theorized prehistoric component that is effectively a high-probability area and although Alpine did not locate any cultural remains, we recommend monitoring in that area.

Three sites are recommended as eligible for inclusion in the NRHP, including the Los Piños Agency #2, the Colona School, and one historical road segment. Four linear historical resources need additional data and are treated as NRHP-eligible resources. Four additional historical linear resource segments are recommended as non-supporting segments of officially or recommended eligible sites. The remaining sites are recommended as not eligible for inclusion in the NRHP. None of the IFs are recommended as eligible for inclusion in the NRHP.

The project will avoid the NRHP-eligible Colona School (5OR1173) and the Salt Lake Wagon Road (5OR1843.1); no further work is warranted. The biggest remaining concerns are impacts to unidentified features at the historical Los Piños Agency #2 (site 5MN9110/5OR139) and possibly at site 5OR131, the theorized prehistoric component of the Daganhart Cabin site that is effectively a high-probability area. In both cases, the project will have a monitor present during earthmoving activities to ensure any unidentified deposits or components are found. No further work is recommended for the remaining sites or IFs.



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

The project will not have a disproportionately high and adverse effect on low-income or minority populations.

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

The project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on Tribal lands.

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

The project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area. Prior to commencing ground disturbing work, all equipment will be cleaned and freed of mud or vegetation that could import noxious weeds into the project area.

D.2.2.5. Required Permits or Approvals

The Regional Water Supply Resiliency Program must meet specific permitting requirements prior to project implementation. P7WA is addressing the following items during this phase:

- P7WA is pursuing a Special Use Permit through Ouray County for the water treatment plant (WTP), the raw water line from the Ridgway Reservoir, and the finished line. As part of the permitting process and per guidance from Ouray County, P7WA hosted a town hall-style meeting before applying, during which P7WA invited community members to visit the proposed facility's location and engage with team members to learn more. P7WA anticipates completing the permitting process with Ouray County in 2023.
- P7WA will pursue ROW permits through the Colorado Department of Transportation (CDOT) and Montrose County.
- P7WA is in the process of obtaining easement access to private properties.
- As referenced above, P7WA is currently working to facilitate the National Environmental Policy Act (NEPA) compliance process:
 - The EPA will act as the lead agency for the NEPA process, with CDPHE as the state primacy agency. Reclamation and the BLM will be cooperating agencies in the NEPA process. Other stakeholders consulted include CPW, CDOT, and Ouray and Montrose Counties. P7WA will complete an Environmental Assessment (EA) as part of the NEPA process. The NEPA and easement acquisition began on May 1, 2022, and is expected to conclude no later than March 2025. P7WA anticipates a "Finding of No Significant Impact" (FONSI) upon completion of the EA, which is being completed in consultation with the CDPHE, EPA, Reclamation, and BLM.
 - A FONSI will result in license agreements from Reclamation and BLM to perform construction activities.
 - P7WA will pursue a Section 404 and NWP-58 permit due to impacts on wetlands or WOTUS.
- P7WA will coordinate the approval and permits with CDPHE under the Safe Drinking Water Act and CRS Regulation 11 for the WTP using pilot study results:



- As referenced previously, following consultation with CDPHE water treatment leads, P7WA and Garver completed a pilot study for the future source water, the Ridgway Reservoir, which evaluated pellet softening reactors (PSRs) as a treatment alternative in conjunction with CDPHE-recommended lead and copper testing. The pilot study provided the basis for the WTP design and permitting. Before approving the proposed design, CDPHE will evaluate the proposed basis of design report and pilot study data for support of the selected technology.

D.2.2.6 Overlap or Duplication of Effort Statement

No proposed or anticipated projects would overlap with the Regional Water Supply Resiliency Program.

To date, P7WA has received funding from Reclamation for this project through the following programs:

Desalination and Water Purification Research Program

P7WA received \$612,059 to complete a pilot study on pellet softening reactor technology followed by ultrafiltration. P7WA completed the study in late 2022 and demonstrated the feasibility of this technology for the planned project.

WaterSMART Water Conservation Field Services Program – Upper Colorado Basin Region – Financial Assistance for Fiscal Years 2020-2021

P7WA received \$25,000 to perform a Hydraulic Modeling and System Optimization Review. The scope of work in this project included:

- Design flow confirmation
- System schematic development
- Hydraulic model update and calibration
- Hydraulic evaluations
- Alternatives evaluation
- System optimization review

This work led to the confirmation of the design flow of the WTP and size requirements for the raw water line, among other results. None of these efforts are duplicative of the Regional Water Supply Resiliency Program.

D.2.2.7. Conflict of Interest Disclosure Statement

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

D.2.2.8. Uniform Audit Reporting Statement

P7WA did not expend \$750,000 in federal funds in the last fiscal year or any fiscal year.

D.2.2.9. SF-LLL: Disclosure of Lobbying Activities

P7WA does not participate in lobbying activities. Therefore, an SF-LLL is not required and is not included.

CONCLUSION

The urgency of this project cannot be overstated. It is critical to ensuring long-term drinking water security and preventing a catastrophic water shortage for nearly 60,000 people in Delta, Montrose and Ouray Counties in southwestern Colorado. It is highly unusual for a population of this size to receive drinking water from a single source system with no backup and many potential points of failure.



P7WA, its members, and its large coalition of bipartisan supporters (see Appendix C) continue to be concerned about the project's ability to compete within the restricted polices of the WaterSMART: Title XVI Water Reclamation and Reuse Program. The Application Review Committee (ARC) must consider that P7WA was directed into this program by USBR staff and away from the Drought Response Program. As a result of USBR guidance, the Authority successfully completed a [Congressionally Authorized Title XVI Water Reclamation and Reuse Feasibility Study](#).

Despite USBR approving the Feasibility Study, the underlying Directives & Standards (D&S) for the Title XVI Water Reclamation and Reuse Program appear to place Upper Colorado Basin (Region 7) projects at a severe disadvantage. Indeed, [no Region 7 projects were funded by Title XVI in Fiscal Year 2024](#). More concerning are the ARC's recurring "philosophical questions" and policy narrowed concerns about the degree or severity of source impairment, as reported during Round 1 debriefings, despite having demonstrated impairment within the Feasibility Study.

Based on these Round 1 debriefings, this Round 2 application and the policy letter in Appendix F specifically addresses the areas where P7WA's Round 1 application scored below 60% on the Evaluation Criterion. We urge the ARC to consider the unique characteristics of this project.

Thank you for the full and fair consideration of P7WA's Round 2 application. We look forward to working together to ensure that the Upper Colorado Basin can effectively compete for the critical infrastructure funding that is essential to the shared benefit of the headwaters and all downstream water users.

Sample Work City of Santa Rosa, Texas



City of Santa Rosa Water System Drought Resiliency Improvements
WaterSMART Drought Response Program
Drought Resiliency Projects for FY 2024

Funding Opportunity Number: R24AS00007

Funding Program: WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year (FY) 2024

Title of Project: Santa Rosa of Santa Rosa Water System Drought Resiliency Improvements

Applicant: Santa Rosa of Santa Rosa, Texas

Address: 411 6th St, Santa Rosa, TX 78593

Email: jared.hockema@frontera-rgv.com

Telephone: 956-371-1752

Project Manager: Jared Hockema, City Manager

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Appendices

Appendix A: Annual TCEQ Maintenance Inspection for Santa Rosa, TX

Appendix B: Letters of Support

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Appendix D: Financial Statement for Cost-Share Waiver Request



Section 1: Technical Proposal and Evaluation Criteria

1.1 Executive Summary

Date: November 1, 2023

Applicant Name: Santa Rosa of Santa Rosa, Texas

Santa Rosa, County, State: Santa Rosa, Cameron County, Texas

Applicant Type: Category A

Task Area: Task D

Project Duration: 24 months

Estimated Construction Start Date / Completion Date: January 2025 / January 2027

Project Located on Federal Facility? No

Registered through SAM.gov with a valid UEI? Yes

Requesting Cost-Share Waiver? Yes

Project Summary:

The proposed project is comprised of four primary components that will work in conjunction to substantially increase drought resiliency for the town of Santa Rosa (Santa Rosa). The project components include:

- New 1.0 Million Gallon (MG) Ground Storage Tank (GST)
- New 0.5 MG Elevated Storage Tank (EST)
- New 7-day storage Raw Water Reservoir at Water Treatment Plant (WTP)
- New 8-inch, 4,200 linear feet waterline Interconnect with neighboring water supply entity

The identified projects are critical to provide currently non-existent drought resiliency to the City of Santa Rosa, Texas (City/Santa Rosa). Santa Rosa currently only has one water source, the Rio Grande River. This source is raw water that is conveyed via an irrigation canal running adjacent to Santa Rosa's WTP. The canal is owned and operated by the local Irrigation District, La Feria Irrigation District, and at this location in their irrigation system the only water usage is from Santa Rosa, as there is no agricultural water demand in this specific canal branch. Therefore, all raw water supplied to Santa Rosa comes with the necessity of using push water, and the entire volume of push water becomes the responsibility of Santa Rosa. Additionally, this irrigation canal does not consistently flow with appropriate volumes, as the only usage comes from the City. As recently as late October 2023, the canal ran dry and caused a state of emergency within Santa Rosa.

The City has no practical raw water storage, no emergency interconnect for potable water, and deteriorated and failing elevated and ground storage tanks. Santa Rosa's drought resiliency is negligible, and the only mechanism for Santa Rosa to achieve drought resiliency for its residents is via the WaterSmart funds that are being requested under the Drought Response Program, Task D for domestic water supply project for tribes or disadvantaged communities.



Relevant Background Information:

Santa Rosa was incorporated in 1929. Santa Rosa is located in northwestern Cameron County at $26^{\circ}15'24''\text{N}$, $97^{\circ}49'36''\text{W}$ (26.256651, -97.826673), and is considered part of the Brownsville–Harlingen–Raymondville metropolitan area. A map showing Santa Rosa's location in relation to the State of Texas is included as Figure 1. It is 6 miles west of Combes and 7 miles east of La Villa. As per the United States Census Bureau American Community Survey, Santa Rosa has a total area of 0.77 square miles. The median income for a household in the town was \$21,154, and the median income for a family was \$23,203. The per capita income for the town was \$6,998. About 34.0% of families and 39.1% of the population were below the poverty line, including 50.3% of those under age 18 and 30.3% of those age 65 or over. Santa Rosa has an estimated population of 2,873. Population estimates for the Texas Water Development Board's (TWDB's) Region M Planning Group, which includes Cameron County, are shown below in Table .

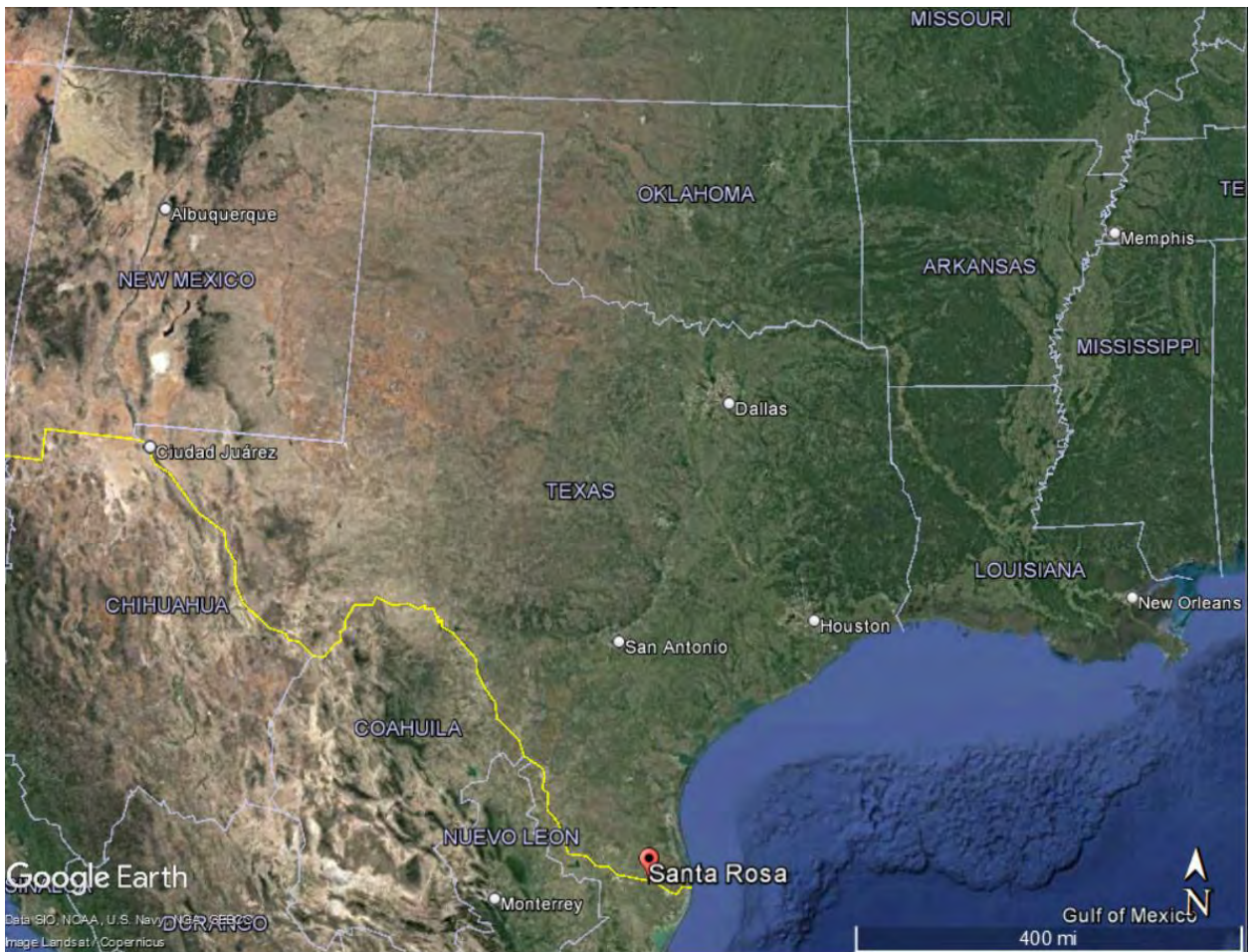


Figure 1: City of Santa Rosa Location in Relation to the State of Texas



COUNTY	2020	2030	2040	2050	2060	2070
Cameron	478,974	559,593	641,376	729,461	820,068	912,941
Hidalgo	981,890	1,219,225	1,457,502	1,696,257	1,935,015	2,167,137
Jim Hogg	5,853	6,356	6,790	7,274	7,694	8,082
Maverick	63,107	72,491	81,243	90,304	98,988	107,327
Starr	70,803	80,085	88,633	97,107	104,687	111,555
Webb	318,028	393,284	464,960	530,330	591,945	647,433
Willacy	25,264	28,479	31,559	34,840	38,012	41,121
Zapata	16,819	19,709	22,876	26,365	29,976	33,742
Total	1,960,738	2,379,222	2,794,939	3,211,938	3,626,385	4,029,338

