WaterSMART Drought Resiliency Projects

Fiscal Year 2023 NOFO No. R23AS00005

Clinton City Well and Water Storage Project

Applicant Contact:

CLINTON CITY

Established 1896

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Section 1: Technical Proposal and Evaluation Criteria

Executive Summary	
Date: June 10, 2022	Applicant Name: Clinton City
City: Clinton City	Project Manager: Bryce Wilcox
County: Davis County	Phone: 801-547-0393
State: Utah	E-mail: bkw@jub.com
Applicant Category: Category A	
Project Funding Request: Funding C	Group II – \$2,000,000 Total Project Cost: \$4,421,000

Project Summary

Clinton City, Utah, is a small city in the Salt Lake City metro area of the Wasatch Front, Clinton currently supplies about 15 percent of culinary water to its residents but depends on the remaining 85 percent of their culinary water from Weber Basin Water Conservancy District (WBWCD). Clinton City owns water rights to 585 acre-feet of water but lacks the ability to access that water. The proposed Clinton City Well and Water Storage Project will construct a well and storage tank to provide a new, drought-resilient, supplemental drinking water supply to the City. The additional 585 acre-feet of water that the Project will provide is equivalent to roughly 31 percent of the City's average annual demand. The proposed project is expected to take 34 months to complete, with an estimated completion date of November 2025. The property acquisition, modeling, master planning of the system, and the water rights for drilling have been completed. Depending on when a contract is finalized with Reclamation, Clinton City will complete the environmental and preliminary designs in September 2022. The final designs for the well, booster, and pump station will be completed in June 2023. Clinton City plans to bid on the well portion of the Project in July 2023, and the construction will be completed in January 2024. Final design of the storage tank and well house will be completed in June 2024, and it is anticipated that construction of the storage tank and well house will begin August 2024 and be completed by May 2025. Final reports and project closeout will be completed by November 2025. The project will be accomplished within the three-year allowance. This additional water supply will reduce the City's dependency on WBWCD's limited water supply. The additional supply and storage will increase Clinton's ability to provide water during the severe drought that Utah and Davis County are experiencing, and in turn, improve their drought resiliency. This project has been prioritized by Clinton City's 2021 Drought Resiliency Plan (DRP).

The proposed well and storage tank will accomplish the following goals of Clinton City:

- Implement long-term strategies set out in Clinton City's 2021 Drought Resiliency Plan
- Support the Weber Basin Water Conservancy District's 2018 Drought Contingency Plan goals of providing alternative supplies of water, and addressing the risks of an inability to deliver culinary water and failure to collaborate and educate
- Support Clinton City's goal of improving communication and cooperation with water users to improve drought resiliency and response
- Reduce Clinton City's dependency on water from WBWCD
- Support minority and disadvantaged households by limiting the amount of project costs passed on to the water users

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State the length of time and estimated completion date for the proposed project including the construction start date (mm/yr) (if applicable) Note: proposed projects should not have an estimated construction start date that is prior to March 2023.

Whether or not the proposed project is located on a Federal facility. No.

Project Location

The Project is located in Clinton City in Davis County, Utah. Clinton City is along the Wasatch Front, 10.5 miles south of Ogden and 33 miles north of Salt Lake City. The Project latitude is {41°08'38" N} and longitude is {112°02'25" W}. See Appendix A – Project Location Map.

Technical Project Description

This Project will construct a new well and water storage tank to provide a supplemental drinking water supply for Clinton City. Clinton City owns a water right for 585 acre-feet of groundwater, but they currently have no way to access or store the water.

The new 16-inch well will be approximately 900 feet deep with the pump at approximately 300 feet. The anticipated depth is 900 feet deep, with the bottom 200 feet screened for the inlet to the well. The well casing is anticipated at a 16-inch diameter steel casing. The water surface in the well will be about 200 feet below ground, with the pump at approximately300 feet.

The flow rate for the new well is anticipated at 1,350 gallons per minute and will pump into a new 1.5-million-gallon reinforced concrete water tank. The water tank will be used to meet the varying demands on the water system. In the well house building, variable speed booster pumps will be installed that will pump the water from the water tank to the Clinton City water system to match the system's demand and flows. The well and booster pumps will be equipped with magnetic flow meters that will allow the City to track water usage. The well and tank property lie within the upper Clinton City pressure zone.

The proposed Project will also install a 25-panel 9.88 kW solar array on Clinton City's existing metal roof on their maintenance shop. The proposed solar array will provide approximately 13,779 kWh per year that will offset energy demands.

The proposed Project will build long-term resilience to drought by reducing Clinton City's dependency on WBWCD for its culinary water supply needs. The reduced dependency will allow more water to be stored in Echo Reservoir and remain in the Weber River for more extended periods during water shortages and drought.

The additional water supply made available by the construction of the well will increase the overall water supply and directly benefit all the 23,386 residents and will serve 7,100 homes.

Performance Measures

Clinton City will use two performance measures to quantify the Project's benefits: 1. Accurate Water Measurements, and 2. Total Water Needed from WBWCD.

1. Accurate Water Measurements: The new well and booster pumps will be equipped with magnetic flow meters. These meters will give the City an accurate measurement of how much water is extracted from the well, stored, and then pumped into the system. The City will monitor the groundwater using water depth sensors in the well. These readings will be used to analyze and compare with the previous year's data to verify the Project's benefits. 2. Total Water Needed from WBWCD: In 2021, Clinton City used approximately 1900 acre-feet of water, with approximately 270 acre-feet from the City's well and the remaining 1,630 acre-feet coming from WBWCD. Clinton City's dependence on receiving water from WBWCD will decrease as a result of the Project as shown in Table 1 below. Access to the 585 acre-feet of water and the ability to store water for future needs will allow Clinton City to better manage their water.

Clinton City will use the past five years (2017-2021) of water use data from the City wells and water used from WBWC as baseline data to compare against new data collected after installation of the new well and storage tank. The City will continue to monitor the amount of water used through these sources and expects to show a decrease in water needed from WBWCD and show the ability to supply and store water for future needs.

Clinton City Water Supply Comparison						
Water Supply SourcePre-ProjectPre-ProjectPost-ProjectPost-Project						
Clinton City Well	270 AF/yr	14%	855 AF/yr	45%		
Water from WBWCD	1,630 AF/yr	86%	1,045 AF/yr	55%		
Totals 1,900 AF/yr 100% 1,900 AF/yr 100%						

Table 1: Clinton City Water Supply Comparison

Evaluation Criteria

E.1.1. Evaluation Criterion A – Project Benefits

How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?

The proposed Project will build long-term resilience to drought by reducing Clinton City's dependency on WBWCD for its culinary water supply needs. The reduced dependency will allow more water to be stored in Echo Reservoir and remain in the Weber River for more extended periods during water shortages and drought.

The additional water supply made available by the construction of the well will increase the overall water supply and directly benefit all the 23,386 residents and will serve 7,100 homes.

The well and tank have a useful life of 100 years, and the pump station building, and piping will have a useful life of 75 years or more with proper maintenance. The well pump and booster pumps have a life of 20 years and will be replaced as needed. The 1.5-million-gallon storage tank will allow for storage of the additional water supply provided by the well.

Will the project make additional water supplies available? If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated?

Yes, the construction of the proposed well will allow Clinton City to produce an additional 585 acre-feet of water each year. Clinton City has acquired the water right for 585 acre-feet of groundwater to offset drought impacts and their reliance on WBWCD. The model of the aquifer shows sufficient water in the aquifer and minimal impacts to the aquifer from the proposed well delivering the 585 acre-feet. The 585 acre-ft is the maximum the city is permitted to pump based on their water right.

