

Department of the Interior, Bureau of Reclamation, Water Resources & Planning Office  
WaterSMART Drought Response Program: Drought Contingency Planning Grants for Fiscal  
Year 2022

Funding Opportunity Announcement No. R22AS00178



City of Roswell  
Water Maintenance and Transmission  
Grant Proposal April 2022



April 14, 2022

DROUGHT RESPONSE PLAN

City of Roswell | Water Maintenance and Transmission | State of New Mexico

WaterSMART Drought Response Program:

Drought Contingency Planning Grants

Projects for Fiscal Year 2022 FOA: No. R22AS00178

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**Technical Proposal and Evaluation Criteria**

**(T.P.1) Executive Summary**

Date:	April 12, 2022
Applicant Name:	Roswell Water Maintenance
Applicant City, County, State:	Roswell, Chaves County, New Mexico
Project Title:	City of Roswell Drought Contingency Plan

Serving a population of 48,422 people, The City of Roswell Water Maintenance and Transmission Department provides water and wastewater services to retail customers in Roswell, New Mexico and surrounding county lands. The department will form a local task force and develop a comprehensive Drought Contingency Plan that considers local water supplies and infrastructure that will provide consumers with uninterrupted service during the next drought. The planning area has been experiencing a multi-year drought from 2018 to present. However, the natural aquifer has mitigated the need of urgency in establishing a long-term plan. As the population grows the need to change water use practices has become more urgent. Roswell will utilize the 2021 Water Conservation Plan as well as prior AWWA audits to develop this Drought Contingency Plan. This plan will work in tandem with Roswell’s overall Water Conservation Plan. This proposed project is estimated to take 24 months with an estimated completion date of June 2024. When implemented, the Drought Contingency Plan will increase Roswell’s water reliability and improve water management through conservation and expanded technologies and improved modeling capabilities.

The Fort Sumner Project Works were rehabilitated by Bureau of Reclamation, primarily, to provide a safe diversion structure and lower pumping costs. The project also reduced water losses in the distribution system by the lining of the High Line and Main Canals. This project was completed April 10, 1951. There have been no significant Reclamation projects that directly affect Roswell until the Pecos Basin Study which began in 2012 and completed September 2021.

**(T.P.2) Background data**

Even when Roswell is not under drought conditions, the State of New Mexico faces serious water issues. Understanding these issues is important for all interested parties. Problems are not insurmountable. Solutions lie in protecting, conserving, augmenting, and managing the state’s limited water resources and in creative approaches to allocation. Surface water is allocated. In many places we are using groundwater faster than it can be replenished and competition for water is increasing among cities, agriculture, industry, recreation, and environmental uses. Until the mid-1990s, experts assured us we had sufficient, if not excess, water. Then, with new data, we began to understand the limits to our state’s water resources and the challenges of sustaining current and future supplies. Decision making about solutions and new alternatives requires a grasp of how the state administers water, how our water laws evolved, and even the basics of supplies, use, and allocation.

New Mexico can look to other western states for ideas, but we cannot just borrow their solutions. We have a long and unique history and cultural tradition rooted in the earliest community irrigation ditches of Pueblo Native American people and the Spanish colonists who arrived in 1598.

The present water code, established before statehood, embraced tribal uses and community acequias (ditches). New Mexico law has five basic tenets:

1. All the water in the state belongs to the public. Only those with water rights may legally use water, and those rights are considered private property.
2. Older, or senior, water rights have priority. During dry years, senior rights holders would receive their full allotment of water, and junior owners' use would be curtailed, although this has rarely been invoked.
3. Water must be put to "beneficial use," which means irrigation or domestic, commercial and industrial uses.
4. Water-right holders can change the purpose of use or divert water from a different place if the State Engineer or a court determines it will not impair other water rights, harm public welfare, or run counter to water conservation.
5. Owners can forfeit their water rights for non-use, under certain conditions, or for wasting water.

The water code did not spell out who, exactly, owns water rights and in what quantity. The state has in some areas pursued adjudication – a lengthy and expensive legal determination of who owns water rights, what amount they are entitled to use, and where that right stands in the order of priority use.

Another concern is that New Mexico is a prior appropriation state. Simply put, it means that whoever got there first to divert and use water has a better right than those who follow. In water parlance, the senior water right has priority over the junior water right. One of the State Engineer's most important duties is to protect priority water rights from the effects of later appropriations.

In 2013, this part of the law allowed Carlsbad, a city south of Roswell, to pursue a controversial measure known as a priority call. A priority call has the potential to cut off groundwater pumping for upstream users in Roswell, potentially halting water use for those communities' farmers, oil drillers, cities, a local cheese plant and others. Estimated economic impacts of shutting off upstream pumping topped \$1 billion.

The water rights of the Carlsbad irrigators are senior to those in Roswell and Artesia, so they had legal priority to call for the water. The Carlsbad Irrigation District (CID) is part of the landmark 2003 Pecos River Settlement Agreement, which was intended to avoid this type of crisis. However, the intensity of the drought was beyond the parameters of the settlement. The CID's decision to issue the priority call came after three years of drought and the announcement that they would receive one-tenth their normal water allotment. Ultimately, action was delayed a few months by legal issues, and then the late summer monsoons came – providing more than the minimum allotment of water. Unfortunately, the rains came late in the growing season. Interestingly, while the intersection between groundwater and surface water exists, it is often slow. Unlike an irrigation ditch, where upstream waters flow down quickly, it can take years before upstream groundwater pumping affects downstream river flows. So, if the priority call had halted upstream pumping, it would not have solved Carlsbad's immediate water needs. Financial compensation for the downstream farmers is one alternative that was raised.