Table 1: Cameron County and TWDB Region M Population Projections

Santa Rosa's water system has approximately 780 connections. It's WTP has a total production capacity of 1.0 million gallons per day (MGD), composed of two trains of 0.5 MGD each. Train A was built in 1978 and has exceeded its service life but remains partially operational B was built in 2001 and provides the majority of the potable water necessary to meet Santa Rosa's water demand. The WTP also has a steel 0.5 MG GST built in 1978, which has exceeded its services life and is in a critical state. Despite Santa Rosa's repeated repair attempts, the GST keeps springing sizable, large volume leaks, with various leaks currently active. This is the only GST in the system. The water system also has one steel 0.2 MG EST, built in 1992. It shows signs of substantial deterioration after being in service for over 30 years, and Santa Rosa needs to implement new elevated storage before being in state of emergency.

The four project components will dramatically increase drought resiliency in the system, or rather create drought resiliency as any existing resiliency is severely compromised. The new 8-inch waterline emergency interconnect will be tied to the neighboring system, being North Alamo Water Supply Corporation (NAWSC). They have an existing 8-inch line approximately 4,200 linear feet from Santa Rosa's WTP, to which the proposed interconnect will be made. The new raw water reservoir will be built towards the north side of the WTP, adjacent to the existing irrigation canal, and will hold a proposed volume equivalent to 7 days of storage for Santa Rosa's system, creating new resiliency in instances when no water is available within the conveyance canal, which happened as recently as late October 2023. A new 1.0 MG concrete GST will be built within the WTP site, and a new composite 0.5 MG EST will be built for the system. Land acquisition may be required for the new EST with a 0.5-acre site being ideal. Easements will be required for the 4,200 linear feet emergency interconnect. The raw water reservoir and the GST will be built within the WTP property, already owned by Santa Rosa.

The proposed waterline interconnect will provide reliable access to potable water to Santa Rosa of up to 1 MGD (3.07 acre-ft/yr). This would create a new drought-resistant potable water source to Santa Rosa of up to 365 MG per year (1120 acre-ft/yr).



Similarly, the GST, EST, and reservoir will provide new storage of 1.0 MG, 0.5 MG, and 1MG (7-day storage at 1MG per day for total WTP capacity), respectively. At a daily refill cycle, this is the equivalent of $(1.0 \text{ MG} + 0.5 \text{ MG} + 1.0 \text{ MG} = 2.5 \text{ MG} \times 365 \text{ days})$ 912.5 million gallons per year, with 547.5 MG being potable and 365 MG being raw water. Subtracting the anticipated volume to be decommissioned from the deteriorated existing 0.5 MG GST and 0.2 MG EST, the new created volume of potable storage would be $(547.5 \text{ MG} - ((0.5 \text{ MG} + 0.2 \text{ MG}) \times 365 \text{ days}))$ equal to 292 MG. Overall, the project would create access to up to an additional 657 MG of potable water and 365 MG of raw water annually.

WaterSmart funds are being requested under the Drought Response Program, Task D for domestic water supply project for disadvantaged communities. Figure 2 displays the total service area for Santa Rosa. Table presents the disadvantaged status of each census tract, the percentile of the population that is defined as low income, and the total tract population as presented in the Climate and Economic Justice Screening Tool (CEJST). As indicated in 2, all census tracts within the City's service area are defined as being disadvantaged.

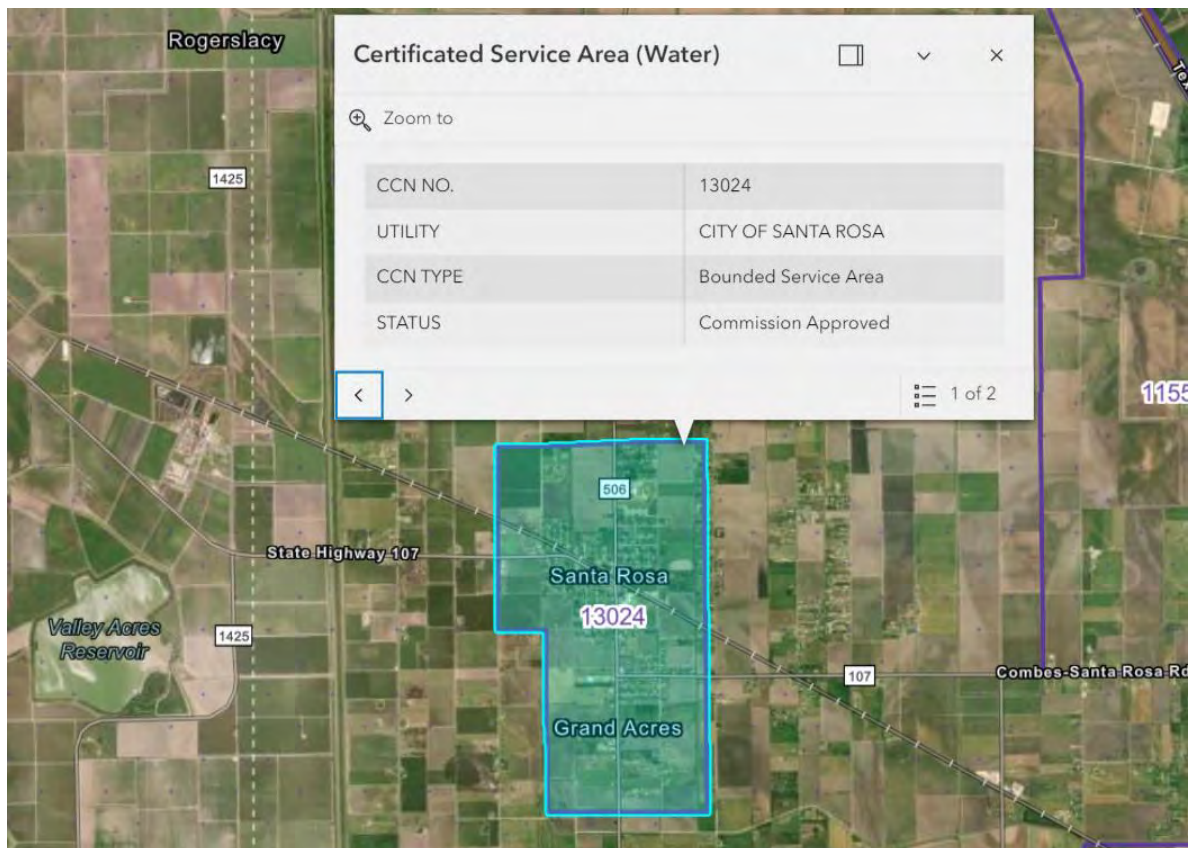


Figure 2: Santa Rosa Water Service Area Map



Table 2: Rosa Census Tracts and Disadvantaged Status

Census Tract #	Disadvantaged?	Low Income Percentile	Population
48061010301	Yes	89th	5,325

Existing Water Supplies:

The City currently only has one water source. This source is raw water that is conveyed via an irrigation canal running adjacent to Santa Rosa's WTP. The canal is owned and operated by the local Irrigation District, and at this location in their irrigation system the only water usage is from the City, as there is no agricultural water demand in this specific canal branch. Therefore, all raw water supplied to the City comes with the necessity of using push water, and the entire volume of push water becomes the responsibility of Santa Rosa. Additionally, this irrigation canal does not consistently flow with appropriate volumes, as the only usage comes Santa Rosa. As recently as late October 2023, the canal ran dry and caused a state of emergency within Santa Rosa.

Santa Rosa's water system has approximately 780 connections. The City's WTP has a total production capacity of 1.0 million gallons per day (MGD), composed of two trains of 0.5 MGD each. Train A was built in 1978 and has exceeded its service life but remains partially operational B was built in 2001 and provides the majority of the potable water necessary to meet the City's water demand. The WTP also has a steel 0.5 MG GST built in 1978, which has exceeded its services life and is in a critical state. Despite the City's repeated repair attempts, the GST keeps springing sizable, large volume leaks, with various leaks currently active. This is the only GST in the system. The water system also has one steel 0.2 MG EST, built in 1992. It shows signs of substantial deterioration after being in service for over 30 years.

1.2 Project Location

The proposed project is located in the City of Santa Rosa (Figure 33, which is located in northwestern Cameron County at **26°15'24"N, 97°49'36"W** (26.256651, -97.826673), and is considered part of the Brownsville–Harlingen–Raymondville metropolitan area. Three of the four project components (Emergency Interconnect, GTS, and Raw Water Reservoir) will take place within the existing WTP property, while the new EST will be situated in the most beneficial location, with the identification of the location being part of the proposed engineering project effort.

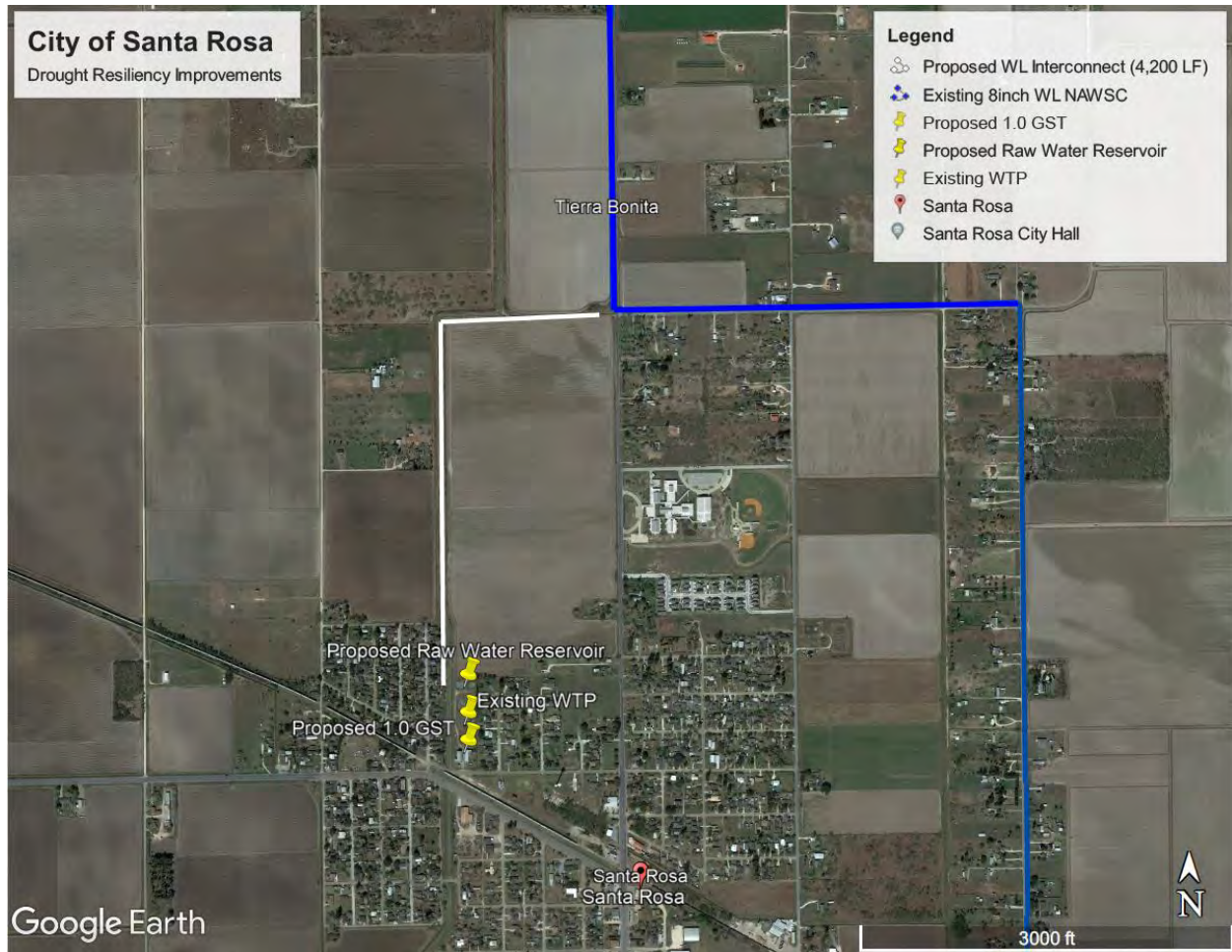


Figure 3: Project Location Map

1.3 Technical Project Description

The proposed project is comprised of four primary components that will work in conjunction to substantially increase drought resiliency for the City. These are projects are:

- New 1.0 Million Gallon (MG) Ground Storage Tank (GST)
- New 0.5 MG Elevated Storage Tank (EST)
- New 7-day storage Raw Water Reservoir at Water Treatment Plant (WTP)
- New 8-inch, 4,200 linear feet Emergency Waterline Interconnect with neighboring water supply entity

The project includes the engineering and construction of the above improvements, as well as the land acquisition required for the new EST and easements for the waterline interconnect.