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• What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?

The well and associated storage tank will make an additional 585 acre-feet of water available. The 585 acre-feet available during drought years is roughly 31 percent of the City's average annual demand. In 2021, Clinton City used approximately 1,900 acre-feet of water. The percentage of total water supply was calculated by taking the available new water divided by the total used in 2021 (585/1900 = 31%).

• *Provide a qualitative description of the degree/significance of the benefits associated with the additional water supplies.*

Clinton City gets approximately 86 percent of its water from WBWCD. The droughts of 2020 and 2021 depleted WBWCD's water supply and reservoirs, and they have had to cut water supplies to agricultural irrigation outside watering and culinary water. As laid out in WBWCD's 2018 Drought Contingency Plan, this year, 2022, WBWCD has implemented the following water restrictions in accordance with Severe Drought Conditions, "60 percent reduction in waters available for outdoor irrigation of lawns and gardens (both culinary and secondary), a 40 percent reduction for agricultural use, and a 10 percent reduction for culinary indoor use." If Davis County enters Extreme Drought Conditions, the following restrictions will be implemented, "95 percent reduction in secondary water use and outdoor culinary use, 70 percent reduction in agricultural use, and a 25 percent reduction in culinary indoor use."

The completion of the new well and storage tank will allow the City to take 31 percent less water from WBWCD, which will allow that water to remain in the Weber River; benefitting other WBWCD users, wildlife, and fish populations through surface water in times of severe drought.

In response to drought, in 2022 WBWCD reduced their supply to Clinton City by 10% or 163 acre-feet of culinary water. This new 585 acre-feet will allow the city to mitigate the impacts of the drought to the WBWCD supply.

Will the project improve the management of water supplies? How will the project increase efficiency or operational flexibility?

Operational Flexibility: This Project will provide an additional water source and storage, giving Clinton City flexibility in operations and storage redundancy to help meet demands throughout the system for everyday and emergency use.

Water Management: The additional well, storage tank, and magnetic flow meters will allow the City to monitor and manage its water usage during times of shortage and drought. The new water storage will provide a reserve for varying demands by day or season. It also provides the emergency storage and the water pressure needed for the large demands placed on the systems as the result of fire-fighting efforts. Storage can be divided into three categories:

- Equalization storage volume to satisfy peak hour demands
- Fire storage volume to provide fire-fighting water
- Emergency storage volume to meet emergency demands in the event of some type of system failure

Water Availability: The Project will provide 585 acre-feet of additional water that has been unreachable due to the lack of access and storage, allowing the City to capture and save this currently unused supply. The addition of the new well and storage will also reduce the likelihood of Clinton City exceeding their contracted water amount of 1,630 acre-feet per year from WBWCD. The Project will also provide resiliency against drought, as WBWCD has cut the supply to Clinton city by 10 percent or 163 acre-feet.

• What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated? Provide this quantity in acre-feet per year as the average annual benefit over ten years?

Clinton City has a water right for 585 acre-feet of water from the aquifer per year. Over the next ten years, the Project will provide an estimated 5,850 acre-feet of water. When added to the current City's supply of 300 acre-feet, this brings the City's total water from their own sources to an estimated 8,850 acre-feet that will be better managed.

- What percentage of the total water supply does the water better managed represent? How was this estimate calculated?
 31 percent. This is based on the 2021 total volume of water used 1,900 acre-feet. (585/1900 = 31%)
- Provide a qualitative description of the degree/significance of anticipated water management benefits Clinton City gets approximately 86 percent of its water from the Weber Basin Water Conservancy District, but past droughts have depleted WBWCD's water supply and reservoirs. This Project will allow Clinton City to reduce the amount of water used from WBWCD by 31 percent, allowing more water to remain in WBWCD's system to benefit other stakeholders across the Wasatch Front during drought. The addition of the 585 acrefeet and the 1.5-million-gallon water storage tank will create a reliable water supply to Clinton City regardless of future drought or weather patterns. This year WBWCD has been forced to cut the supply to Clinton city by 10 percent or 163 acre-feet. This project will mitigate water supply issues to WBWCD caused by droughts.
- Will the project make new information available to water managers? If so, what is that information and how will it improve water management?

Clinton City will be monitoring the groundwater with water depth sensors in the well casing and flow meters. The City will be able to see if the levels are stable or dropping and make annual reports on the water levels. The flow meters will give the City an accurate measurement of how much water is extracted from the well, stored, and then pumped into the system. The City will monitor the groundwater using water depth sensors in the well. These readings will provide data to the water managers, allowing the City to improve water management.

<u>Wells</u>

• What is the estimated capacity of the new well(s), and how was the estimate calculated?

The new well will be designed to match the water rights that the city owns. The aquifer has been modeled and the right for the City to pump 585 acre-feet per year has been approved. The new well will have an estimated capacity of 585 acre-feet. The well will be constructed to divert 585 acre-feet with a diversion rate of about 1,350 gallons per minute.

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- How much water do you plan to extract through the well(s), and how does this fit within state or local laws, ordinances, or other groundwater governance structures applicable to the area?
 The Utah Division of Water Rights monitors groundwater use and oversees the water rights. The Division of Water Rights has approved the water right of 585 acre-feet. The City can extract up to 585 acre-feet of water through the well and be in compliance with all state laws governing groundwater. The actual amount used per year will vary based on demands in the City, stability of other water supplies, weather conditions, and droughts.
- Will the well be used as a primary supply or supplemental supply when there is a lack of surface supplies? The well is anticipated as a supplemental supply when there is a lack of water supply; however, it could be used as a primary supply if Weber Basin Water Conservancy District has issues somewhere else in their system and asks the City to use their well as the primary supply.
- Does the applicant participate in an active recharge program contributing to groundwater sustainability? No, the applicant does not participate in a recharge program. WBWCD that supplies 86% of Clinton City with water does have a groundwater recharge program.
- Please provide information documenting that proposed well(s) will not adversely impact the aquifer it/they are pumping from (overdraft or land subsidence). At a minimum, this should include aquifer description, information on existing or planned aquifer recharge facilities, a map of the well location and other nearby surface water supplies, and physical descriptions of the proposed well(s) (depth, diameter, casing description, etc.). If available, information should be provided on nearby wells (sizes, capacities, yields, etc.), aquifer test results, and if the area is currently experiencing aquifer overdraft or land subsidence.
 The Utah Division of Water Rights oversees ground water use and impacts. The Division has approved the 585-acre-foot water right for the City. Part of the water right process and Preliminary Evaluation Report that are required to be completed before you can drill a well is to look into the adverse impacts on existing wells and water rights. The water right would not have been approved had there been adverse impacts. The water will be pumped from the Delta aquifer. There are no aquifer recharge projects for this aquifer. This is the primary aquifer that supplies Davis and Weber Counties.

Clinton City's existing well produces 1,774 acre-feet per year, 1,584,000 gpd and 2.5 cfs. There are multiple wells in the Delta aquifer that are not impacted by drawdown from the well. There is no known subsidence in the area from the Delta aquifer. The anticipated depth is 900 feet deep with the bottom 200 feet screened for the inlet to the well and casing of 16-inch diameter steel casing. The water surface in the well will be about 200 feet below ground, with the pump at approximately 300 feet.

Clinton City purchased the 585 acre-feet from an existing well about a half mile away from the proposed new well site. The 585 acre-feet was historically pumped for agricultural use. The well was not in a condition that it could be used for culinary water use and requires the city to drill a new well. Since this water has historically been diverted from the aquifer the new well will not increase drawdown of the aquifer.