While this avenue is known as the *nuclear option* of water law, there are alternatives such as voluntary shortage-sharing agreements which allowed some communities to develop creative solutions such as rotating irrigation schedules and reduced diversions, shutting down half of the acequias twice a week.

While these options are available with the increased probability of drought conditions and the increased demand due to population growth, a robust and extensive plan for drought response is overdue for Roswell.

In October 2012 Roswell retained HDR Engineering, Inc. to develop, calibrate, and evaluate a hydraulic model for Roswell's water distribution system and prepare a master plan to address the potential impact of future growth within the water system service area. The report found that Roswell's water system is supplied by groundwater pumped from a total of twenty (20) wells located in five well fields situated at various locations throughout Roswell. Roswell has a total of 26,189 Acre-Feet per Year of available groundwater rights. Roswell also has additional water rights totaling 3,888 Acre-Feet available in reserve for future needs.

Roswell's wells have capacities ranging from 600 gallons per minute (gpm) to 2,650 gpm and range from 344 to 1,200-feet in depth. Table 2-7 provides a summary of the properties for Roswell's wells.

It is important to note, two of Roswell's wells, No. 4 and No. 8, are used only for irrigation. The production capacity of these wells is included in Roswell's available water rights for the South Roswell well field. However, these wells do not pump into the potable water distribution system.

A total of 4 years of monthly potable water billing and well production data for the Years 2005 through 2008 were reviewed. Based on a review of the water billing data, the average daily consumption was determined to be 10.82 MGD for the period between 2005 and 2008. The maximum monthly production was determined to be 19.18 MGD which occurred in June 2008.

As indicated per the water billing data, the average daily consumption was determined to be 10.82 MGD for the period between 2005 and 2008. To determine the average daily demand for use in the hydraulic model, the average daily consumption was increased by 10.2% to account for the NRW in the system. Based on this the overall average day demand for Roswell was determined to be 11.9 MGD.

Comparing the water rights with Roswell's current average day demand indicates that Roswell currently has 13,172 Acre-Feet per Year of unused or excess water rights based on current demands. Similarly, a total of 8,397 acre-feet per year of unused or excess water rights will still be available after including the additional water demand associated with the future development areas.

**Table 1. Comparison of Existing Ground Water Rights to Demand**

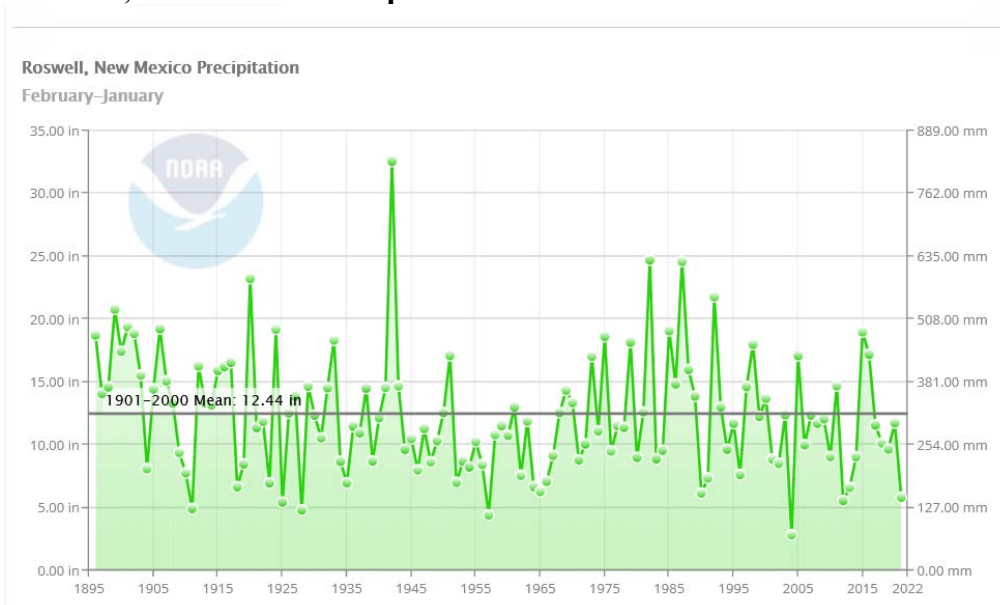
Existing Water Rights Available	Existing Average Day Demand	Difference	Projected Future Average Day Demand	Difference
26,487 AF/Yr	13,315 AF/Yr	+13,172 AF/Yr	18,090 AF/Yr	+8,397 AF/Yr
16,421 gpm	8,255 gpm	+8,166 gpm	11,215 gpm	+5,206 gpm
23.65 MGD	11.89 MGD	+11.76 MGD	16.15 MGD	+7.50 MGD

The Roswell area is almost entirely reliant on ground water for water supply. There are few surface-water sources available and those are allotted to irrigation. Precipitation, season, and temperature play major roles in the demand for irrigation water. While there is some demand caused by oil and gas development activities, most water being hauled out of Roswell is for dairy farms, agricultural or building construction.

Precipitation and climate data can be used for estimating water demands during drought conditions and developing drought contingency plans.

Roswell is in the Pecos Valley, which is characterized by hot/dry summers, warm fall and spring temperatures, and mild winters. Historical precipitation data from 1901 to 2000 show an average of 12.44 inches per year as shown in the following table. This figure also shows the minimum annual precipitation of approximately 2.85 inches occurred in 2004, and the maximum annual precipitation of approximately 32.58 inches occurred in 1942. Periods of drought (below average precipitation) and above average periods of precipitation can also be observed on this table.

**Figure 1. Roswell, New Mexico Precipitation**



*NOAA National Centers for Environmental Information, Climate at a Glance: City Time Series, published February 2022, retrieved on March 30, 2022, from <https://www.ncdc.noaa.gov/cag>*

According to the US Census, the population of Roswell has seen very slow growth since the closing of Walker Air Base in 1969, see Table 2 below. This slow growth allows for the use of data accumulated over a longer period to evaluate changes in water use among a stable population size.