The new GST will have a storage capacity of 1.0 MG and is preliminarily anticipated to be of prestressed concrete. It will be located within the existing WTP site, so no land acquisition is required. The design and construction of the GST will include all necessary foundation and structural components, as well as controls and monitoring systems. The existing 0.5 MG steel tank will be decommissioned as part of this effort, as it has exceeded its service life and its total failure could be imminent.

The new EST will have a storage capacity of 0.5 MG and is anticipated to be of a composite built (concrete pedestal and steel tank). Land acquisition of up to 0.5 acres will be necessary for the construction of the new EST. The design and construction of the GST will include all necessary foundation and structural components, as well as controls and monitoring systems.

The new raw water reservoir will be built towards the north side of the WTP, adjacent to the existing irrigation canal, and will hold a proposed volume equivalent to 7 days of storage for the City's system, creating new resiliency in instances when no water is available within the conveyance canal, which happened as recently as late October 2023. It will be clay lined with partial concrete liner where appropriate for maintenance and access. The reservoir will include piping and new pre-cast concrete structures for water diversion. No land acquisition will be required as it will be built within the existing WTP site.

The new 8-inch waterline emergency interconnect will be tied to the neighboring system, being North Alamo Water Supply Corporation (NAWSC). They have an existing 8-inch line approximately 4,200 linear feet from Santa Rosa's WTP, to which the proposed interconnect will be made. The interconnect will also include a metering vault with appropriate piping, valves, and a mag-meter to monitor flow. Easements will be required and acquired for the 4,200 linear feet emergency interconnect.

1.4 Performance Measures

Project performance will be assessed by the following measures:

1. For the new 8-inch emergency interconnect waterline, a meter vault will be installed to monitor and record the amount of potable water conveyed to Santa Rosa.
2. For the new Raw Water Reservoir at the WTP, flow from the irrigation canal to the reservoir will be metered through the intake, and the volume conveyed to the reservoir will be recorded.
3. Volumes (and elevation of the volume) at the new GST will be monitored via transducers and SCADA.
4. Volumes (and elevation of the volume) at the new EST will be monitored via transducers and SCADA.

1.5 Evaluation Criteria

1.5.A Evaluation Criterion A – Project Benefits (30 points)

Sub-Criterion A1.a: Adds to Available Water Supplies – Task D

The Climate and Economic Justice Screening Tool (CEJST) was used to assess the local community serviced by the City and who would benefit from the proposed project. The census tract where the City



service area is located was assessed using the CEJST with respect to climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The results of this analysis by census tract are displayed in Table 3. The census tract containing the City's service area was identified as being disadvantaged with low-income percentile of 89th.

Table 3: Santa Rosa of Santa Rosa Census Tract Analysis

Census Tract #	Disadvantaged?	Low Income Percentile	Population	Other CEJST Burdens
48061010301	Yes	89th	5,325	Climate Change (agri loss, bldg loss), energy (PM 2.5), Health (Diabetes), Housing (green space), Transportation (Barriers), Workforce Development (high school education)

Proposals need to demonstrate that the primary purpose of the proposed project is to provide domestic water supplies to communities our households that do not have reliable access to domestic water supplies. Describe the need for the domestic water supply project including any prominent public health and safety concerns, interruptions in supply or other reasons that the community does not currently have reliable access to domestic water supplies.

These projects are critical to provide currently non-existent drought resiliency to the City. The City currently only has one water source, the Rio Grande River. This source is raw water that is conveyed via an irrigation canal running adjacent to Santa Rosa's WTP. The canal is owned and operated by the local Irrigation District, and at this location in their irrigation system the only water usage is from the City as there is no agricultural water demand in this specific canal branch. Therefore, all raw water supplied to the City comes with the necessity of using push water, and the entire volume of push water becomes the responsibility of Santa Rosa. Additionally, this irrigation canal does not consistently flow with appropriate volumes, as the only usage comes Santa Rosa. As recently as late October 2023, the canal ran dry near the WTP (Figure 4) and caused a state of emergency within the City.



Figure 4: Irrigation canal running dry late October 2023 – only source of raw water for Santa Rosa

The City has no practical raw water storage, no emergency interconnect for potable water, and deteriorated and failing elevated and ground storage tanks. In times like October 2023, the city has no reliable water source that is available for the community, with continuing droughts and changes in the climate, the risk is high for this community to experience more days with no reliable water.

Explain how the proposed project will increase reliable access to domestic water supplies. Provide this quantity in acre-feet per year the average annual benefit that the domestic water supply project



will provide. How many people is it estimated to serve? How were these estimates calculated (average benefit and population)?

The proposed waterline interconnect will provide access to potable water to the City of up to 1 MGD. This would create a new drought-resistant and reliable potable water source to the City of up to 365 MG per year.

Similarly, the GST, EST, and reservoir will provide new storage of 1.0 MG, 0.5 MG, and 1MG (7-day storage at 1MG per day for total WTP capacity), respectively. At a daily refill cycle, this is the equivalent of $(1.0 \text{ MG} + 0.5 \text{ MG} + 1.0 \text{ MG} = 2.5 \text{ MG} \times 365 \text{ days})$ 912.5 million gallons per year, with 547.5 MG being potable and 365 MG being raw water. Subtracting the anticipated volume to be decommissioned from the deteriorated existing 0.5 MG GST and 0.2 MG EST, the new created volume of potable storage would be $(547.5 \text{ MG} - ((0.5 \text{ MG} + 0.2 \text{ MG}) \times 365 \text{ days}))$ equal to 292 MG. Overall, the project would create access to up to an additional 657 MG of potable water and 365 MG of raw water annually, equivalent to 2,016 acre-feet and 1,120 acre-feet of potable and raw water, respectively. This will benefit the entire Town of Santa Rosa community, which is approximately 2,873 people.

How many years will the project continue to provide benefits?

The storage tank component of this project will provide a benefit for the next 30 years before it would have to be replaced. With proper maintenance, the interconnect can provide a benefit of over 50 years.

Sub-Criterion A2.a: Climate Change

The proposed project is in direct response to current drought conditions that are only expected to worsen over the next several years to decades as a result of climate change impacts. Current surface water sources from the irrigation canal that are currently treated by Santa Rosa are already threatened with depletion due to climate change, noncompliance with international treaties, drought, and push water. As discussed in Evaluation Criterion C, the impacts of climate change are anticipated to worsen the reliability of the water supply in the Rio Grande further. That coupled with population growth are a direct threat to municipal water providers in the LRGV.

Sub-Criterion A2.b: Environmental Benefits

Does the project seek to improve ecological climate change resiliency of a wetland, river, or stream to benefit to wildlife, fisheries, or habitats? Do these benefits support an endangered or threatened species?

This project does not have a direct ecological improvement that benefits wildlife, fisheries, or habitats. It also does not directly support endangered or threatened species. There could be indirect benefits to the Rio Grande River, but since the water is not directly pumped from the river and is rather conveyed via the irrigation canal, the indirect benefits are difficult to quantify. There are endangered or threatened species along the



Rio Grande River in this area but not necessarily directly impacted by the irrigation canal. The list of this species consists of, but is not limited to the Alligator gar, American eel, river goby, Mexican fawnsfoot, Rio Grande River cooter, Shinner's rocket, Swallow-tailed kite, Swallowtooth sawfish, Salina mucket, Texas hornshell, Tropical parula, Zone-tailed hawk, and the Tamaulipan clubtail dragonfly.

What are the types and quantities of environmental benefits provided, such as the types of species and the numbers benefited, acreage of habitat improved, restored, or protected, or the amount of additional stream flow added? How were these benefits calculated?

The City is not able to quantify direct benefits for this criterion as there is not additional stream flow added to the irrigation canal, which is the source water supply for the City. The benefit of this project is to ensure there is adequate storage and a reliable water supply for the community, which currently does not exist.

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

Not applicable for this project since endangered species were not impacted or have a benefit from this project.

Sub-Criterion A2.c: Other Benefits

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

There are no interstate compacts that are applicable to this project.

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

The water used and made available for this project is currently only for municipal, as the water in the irrigation canal is not used for agriculture.

Will the project benefit a larger initiative to address sustainability?

The project will benefit those that live in this small, disadvantaged community and it is currently not a part of a larger initiative but will certainly address sustainability within the LRGV.

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

There is frequent tension related to the Rio Grande River's water use and the prolonged periods of drought experienced throughout South Texas. Drought conditions throughout the Lower Rio Grande Valley are well documented. There is no current litigation over water in the basin, other than related to conflicts regarding



the overallocation of water from the Rio Grande. This project will not be adding any new water to the river. In this case, the project will ensure that the water rights within this community are protected and fully captured to ensure a reliable water supply.

1.5.B Evaluation Criterion B – Planning and Preparedness (20 points)

Describe any prior planning efforts related to the proposed project.

Santa Rosa engaged Dunham Engineering to perform an inspection and assessment of Santa Rosa's elevated and ground storage tanks in August 2023. The results of this assessment are included in Appendix A, with the overall conditions of both tanks being deemed as unacceptable and not meeting TCEQ requirements. This is primarily due to the age and deterioration of these facilities, which are beyond the design service life.

Additionally, this project relates to the recommended water management strategies in the 2022 State Water Plan and the 2021 Region M Water Plan. The state and regional water plans are developed collaboratively with stakeholders.

In addition to local planning, planning efforts take place at the state level. As part of Cameron County, the City is included in the Rio Grande Water Planning Group (RWPG). The RWPG is one of 16 local bodies in Texas that were established by Senate Bill 1 to coordinate long-range water supply planning for the State of Texas. The regional and state water plans are facilitated by the Texas Water Development Board and incorporate collaboration across all regional water planning groups. The regional water planning groups also incorporate direct input from each entity that is included in the plan through surveys and meetings. Advanced municipal water conservation was identified as a recommended water management strategy for the City in the 2022 State Water Plan and the 2021 Region M Water Plan. A figure from the 2021 Region M Water Plan showing the City's recommended water management strategies is included below as Figure 5. The proposed project supports both increased drought resiliency and water conservation.

The 2022 State of Texas Water Plan, and the 2021 Region M Water Plan all incorporate elements of drought planning. These plans identify water management strategies to better water manage existing water supplies. Increased system resiliency during periods of drought is one benefit of this planning. Prolonged periods of drought are intensifying and becoming more frequent throughout the State of Texas. Water suppliers must work together to identify strategies that will enable their water systems to be as resilient as possible during drought periods, especially those that serve disadvantaged communities that do not have potential access to alternate supplies and could solely rely upon supplied water to support their livelihood.