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- Please describe the groundwater monitoring plan that will be undertaken and the associated monitoring triggers for mitigation actions.
 Clinton City will be monitoring the groundwater with water depth sensors in the well casing. The City will be able to see if the levels are stable or dropping and make annual reports on the water levels.
- Describe how the mitigation actions will respond to or help avoid any significant adverse impacts to third parties that occur due to groundwater pumping.

No impacts are anticipated since the 585 acre-feet of water has historically been pumped from an agricultural well about a half mile away from the new well site. Recharging the aquifer would not be able to be done within the City limits and is beyond the City's resources. The mitigation plan would be to pump less from the well if pumping impacts the water level in the aquifer.

E.1.2. Evaluation Criterion B – Drought Planning and Preparedness

Provide a link to the applicable drought plan, and only attach relevant sections of the plan that are referenced in the application, as an appendix to your application. These pages will be included in the total page count for the application

See Appendix B: Clinton City Drought Resiliency Plan

Explain how the applicable plan addresses drought. Proposals that reference plans clearly intended to prepare for and address drought will receive more points under this criterion.

In 2018, WBWCD prepared a Drought Contingency Plan funded by Reclamation. Clinton City was involved in that planning process in a Key Stakeholder Subgroup. Clinton City modeled its 2021 Drought Resiliency Plan (DRP) after WBWCD's plan due to the fact that WBWCD currently supplies 86 percent of Clinton's water. As part of this drought planning effort, a vulnerability assessment was conducted to evaluate the potential for drought based on historical data and evaluating the potential impacts and risks that a drought would present to Clinton City. The potential for a future drought scenario affecting the Weber River Basin is well documented within WBWCD's Drought Contingency Plan and includes future climate change scenarios. In addition to this documented research, Clinton City used the following components in the creation of the DRP:

- Identification of Key Drought Vulnerabilities
- Establishment of Drought Levels and Triggers (WBWCD)
- Drought Risks: available water supply during drought, water system, lack of drought information for water users
- Does the drought plan contain drought focused elements including a system for drought monitoring, sector vulnerability assessments related to drought, prioritized mitigation actions, and response actions that correlate to different stages of drought?

Clinton City's 2021 Drought Resiliency Plan includes sections that address:

- <u>Drought Monitoring</u> follows the monitoring process of WBWCD with five water supply conditions
- <u>Vulnerability Assessment</u> evaluates potential impacts of drought based on identifying key vulnerabilities, establishing drought triggers, and risk assessment

- <u>Mitigation Actions</u> actions were evaluated and ranked to offset impacts from drought
- <u>Response Actions</u> follows WBWCD's Plan with Drought Monitoring. Frequently monitored and evaluated to respond most effectively
- Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?

Clinton's DRP was modeled after the Drought Contingency Plan created by WBWCD in 2018, in which Clinton City was part of the Key Stakeholder Subgroup. Multiple stakeholders across the District were involved, and WBWCD's plan was developed in a collaborative process. Clinton City's DRP was created in collaboration with a local consultant and public involvement and utilized some of the previously identified impacted stakeholders to guide the creation of mitigation and response actions.

 Does the drought plan include consideration of climate change impacts to water resources or drought? Climate change may impact the overall snowpack amounts and the availability of surface flows. The water supplied to Clinton by WBWCD comes from the Weber Basin, mainly from surface flows. The impacts of climate change were considered in both WBWCD's and Clinton City's drought planning efforts.

As part of the stakeholder collaboration in developing WBWCD's and Clinton City's Drought Contingency Plans, key drought vulnerabilities were identified and assigned a risk level. Key vulnerabilities that scored in the high-risk level include:

- Loss of water in Echo Reservoir
- Failure to deliver culinary water
- Increased wildfires
- Failure to collaborate and educate public
- Decreases in stream flows
- Describe how your proposed drought resiliency project is supported by an existing drought plan. The proposed Project is the top ranked project in the DRP. It is identified within the plan as the best option for the City to provide additional water during droughts.
- Does the drought plan identify the proposed project as a potential mitigation or response action? Yes. The proposed Project is ranked number 1 and 2 under the City's mitigation measures for drought and can be found on page 4 of Appendix B: Clinton City Drought Resiliency Plan.
- Does the proposed project implement a goal or need identified in the drought plan?

Yes. The need for a well and tank are identified in Clinton City's Drought Contingency Plan and meets the goal of supplying additional water for the City. The lack of available water supply is identified as a Drought Vulnerability found on page 3 of Appendix B: Clinton City Drought Resiliency Plan.

 Describe how the proposed project is prioritized in the referenced drought plan? The proposed Project combines the first and second highest-ranked mitigation actions that Clinton City can complete to mitigate the current drought and prepare for future drought.

E.1.3. Evaluation Criterion C – Sustainability and Supplemental Benefits

1. *Climate Change:* EO 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution, increase resilience to the impacts of climate change, protect public health, and conserve our lands, waters, oceans, and biodiversity. Examples in which proposed projects may contribute to climate change adaptation and resiliency, may include but are not limited to the following:

- In addition to drought resiliency measures, does the proposed project include other natural hazard risk reductions for hazards such as wildfires or floods?
 Clinton City's Water Master Plan 2018 states that the City will maintain 25 percent of the peak day demand as emergency storage. The addition of the 1.5-million-gallon storage tank will ensure that the City maintains enough water storage to fight wildfires and allow for water from storage in an emergency.
- Does the proposed project include green or sustainable infrastructure to improve community climate resilience such as, but not limited to, reducing the urban heat island effect, lowering building energy demands, or reducing the energy needed to manage water? Does this infrastructure complement other green solutions being implemented throughout the region or watershed?

The proposed Project will also install a 25-panel 9.88 kW solar array on the existing metal roof of Clinton City's maintenance shop. See Appendix C: Solar Array Cost Estimate. The proposed solar array will provide approximately 13,779 kWh per year that will be used to offset energy demands from pumping the water. It is estimated that the proposed solar project will offset approximately 21,528 pounds of CO₂ per year, reducing Clinton City's carbon footprint. Figures 1 and 2 below demonstrate the value of the impact of carbon reduction on the environment. High energy efficient pumps will also be used for the well and for the booster pumps to minimize the energy needed to operate the system.



Figure 1: Reduction in Greenhouse Gas Equivalencies from Project

and use a renewable energy source?

Yes, solar panels will provide a renewable energy source.

 Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution? It is estimated that the proposed solar project will offset approximately 21,528 pounds of CO₂ per year, reducing the City's carbon footprint by an equivalent of:

Will the proposed project establish



Figure 2: Reduction in Vehicle Greenhouse Gas Equivalencies from Project

Will the proposed project reduce greenhouse gas emissions by sequestering carbon in soils, grasses, trees, and other vegetation?

Reduced greenhouse gas emissions to help combat climate change. The proposed solar project will offset approximately 1,528 pounds of CO₂ per year compared with coal plant generation. Power generated will help offset some electrical usage and reduce the peak usage that Rocky Mountain Power is required to deliver. Some of the water is used for irrigation at the city parks. The trees, grasses, and vegetation that will be irrigated by this water will also remove carbon from the air.

- Does the proposed project have a conservation or management component that will promote healthy lands and soils or serve to protect water supplies and its associated uses?
 No, the Project does not specify a direct conservation or management component. However, WBWCD that supplies Clinton City water, has focused efforts to protect water supplies.
- Does the proposed project contribute to climate change resiliency in other ways not described above?
 The Project does not contribute to climate change other than described above.