**Table 2. City of Roswell Recorded Population**

Year	Recorded Population	Net Change from prior
1970	33,908	--
1980	39,676	+5,768
1990	44,654	+4,978
2000	45,293	+639
2010	48,366	+3,073
2020	48,422	+56

**Fresh Ground-Water Withdrawals**

In 1978, about 95 percent of the 380,000 acre-feet of ground water withdrawn from the Roswell Basin was used for irrigation. In 1985, about 88 percent of the 340,000 acre-feet of ground water withdrawn from the basin was used for irrigation; about 8 percent of the withdrawal was used for public supply. Large-capacity wells completed in the carbonate-rock aquifer generally yield in excess of 3,000 gallons per minute. Smaller capacity wells commonly yield 500 to 1,500 gallons per minute. Large-capacity wells completed in the alluvial aquifer generally yield about 2,000 gallons per minute, and smaller capacity wells yield 300 to 700 gallons per minute.

In 2020, Roswell had an annual average usage rate of 7,528 gallons per minute (gpm) including Irrigation. The peak day demand occurred in June with an estimated daily average of 16,176,594 gpd.

Roswell’s well meter readings indicated that 3,957,178,117 gallons were pumped from our wells in 2020. That is equal to an average of 10,841,583 gallons per day (GPD). Based on usage data from that same period, Roswell sold an average of 9,399,540 gallons per day (3,430,832,448/year), or an average of 462 gallons per day per connection. Population for Roswell as of the 2020 US Census is 48,422. Using an average household size of 2.64 (US Census), Roswell residents use 194 GPD/per capita. The national average is 80 to 100 gallons GPD. Comparing meter usage to billing usage, it appears Roswell had 13% unaccounted water usage in 2020.

**(T.P.3) Project Location**

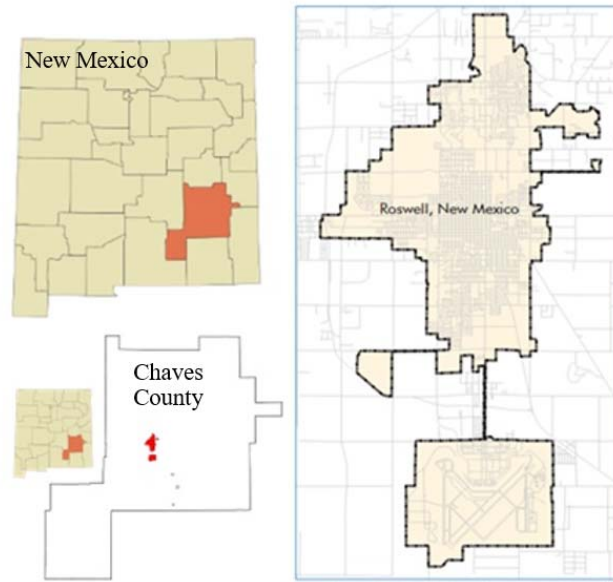
Roswell is located in the Pecos River Valley of Chaves County, New Mexico. Roswell encompasses approximately 30 square miles and is at an elevation of 3570 feet above sea level. In addition to the residents and businesses within the city, Roswell provides water service to residential and commercial properties in the surrounding areas at double the rate of city residence.

Roswell obtains its water supply for domestic, and irrigation demands from twenty-four primary production wells that are in the Roswell Basin Aquifer System. The Roswell Basin Aquifer



System underlies part of the Pecos River and extends from the north of Roswell to northwest of Carlsbad, New Mexico. The basin comprises about 2,200 square miles.

**Figure 2: Location Map**



#### **(T.P. 4) Project Description**

Roswell recognizes that The Bureau of Reclamation has been providing emergency drought assistance since 1991 and program funding is used more effectively by focusing on mitigation and planning to increase resiliency to drought in advance of a crisis. However, Roswell does not yet have a Drought Contingency Plan in place and therefore submits this application for the development of a Drought Contingency Plan (DCP) that meets the requirements of the United States Bureau of Reclamation's Drought Response Program Framework. The project description is divided into two phases and includes the six elements of a DCP (Task 4 through Task 9) along with procedural steps that we foresee.

#### **Phase 1 Task 1: Complete Initial Drought Contingency Planning Steps**

Following finalization of the financial assistance agreement, COR will work with Reclamation to establish a local Drought Planning Task Force (Task Force) and develop a detailed work plan, as well as a Communication and Outreach Plan, before development of the DCP begins.

**Task 1.a** Establish Drought Planning Task Force; **establish a meeting schedule to include 8 meetings over the course of 2 years.**

**Task 1.b** Develop a Detailed Work Plan that meets the technical document's requirements.

**Task 1.c** Develop a Communication and Outreach Plan.

#### **Phase 2 Task 2: Compile Background and Plan Area Description**

The purpose of this task is to fully define the Plan Area, existing water facilities, key water resources, and drought planning, and analysis conducted to date to provide a critical foundation for the DCP.

**Task 2.a** Review and summarize relevant background information such as Roswell's Final Water Systems Master Plan Report from October 2012 and Roswell Water Maintenance Water Conservation Plan, December 2021. (Any others.?)

**Task 3: Summarize Water Supplies and Demands**

This task documents baseline and projected conditions to determine the most appropriate future conditions for the vulnerability analysis. This task will evaluate and update the demand criteria for the potable (including fire demands), sewer and recycled/non-potable systems. Demand projections shall be identified for each user type/sector, such as residential, commercial, industrial, etc. Demands shall also be identified by pressure zone, well, and managed area as needed. The supplies by source will be tied to the demand projections and identification of new sources or revised agreements will be made.