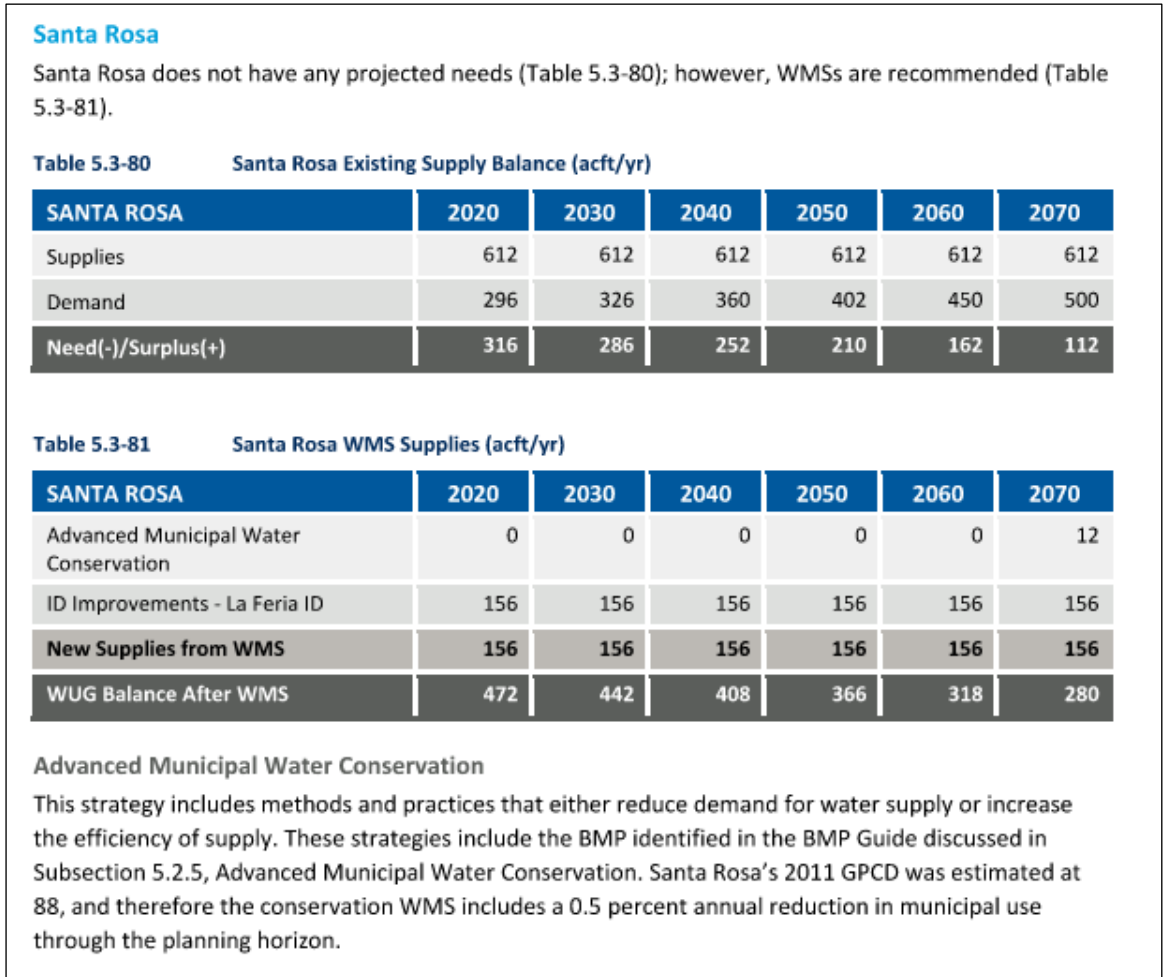


Figure 5: Santa Rosa Recommended Water Management Strategies in 2021 Region M Water Plan

1.5.C Evaluation Criterion C – Severity of Actual or Potential Drought or Water Scarcity Impacts to be Addressed by the Project (15 points)

According to the Drought Monitor as of October 2023 the Lower Rio Grande Valley (LRGV) is currently categorized as being in a state of “D1 moderate drought”. This is slightly improved from the previous month when the southern portion of the county was classified as being in “D3 Extreme Drought” conditions. Looking back three years prior in May of 2020, the majority of Cameron County was categorized in “D3 Extreme Drought” conditions. Overall, Cameron County, and the rest of the LRGV, have experienced significant drought conditions on and off over the last several years but particularly since 2019 as supported by data from droughtmonitor.unl.edu in Table 4.



Table 4: Data from Drought Monitor for Cameron County, Texas

Week	Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
Current	10/31/2023	0.46	99.54	88.51	7.6	0	0	196
Last Week to Current	10/24/2023	0.32	99.68	88.51	7.6	0	0	196
3 Months Ago to Current	8/1/2023	0	100	0	0	0	0	100
Start of Calendar Year to Current	12/27/2022	100	0	0	0	0	0	0
Start of Water Year to Current	9/26/2023	0	100	100	87.95	61.33	0	349
One Year Ago to Current	11/1/2022	30.7	69.3	0	0	0	0	69
September 2023	9/26/2023	3.03	96.97	80.54	59.66	38.06	12.68	
September 2023	9/19/2023	3.03	96.97	81.91	61.33	40.76	16	
September 2022	9/27/2022	14.96	85.04	61.36	31.61	8.82	1.06	
May 2020	5/5/2020	68.53	31.47	13.3	6.14	1.71	0	
October 2019	10/3/2019	31.74	68.26	46.05	22.33	6.32	0	
D0 Abnormally Dry D1 Moderate Drought D2 Severe Drought D3 Extreme Drought D4 Exceptional Drought DSCI Drought Severity Coverage Index (0-500)								

Santa Rosa, Cameron County, and the LRGV have experienced numerous direct impacts from the prevalent drought and water scarcity conditions throughout the area. One of the sectors that has been most directly affected in the LRGV has been the agricultural sector. Drought conditions as mentioned previously as the cause for the irrigation canal that serves Santa Rosa to go dry in October 2023. In 2022, drought conditions have led to historically low levels in the Falcon Dam (9% full) and the upstream Amistad Dam being less than one-third full. As previously detailed, drought conditions are further complicated by the lack of compliance by Mexico to the Mexican Water Treaty of 1944 that defines how the U.S. and Mexico share water supplies from the Rio Grande and the Rio Grande Compact. The 2022 State Water Plan details that demand is anticipated to continually exceed supply in the LRGV and in other areas throughout the state. Additionally, climate change impacts are expected to intensify droughts. Drought conditions can also present public health challenges for populations that rely upon water for a variety of health reasons beyond just hydration. This is particularly troublesome for disadvantaged communities, such as the City's service area, that do not likely have the means or access to alternate sources of water.

According to the National Oceanic and Atmospheric Administration (NOAA) and the National Integrated Drought Information System (NIDIS) (<https://www.drought.gov/states/texas/county/cameron>) Cameron County experienced their 44th driest year to date over the past 129 years in 2023. NOAA and the NIDIS estimate that 88.5% of people in Cameron County are currently directly affected by drought. NOAA and NIDIS



list the social vulnerability index for Cameron County as being the highest possible in terms of needing support to prepare for and recover from hazards like drought. Additionally, stream flows are low, and agriculture in the county is being affected significantly. As of October 27, 2023, 54,989 acres of cotton, 44,492 acres of sorghum, 26,226 acres of corn, 7,871 heads of cattle, and 1,081 sheep are currently in drought in Cameron County. These numbers highlight the direct impacts that drought has on the agricultural sector and water users throughout Cameron County. Although the proposed project will not directly impact the agriculture sector due to Santa Rosa's water system only serving municipal needs, it does represent the economic losses that drought can have on resources that customers use to generate an income and provide for their families, such as agricultural commodities. If periods of prolonged drought continue to occur because of climate change, these impacts will likely compound and become more severe.

Drought conditions throughout the LRGV and Santa Rosa's service area are a significant threat to raw water supplies and consumers' ability to receive domestic water supplies reliably. These conditions are anticipated to worsen because of projected increases in population and negative effects due to climate change such as increased and intensified periods of drought. Water systems' resiliency during times of drought is a key component to ensuring that customers will still be able to receive water. If no action is taken by Santa Rosa to improve the overall reliability of their water system, all consumers could potentially be at risk of receiving no water during times of drought. The impacts that would be felt because of not being able to receive water would be severe.

What are the ongoing or potential drought or water scarcity impacts to specific sectors in the project area if no action is taken and how severe are those impacts?

Documented drought conditions in the Lower RGV are a significant threat to raw water supplies and this threat is projected to worsen under the pressures of population growth and climate change. In recent years, the LRGV has already been under the threat of not meeting water demand as local ranchers and farmers have scaled back production and municipal water suppliers have had to turn to emergency interconnects and irrigation push water. This further reduces reliability of the water supply.

1.5.D Evaluation Criterion D – Presidential and DOI Priorities (15 points)

1.5.D.1 Disadvantaged or Underserved Communities

The proposed project is consistent with the presidential and DOI priorities laid out in Executive Order (E.O) 14008: Tackling the Climate Crisis at Home and Abroad and E.O 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. The project would help the local community build resilience against the impacts of climate change, which was previously discussed in Evaluation Criterion C and is expected to worsen local drought conditions. Additionally, the project would serve a disadvantaged community that has historically been underserved which is also consistent with Presidential and DOI priorities.



Santa Rosa's service area is located within Cameron County where recent census data (July 1, 2022) indicates the population is approximately 90% Hispanic or Latino, over 35% is under the age of 18 and median household income is \$43,057 with per capita income at \$19,371. Of the population over the age of 25, 69.5% are high school graduates and only 19% hold bachelor's degrees or higher. Population has been steadily growing across the LRGV and the high percentage of the population under the age of 18 supports that this trend is likely to continue. This project is crucial to ensure a reliable water supply to not only support the current population but also ensure there is water available to meet the current and future needs of this disadvantaged population.

As discussed in Evaluation Criterion A, the census tract containing the City's service area meets the criteria to be considered "disadvantaged" based on the CEJST. The vast majority of households within the service area fall within a low-income bracket above the 89th percentile. Households also face a number of other burdens including being at or above the 90th percentile for the following:

- Climate Change
 - Agricultural Loss
 - Building Loss
- Energy
 - PM 2.5 in the air
- Health
 - Diabetes
- Housing
 - Lack of Green Space
- Transportation
 - Transportation Barriers
- Workforce Development
 - High School Education

Based on this information, any federal money spent within the City's service area will be benefiting a disadvantaged community. Further, the project that is proposed will help this population become more resilient against current, prolonged drought conditions and the projected impacts of climate change.

1.5.D.2 Tribal Benefits

The proposed project does not provide any tribal benefits as there are not national recognized tribes living in this community.

1.5.E Evaluation Criterion E – Readiness to Proceed and Project Implementation (10 points)

Upon award, Santa Rosa will be ready to begin the project immediately. Preliminary engineering design is anticipated to take approximately 3 months to complete upon which time it will be coordinated with the Texas



Historic Commission (THC) to comply with the Antiquities Code. While the project is under review by THC, the design phase will continue and is anticipated to be complete by October 2025. Construction of the proposed facilities will be let out to bid following all standard bid requirements supplied by the BOR with construction anticipated to begin in January 2026. Construction of the proposed facilities is expected to be complete in December 2026. A summary of the proposed project schedule is provided in 5.

Table 5: Proposed Project Schedule

Milestone / Activity	Anticipated Start Date	Anticipated Completion Date
Task 1: Anticipated Project Award and Agreement Execution	October 2024	December 2024
Task 2: Project Management	January 2025	December 2026
Task 3: Engineering Design	January 2025	October 2025
Task 4: Permitting	August 2025	October 2025
Task 5: Bidding Phase	October 2025	December 2025
Task 6: Construction	January 2026	December 2026
Task 7: Testing and Closeout	December 2026	January 2027

Permits and/or Approvals

Project construction will be subject to State and local permitting requirements that may include: Cameron County ROW for installation of waterline interconnect and North Alamo Water Supply Corporation for the interconnect tie-in. Additionally, the project will be submitted to THC as described above to ensure proper coordination and compliance with Texas Antiquities Code and any other requested or required NEPA procedures.

Engineering Design Work

Engineering design work will commence upon Notice of Award from the BOR and will include design of the following:

- New 1.0 Million Gallon (MG) Ground Storage Tank (GST)
- New 0.5 MG Elevated Storage Tank (EST)
- New 7-day storage Raw Water Reservoir at Water Treatment Plant (WTP)
- New 8-inch, 4,200 linear feet Waterline Interconnect with neighboring water supply entity

Design of all project elements is anticipated to be complete within 10-months of project award.



Required Land Purchases

It is anticipated that land acquisition will be required for the new EST, with a 0.5-acre site being ideal. The new EST will be situated in the most beneficial location for the system, with the identification of the location being part of the proposed engineering project effort.

Required new policies or administrative actions for project implementation

There are no required policies or administrative actions to implement the project.

1.5.F Evaluation Criterion F – Nexus to Reclamation (5 points)

The City does not have a water service, repayment, or O&M contract with Reclamation and it does not receive Reclamation water through a Reclamation contractor or by any other means.

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

Due to the composition of the region, there are numerous irrigation districts in the area. Many of these irrigation districts have been recipients of Reclamation funding for various activities, such as canal to pipeline conversions. The City receives raw water from an irrigation canal owned by La Feria Irrigation District. This project will benefit Reclamation projects in the area due to the water resources it will conserve.

This project is also consistent with recommendations made in the Lower Rio Grande Basin Study (study) completed by the Bureau of Reclamation in December 2013. The report was completed in conjunction with multiple State and Local entities and determined that there will be a need for an additional 592,000 ac-ft/year of water by the year 2060 (approximately 35% of the total water demand) and that the impacts of climate change is likely to increase this shortage by an additional 86,438 ac-ft/yr. The study further emphasizes the need to reduce dependency on the Rio Grande and preserve downstream flows for irrigation/push water and environmental needs, particularly in Cameron, Willacy, and Hidalgo Counties. This project directly supports the stated objectives of the study and will help preserve valuable and limited water resources from the Rio Grande, by implementing drought resiliency and creating water savings by the community of Santa Rosa.

Is the applicant a Tribe?

No, Santa Rosa is not a Tribe

1.5.G Evaluation Criterion G – Stakeholder Support for Proposed Project (5 points)

The proposed project will benefit a number of other local entities in that it preserves valuable surface water supplies from the Rio Grande for other local use. Every entity in the region that relies on the Rio Grande for surface water will benefit from conservation. Santa Rosa has the support from a diverse array of local



stakeholders including irrigation districts, water supply corporations, neighboring municipalities, and the county. Letters of support are provided in Appendix B and include the following stakeholders:

- Cameron County Commissioner, Gus Ruiz
- Congressman Vicente Gonzalez, 34th District, Texas

Section 2: Project Budget

2.1 Budget Proposal

The proposed project's budget is broken down between non-Federal and Federal sources in Table 6.

Table 6: Summary of Federal and Non-Federal Funding Sources

Funding Sources	Amount
Non-Federal Entities	
1. City of Santa Rosa – Requesting Financial Hardship Waiver	\$0
Non-Federal Subtotal	\$0
REQUESTED RECLAMATION FUNDING	\$9,553,500

2.2 Budget Narrative

Attachment B

Attachment B is included with the Grants.gov application and uploaded via the online system. It contains the detailed budget along with the budget narrative.