2. Disadvantaged or Underserved Communities Please describe in detail how the community is disadvantaged or underserved based on a combination of variables that may include the following:

High housing cost burden and substandard housing

Nearly one in five renters in Utah spend at least half of their income on housing. The 2020 statistics from the US Census Bureau show that the disparity between the annual incomes of owner-occupied housing and renter-occupied housing is significant. An area covering onequarter of Clinton City limits shows residents that rent have a 57 percent lower yearly income than the residents who own their homes in the same area. Clinton City's Moderate-Income Housing Report projects that percentage will continue to widen.



Figure 3: Multiple Incomes Spent on Housing Comparison

Many new single-family residential homes are being built in Clinton City. This reduces the number of affordable housing options for residents with lower annual incomes and pushes them further into poverty as they are forced to pay higher rental rates. The possibility of investing in home ownership pulls further away for these residents. Without funding assistance, the costs for utilities or to improve City infrastructure is passed on to the property owners at 100 percent to help pay back the loans. Those who own their homes are more likely to be able to adjust to higher bills, but for those with lower incomes in rental units, higher bills are more difficult to accommodate.

Distressed Neighborhoods

The U.S. Department of Transportation developed criteria that define various disadvantaged by census tracts. These Historically Disadvantaged Communities are consistent with OMB's Interim Guidance for the Justice40 Initiative and are defined by looking at 22 indicators. Clinton City has been designated the disadvantaged indicators shown in Figure 4 below.



Disproportionate impacts from climate change

Utah farmers and ranchers are experiencing disproportionate impacts from climate change and the resulting drought. Limited forage on range land has produced a severe feed shortage and limited water supplies have some farmers planting as little as 10 percent of their full acreage. Livestock auction sales have increased by an estimated 300 percent as ranchers in Utah have taken approximately 16,000 mother cows out of their herds. This has put Utah farmers and ranchers into a worrying cycle. Low acreage planted means less seed for next year, which means less income to buy equipment and supplies and less money spent in the local economy.

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3. Tribal Benefits:

Does the proposed project support tribal resilience to climate change and drought impacts or provide other tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities?

No, the Project does not have any tribal benefits.

Does the proposed project support Reclamation's tribal trust responsibilities or a Reclamation activity with a Tribe?

No, the Project does not support Reclamation's tribal trust responsibilities.

4. 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 Project will allow for more water to stay within WBWCD's system, allowing WBWCD to hold water for later in the irrigation season when it is needed to be used for instream flows and held for storage water for the next season. The Utah Division of Wildlife Resources and Trout Unlimited have indicated that if WBWCD could allow more water to run down key portions of the Weber River during the irrigation season, it would help the Bonneville Cutthroat Trout and Bluehead Sucker, which are listed on the state's sensitive species list. It is proven and documented that by allowing for more available water to stay within the habitat areas for more extended periods of time, these species are benefited.

Clinton City is surrounded by agricultural lands to the west. The agricultural area is situated between the City and the Great Salt Lake and its wetlands.



Photo 1-Map of Clinton City and Surrounding Agricultural Lands

Water that starts in Echo Reservoir flows down in the Weber River and serves as one of the three main tributaries to the Great Salt Lake.

The Howard Slough Waterfowl Management Area (HSWMA)that sits along the Great Salt Lake and this agricultural land is another area that will benefit from water remaining in Echo Reservoir and Weber River. HSWMA provides essential nesting and brooding habitat for various waterfowl and shorebirds and serves as a feeding and staging habitat for millions of migratory birds that fly over the Great Salt Lake each year as part of the Pacific and central flyway migrations.

The HSWMA land was subject to unstable habitat conditions due to unreliable seasonal water sources and periodic drought conditions, with surrounding wetlands being drained for agriculture and development.

Water quantity and quality are concerns for the Waterfowl Management Area. In order to keep impoundments and wetlands in optimal condition, there must be a sufficient supply of water

throughout the year. Current water flows are not enough during the summer months or in the fall to maintain these wetlands in good condition. Water quality is also a concern with periodic increases in sedimentation and potential contaminant inflow, as the HSWMA is at the bottom of the watershed.

• 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 HSWMA covers approximately 1,400 acres. The waterfowl and shorebirds that migrate through the HSWMA will benefit from additional water in Echo Reservoir and Weber River. The HSWMA and the Great Salt Lake receive the largest percentage of the world's population of Eared Grebe shorebirds using the area for feeding during migration. The area also receives approximately one third of the global population of Wilson's Phalaropes. Davis County is among the counties on the U.S. that host the largest breeding concentration of Snowy Plovers. A species that has been identified as one of greatest conservation need by Utah's Wildlife Action Plan.

 Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status? By allowing more water to stay within the habitat areas for more extended periods, species such as the Bonneville Cutthroat Trout and the Bluehead Sucker will benefit.

5. Other Benefits: Will the project address water sustainability in other ways not described above? For example:

- Will the project assist States and water users in complying with interstate compacts?
 No, the Project does not assist in complying with interstate compacts.
- Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

As previously stated, by reducing our reliance on WBWCD water, residents, farmers and ranchers, recreation users, and the environment will benefit by creating a self-sufficient water source for the Clinton City culinary users, emergency needs, and leave more surface water in Echo Reservoir and the Weber River for longer periods of time.

Will the project benefit a larger initiative to address sustainability of water supplies?
 Clinton City water users will be educated on water savings. Hopefully, it will help them think differently about proper water usage and help them become more accountable for their water use.

E.1.4. Evaluation Criterion D – Severity of Actual or Potential Drought Impacts to be Addressed by the Project

What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken (e.g., impacts to agriculture, environment, hydropower, recreation and tourism, forestry), and how severe are those impacts? Impacts should be quantified and documented to the extent possible. For example, impacts could include, but are not limited to:

Whether there are public health concerns or social concerns associated with current or potential drought conditions (e.g., water quality concerns including past or potential violations of drinking water standards, increased risk of wildfire, or past or potential shortages of drinking water supplies? Does the community have another water source available to them if their water service is interrupted?)

The unrelenting drought conditions in Utah and Davis County are causing a risk of wildfires, threats to agriculture farming and ranching, and the risk of water shortage for Utahns. Utah is one of the most wildfire-prone states in the US. In 2018, there were

1,327 wildfires in Utah with estimated damages of \$13.4 million (hazards.utah.gov). Without adequate water storage available, just one wildfire could put the residents of Clinton City without stable culinary water.

Due to the ongoing drought WBWCD cut its supply of culinary water to Clinton City by 10 percent or 163 acre-feet of water for 2022. This is a serious concern for the city and requires the residents to reduce the demand on the culinary system by 10 percent. This project will allow the city to add 585 acre-feet of water to their culinary supply to offset the impacts of the current and future droughts.

The construction of the well and tank will have no environmental impacts. All of the project is located within Clinton City limits on property that Clinton City owns. The Project will utilize ground water instead of relying on surface water from the Weber River. Leaving water in the Weber River will increase the water available for wildlife and vegetation, both who have diminishing supplies of surface water.

Whether there are local or economic losses associated with current drought conditions that are ongoing, occurred in the past, or could occur in the future (e.g., business, agriculture, reduced real estate values). Drought has a significant economic impact on agriculture. Cattle production represents 21 percent of all agricultural sales in Utah, making it the most important agricultural sector, and when combined with hay/haylage, makes up 14.5 percent of all acres used for agriculture in the state. This translates into \$21 billion per year in the Utah economy. Yet, 75 percent of ranchers report major reductions in water supply, forage, and cattle productivity.