**Task 4: Define the Drought Monitoring Process – Required Element 1**

This task describes how water supply conditions are monitored at the local level. The plan will establish a process for monitoring near and long-term water availability and develop a framework for predicting the probability of future droughts or confirming an existing drought. This includes a process for the collection, analysis, and dissemination of water availability and other drought-related data (e.g., precipitation, temperature, and streamflow levels, among other indicators). The plan will also explain how data will be used to predict or confirm droughts, including identifying metrics and triggers (e.g., aquifer level reached at a specific well and use of specific drought indices) that may be used to define stages of drought, to trigger mitigation or response actions, and to define the different stages or levels of severity of drought.

**Task 4.a** Review drought monitoring procedures that are currently being used in the region for imported and local water supplies.

**Task 4.b** Select the indicators, classifications, and triggers that are most appropriate.

**Task 4.c** Establish a process for monitoring near-and long-term water availability based on the selected indicators, classifications, and triggers. Process will include local and imported water supplies.

**Task 4.d** Revise city ordinance for conservation indicators.

**Task 5: Perform a Vulnerability Assessment – Required Element 2**

The plan must include a vulnerability assessment evaluating the risks and impacts of drought. A vulnerability assessment is an assessment of the risks to critical resources within the planning area and the factors contributing to those risks. Assessments will drive the development of potential mitigation and response actions. The assessment must be based on a range of future conditions, including the effects of climate change. It will describe the reliability and vulnerability of the water supply to seasonal or climatic shortage including the effects of climate change and uncertainties related to changing hydrologic conditions. The

purpose of this task is to determine how a drought affects the resources of Roswell and various other supplies within the Plan Area.

**Task 5.a** Determine the appropriate level of climate change analysis.

**Task 5.b** Evaluate available climate projection information. Select climate information in which drought-related trends will be assessed, which could include historical information and projected future information. Evaluate that information for trends in temperature, precipitation, and streamflow that are relevant to the planning area. Because this information is being used to support drought contingency planning, the evaluation should likely focus on assessing dry spell characteristics in the projections, and identifying extreme months or periods of temperature, precipitation, runoff, and soil moisture to characterize drought intensity, duration and frequency. Select drought characteristics to assess within the chosen climate and streamflow projection information. Drought characteristics should be selected based on those features of drought that are most problematic in a given planning area (e.g., extended multi-year or single-year drought). Drought characteristics may include drought duration and severity, seasonal characteristics, or changes to temperatures and snowpack. Planners should consider the range of droughts to be addressed in the Plan, for example ranging from slowly building to rapid onset droughts. Define characteristics to represent this range, and then assess the trends and likelihood of such characteristics in the chosen climate and streamflow information. For example, if the Plan is being developed to address droughts of longer durations (e.g., greater than 10 years) with moderate severity (within the 50th and 75th percentile), describe the features of droughts lasting longer than 10 years in the selected climate and streamflow information and how likely those within the 50th and 75th percentile are to occur.

**Task 5.c** Assess Impacts on critical resources and quantify the consequence of each vulnerability.

**Task 5.d** Define the uncertainty factors and risk to determining the likelihood of shortages in each source.

**Task 5.e** Quantify the consequence of each vulnerability.

**Task 5.f** Summarize the range of possible climate change scenarios and their resulting impact on supply planning.

**Task 5.g** Define drought impacts and climate stressors across various sectors.

**Task 5.h** Conduct a climate change vulnerability assessment This assessment will also address the vulnerabilities in Roswell’s infrastructure related to other climate change related risks like wildfire and flooding.

### **Task 6: Identify Mitigation Actions – Required Element 3**

This task identifies, evaluates, and prioritizes drought mitigation actions and activities that will build long-term resilience to drought, mitigate the risks posed by drought, decrease sector vulnerabilities, and reduce the need for response actions. The information identified in this task should influence the master facility planning efforts underway.

**Task 6.a** Identify potential drought mitigation measures, particularly those that make use of existing resources, facilities, and infrastructure.

**Task 6.b** Screen proposed mitigation actions using criteria established by the task force.

**Task 6.c** Estimate project costs for each mitigation action meeting the criteria.

**Task 6.d** Define the benefits that are expected from each mitigation action.

**Task 6.e** Describe how the identified projects have a nexus to Reclamation project activities.

**Task 7: Identify Response Actions – Required Element 4**

The purpose of this task is to identify, evaluate, and prioritize near-term drought response actions that can be triggered during specific stages of drought to manage the limited supply and decrease the severity of immediate impacts.

**Task 7.a** Create Roswell’s Drought Contingency Plan.

**Task 7.b** Establish a staged approach that considers the best way to equitably allocate drought water resources to the various types of water needs.

**Task 7.c** Estimate water savings, impact to various users, lead time to activate response actions, implementation costs, and procedural requirements.

**Task 7.d** Propose updates to the shortage levels and actions listed in the Water Shortage Contingency Plan.

**Task 8: Develop the Operational and Administrative Framework – Required Element 5**

This task develops a framework to identify who is responsible for undertaking the actions necessary

to implement each element of the DCP, including communicating with the public about those actions.

**Task 8.a** Create Roswell’s water shortage response team and protocol for public communications, interagency coordination, and cost sharing.

**Task 8.b** Identify roles, responsibilities, and procedures necessary to conduct drought monitoring and to initiate response and implement mitigation actions.

**Task 9: Document the Plan Development and Update Process – Required Element 6**

The purpose of this task is to document the approach taken to develop the DCP and how the DCP will be kept current and used as a dynamic plan in the future.