Budget Form

Budget Form SF-424C is included with the Grants.gov application and uploaded via the online system.

Section 3: Environmental and Cultural Resources Compliance

The proposed project is anticipated to have minimal impact on the surrounding environment because the new facilities will be built within the Water Treatment Plant site. The project will be constructed on land that was previously disturbed and will not be located at a greenfield site. The proposed project will have minor and temporary impacts on the surrounding environment that could include temporary increases in dust and partial loss of vegetation. All measures will be taken by the selected contractor to mitigate any potential effects on the air, water, and animal habitats that surround the project area. These measures include, but are not limited to:

- Utilizing erosion control devices such as buffer zones, flow diversion, gabions, and sediment traps;
- Minimizing the amount of disturbed soil;



- Meeting or exceeding any local or state sediment or erosion control plans;
- Minimizing the amount of removed vegetation;
- Ensuring efficient and timely construction;
- Construction personnel will post signage of work area;
- Construction personnel will facilitate ingress and egress of vehicles to project site through on-street traffic direction; and
- The Construction Contractor will alert local emergency response entities that construction vehicles will be located within the project area.

The City is not aware of any listed or proposed Federal threatened or endangered species or designated critical habitats located directly in the project area that would be affected by any activities associated with the proposed project. There are no wetlands or other surface waters inside the project boundaries that fall under CWA jurisdiction as "Waters of the United States."

Section 4: Required Permits or Approvals

Required permits and approvals are discussed in detail in Section 1.5.E, Evaluation Criterion E – Readiness to Proceed and Project Implementation. The City will follow state and local procedures to submit construction plans and specifications to the TCEQ for review and approval.

Section 5: Additional Required Material

5.1 Overlap or Duplication of Efforts Statement

There is no overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. This proposal is not in any way duplicative of any proposal or project that has been or will be submitted for funding consideration to any other potential funding source - whether it be Federal or non-Federal.

5.2 Conflict of Interest Disclosure

Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, Valley MUD No. 2 states that there are no actual or potential conflicts of interest that exist at the time of submission of this application.

5.3 Uniform Audit Reporting Statement

Santa Rosa did not expend more than \$750,000 in U.S. dollars or more in Federal award funds in the most recently closed fiscal year. Therefore, Santa Rosa was not required to submit a Single Audit report through the Federal Audit Clearinghouse Internet Data Entry System in accordance with 2 CFR §200 subpart F for that year.



5.4 Disclosure of Lobbying Activity

Not applicable to this project.

5.5 Letters of Project Support

Letters of project support are included as Appendix B.

5.6 Official Resolution

An Official Resolution has been adopted by Santa Rosa in compliance with the BOR's requirements and is included in Appendix C.

5.7 Letters of Funding Commitment

Not applicable. This project does not include any third-party funding commitments.

Section 6: Cost-Share Waiver Request – Financial Hardship

6.1 Population-Weighted Median Household Income

According to the American Community Survey's 2021 5-year data 2017-2021. The City's population-weighted median household income and average unemployment rate within the study area and the state based on the latest available data from the U.S. Census Bureau's American Community Survey is included below in Table 7.

Table 7: ACS 2021 5-Year Data for Santa Rosa Service Area

Location	Median Household Income	Average Unemployment Rate
Texas	\$67,321	5.4%
Cameron County	\$43,057	6.0%
Santa Rosa Town	\$27,464	9.3%
Tract: 48061010301	\$36,166	8.6%

6.2 Average Unemployment Rate within Study Area and State

According to the ACS' 5-year data, the current average unemployment rate for the State of Texas is 5.4%. Cameron County's current unemployment rate is 6.0%. This data is summarized in Table 8.

Table 8: Unemployment Data

Texas Unemployment	Cameron County Unemployment	Santa Rosa Town
5.4%	6.0%	9.3%



6.3 Family Poverty Level

Family poverty level for the State of Texas as estimated by guidelines published annually by the U.S. Department of Health and Human Services (aspe.hhs.gov/poverty-guidelines) are included below in Table 9.

Table 9: Family Poverty Guidelines in Texas

2023 POVERTY GUIDELINES FOR THE 48 CONTIGUOUS STATES AND THE DISTRICT OF COLUMBIA	
Persons in family/household	Poverty guideline
1	\$14,580
2	\$19,720
3	\$24,860
4	\$30,000
5	\$35,140
6	\$40,280
7	\$45,420
8	\$50,560
For families/households with more than 8 persons, add \$5,140 for each additional person.	

6.4 Current Financial Statement of the Applicant

A current financial statement stating that the City does not possess sufficient funds or assets to pay for all or part of the required cost share is included as Appendix D.

Sample Work Union County Water Supply Corp.



Union Water Supply Corporation Water Supply Resiliency Improvements WaterSMART Drought Response Program Drought Resiliency Projects for FY 2024

Funding Opportunity Number: R24AS00007

Funding Program: WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year (FY) 2024

Title of Project: Union Water Supply Corporation Water System Resiliency Improvements

Applicant: Union Water Supply Corporation

Address: 5992 FM 1430, Rio Grande City, Texas 78582

Email: unionwatersupply@yahoo.com

Telephone: (956) 487-3744

Project Manager: Jorge Bazan, Union Water Supply Corporation General Manager

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Section 6: Cost-Share Waiver Request – Financial Hardship



Section 1: Technical Proposal and Evaluation Criteria

1.1 Executive Summary

Date: October 1, 2023

Applicant Name: Union Water Supply Corporation, Texas
City, County, State: Rio Grande City, Starr County, Texas

Applicant Type: Category A

Task Area: Task D

Project Duration: 30 months

Estimated Construction Start Date / Completion Date: August 2024 / January 2027

Project Located on Federal Facility? No

Registered through SAM.gov with a valid UEI? Yes; UEI: PTKKDM8FCJJ1

Requesting Cost-Share Waiver? Yes, financial hardship

Project Summary:

The project will include planning, design, and construction for a new groundwater well and a groundwater treatment plant. Pilot well drilling and testing will be done at two locations nearby Union Water Supply Corporation's (UWSC) existing treatment plant. The results of the piloting will be used to determine where to drill permanent the new well and the type of treatment necessary to produce safe drinking water. The intent is to secure 0.5 to 1.0 MGD (560 to 1,120 acre-ft/yr) of additional water supplies with the project. The new treatment facilities are planned to be located near the existing treatment plant or at the secondary well site, approximately 1.8 miles due west from the existing plant. The treated water will be blended with the existing surface water and conveyed into UWSC's distribution system. Over the last 10 years, UWSC has consistently used 100% of its permitted surface water rights from the Rio Grande River and has been forced to lease additional water rights for an additional 433 acre-ft/yr, bringing the total annual water supply to 900 acre-ft/yr. This project would enable UWSC to stop leasing additional water rights and become independent in supplying water to their service area. Additionally, this project would improve the overall resiliency of their water system because they would not be solely dependent upon surface water from the Rio Grande River, which is in high demand throughout South Texas and is significantly impacted during periods of drought.

Relevant Background Information:

UWSC is a legally chartered corporation that provides potable water and wastewater utility services for rural residents that live along U.S. Highway 83 and along FM 1430 southeast of Rio Grande City in Starr County, Texas. UWSC's Water Certificate of Convenience and Necessity (CCN) service area map is included as Figure 1. Its service area includes 55 square miles that are bound by the Rio Grande River to the south and their existing water system currently includes a 1.6 MGD surface water treatment plant that treats raw water supplied from the Rio Grande River.

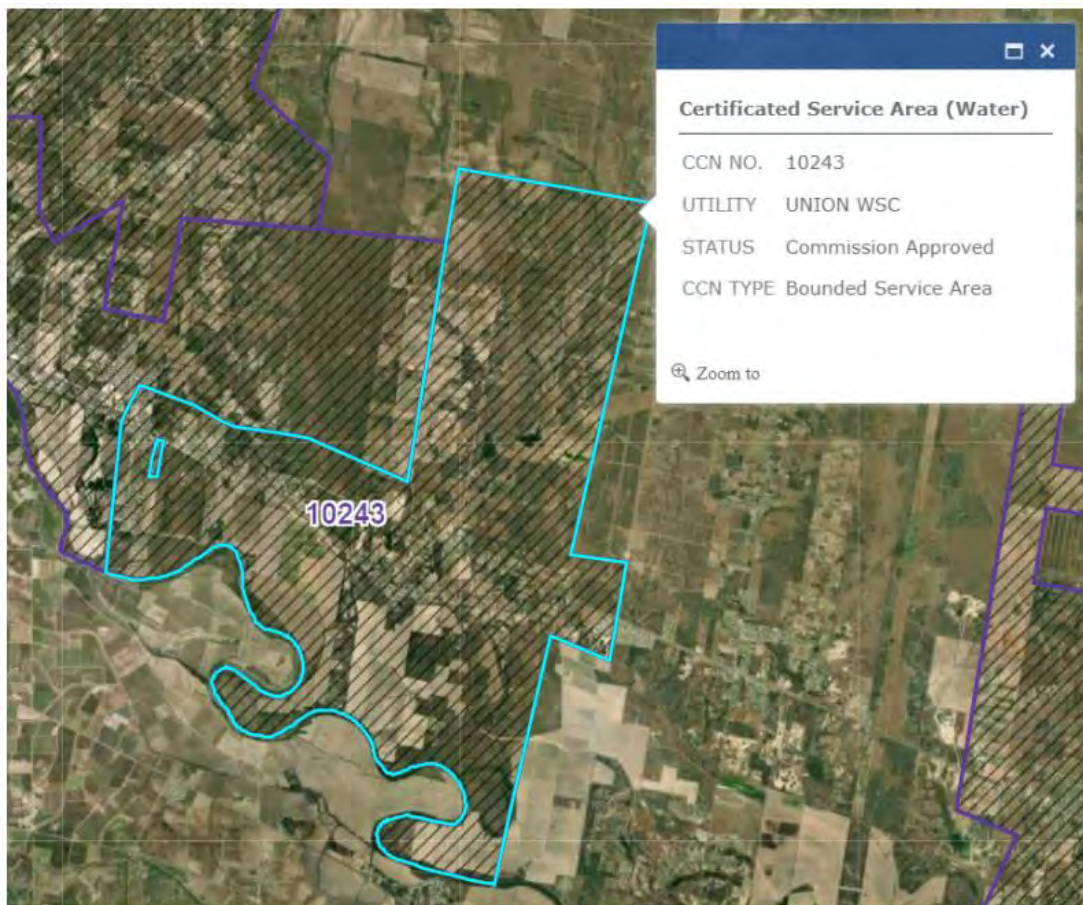


Figure 1: UWSC Water CCN 10243

UWSC currently serves a population of 6,909 people with 2,294 connections. UWSC primarily serves residential customers (approximately 95%), but also serves other water sectors/users. UWSC's population is projected to increase along with the rest of the Lower Rio Grande Valley (LRGV). Population projects for Starr County and the rest of the Texas Water Development Board's (TWDB's) Region M Water Planning Group are included in Table 1 below.



COUNTY	2020	2030	2040	2050	2060	2070
Cameron	478,974	559,593	641,376	729,461	820,068	912,941
Hidalgo	981,890	1,219,225	1,457,502	1,696,257	1,935,015	2,167,137
Jim Hogg	5,853	6,356	6,790	7,274	7,694	8,082
Maverick	63,107	72,491	81,243	90,304	98,988	107,327
Starr	70,803	80,085	88,633	97,107	104,687	111,555
Webb	318,028	393,284	464,960	530,330	591,945	647,433
Willacy	25,264	28,479	31,559	34,840	38,012	41,121
Zapata	16,819	19,709	22,876	26,365	29,976	33,742
Total	1,960,738	2,379,222	2,794,939	3,211,938	3,626,385	4,029,338

Table 1: Starr County and TWDB Region M Population Projections

Existing Water Supplies:

UWSC currently owns 467 acre-ft/yr of water rights from the Rio Grande River. This is their only source of water supply for their entire service population of approximately 6,909 people. Over the last 10 years, they have consistently used 100% of their permitted surface water rights and have been forced to lease additional water rights for an additional 433 acre-ft/yr, bringing their total annual supply to be 900 acre-ft/yr (owned surface water rights + leased). The total amount of water available that UWSC owns the rights for is equal to the 467 acre-ft/yr included in their permit. UWSC’s 10-year average annual water supply is equal to the 900 acre-ft/yr that has consisted of the surface water that they own plus the volume that they lease to supplement supply. This amount has been fully utilized each year for the past 10+ years.

1.2 Project Location

This project is located Southeast of Rio Grande City, Starr County, Texas at the United States and Mexico Border North of the Rio Grande River. The project latitude is 26.299693 and longitude is -98.733569. A map showing UWSC’s location in relation to the State of Texas is included as Figure 1. The project location and existing water distribution system are displayed in Figure 2.