Davis and Weber Counties Canal Company (DWCCC) provides all the irrigation and secondary water for Clinton City, and the surrounding cities of Sunset, Roy, and West Point Cities. This past 2021 irrigation season was difficult for all water delivery systems. WBWCD worked with the DWCCC to exchange water out of Willard Bay, allowing DWCCC water to remain in Echo and other reservoirs for the following year's culinary water. WBWCD felt it was necessary to spend money pumping extra water out of Willard Bay to exchange that water with DWCCC. By doing so, WBWCD was able to preserve storage in the upstream reservoirs such as Echo and East Canyon; therefore, helping maintain a drinking water supply for the next year in case of another bad winter and spring runoff. WBWCD had to pump the water into DWCCC's system to exchange the water. The power cost to pump the water from Roy's WBWCD drought relief pump station was \$343,000. The last time WBWCD operated this pump station, other than for testing/maintenance purposes, was in 2006. In addition to running the drought relief pump station in Roy, WBWCD also had to do some supplemental pumping at its Willard Bay pump station. By Clinton City reducing its reliance on WBWCD, they help reduce the need for costly water exchanges during a drought to fulfill WBWCD water contracts.

The Project will provide 585 acre-feet of water that Clinton City will have available to them for storage and emergencies. Without the addition of the new well and storage tank, Clinton City risks further water restrictions from WBWCD, increased water contract costs, and health and safety issues. This Project will have a significant impact on the sustainability for the City to provide culinary water.

WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2023

• Whether there are other drought-related impacts not identified above (e.g., tensions over water that could result in a water-related crisis or conflict).

There is tension over water in Clinton City and within the WBWCD service area. These tensions manifest themselves in several ways. Typically, it is agriculture vs. everyone else. But now, the Great Salt Lake has risen as a contender for tensions over water. The Utah legislation this past legislative session had several bills to help provide water for the Great Salt Lake, most of which were to help irrigators and others conserve water. With each drought year, the Great Salt Lake gets smaller and smaller. The shrinking of the Great Salt Lake has become contentious, not only for the aesthetics but for the impact drought is having on migratory birds and in the dust from the dry lakebed, causing health effects from air-born heavy metals and contaminants. The massive economic impacts on industries like brine shrimp and others concern Utah's governor and the State Legislature. This past legislative secession, they gave over 40 Million dollars to a committee to study and develop projects to help secure the Great Salt Lake. It has become a battle between the push for reusing water and sustaining the Great Salt Lake.

Describe existing or potential drought conditions in the project area.

Is the project in an area that is currently suffering from drought or which has recently suffered from drought? Please describe existing or recent drought conditions, including when and the period of time that the area has experienced drought conditions (please provide supporting documentation, [e.g., Drought Monitor, droughtmonitor.unl.edu]).

The drought in Utah has been intensifying over the last several years. Already a dry, arid climate, Utah has just experienced the driest April in the past 128 years. According to the National Integrated Drought Information System, since 2012, each summer season has gotten increasingly drier as shown along the top of Figure 4. Gov. Spencer J. Cox issued his fourth Executive Order declaring a state of emergency due to drought conditions and water conservation on March 17, 2022. The map detail in Figure 4 shows that in the middle of summer 2021, 98.7 percent of Davis County was in the most dangerous drought category, D4 Exceptional Drought.

005 305 305 305 305 305 305 305			
2	D0 - Abnormally Dry • Dryland crops are struggling • Water for cattle is limited	100.00% of Davis County (00-04)	
2	D1 - Moderate Drought • Soil motisture is now unitervalent gremination is pace • Ford for cartin limited • Springs are drying.	100.00% of Davis County (D1-D4)	
	D2-Severe Drought • Patture and water is instringuate for calls(, ranching management practices change • Tarcaudh is good at a peoplem • Stramma and points are day	100.00% of Davis County (D2-D4)	The Control of the Co
	D3 - Extreme Drought - Trie drage increases. Bit basis ap public land are implemented - Mather engetation is stread. - StreamtTeam is low	100.00% of Davis County (D3-04)	and total courts of the second s
	D4 - Exceptional Drought - Fire remissions increase - Integration water allotnowte are cut	98.07% of Davis County (D4)	The second

Figure 5: Davis County Historic Drought Conditions



Figure 6: Snow Water Equivalent

receive in the winter months to provide water in the summer months. Figure 5 shows the snow water equivalent measured through the USDA, in Davis county, Utah. The green line shows the snow water levels for 2021 and the black line shows the levels for 2022. When shown in comparison to the median peak maximum (1979-2021), shaded in purple, the current amount of water that is supplied through snowmelt is alarming. As a result of the lack of snowfall, Utah's water supply is shifting from snow-dominated to raindominated. But the amount of precipitation from rain has decreased to critical levels, resulting in the extreme drought conditions across the state.

Describe any projected increases to the severity or duration of drought in the project area resulting from changes to water supply availability and climate change. Provide support for your response. The water that Clinton City gets from WBWCD comes from the upper reservoirs via the Echo Reservoir and the Weber River. Echo Reservoir is showing alarmingly low water

levels. In August 2021, the reservoir was at just 17 percent! Larger reservoirs, such as Echo. store multiple years' worth of water and take many years to build back up to their full capacity. even with extreme precipitation occurring, which is unlikely.

WBWCD delivers over 200,000 acre-feet of



Photo 2-Low Water Level at Echo Reservoir

water annually to over 5 counties in Utah. The District operates seven large storage reservoirs, three hydro-power generation plants, 21 wells, four water treatment plants, and hundreds of miles of canals, tunnels, aqueducts, and pipelines. As of August 30, 2021, thirty-two of Utah's largest forty-two reservoirs are below 55 percent of available water.

These water supply shortages throughout the state have increased Clinton City's determination to improve its storage capacity and supply sources in order to reduce its drought vulnerabilities.

The completion of this Project will result in increased storage capacity and overall water supply. As the extreme drought conditions continue, efficient use and storage of the limited water available become even more critical to drought resiliency. The Project will help build a more resilient community to the ongoing effects of drought and climate change that are being felt throughout the region.

E.1.5. Evaluation Criterion E – Project Implementation

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

Environmental and Preliminary Design: September 2022. The preliminary evaluation report for drilling the well is about 90 percent complete and will be completed by September 2022.

Design and Permitting: June 2023. The property acquisition, modeling, master plan of the system, and the water right have been completed. The permitting and the final design of the pump station, well, and booster pump will be completed by June 2023.

Bid and Advertise: The construction of the well will go to bid in July 2023, and the construction of the storage tank and well house will go to bid in August 2024.

Construction: The construction of the well will be completed by January 2024 and the construction of the storage tank and well house will be completed by May 2025.

Final Reports and Project Closeout: Completed by November 2025.

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

For the well and waterline:

- The preliminary Evaluation Report from the Utah Division of Drinking Water has been started and will be submitted by August 31, 2022.
- Well drilling plan has been started and will need the Utah Division of Water Rights approval. Required after the design is complete but before construction starts.
- Well equipping plan approval from Utah Division of Drinking Water will be required after the design is complete but before construction starts.
- Building permit from Clinton City obtained by the contractor.

For the pump station and storage tank:

- Plan approval from Utah Division of Drinking Water is required after the design is complete but before construction starts.
- Building permit from Clinton City- obtained by the contractor.

Identify and describe any engineering or design work performed specifically in support of the proposed project. Preliminary tank and well layouts have been done to verify that the site would be acceptable for the new facilities. The City has modeled its water system and has upgraded piping coming into the site to prepare for a new well and tank.