**Task 9.a** Define the frequency/triggers for DCP updates

**Task 9.b** Define the organizational framework and process that will be followed for those updates.

**Task 10: Develop the Drought Contingency Plan Document**

This task summarizes all task efforts and findings into a DCP document. The DCP document and associated appendices, maps, figures, tables, and computer models will be developed and reviewed through the following process:

**Task 10.a** Present task results to the Task Force and Outreach group at milestones to gather input.

**Task 10.b** Submit the initial draft of the DCP for review and comment by the Task Force.

**Task 10.c** Submit the draft of the DCP to Reclamation and the public for review at least 6 months from the end of the 2-year project period.

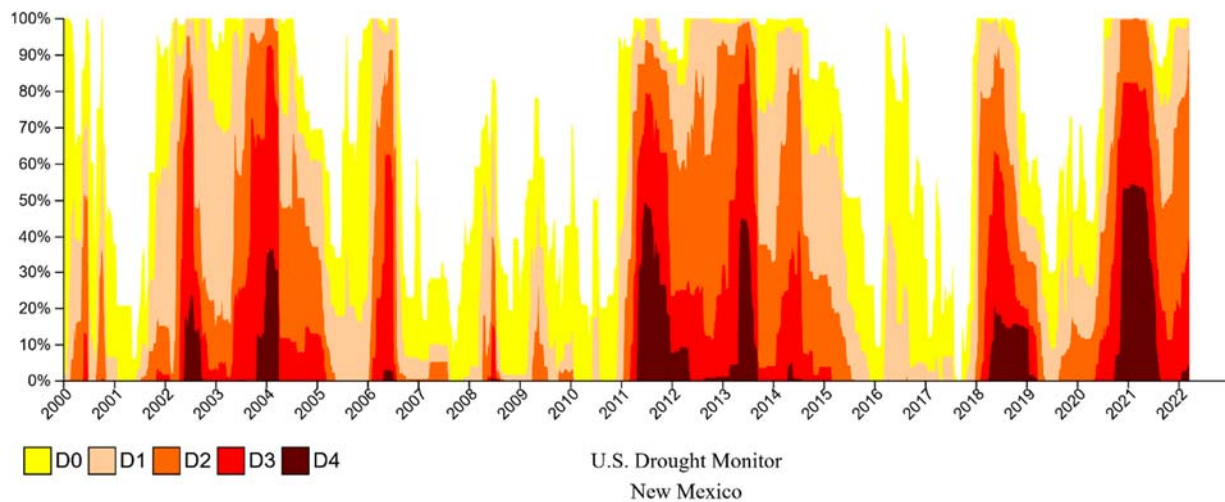
**Task 10.d** Incorporate review comments from the public and Reclamation and submit the final DCP to Reclamation for review and acceptance at least 1 month from the end of the 2-year project period.

**Task 11: Project Management** Provide regular updates of the project status and compile progress reports for submittal to Reclamation.

**(T.P. 5) Evaluation Criteria**

**(E.1.1) Evaluation Criteria A – Need for a Drought Contingency Plan**

**Figure 3: Drought in New Mexico 2000-Present**



*NOAA National Integrated Drought Information System, retrieved on March 30, 2022, from <https://www.drought.gov/states/new-mexico#historical-conditions>*

According to National Oceanic and Atmospheric Administration, Roswell is currently categorized as D4 which translates to **Exceptional Drought conditions**.

Roswell residents use 194 gallons of water per capita per day. The national average is 80 to 100 gallons per capita per day. There is a deep-rooted belief among Roswell’s water users, that there “is plenty of water.” This belief stems from a hundred-year-old tradition of readily available water due to loosely written water laws. Even with evidence of long-term drought conditions, citizens have not limited their use of water. It is also true that water conservation has not been a pressing concern for prior leaders of Roswell. Programs currently *do it* exist that educate consumers about the need to respect and conserve our precious natural resource. This is evidenced by the lack of prior or historic documents and reports on the subject of water use and consumptions. There is currently a single “Water Conservation Plan” on record, and it was only recently completed (December 2021).

Roswell is in a situation of extreme urgency for planning by a municipality for water conservation and drought contingency planning. With no rights to surface water, Roswell is reliant on ground water for our needs. The slow infiltration and rejuvenation of our ground

water sources, is exacerbated due to the continued severe drought conditions that plague New Mexico and the Western States. The practice of appropriation under state law threatens a priority call on Roswell's water resources, elevates the concern of stakeholder's overuse per capita of our water. Planning is past due, and the need is severe.

### **(E.1.2) Evaluation Criteria B – Inclusion of Stakeholders**

Roswell is in the beginning process of identifying stakeholders and their involvement in the process. Roswell's plan is to include public input, outreach groups, and the Task Force that gets developed under Task 1. This approach will increase participation from the local community and different water users, landowners, and elected officials. With approximately 50,000 residents in Roswell's service area, there will be a large number of opinions and impacts to specific industries to consider. Roswell's approach to navigating this challenge is to rely on the organizations that have been formed to represent their diverse interests. Under this opportunity, Roswell will form a Task Force to directly participate in the DCP development process and an Outreach group that will verify the effectiveness of the documents being development.

The task force will need to include representatives from the agricultural community, elected officials, environmental groups, retail consumers, and any other identified agencies that would be impacted by or could benefit from the DCP. The task force will work inclusively to develop the DCP by meeting during a series of a minimum of eight workshops and discussion sessions. Every member of the Task Force will be responsible for the following duties:

- Communicate with and gather input from their respective community and interest group's stakeholders.
- Participation in the DCP workshops
- Actively participate in the review and commenting on all DCP documentation relevant to their stakeholders
- Assist with and communicate with respective stakeholders, the draft and final versions of the DCP.