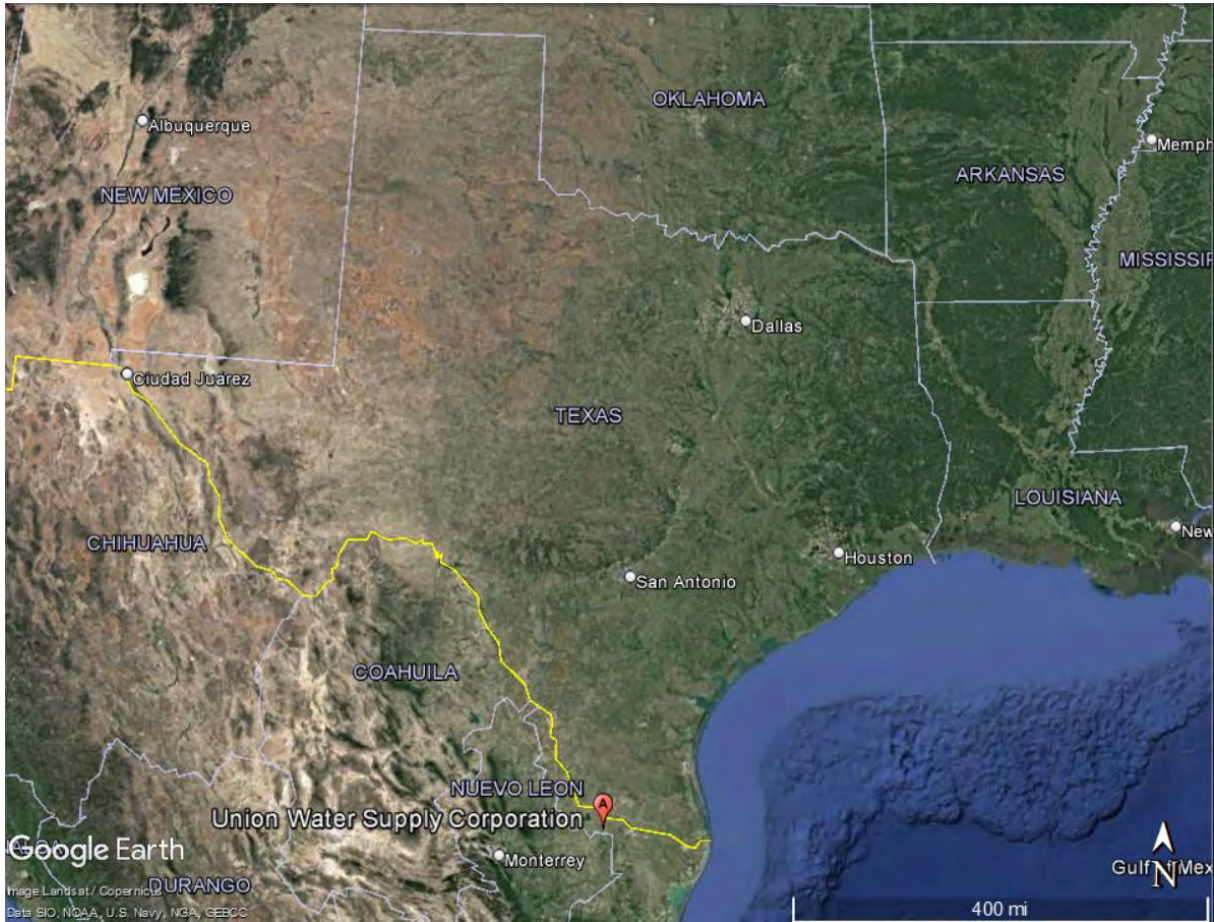


Figure 1: UWSC's Location in Relation to the State of Texas

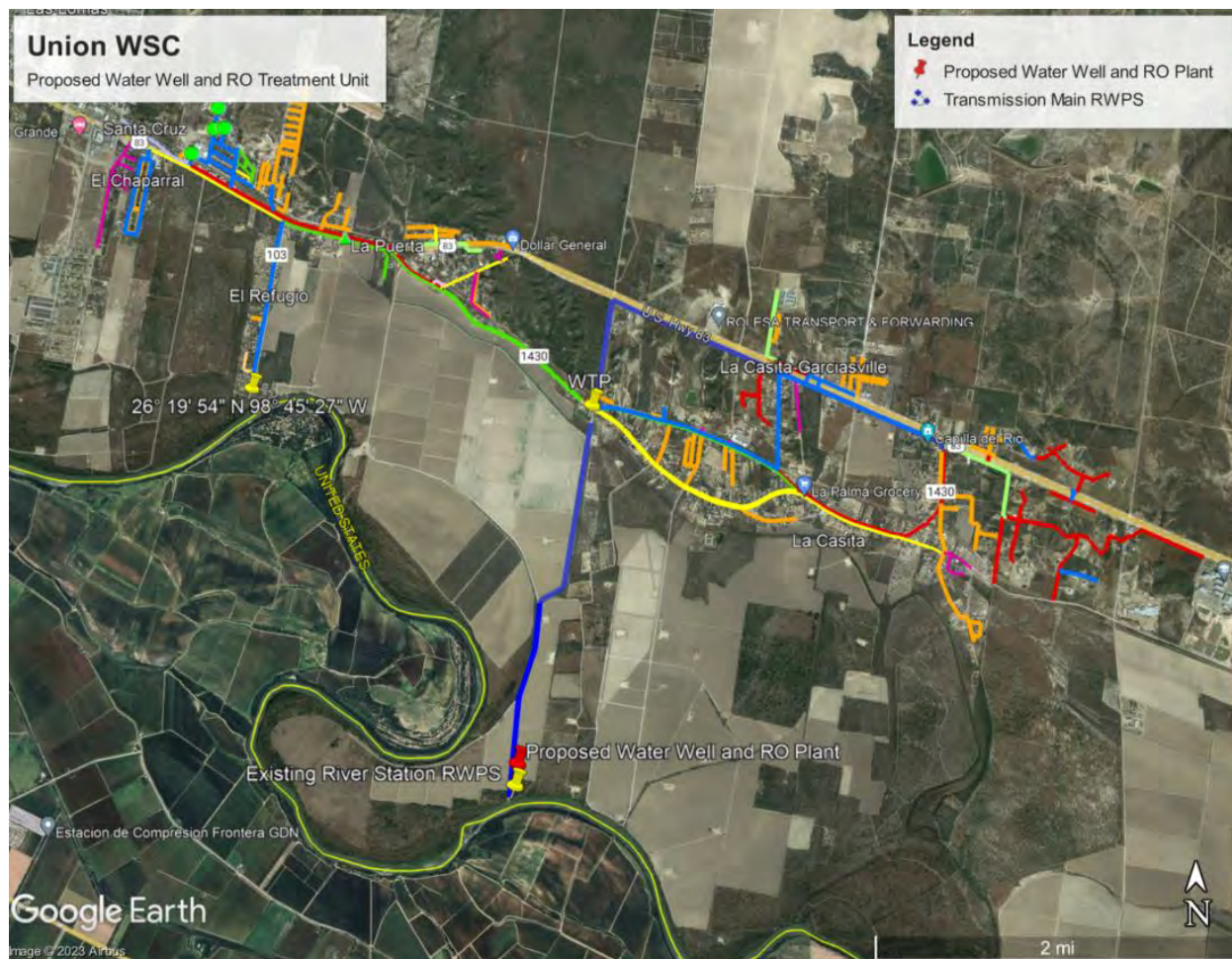


Figure 2: UWSC Water Distribution System and Project Location

Technical Project Description

The project will include engineering design, land acquisition, and construction of a new groundwater well site that will supply drought-resistant groundwater as well as a new groundwater reverse osmosis (RO) treatment plant to serve this new well site. The new well site will supply an additional 0.5 to 1.0 MGD (560 to 1,120 acre-ft/yr) of drought resistant groundwater to the community. This source will supplement their existing surface water intake at the Rio Grande River, which is currently their only water source. This project will provide much needed resiliency and diversification to their water supply portfolio and enable them to no longer need to rely fully upon the Rio Grande River to provide their service area with water.



The new RO treatment plant will be designed to properly service and treat the groundwater produced from the new well and will be located adjacent to the new well. The final treatment specifications will be based on the groundwater quality and steps necessary to produce finished water that meets EPA primary drinking water standards and secondary standards as may be applicable. Both the well and the RO treatment plant will be located on approximately 1.5 acres of land that will be acquired for this project. The land will be acquired adjacent to the Union’s existing raw water transmission main to capitalize on existing infrastructure and eliminate the cost of building a new transmission main.

1.3 Performance Measures

Proposed Performance Measures

Proposed performance measures include the volume of drought-resilient, new source water pumped from the proposed groundwater well. It is estimated that the proposed well will supply approximately 0.5 to 1.0 MGD (560 to 1,120 acre-ft/yr) of water to new RO plant. The anticipated capacity of the well will be finalized through a pilot study that will include pump tests. This new groundwater supply could result in a decreased amount of water pumped from the Rio Grande River because UWSC will prioritize the use of groundwater for the supply.

1.4 Evaluation Criteria

1.5.A Evaluation Criterion A – Project Benefits (30 points)

The Climate and Economic Justice Screening Tool (CEJST) was utilized to assess the local community serviced by UWSC and who stand to benefit from the proposed project. Every census tract that is located at least partially within the UWSC service area was assessed using the CEJST with respect to climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The results of this analysis by census tract are displayed in Table 1. Every single census tract within the UWSC service area is identified as being disadvantaged with low-income percentiles ranging between 89th – 97th.

Table 2: CEJST Data for UWSC Service Area

Census Tract	Disadvantaged ?	Low Income Percentile	Population	Other CJEST Burdens
48427950401	Yes	92 nd	5274	Climate Change (agriculture loss, building loss, population loss) Energy (cost, PM 2.5), Health (diabetes), Workforce Development (linguistic isolation, low median income,



Census Tract	Disadvantaged ?	Low Income Percentile	Population	Other CJEST Burdens
				poverty, unemployment, high school education)
48427950402	Yes	93 rd	5251	Energy (PM 2.5), Health (diabetes), Transportation (transportation barriers), Workforce Development (linguistic isolation, low median income, poverty, unemployment, high school education)
48427950108	Yes	89 th	3723	Health (Diabetes), Transportation (transportation barriers), Workforce Development (linguistic isolation, high school education)
48427950106	Yes	97 th	3199	Climate Change (building loss, population loss), Energy (energy cost, PM 2.5), Health (diabetes), Housing (lack of indoor plumbing), Workforce Development (linguistic isolation, low median income, high school education)

The proposed project aims to provide a reliable, stable supply of quality potable water to the disadvantaged community that UWSC serves. As discussed in Section 1.5.C, Evaluation Criterion C – Severity of Actual or Potential Drought or Water Scarcity Impacts to be Addressed by the Project, the raw surface water supplies from the Rio Grande River that currently supply the entire service area are under threat due to the effects of climate change, long-term drought conditions, and the increasing high demand on the Rio Grande River. Additionally, UWSC does not currently even have enough supply to meet the needs of their service area. For the last ten years, they have been required to lease additional surface water rights in order to meet demand. This gap in supply directly translates into a primary driver behind why the community does not currently have reliable access to domestic water supplies. Reliance upon external providers means that UWSC’s ability to provide water is partially out of their control and an interruption in supply could occur at any point in time. The addition of a groundwater well to provide an alternate source of water to UWSC outside of the Rio Grande river would also reduce tensions along the Mexican border with community stakeholders that rely on a limited supply of surface water from the Rio Grande River that is already over-allocated and subject to significant future threat from the impacts of climate change.

Explain how the proposed project will increase reliable access to domestic water supplies. Provide this quantity in acre-feet per year the average annual benefit that the domestic water supply project



will provide. How many people is it estimated to serve? How were these estimates calculated (average benefit and population)?

The plan is to provide an additional 0.5 to 1.0 MGD (560 to 1120 acre-ft/yr) of water supply from the well dependent on the results of the pilot study and test holes at two different locations in UWSC's service area. Assuming maximum day demands of 240 gallons per capita per day (gpcd) and approximately 3.72 people served per acre-ft/yr of water supply, the average annual benefit associated with the proposed project in terms of population served ranges from approximately 2,083 to 4,166 people. The number of water users served by the project will ultimately be dependent upon the well's permanent capacity and the RO plant will be sized to treat the anticipated capacity. This project will continue to provide benefits throughout the entire estimated useful life of the well and RO plant, which are estimated to be between 20-30 years.

Wells

Pilot well drilling and testing will be completed at two nearby locations. The results will be documented and analyzed in a study that will be used to determine the location of the permanent wells and treatment type necessary. The plan is to secure 0.5-1.0 MGD (560 to 1120 acre-ft/yr) of additional water. This estimated capacity is based on existing nearby wells in the area and their current capacities. The anticipated well capacity of 560 to 1120 acre-ft/yr will comply with all state laws, ordinances, and other applicable groundwater governance. UWSC is located within the Starr County Groundwater Conservation District (SCGCD). UWSC will follow all protocol and submittal requirements in order to receive approval for the well through the SCGCD.

After this project is completed, the groundwater that is produced will provide the majority of UWSC's total water supply. They currently own surface water rights for 467 acre-ft/yr from the Rio Grande River. Considering an anticipated well capacity of 560 to 1120 acre-ft/yr, the total available annual supply will range between 1,027 to 1,587 acre-ft/yr. This means that groundwater will provide anywhere from 54-70% of UWSC's total annual water supply. This new groundwater supply will significantly increase the overall resiliency of the water system and enable UWSC to no longer need to rely upon leased water from an external provider to cover the supply gap. Additionally, UWSC will no longer be solely dependent upon water from the Rio Grande River, which is in extremely high demand and is significantly impacted by drought conditions. T

The applicant does not currently participate in an active recharge program that contributes to groundwater sustainability because prior to the proposed project, they have not utilized groundwater as part of their water supply. As part of the pilot study, two different locations near the existing surface water treatment plant will be assessed as options to drill the new groundwater well. According to the TWDB's Groundwater Data Viewer, existing wells nearby currently withdraw from either the Rio Grande River's alluvium, the Jasper Aquifer, the Gulf Coast Aquifer, or the Beaumont Clay, Lissie Formation, and Goliad Sand (<https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>). Local aquifers will be assessed in the study to identify which aquifer is the most likely to provide the target capacity of the well. In



In addition to capacity, other considerations such as recharge rate, hydraulic conductivity, transmissivity, current demand, and aquifer size will be made in order to make a thoughtful determination on which aquifer will be the best fit for UWSC's new groundwater well.