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

There are no required policies or administrative actions. The City has developed a Water Master Plan, and the Drought Resiliency Section prepared, modeled, and prioritized the projects under the City Council's direction.

E.1.6. Evaluation Criterion F – Nexus to Reclamation

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider the following:

- Does the applicant have a water service, repayment, or O&M contract with Reclamation? The applicant does not have water service, repayment, or an O&M contract with Reclamation.
- If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?
 Clinton City receives roughly 86 percent of its annual water supply from Weber Basin Water Conservancy District, the managing entity of Reclamation's Weber Basin Project.
- Will the proposed work benefit a Reclamation project area or activity? The proposed Project will benefit Reclamation's Weber Basin Project by reducing Clinton City's dependence on WBWCD during drought years. Clinton's additional supply will allow other stakeholders to receive the WBWCD water previously allotted to Clinton City.
- Is the applicant a Tribe?
 No, the applicant is not a Tribe.

Section 2: Project Budget

Funding Plan and Letters of Commitment

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

Clinton will use its Water Enterprise fund and city general fund to fund the Project, and if needed, the City will request a loan from the Division of Water Resources (DWR) for any additional funds required. The expectation is that the City will have the funds available within its water and general fund accounts for their match on this Project.

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

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

The City will be using funds from water rates and impact fees towards the Project. Clinton City will supplement the water account with funding from their general fund account to cover their match or request a loan.

• Any costs that will be contributed by the applicant. None.

- Any third-party in-kind costs (i.e., goods and services provided by a third party). None.
- Any cash requested or received from other non-Federal entities. None.
- Any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.
 If needed, as application for a loan will be requested from Division of Water Resources.

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

- The project expenditure and amount. None.
- The date of cost incurrence. None.
- How the expenditure benefits the project. None.

Budget Proposal

Table 2 – Total Project Cost Summary

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$2,000,000
Costs to be paid by the applicant	\$2,421,000
Value of third-party contributions	\$0.00
Total Project Cost	\$4,421,000

Table 3 – Non-Federal and Federal Funding Sources Summary

Funding Sources	Amount
Non-Federal Entities	
1. Clinton City	\$2,421,000
Non Federal Subtotal	\$2,421,000
Requested Reclamation Funding	\$2,000,000

WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2023

Budget Item Description Computation 0		Quantity	Total		
	\$/Unit	Quantity	Туре	Cost	
Salaries and Wages				\$0.00	
Fringe Benefits				\$0.00	
Travel				\$0.00	
Equipment				\$0.00	
Supplies and Materials				\$0.00	
Contractual/Construction				\$4,271,150	
Engineering	7%	1	EA	\$262, 275	
Construction Engineering	7%	1	EA	\$262,275	
Drill 900 ft well with 16" well casing and screen	\$1,100	900	LF	\$990,000	
CMU well house, well 1,350 gpm capacity, booster pump, standby generator, chlorination, and SCADA equipment	\$1,600	672	SF	\$1,075,200	
12" C900 PVC waterline	\$75.00	1,000	LF	\$75,000	
Furnish, place, and compact pipe bedding material	\$15.00	300	TON	\$4,500	
Furnish, place, and compact backfill material	\$17.00	1,500	TON	\$25,500	
1.5-million-gallon concrete water tank	\$1.03	\$1,500,000	SF	\$1,545,000	
10 kW solar array	\$31,600	1	EA	\$31,600	
Other	1			\$149,850	
Environmental	4%	1	EA	\$149,850	
Total Direct Costs					
Indirect Costs				\$0.00	
Type of rate	Percentage	\$base		\$0.00	
Total Estimated Project Costs					

Table 4 – Budget Proposal

Budget Narrative

Salaries and Wages

No salaries or wages will be included; all services will be contracted.

Fringe Benefits

No fringe benefits will be required.

Travel

No travel will be necessary.

Equipment

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

Materials and Supplies

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

Contractual

To determine unit costs included in the cost estimate for this project, Clinton City relied upon the Drought Resiliency Section of their Water Master Plan that was prepared in 2021. Contract unit prices from similar projects recently completed were used by past cost estimates.to estimate those costs. The City followed its procurement process and procured consulting services before applying for these funds. They will bid the construction portion of the project to several prequalified construction companies. The contractual costs are estimates for each component of the project. Generally, the low bidder will be selected based on a determination of acceptable qualifications.

Third-Party In-Kind Contributions None.

Environmental and Regulatory Compliance Costs

\$149,850 is 4% of the total construction cost. The amount has been budgeted to evaluate the required information, prepare the report, and update any changes required from Reclamation. This is based on past project costs for environmental reviews; however, if Reclamation considers this project possible for a categorical exclusion (CE), Reclamation could prepare the CE as they have in the past.

Other Expenses

The environmental costs are documented under other expenses.

Indirect Costs

No indirect costs are included.

Total Costs

Applicant: \$,2,421,000

Reclamation: \$2,000,000

Total: \$4,421,000

Section 3: 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 will be those associated with drilling a well and building a tank. In the past, similar projects have had minimal impacts. The surface vegetation will be restored upon completion of the project.

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?

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

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have. Clinton City is not aware of any impacts to wetlands in this area.

When was the water delivery system constructed?

The culinary water system that this tank will feed was built in the mid-1900s. Since 1980, Clinton City has been replacing all the older pipes in the system. There are very few pipes older than 1960 remaining in their system.

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. The Project will have no impacts.

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

A cultural resource inventory will be completed as part of the submitted environmental document. There are currently no buildings on the property.

Are there any known archeological sites in the proposed project area? Clinton City is not aware of any impacts to or locations of archeological sites.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations? No.

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

No. The Project will not be near nor impact any tribal lands.

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

No, the Project will be conducted in a contained area. No outside soil or foliage will be introduced into the area.

Section 4: Required Permits and Approvals

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

The required permits and approvals are associated the construction of the well and tank and can only be obtained after the design is completed. Plans will be submitted for the following permits once the design is finished.

For the well and waterline:

- The preliminary Evaluation Report from the Utah Division of Drinking Water has been started and will be submitted by August 31, 2022.
- Well drilling plan has been started and will need the Utah Division of Water Rights approval.
- Well equipping plan approval from Utah Division of Drinking Water.
- Building permit from Clinton City

For the pump station and storage tank:

- Plan approval from Utah Division of Drinking Water
- Building permit from Clinton City

Section 5: Existing Drought Contingency Plan

If there is an existing drought contingency plan addressing the relevant geographic area, please attach a copy (or relevant sections) of the existing plan. (Note, this will not count against the application page limit.) See Appendix B – Clinton City Drought Resiliency Plan and Water Master Plan.

Section 6: Letters of Project Support and Letters of Partnership

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/partnership letters as an appendix. See Appendix D – Letter of Support from the Weber Basin Water Conservancy District.

Section 7: Official Resolution

The Official Resolution for Clinton City will be submitted within 30 days after the application deadline.

Overlap or Duplication of Efforts Statement

There are no overlap or duplication of efforts at the time of submission.

Conflicts of Interest Disclosure

There is no actual or potential conflict of interest at the time of submission.

WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2023

Uniform Auditing Reporting Statement

Clinton City was required to submit a Single Audit Report for FY21. The Employer Identification Number associated with that report is 87-6113995. The report will be posted on the Federal Audit Clearinghouse Internet Data Entry System in accordance with 2 CFR requirements.

Certification Regarding Lobbying

Please see the GG Lobbying Form V1.1 Certification Regarding Lobbying.