Roswell has not identified all effected stakeholders of this project. However, a few have been identified:

- Pecos Valley Artesian Conservancy was created to conserve the waters of the Roswell-Artesian Basing, including the lands within the Basin located in both Chaves and Eddy Counties. Their efforts have including plugging 1,529 wells, from 1934 to 2005, for the express purpose of preserving the Artesian waters.
- Roswell Independent School District
- Roswell Water Retail Customers and end-users
- Roswell Wastewater Effluent/ reclaimed water users

The earliest stages of the planning effort will require the development of a Communication and Outreach Plan which will determine the most efficient and thorough methods of gathering and compiling consensus from the public and Outreach group. The Communication and Outreach plan will include stakeholder workshops, written communication, social media, and an open-door policy to set one-to-one meetings between the Task Force and each broad group of stakeholders. When a draft version of the DCP is available, public notice and hearing will be held to further

gather feedback from the general public. This gathered information will then be incorporated into the final DCP.

### **(E.1.3) Evaluation Criteria C – Project Implementation**

The following actions are a summary of the tasks to be addressed by Roswell to develop the DCP. Description is provided under section Project Description. Table 2 provides a preliminary project schedule for a 24-month duration. Roswell proposes to have eight Task Force planning meetings of approximately 4 hours per meeting over the 24-month project period. In addition, it is proposed to have seven outreach group workshops.

**Phase 1** will initially be developed as part of the cooperative agreement with assistance of the Bureau of Reclamation. It includes executing Tasks 1 Through 1.c consisting of establishing the Roswell DCP Task Force, developing a detailed work plan and a detailed communication and outreach plan. These three tasks have a proposed duration of six months.

**Phase 2** consists of implementing Tasks 2 through 11. Task Force meetings, stakeholder workshops and public hearings will be held to gather insights and information to incorporate in the different milestones to be accomplish during the DCP development.

- Task 4(Required): Drought monitoring plan and early warning system will be addressed by establishing a process for monitoring near and long-term water availability and a process for detecting the onset and duration of drought conditions. The appropriate drought indexes to be implemented for the early warning system and monitoring will be selected and estimated. Drought triggers levels will be established to classify drought conditions stages.
- Task 5 (Required): Vulnerability assessment: This task will be addressed by evaluating the risks and impacts of drought to critical resources within Roswell and the factors contributing to those risks based on a range drought magnitude-frequency including the effects of climate change.
- Task 6 (Required): Mitigation actions: This task will be addressed by identifying, evaluating, and prioritizing mitigation actions and activities that will build long-term resiliency to drought and will mitigate the risks posed by drought. The mitigation actions will be intended to decrease vulnerabilities and reduce the need for response actions and will be focused on infrastructure improvements, education, and communication.
- Task 7 (Required): Response actions: This task will be addressed by identifying and prioritizing response actions and activities that can be quickly implemented during a drought to reduce its impacts. These response actions are triggered during different drought stages to manage the limited supply and decrease the severity of immediate impacts.
- Task 8 (Required): Setup an operational and administrative framework: This task will be addressed by developing an operational and administrative framework identifying roles and responsibilities to implement each element of the DCP.
- Task 9 (Required): The process undertaken to develop the drought contingency plan will be addressed by developing the DCP in coordination with task force members and stakeholders. Coordination meetings will be held according to the proposed project implementation schedule. In addition, the DCP will include a section describing the process and schedule for monitoring, evaluating, and updating the DCP.

Coordinating project stakeholders and outreach meetings will be addressed following a communication and outreach plan, having task force, stakeholders, and outreach meetings, developing materials and graphics for website and meetings.

**Table 2. Proposed Schedule to Develop the DCP**

Task	Month from Notice to Proceed											
	2	4	6	8	10	12	14	16	18	20	24	
Task 1 - Initial Drought Contingency Plan	★											
Steps												
Task 2 - Background and Plan Area												
Task 3 - Summarize Supplies and Demands			★									
Task 4 - Drought Monitoring Process - Required Element 1				★								
Task 5 - Perform Vulnerability Assessment - Required Element 2												
Task 6 - Identify Mitigation Actions - Required Element 3					★							
Task 7 - Identify Reponse Actions - Required Element 4						★						
Task 8 - Operational and Administrative - Required Element 5							★					
Framework												
Task 9 - Plan Development and Update - Required Element 6								★				
Process												
Task 10 - Develop DCP											★	
Task 11 - Project Management												
Stakeholder Meetings	★	★	★	★	★	★	★	★	★	★	★	★
Key												
★	Task Force Workshop											
★	Outreach Group Workshop											
◆	Public Notice											

Roswell will rely on the Pecos Valley Water Data Pilot Project for data and models. This project began in October 2020, funded by the Bureau of Reclamation, as a part of the New Mexico Water Data Initiative. The project aims to improve access to and use of water resources data.

**Staff Qualifications**

Roswell will need to obtain a Water Conservation Specialist to assist with the Drought Contingency Plan Efforts. The specialist will be responsible for coordinating and facilitating Task Force meetings, developing, and updating the workplan during the course of the project, implementing the Communication and Outreach Plan, compiling background data, and drafting the Drought Contingency Plan for review by the stakeholders. The specialist will work under the direction of the Project Manager, Robert Glenn, and with the other identified project staff.

- Project Manager - Robert Glenn, Deputy Superintendent, Water Maintenance & Transmission, State of New Mexico Water Supply Operator Level II, Water Distribution Operator Level 3, Wastewater Collection Operator Level II. Robert has over 20 years' experience in water systems operations in Idaho, Montana, South Dakota and New Mexico.