Test holes will be constructed to identify the most appropriate location for the final production well in the vicinity of UWSC's existing transmission main line. As part of the test well efforts, 36-hour pump tests will be conducted to determine the potential production capacity of the well and groundwater samples will be lab-tested to determine water chemistry and composition. The analytical results will be used for the design parameters of the new RO facility. From a desktop analysis of permitted wells in the vicinity, it is anticipated that a maximum production well of 800 gpm should be expected. The well will be drilled to an estimated depth of 150-300 ft deep. Casing diameters are anticipated to be 16-20 inches and screen placement will be according to the hydrogeology and borings collected during the test hole phase. The size of the well's pump and motor will be dependent upon the pump test results but are anticipated to be sized to produce the target capacity of 800 gpm that is already being achieved by existing wells in the area. The groundwater well will be designed with the appropriate power and controls according to the anticipated capacity.

A groundwater monitoring plan will be undertaken with monitoring triggers for mitigation actions. The monitoring triggers will include regular water level checks at the well, which will provide direct insight into potential overpumping of the target aquifer. Mitigation actions will include decreased pumping activity during periods when well water levels are reading relatively lower compared to the static water level after pumping is regulated at the new site. During times that the water level is reading lower, UWSC can shift their supply to prioritize surface water from the Rio Grande and minimize their groundwater withdrawal by not constantly running the well. This groundwater monitoring plan with the monitoring triggers for mitigation actions will enable UWSC to help avoid contributing to any adverse impacts to the aquifer and/or any third parties due to groundwater pumping.

Climate Change

This project includes risk reductions for wildfires and floods through an increased ability to manage these natural disasters and protect residents if they were to occur through supplemental water supply. The increased resiliency and capacity of the water system would allow the City to respond quickly and thoroughly to a potential wildfire with the supply needed to combat it. In terms of floods, a resilient water supply would enable the City to consistently be able to provide critical resources, such as water, to its residents despite flooding. The proposed project will not establish and use a renewable energy source, nor will it reduce greenhouse gas emissions by sequestering carbon in soils, grasses, trees, or other vegetation.

The proposed project includes sustainable infrastructure that will improve community climate resilience. A variable frequency drive (VFD) will be assessed for utilization in the design of the groundwater well and the RO plant will consider green infrastructure in its design once treatment options are finalized. A VFD can



significantly lower emissions from the groundwater well motor because of the precise and efficient control of the electrical motors. VFDs modulate the supplied power of the motors to match the energy requirement of the equipment being driven, which will optimize the energy consumption of the system. VFDs will also extend the lifespan of the well's motor, which will reduce the associated waste because it will not need to be replaced as often. The inclusion of VFDs will improve community climate resilience by minimizing the new groundwater well's emissions footprint. The project will also support sustainability of UWSC's water system and improve community climate resilience by providing a groundwater source that is less affected by drought compared to the Rio Grande River. This is particularly critical considering that the impacts of climate change are anticipated to worsen the reliability of the water supply in the Rio Grande further.

The proposed project seeks to mitigate climate pollution. The groundwater that will be pumped from the new well will be treated at the nearby proposed treatment facility. This will mitigate climate pollution in the form of water pollution because the treatment will remove any existing contamination (whether it be natural or anthropogenic) and improve the overall quality of the water supply while also increasing the amount of clean water in the City's distribution system that will be consumed and utilized by residents.

Environmental Benefits

Does the project seek to improve ecological climate change resiliency of a wetland, river, or stream to benefit to wildlife, fisheries, or habitats? Do these benefits support an endangered or threatened species?

The proposed project seeks to improve ecological climate change resiliency and benefit wildlife through reducing the demand on the Rio Grande River. Reduced demand will support environmental freshwater flows that support a number of threatened and endangered species that include, but are not limited to: Swallow-tailed kite, Tropical parula, Zone-tailed hawk, Alligator gar, American eel, river goby, Swallowtooth sawfish, Tamaulipan clubtail dragonfly, Mexican fawnsfoot, Salina mucket, Texas hornshell, Rio Grande river cooter, and Shinner's rocket. According to Texas Parks and Wildlife (<https://tpwd.texas.gov/gis/rtest/>), Starr County is currently home to 92 species of amphibians, birds, fish, mammals, reptiles, insects, arachnids, mollusks, and plants that are considered rare, endangered, or threatened. Another major environmental benefit provided by this project would be the protection of habitats throughout the Region that are supported by surface water. By not adding pursuing additional surface water rights from the Rio Grande, these habitats are protected by the preservation of the existing surface water. This project will reduce the likelihood of a species listing for species that inhabit areas that are supported by surface water. The surface water that is currently present in these habitats will not be depleted for the purpose of water supply, therefore reducing the likelihood of a species listing due to habitat loss.

If UWSC's demands are equal to their 10-year average water supply of 900 acre-ft/yr, and the new groundwater well adds anywhere from 0.5-1.0 MGD (560 to 1120 acre-ft/yr), there is a chance that UWSC's demands could be served completely by the new well. If this occurred, additional stream flows in the Rio



Grande River would be equal to UWSC's existing permitted surface water rights of 467 acre-ft/yr. If the new well was only able to produce 560 acre-ft/year, the project will still result in additional stream flows of 127 acre-ft/yr because the supply from the Rio Grande would only need to fill a gap of 340 acre-ft/yr ($900 \text{ acre-ft/yr} - 560 \text{ acre-ft/yr} = 340 \text{ acre-ft/yr}$).

Other Benefits

The proposed project will assist in mitigating water-related crises associated with the Rio Grande River through reduced demand on the river and increased reliance upon groundwater. The Rio Grande is currently over-allocated and freshwater flows from the Rio Grande are diminishing. The proposed project supports the Rio Grande Compact and could further help relieve cross-border tensions between the U.S. and Mexico with regards to the Mexican Water Treaty of 1944 that discusses how water should be shared across the watershed on either side of the border.

The proposed project will benefit multiple sectors and/or users including municipal, agricultural, environmental, and recreation. Municipal benefits include consistent and reliable water supply for potable and non-potable use. For municipal users in disadvantaged communities, increased drought resiliency for the water supply means a lower likelihood of the restriction conditions that are outlined in UWSC's drought contingency plan (Appendix A) being required. Water use restrictions and penalties due to drought would directly impact UWSC's service population in a negative way because it could increase their financial burden and also potentially restrict their ability to use water to serve their businesses that they rely upon for income.

Agricultural benefits include improved water system resiliency for farmers and ranchers that rely upon UWSC to provide water to irrigate their crops, animals, and land. Lastly, the environmental and recreational sectors will benefit from the project through increased resiliency that will provide consistent supply to users that rely upon the water supply in the county for recreational and environmental users that include, but are not limited to, Falcon State Park, Fort Ringgold Golf Course, Roma Historic District, and Roma Historical Museum.

The project will benefit a larger initiative to address sustainability for the Rio Grande River the addition of an alternative water source that will help to conserve water in the Rio Grande River and support municipal surface water conservation. The larger initiative of water conservation was identified by the Rio Grande Regional Water Planning Group (RWGP), Region M. The RWGP is one of 16 local bodies in Texas that were established by Senate Bill 1 to coordinate long-range water supply planning for the State of Texas. The regional and state water plans are facilitated by the Texas Water Development Board. Advanced municipal water conservation was identified as a recommended water management strategy for UWSC in the 2022 State Water Plan and the 2021 Region M Water Plan. This initiative is further described in Section 1.5.B, Evaluation Criterion B – Planning and Preparedness.



There is frequent tension related to the Rio Grande River's water use and the prolonged periods of drought experienced throughout South Texas. Drought conditions throughout the LRGV are well documented and tensions are further complicated by the lack of compliance by Mexico to the Mexican Water Treaty of 1944 that defines how the U.S. and Mexico share water supplies from the Rio Grande River. This project will result in additional stream flows to the in-demand Rio Grande River as a result of a supplemental groundwater supply for UWCS.

1.5.B Evaluation Criterion B – Planning and Preparedness (20 points)

This proposed project was developed through a collaborative process that started at the local level and was elevated to the state planning level. UWSC's local Drought Contingency Plan (Appendix A) outlines the potential responses if drought resiliency is not improved, and conservation is not prioritized at the local level. Stakeholders with various interests were included in the development of the local drought contingency plan through meetings where stages and responses were identified.

Additional planning efforts take place at the state level. The RWGP is one of 16 local bodies in Texas that were established by Senate Bill 1 to coordinate long-range water supply planning for the State of Texas. The regional and state water plans are facilitated by the Texas Water Development Board and incorporate collaboration across all regional water planning groups. The regional water planning groups also incorporate direct input from each entity that is included in the plan through surveys and meetings. Advanced municipal water conservation, conversion of water rights, and municipal drought management were all identified as recommended water management strategies for UWSC in the 2022 State Water Plan and the 2021 Region M Water Plan. A figure from the 2021 Region M Water Plan showing all UWSC's recommended water management strategies is included below as Figure 3. The proposed project supports both municipal water conservation, conversion of water rights, and municipal drought management.

UWSC's Drought Contingency Plan, the 2022 State of Texas Water Plan, and the 2021 Region M Water Plan all incorporate elements of drought planning. Prolonged periods of drought are intensifying and becoming more frequent throughout the State of Texas. The Rio Grande River is one waterbody in the state where the impacts of drought are immediately realized for users. Water suppliers must work together to identify strategies that will enable their water systems to be as resilient as possible during drought periods, especially those that serve disadvantaged communities that do not have potential access to alternate supplies and could solely rely upon supplied water to support their livelihood.



Union Water Supply Corporation
 Union WSC has a need in every decade (Table 5.3-257); WMSs recommended to meet that need are shown in Table 5.3-258.

Table 5.3-257 Union WSC Existing Supply Balance (acft/yr)

UNION WSC	2020	2030	2040	2050	2060	2070
Supplies	542	542	542	542	542	542
Demand	1,261	1,402	1,535	1,672	1,800	1,917
Need(-)/Surplus(+)	(719)	(860)	(993)	(1,130)	(1,258)	(1,375)

Table 5.3-258 Union WSC WMS Supplies (acft/yr)

UNION WSC	2020	2030	2040	2050	2060	2070
Advanced Municipal Water Conservation	0	100	178	258	350	447
Conversion of Water Rights	715	752	804	857	890	907
Waterline Replacement and Automatic Meter Reading System	88	88	88	88	88	88
Municipal Drought Management	29	33	37	40	43	46
New Supplies from WMS	832	973	1,106	1,243	1,371	1,488
WUG Balance After WMS	113	113	113	113	113	113

Figure 3: UWSC Recommended Water Management Strategies in 2021 Region M Water Plan

1.5.C Evaluation Criterion C – Severity of Actual or Potential Drought or Water Scarcity Impacts to be Addressed by the Project (15 points)

Starr County is currently categorized as being in a state of “D2 moderate drought” by Drought Monitor as of November 2023. This category is an improvement from the start of water year when this region was classified as a “D3 extreme drought.” Overall, Starr County, and the rest of the Lower Rio Grande Valley, have experienced significant drought conditions on and off over the last several years but particularly since 2019 as supported by data from droughtmonitor.unl.edu in Table 3.



Table 3: Data from Drought Monitor for Starr County, Texas

Week	Date	None	D0	D1	D2	D3	D4	DSCI
Current	10/31/2023	0	0	25.2	74.8	0	0	275
Last Week to Current	10/24/2023	0	0	25.2	74.8	0	0	275
3 Months Ago to Current	8/1/2023	0	13.81	38.71	47.47	0	0	234
Start of Calendar Year to Current	12/27/2022	99.17	0.83	0	0	0	0	1
Start of Water Year to Current	9/26/2023	0	0	0	19.15	80.85	0	381
One Year Ago to Current	11/1/2022	77.85	22.15	0	0	0	0	22
DO Abnormally Dry D1 Moderate Drought D2 Severe Drought D3 Extreme Drought D4 Exceptional Drought DSCI Drought Severity Coverage Index (0-500)								

UWSC’s current water supply is completely dependent upon the Rio Grande River, which is impacted greatly during times of drought. Water levels decrease and supplies are minimized for users that rely upon the river for their customers. UWSC sole dependence on the Rio Grande River puts them at extreme risk during times of drought and at this point in time, they face a constant risk of water scarcity and supply interruption at all times because they do not have enough water rights to provide for their customers. Because their current demand cannot be supplied through the permitted water rights, UWSC is forced to rely upon external water suppliers that can lease them the additional water rights that they need for their customers.

Starr County and the LRGV have experienced numerous direct effects because of the prevalent drought and water scarcity conditions throughout the area. One of the sectors that has been most directly affected has been the agricultural sector. Drought conditions have forced farmers and ranchers in the LRGV to downsize their farms, herds, and subsequent production, which also directly impacts their income from farming and ranching. In 2022, drought conditions have led to historically low levels in the Falcon Dam (9% full) and the upstream Amistad Dam being less than one-third full. The 2022 State Water Plan details that demand is anticipated to continually exceed supply in the LRGV and in other areas throughout the state. Additionally, climate change impacts are expected to intensify droughts. Drought conditions can also present public health challenges for populations that rely upon water for a variety of health reasons beyond just hydration. This is particularly troublesome for disadvantaged communities, such as UWSC’s service population, which do not likely have the means or access to alternate sources of water.