CLINTON CITY PROJECT LOCATION



WaterSMART: Drought Resiliency Project Grant

June 2022





Locally Owned & Operated Established 2005

May 23rd, 2022

9.88 kW-DC South Addition Array

City of Clinton - Public Works 1711 W 1740 N Clinton, UT 84015

Solar Sales Rep: Bobby Wakeland bwakeland@gardner-energy.com

(801) 989-8015

About Gardner Energy





With over 17 years of design-build projects behind us, Gardner Energy offers high quality and affordable solar solutions for residential. commercial, and government customers. Gardner Energy is now part of the Campbell Companies family. Gardner Energy provides turnkey EPC service for solar, microgrid, microhydro, energy storage, and ΕV infrastructure projects.

	Wheeler CAT	RELIABL	Gardner Energy
		DIAMOND RENTAL	SOLUTIONS FINANCIAL SERVICES
CAMPBELL	SITECH		Э ісм

EXPERIENCED

- Over 10+ Megawatts of solar installations in Utah
- Solar Contractor since 2005 NABCEP Certified installers
- Over 1,000+ Commercial and Residential installation
- Utah licensed general and electrical contractor
- Utah licensed Professional Engineer
- Highly experienced workforce





Proposed Solar Design





PV System Specifications

Туре	Manufacturer	Model	Quantity
Module	Hanwha Q-cells	Q.PEAK DUO BLK ML-G10.a+ 395	25

Project Scope of Work

The solar array will be mounted on South East addition of the shop. Secured with standing metal seam brackets. One roof penetration for PV homeruns.

1-SolarEdge SE9kUS 208V Inverter mounted on the interior or exterior of the shop.

25- SolarEdge P401 Optimizers for solar module-level rapid shutdown.

Proposed Solar Design







2047 S. Painter Ln., West Haven, UT 84401 (801) 689-2618 Proposal No.

Estimated Solar Offset





Solar Production vs Consumption

Electricity Mix



2047 S. Painter Ln., West Haven, UT 84401 (801) 689-2618 Proposal No.

PV Cost Estimate



Existing Electrical Usage

Current Utility Company	PacifiCorp (Utah)
Current Utility Rate	23 (Distribution Voltage -
	Small Customer)

Annual Usage	Annual Bill	Monthly Avg.
61,890 kWh	\$5,449	\$454

System Projections

PV System Size	9.88 kW-DC
Annual Production	13,779 kWh
System Warranty	5-25 Years
Payback Period	0.0 Years
25 year Savings	\$ 16,546

System Cost & Incentives					
Solar PV System	\$31,600				
Battery System	\$n/a				
Credits & Incentives **	(\$0)				
Net System Cost	\$31.600				

** Disclaimer: This proposal provides an overview of the available federal & state credits. It does not constitute professional tax advice or other professional financial guidance.



(kWh)	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Utility Consumption Pre-Solar	6,137	4,943	5,070	4,337	4,782	5,156	5,663	6,450	4,654	4,607	5,026	5,065	61.9k
Utility Consumption Post- Solar	5,623	4,282	3,914	2,925	3,001	3,356	3,842	4,866	3,419	3,759	4,486	4,640	48.1k
Solar Production	515	661	1,156	1,412	1,781	1,800	1,822	1,584	1,235	849	540	425	13.8k
(\$)	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Utility Bill Pre-Solar	565	433	411	359	438	472	511	571	421	376	432	460	5,449
Utility Bill Post-Solar	532	392	338	270	316	348	386	462	336	322	398	433	4,533
Utility Bill Savings	33	41	73	89	122	124	125	109	85	54	34	27	916

Milestones & Deliverables



Next Steps



Proposal No.



WEBER BASIN WATER CONSERVANCY DISTRICT

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

Scott W. Paxman, PE General Manager/CEO

Board of Trustees:

Marlin K. Jensen President Weber County

Kym O. Buttschardt Weber County

Randy B. Elliott Davis County

Scott K. Jenkins Weber County

P. Bret Millburn Davis County

Angie Osguthorpe Weber County

Paul C. Summers Davis County

Dave Ure Summit County

Dee Alan Waldron Morgan County May 17, 2022

Dennis Cluff, City Manager Clinton City 2267 North 1500 West Clinton, Utah

Dear Dennis,

Weber Basin Water Conservancy District (WBWCD) is pleased to support Clinton City's efforts to develop a Drought Resiliency Project under the Bureau of Reclamation's WaterSMART Drought Resiliency Projects program. WBWCD understands and appreciates the importance of constructing an additional well and accompanying storage tank to increase the City's resilience to the ongoing extreme drought conditions being felt across the state of Utah.

WBWCD is also looking forward to being a stakeholder in a more resilient system with increased water reliability and reduced dependency on the District's water supply. Clinton City relies on WBWCD for 80 percent of its culinary water and this additional well and tank will be of benefit to offload the demand on its system at times of drought or emergency repairs. It is understood that this type of system upgrade is important to the City, as it will provide Clinton City's entire service area access to additional storage and source.

WBWCD strongly supports this grant application and appreciates the advancements it will make in drought resiliency and water supply for Clinton City and other stakeholders.

Sincerely,

Scott W. Paxman, PE General Manager/CEO

SWP/DH/sm

Clinton City Drought Resiliency Plan

September 2021

Prepared By:



J·U·B ENGINEERS, INC.

466 N Kays Drive Kaysville, UT 84037 (801) 547-0393

1 Introduction

Clinton City has been greatly impacted by the recent droughts and shortage of water supply in Northern Utah. The water supply impacts have significantly affected the entities that supply water both potable water and pressurized irrigation water to Clinton City. Clinton City has prepared a drought resiliency plan to look at ways to lessen it impacts of the drought and to become more drought resilient.

This plan is intended to help guide the City in management of water supply and delivery in the event of severe or prolonged drought. This plan provides a systematic means for the City to manage emergency supply conditions within its service area. This plan addresses drought related vulnerabilities through consideration of drought response actions and mitigation measures. This plan only looks at culinary or potable water that is overseen by the city. Pressure irrigation mitigation measures are controls by the Davis & Weber Counties Canal Company and are not part of this plan.

2 Weber Basin Drought Contingency Plan

In 2016 the Weber Basin Water Conservancy District (WBWCD) developed a Drought Contingency Plan for their service area. This plan was funded by Bureau of Reclamation grant. Clinton City participate in the preparation of this plan as a member of the Key Stakeholder Subgroup. The creation of the plan was a collaborative process which was very insightful for the City. This plan is based on the Drought Contingency Plan done by WBWCD since the city relies on WBWCD for a majority of their water.

WBWCD supplies about 85% of the potable water that Clinton City uses. Clinton City has a well that is used to supplement the WBCWD supply when needed in order to prevent exceeding the peak flowrate or volume contract in place with WBWCD.

WBWCD covers over 2,500 square miles within five counties: Davis, Weber, Morgan, Summit and Box Elder, and operates seven project reservoirs; Causey; Pineview; Rockport; East Canyon; Echo; Smith and Morehouse; and Willard. The reservoirs on the Weber River and its tributary creeks, Wanship, Lost Creek, East Canyon, and Smith and Morehouse, are operated to supply water for irrigation, municipal, and industrial purposes on the Wasatch Front.