- Lorenzo Sanchez, Utility Director, Lorenzo is a State of New Mexico Water Supply Operator Level IV, Wastewater Operator Level IV, and has over 27 years of experience in water systems operation with the City of Roswell.
- Louis Najjar, P.E., City Engineer, Louis is a Licensed Engineer in the State Of New Mexico with over 30 years' experience in engineering and infrastructure.
- Kevin Wilson, Marketing Manager
- Tod Wildermuth, Public Information Officer

### **Technical assistance from Reclamation**

Because of Roswell's relative isolation and modest city budget, the competition with cities such as Los Alamos, Santa Fe, Albuquerque, and Las Cruces, has made recruiting and hiring of qualified candidates with the expertise in Water Management and related fields disproportionately challenging.

While the Water Maintenance and Transmission Department's staff is well trained and dedicated, the department's modest staff compliment does not have the time, nor the resources needed to focus solely on specialized areas of expertise. Instead, because of the need to cover multiple roles, the staff is required to undertake jobs and duties that may not be job-specific when reviewed against a particular position and associated job description. This need to fill multiple roles translates to less available time for projects that involve long-term dedication and continuing education. Therefore, the need to streamline processes and projects, and to utilize our limited resources effectively, necessitates the respectful request to Reclamation for any additional technical assistance that the Bureau of Reclamation can provide.

### **(E.1.4) Evaluation Criteria D – Nexus of Reclamation & Dept. of Interior Priorities**

The Pecos River Basin Study began in 2012 for the intent of achieving broad consensus on a set of climate change scenarios for the Fort Sumner Basin within the context of addressing water supply and demand risks and reliability and other resource issues. The study produced the document: *The Pecos River Basin Study – New Mexico, Evaluation of Future Water Supply and Demand for Irrigated Agriculture in the Pecos Basin in New Mexico* which was finished September 2021.

Allowing for 3 "Small-Scale Water Efficiency Projects," no other project, activity, or priority has been funded and sponsored by Reclamation in the planning area.

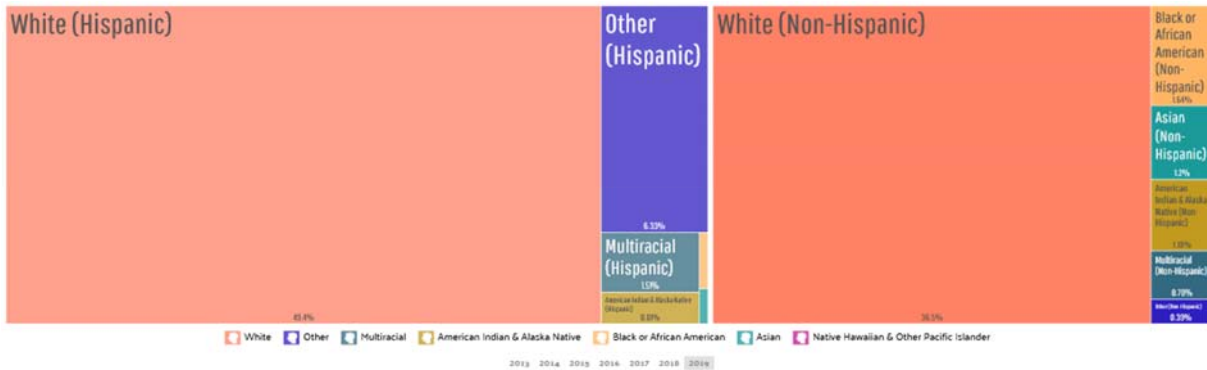
The proposed project will benefit the basin by mitigating the demand on the limited water available during Drought Conditions. Roswell does not have a water service, repayment, or an operations and maintenance contract with Reclamation. There are no Tribes or Tribelands in the project area.

Executive Order 13985: *Advancing Racial Equity and Support for Underserved Communities through the Federal Government* was enacted to create opportunities for the improvement of communities that have been historically underserved. Since the closing of Walker Air Force Base in 1967, the Federal Government and Federal Agencies, have failed to assist in addressing the unique needs of the City of Roswell. This failure has created a downward spiral that has resulted in a near continuous decline, degeneration, and deterioration, of quality of life throughout our city through increased poverty, dilapidated homes and neighborhoods, racial segregation, small

business failures resulting in job loss and high unemployment, failing schools, and disproportionate levels of physical and mental health related issues including drug dependency and associated increases in property and violent crime.

**Poverty**

The median Household income in Roswell is \$43,372, which is less than the median annual income of \$65,712 for the US. Poverty is an issue among our citizens. 19.7% of the population for whom poverty status is determined in Roswell, NM (9.13k out of 46.4k people) live below the poverty line, a number that is higher than the national average of 12.3%. The largest demographic living in poverty are Females 25 - 34, followed by Females 55 - 64 and then Males 6 - 11. The most common racial or ethnic group living below the poverty line is White, followed by Hispanic and other. 58.3% of Roswell’s population identify as Hispanic. 63.5% of our population identify as something other than White (non-Hispanic.) 93.1% of our population are US citizens.



DataUSA, Retrieved April 6, 2022, from: <https://datausa.io/profile/geo/roswell-nm>

**Racial and ethnic residential segregation**

Much of the available housing in Roswell is what remains from military housing. The cedar block buildings used by enlisted personnel are still being lived in by many of our citizens. This is highlighted by the neighborhoods which were set aside for Officer homes. The disparity of the neighborhoods remains a reminder of our citizens of the “haves” and the “have nots” and which is exacerbated by the higher percentages of non-white citizens living in the less desirable parts of town.

**Distressed Neighborhoods**

Roswell has a disproportionate number of distressed neighborhoods. Since the closure of Walker Airforce Base in 1967, Roswell has been unable to make modest growth. Instead, many of our neighborhoods have only seen decline. Numerous homes and businesses are now being condemned by the city. To date, our city has not received any federal funding to substantially improve our current situation.