According to the National Oceanic and Atmospheric Administration (NOAA) and the National Integrated Drought Information System (NIDIS) (<https://www.drought.gov/states/texas/county/starr>), Starr County



experienced their 45th driest year to date over the past 129 years in 2023. NOAA and the NIDIS estimate that 100% of people in Starr County are currently directly affected by drought. NOAA and NIDIS list the social vulnerability index for Starr County as being the highest possible in terms of needing support to prepare for and recover from hazards like drought. Additionally, stream flows are low, and agriculture is being affected significantly. As of October 27, 2023, 16,162 acres of sorghum, 10,367 acres of hay, 6,317 acres of corn, 19,520 heads of cattle, and 3,535 sheep are currently in drought in Starr County. These numbers highlight the direct impacts that drought has on the agricultural sector and water users throughout Starr County and UWSC's service area. They also represent the economic losses that drought can have on resources that customers use to generate an income and provide for their families, such as agricultural commodities. If periods of prolonged drought continue to occur as a result of climate change, these impacts will likely compound and become more severe.

Drought conditions throughout the LRGV and UWSC's service area are a significant threat to raw water supplies and consumers' ability to receive domestic water supplies reliably. These conditions are anticipated to worsen because of projected increases in population and negative effects due to climate change such as increased and intensified periods of drought. Water systems' resiliency during times of drought is a key component to ensuring that customers will still be able to receive water. If no action is taken by UWSC to improve the overall reliability of their water system, all consumers could potentially be at risk of receiving no water during times of drought. This is especially true because UWSC cannot currently supply enough water to meet their customers' demands and must rely upon external supplies to provide the remainder of the water through lease agreements.

If no action is taken, the sectors that would be directly affected are municipal, agricultural, environmental, and recreational. The impacts that would be felt because of not being able to receive water would be severe. If water supply from the Rio Grande River was completely or partially unavailable due to severe drought conditions, all of UWSC's customers could be completely without water or only able to use very limited amounts. Demand would greatly exceed the groundwater supply and the conditions of UWSC's Drought Contingency Plan would go into effect. These conditions would require immediate responses that could have a significant impact on the disadvantaged population that UWSC serves. Additionally, users would be limited in their consumption including strict requirements for irrigation, aesthetic purposes (washing vehicles, etc.), ponds or fountains, and any other non-essential uses of water. Any violations of these requirements could put further financial stress on the disadvantaged community that UWSC serves.

1.5.D Evaluation Criterion D – Presidential and DOI Priorities (15 points)

1.5.D.1 Disadvantaged or Underserved Communities

Data from the White House Council on Environmental Quality's interactive CEJST are included in Section 1.5.A, Evaluation Criterion A – Project Benefits. The proposed project will serve and benefit UWSC's entire



disadvantaged and underserved community through the supplemental water supplies provided by the new groundwater well. This project will add an additional 0.5 to 1.0 MGD of capacity to UWSC’s water supply dependent upon the results of the pilot testing.

The proposed project will improve the water system’s resiliency to drought and other natural hazards/disasters, which means that the surrounding communities will be able to rely upon the reliable and resilient water supply for whatever uses they have. Consistent water supply could provide economic growth opportunities for the surrounding disadvantaged community because users know that they can count on consistent water supply and that they will not need to worry about service interruptions potentially hindering their businesses. Similarly, farmers and ranchers in the service area could choose to maintain their existing crops and expand into new agricultural commodities and/or facilities because they know that they’ll have the water supply to do so. These economic opportunities could improve some of the existing burdens on the population as a result of local climate change impacts.

1.5.D.2 Tribal Benefits

The proposed project will not directly serve and/or benefit a Tribe nor support Reclamation’s Tribal trust responsibilities or a Reclamation activity with a Tribe.

1.5.E Evaluation Criterion E – Readiness to Proceed and Project Implementation (10 points)

The implementation plan for the proposed project is outlined below in Table 6.

Table 4: UWSC Project Milestones and Schedule

Milestone / Task / Activity	Planned Start Date	Planned Completion Date
Anticipated Project Award and Agreement Execution	August 2024	December 2024
Project Management	January 2025	January 2027
Environmental and Cultural Resources Compliance	August 2025	November 2025
Design	January 2025	October 2025
Bidding	October 2025	December 2025
Permitting	August 2025	October 2025
Construction	January 2026	December 2026
Testing and Closeout	December 2026	January 2027

Describe any permits or approvals that will be required (e.g., water rights, water quality, stormwater, or other regulatory clearances). Include information on permits or approvals already obtained. For



those permits and approvals that need to be obtained, describe the process, including estimated timelines for obtaining such permits and approvals.

UWCS's water system already exists, which means that no major approvals or permits will be needed through the Texas Commission on Environmental Quality (TCEQ). The proposed project will require approval of design from the TCEQ prior to construction and operation. The TCEQ's approval process includes submitting the plans, specifications, and related documents to the TCEQ for review. The TCEQ's anticipated review and approval timeline is 60 days. Other permitting requirements include a completed well registration form for the Starr County Groundwater Conservation District.

Engineering design work will commence upon notification from the BOR. Design work will specifically include the groundwater well and the RO water treatment plant. There are no land purchases that need to occur before the project can be implemented and there are no new policies or administrative actions that will be required to implement the project.

1.5.F Evaluation Criterion F – Nexus to Reclamation (5 points)

The applicant does not have a water service, repayment, or O&M contract with Reclamation. UWSC does not receive Reclamation water through a Reclamation contractor or by another other contractual means. No, UWSC is not a tribe.

This project is consistent with the BOR's Lower Rio Grande Basin Study (Study) that was completed in December of 2013. The BOR collaborated with the Rio Grande Regional Water Authority for the Study, which includes 53 local member entities. The Study focused on 166,000 square miles along the United States-Mexico border. The Study determined that there would be a need for an additional 592,000 acre-ft/yr of water by 2060. The Study also determined that the impacts of climate change would likely increase the shortage by an additional 86,438 acre-ft/yr. The Study emphasizes the need to broaden water supplies outside of the Rio Grande River to preserve downstream flows for irrigation/push water and environmental needs. This project directly aligns with the Study's objectives by utilizing groundwater for supplemental water supply rather than more water from the Rio Grande. As a result, more raw water from the Rio Grande will be available for irrigation, municipal supply, and critical environmental flows.

1.5.G Evaluation Criterion G – Stakeholder Support for Proposed Project (5 points)

This project will benefit numerous other entities that rely upon the Rio Grande for their water supply and use. UWSC's decreased dependence on the Rio Grande through a new groundwater well will positively influence the river by lessening the current demand. Decreased demand will result in additional water supplies being available for other entities and purposes such as irrigation, municipal supply, critical environmental flows, and recreation.

Letters of support from Starr County Judge, Mr. Eloy Vera, and Dr. Henry Cuellar, U.S. Congressman of the 28th District of Texas, are included in Appendix C.



The letters of support that were submitted reflect the significant impact that the proposed project will have on UWSC’s service area. Mr. Eloy Vera, Starr County Judge, and Dr. Henry Cuellar, U.S. Congressman of Texas’ 28th Congressional District, represent not only UWSC’s entire service area, but also Starr County as a whole and the 28th Congressional District of Texas, which includes Atascosa, Bexar, Duval, Guadalupe, Jim Hogg, McMullen, Starr, Webb, and Zapata Counties.

The significant roles that they play in the local community in their roles as Starr County Judge and U.S. Congressman of the 28th Congressional District subsequently represent the interests of all sectors and users that UWSC supports. These include agricultural, municipal, environmental, and recreational users of UWSC’s water supply.

Section 2: Project Budget

2.1 Budget Proposal

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

Funding Sources	Amount
Non-Federal Entities	
1. Not applicable (requesting waiver for financial hardship)	\$0
Non-Federal Subtotal	\$0
REQUESTED RECLAMATION FUNDING	\$9,436,120

2.2 Budget Narrative

Attachment B

Attachment B is included with the Grants.gov application and uploaded via the online system. It contains the detailed budget along with the budget narrative.

Budget Form

Budget Form SF-424C is included with the Grants.gov application and uploaded via the online system.

Section 3: Environmental and Cultural Resources Compliance

The proposed project is anticipated to have minimal impact on the surrounding environment because all work will be completed in compliance with National Environmental Policy Act (NEPA) requirements. UWSC’s original water system was constructed in 2010. A complete environmental review will be completed after the initial pilot study is completed and a site is selected for the groundwater well and treatment plant. The proposed project will have minor and temporary impacts on the surrounding environment that could include temporary increases in dust and partial loss of vegetation. All measures will be taken by the selected



contractor to mitigate any potential effects on the air, water, and animal habitats that surround the project area. These measures include, but are not limited to:

- Utilizing erosion control devices such as buffer zones, flow diversion, gabions, and sediment traps;
- Minimizing the amount of disturbed soil;
- Meeting or exceeding any local or state sediment or erosion control plans;
- Minimizing the amount of removed vegetation;
- Ensuring efficient and timely construction;
- Construction personnel will post signage of work area;
- Construction personnel will facilitate ingress and egress of vehicles to project site through on-street traffic direction; and
- The Construction Contractor will alert local emergency response entities that construction vehicles will be located within the project area.

UWSC is not aware of any listed or proposed Federal threatened or endangered species or designated critical habitats located directly in the project area that would be affected by any activities associated with the proposed project. There are no wetlands or other surface waters inside the project boundaries that fall under CWA jurisdiction as "Waters of the United States."

Section 4: Required Permits or Approvals

UWSC anticipates receiving approval from the TCEQ for the design and construction of the new groundwater well along with approval from the local groundwater conservation district, the Starr County Groundwater Conservation District. Anticipated permits and approvals are discussed in Section 1.5.E., Evaluation Criterion E – Readiness to Proceed and Project Implementation.

Section 5: Additional Required Material

5.1 Overlap or Duplication of Efforts Statement

There is no overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. This proposal is not in any way duplicative of any proposal or project that has been or will be submitted for funding consideration to any other potential funding source - whether it be Federal or non-Federal.

5.2 Conflict of Interest Disclosure

Per the Financial Assistance Interior Regulation (FAIR), 2 CFR §1402.112, UWSC states that there are no actual or potential conflicts of interest that exist at the time of submission of this application.



5.3 Uniform Audit Reporting Statement

UWSC did not expend more than \$750,000 in U.S. dollars or more in Federal award funds in the most recently closed fiscal year. Therefore, UWSC was not required to submit a Single Audit report through the Federal Audit Clearinghouse Internet Data Entry System in accordance with 2 CFR §200 subpart F for that year.

5.4 Disclosure of Lobbying Activity

Not applicable to this project.

5.5 Letters of Project Support

Letters of project support are listed below and are included as Appendix C:

- Mr. Eloy Vera, Starr County Judge
- Dr. Henry Cuellar, U.S. Congressman of Texas' 28th Congressional District

5.6 Official Resolution

If selected, an Official Resolution will be adopted by UWSC in compliance with the BOR's requirements and submitted to the BOR after it is finalized.

5.7 Letters of Funding Commitment

Not applicable. This project does not include any third-party funding commitments.

Section 6: Cost-Share Waiver Request – Financial Hardship

6.1 Population-Weighted Median Household Income

According to the American Community Survey's 2021 5-year data for 2017-2021, the City's population-weighted median household income and average unemployment rate within the study area and the state based on the latest available data from the U.S. Census Bureau's American Community Survey is included below in Table 5 (Source: <https://www.census.gov/programs-surveys/acs/data/data-tables.html>).

Table 5: ACS 2021 5-Year Data for UWSC's Service Area

Location	Median Household Income	Average Unemployment Rate
Texas	\$67,321	5.4%
Starr County	\$33,334	12.1%
Tract: 48427950401	Not included in ACS data	Not included in ACS data
Tract: 48427950402	\$30,500	11.1%
Tract: 48427950108	\$42,317	4.5%
Tract: 48427950106	\$46,002	6.3%



6.2 Average Unemployment Rate within Study Area and State

(<https://www.census.gov/programs-surveys/acs/data/data-tables.html>).

According to the ACS' 5-year data, the current average unemployment rate for the State of Texas is 5.4%. Starr County's current unemployment rate is 12.1%. This data is summarized in Table 6.

Table 6: ACS 2021 5-Year Unemployment Data for Starr County and the State of Texas

Texas Unemployment	Starr County Unemployment
5.4%	12.1%

6.3 Family Poverty Level

Family poverty level for the State of Texas as estimated by guidelines published annually by the U.S. Department of Health and Human Services (aspe.hhs.gov/poverty-guidelines) are included below in Table 7.

Table 7: Family Poverty Guidelines in Texas

2023 POVERTY GUIDELINES FOR THE 48 CONTIGUOUS STATES AND THE DISTRICT OF COLUMBIA	
Persons in family/household	Poverty guideline
1	\$14,580
2	\$19,720
3	\$24,860
4	\$30,000
5	\$35,140
6	\$40,280
7	\$45,420
8	\$50,560
For families/households with more than 8 persons, add \$5,140 for each additional person.	

6.4 Current Financial Statement of the Applicant

A current financial statement stating that UWSC does not possess sufficient funds or assets to pay for all or part of the required cost share is included as Appendix C.



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