**Jobs lost through energy transition**

Compared to other places, Roswell, NM has an unusually high number of Mining, Quarrying, & Oil & Gas Extraction (5.2 times higher than expected), Agriculture, Forestry, Fishing & Hunting (2.3 times), and Utilities (1.48 times) industries. With this administration’s focus on transitioning to less reliance on fossil fuels, there is concern that our population will be directly affected with job losses.

**Project Budget**

The total project budget is \$250,000 and the funding plan is summarized in tables 1 and 2. Funding for the DCP will be from this Reclamation grant and the City of Roswell Water Enterprise account. There will be no additional funding sources. Roswell Water funding will be available July 2022 and there are no constraints on the availability of funds through the duration of the 2-year project schedule.

**Budget Proposal****Table B.1. – Summary of Non-Federal and Federal Funding Sources**

<b>FUNDING SOURCES</b>	<b>AMOUNT</b>
Non-Federal Entities	
City of Roswell	
Water Enterprise Account	\$200,000.00
Non-Federal Subtotal	\$200,000.00
<b>REQUESTED RECLAMATION FUNDING</b>	<b>\$200,000.00</b>

**Table B.2 – Total Project Cost Table**

<b>SOURCE</b>	<b>AMOUNT</b>
Costs to be reimbursed with the requested Federal funding	\$125,000
Costs to be paid by the applicant	\$125,000
<b>TOTAL PROJECT COST</b>	<b>\$250,000</b>

**Table B.3. – Phase 1 Budget Proposal**

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity	Total
	\$/Unit	Quantity	Type	Cost
<b>Salaries and Wages</b>				
Water Conservation Sp.	20.13/hr	2080	hrs	\$41,870.40
Deputy Superintendent	35.04/hr	150	hrs	\$5,256.00
Utility Director	49.10/hr	30	hrs	\$1,473.00
Public Info Officer	30.23/hr	20	hrs	\$604.60
Marketing Manager	28.18/hr	60	hrs	\$1,690.80
				<b>\$50,894.80</b>
<b>Fringe Benefits</b>				
Full-Time Employees	40% of hourly wage			<b>\$20,357.92</b>
<b>Contractual/Construction</b>				
Engineering Services RFP				\$30,000.00
Advertising – RDR	\$781.25 per ad	6	per	\$4,687.50
				<b>\$34,687.50</b>
<b>Third-Party In-Kind Contributions</b>				
<b>Other</b>				
<b>Total Direct Costs</b>				
Indirect Costs				
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$105,940.22</b>

**Budget Narrative**

Phase 1 of the work plan includes work related to creating the position of a Water Conservation Specialist to prepare the Drought Contingency Plan and oversee the Drought Task Force and stakeholder engagement sessions.

It is estimated that the Water Conservation Specialist will require 40 hours to work with the Bureau of Reclamation for getting the agreement in place and writing the detailed scope of work and

initiate the Drought Task Force. In addition, there is an estimated 7 hours per week for the 4 months projected under Task 1 to set up the Drought Task Force and gathering the initial data.

The Deputy Superintendent of Water Maintenance & Transmission, estimates 150 hours to review, manage, and provide input on the detailed scope of work and Drought Task Force. There is an estimate of 5 hours per week for the 4 months projected under Task 1 to kick off the Drought Task Force.

The Utility Director estimates 30 hours of work to review and provide updates and information about the plan to the governing body as needed. on the detailed scope of work and Outreach and Communication Plan. The Public Information Officer and the Marketing Manager will assist with creating and executing the Outreach and Communication plan.

For Phase 1, no expenses are planned under the budget categories of Travel, Supplies and Materials, Third-Party Contributions, and Indirect Costs. Contractual/Construction may need to use the city's current RFP for engineering consultation.

#### **Permits or Approvals**

No permits are required.

#### **D.2.2.7 Existing Drought Contingency Plan (If Applicable)**

Roswell does not have a Drought Contingency Plan.

#### **D.2.2.8 Letters of Support**

Roswell has attached one letter of support for this project.

#### **D.2.2.9 Official Resolution**

See Attachment

#### **D.2.2.11 Overlap or Duplication of Effort Statement**

There is not overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel. The proposed project under this program 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.

Stuart Joy, Artesia  
District 5

Greg Alpers, Roswell  
Chairman, District 1

Mike Fallwell, Dexter  
District 3

Richard Smith, Roswell  
Sec'y Treas. District 2

Dwight Menefee, Lake Arthur  
Vice Chairman, District 4

**PECOS VALLEY ARTESIAN CONSERVANCY DISTRICT**

P.O. BOX 1346  
ROSWELL, NEW MEXICO 88202-1346  
TELE (575)-622-7000

April 12<sup>th</sup>, 2022

Department of the Interior  
Bureau of Reclamation  
Water Resources & Planning Office

***Re: City of Roswell WaterSMART Grant Program; Letter of Participation***

The Pecos Valley Artesian Conservancy District ("PVACD") is an artesian conservancy district whose boundaries are within the counties of Chaves and Eddy, New Mexico. The PVACD is a political subdivision of the State of New Mexico having been established pursuant to NMSA 1978, Sections 73-1-1 to 27.

The PVACD Board of Directors has authorized its participation in the City of Roswell WaterSMART Drought Response Program: Drought Contingency Planning Grant. The PVACD maintains monitoring wells within the Roswell Artesian Basin, and as such, is able to provide information regarding groundwater levels, well pluggings, and meter information. The PVACD has provided access to this information to the City of Roswell to assist in the Drought Contingency Planning process.

The PVACD may consider including cost share funding depending upon project support, available funds, and participation by other agencies.

If you have questions or comments, please feel free to contact me at your convenience.

Sincerely,



Aron Balok, Superintendent