3 Drought History

Utah has experienced periods of water shortages since the pioneers first settled in the Salt Lake Valley. The lengthy droughts of the 1930s and 1950s caused significant economic problems for the state. While the drought of 1976-77 was not as long, the consequences were still intense and costly. Precipitation fluctuates greatly in Utah's relatively arid climate. As the demand for water continues to increase, even temporary shortages in supply can be disruptive to the normal process in urban and rural environments. Two or more consecutive years of significant reduction in precipitation—particularly snowfall in the mountains—may have serious and far-reaching impacts

4 Drought Monitoring.

Since most of the City's water is supplied by WBWCD, the City's drought monitoring process will follow that of WBWCD's which is outlined in their Drought Contingency Plan. There are

five water supply conditions or levels that are generally described in the table below. The first level is the blue level and is referred to as the normal level. The normal level is not a drought level but indicates a state of adequate water supply. The advisory drought level is for situations when the reservoirs will be close to full on June 1st based on good snowpack and runoff from the previous years, but the current year has been a poor precipitation year.

Advisory Code	Water Shortage Description	General Description
Blue	Normal	Projected June 1 st storage greater than 72% of total basin storage capacity, normal or better snowpack
Gray	Advisory	Projected June 1 st storage greater than 72% of total basin storage capacity, low projected snowpack and low Colorado Basin River Forecast Center (CBRFC) flows
Yellow	Moderate	Projected June 1 st storage is 64-72% of total basin storage capacity
Orange	Severe	Projected June 1 st storage is 53-64% of total basin storage capacity
Red	Extreme	Projected June 1 st storage is less than 53% of total basin capacity

The corresponding advisory level will allow Clinton City to begin taking action in case a second poor precipitation year follows.

WBWCD monitors water supply conditions throughout each year. Drought status is updated monthly as a water supply report is prepared that includes reservoir levels, groundwater levels and a review of historic storage graphs and key stakeholders such as Clinton, are notified of current status. Clinton will then be able to implement the appropriate response actions.

5 Vulnerability Assessment

As part of this drought planning effort, a vulnerability assessment was conducted to evaluate the potential for a drought based on historical data as well as an evaluation of potential impacts and risks that a drought would present to Clinton City. The potential for a future drought scenario affecting the Weber River Basin is well documented within WBWCD's Drought Contingency Plan and includes; future climate change scenarios based on a Paleohydrology Study conducted by USU and a Hydrologic Model conducted by DWR. In addition to this documented research, the following components were utilized in the creation of this assessment:

- Identification of Key Drought Vulnerabilities
- Establishment of Drought Levels and Triggers (WBWCD)

• Drought Risks

Drought Vulnerabilities	Municipal Impacts	Agricultural Impacts			
Available Water Supply During Drought	 Liability during drought due to lack of additional culinary water sources Impacts on culinary water due to reduced secondary water for outdoor use 	 Continued municipal use means less water available for agriculture Loss of crops and production 			
Water System	 Drops in aquifer levels/increased well pumping costs Increased operation and maintenance expenses 	• Water sent to Clinton City means less water for Irrigation Districts within the WBWCD service area and WBWCD agricultural water users' diversions may become in-operable			
Lack of Drought Information for Water Users	 Overuse of water Planting of high water-use plants No adjustments made for rain and water runoff in streets and sidewalks 	• Continued use of low-efficiency irrigation techniques such as flood irrigation			

Drought Triggers

1 Projected June 1st Total Basin Active Storage (Maximum = 529,000 acre-feet)

Storage volumes fluctuate significantly within basin reservoirs during each calendar year. Storage volumes are at their maximum during the snow runoff period and are subsequently drawn down during the summer irrigation season. The time that peak storage is achieved each year is typically around the month of June and the maximum total basin storage is 528,955-acre feet. In some years the maximum storage is reached earlier in the year and some years later, but the June storage is a good key indicator of how much water will be available for use through the summer and up to the next runoff season.

2 Projected June 1st Total Basin Upstream Active Storage (Maximum = 326,700 acre-feet)

WBWCD monitors the amount of projected storage to be achieved in upstream reservoirs (all of its reservoirs excluding Willard Bay). The maximum upstream active storage that can be achieved in a given year is 326,679-acre feet. It is important to monitor this because the storage that is downstream of the mouth of Weber Canyon cannot be as easily treated or utilized to meet needs throughout heavily populated areas of the District.

3 U.S. Drought Monitor Classification (only a trigger for the advisory level)

Another tool used only to help establish the normal and advisory drought levels is the U.S. Drought Monitor Intensity Classification. This tool was created by the National Drought Mitigation Center (University of Nebraska) and is found at http://drought.unl.edu/droughtmonitoring/Tools.aspx It provides a summary of drought conditions across the United States and is updated weekly by combining a variety of databased drought indices and indicators and input from local experts.

Drought Risks

Drought Vulnerabilities	Risks Associated with Vulnerabilities	Risk Level
	Overuse of culinary water as secondary supply is limited	High
Available Water	Reduced culinary water as supply is limited	High
Supply During Drought	Loss of crops and production	Moderate
	Culinary contamination	Low
Water System	Increased well pumping costs	High
	Increased fire hazards and vulnerabilities	Moderate
	Increased operation and maintenance costs	Moderate
	Clinton's dependency on WBWCD increase risks to other Junior water right holders	High
Lack of Drought Information for Water Users	Failure to collaborate and educate	High

6 Mitigation Actions

Mitigation actions are essential to building drought resiliency and are actions taken prior to a drought that will help offset the impacts of a drought. Several mitigation actions were evaluated and ranked based on how well they met main objectives including; Increased Supply, Financial Feasibility and Other Miscellaneous Objectives. The top-ranking mitigation actions are as follows:

- Additional City Well Would increase the reliability of water supply available to the City by enabling access the its additional 585-acre-foot groundwater right. This would decrease the city's dependency on WBWCD water supply during drought, allowing the City to continue to deliver water during a drought and would reduce the need for emergency response actions.
- 2. Additional 1.5M Gallon Storage Tank This would improve the City's ability to offset the effects of a drought by storing additional supply from the new well that could be made available during drought.
- 3. Water Pricing Implement drought surcharge fee structures and drought rate surcharge educational campaign.
- 4. Internet Water Supply Dashboard and Educational Outreach–This would be a web-based system that reports current water use and drought conditions as well as what conservation measures individual users should be taking. This would help increase education and awareness surrounding drought and help reduce water use with a collaborative approach.
- 5. System Redundancies Agreements in place with other Cities and water districts to share supplies during drought.
- 6. Leak Detection and Repairs Ongoing operation to upgrade distribution system.

7. High Efficiency Indoor Appliance Subsidies – Support State and WBWCD subsidy program for users to install high-efficiency technology that conserves water.

7 **Response Actions**

Response actions based on the WBWCD plan have been developed that are triggered with different drought levels and will help mitigate the resulting impacts. These actions should be frequently monitored, evaluated, and tweaked over time based on their effectiveness in reducing usage targets.

Advisory Code	Water Shortage Description	Response Action
Blue	Normal	Continue current conservation efforts to meet statewide goal to reduce usage by 25% between year 2000 and 2025
Gray	Advisory	Begin public outreach and awareness campaign to inform residents that water shortages are possible if drought conditions continue and that conservation efforts are needed.
Yellow	Moderate	Increased public outreach and awareness, implement yellow drought rates and shortened irrigation season and increased advisory group meetings
Orange	Severe	Increased public outreach and awareness, implement orange drought rates and cut lawn watering in half, reduce agricultural water use, start indoor water reduction strategies, and increased advisory group meetings
Red	Extreme	Increased public outreach and awareness, implement red drought rates and no residential lawn watering, continue indoor water reduction strategies and increased advisory group meetings

8 Operational and Administrative Framework

Response The operational and administrative framework identifies the roles, responsibilities and the procedures to conduct drought monitoring, implement drought mitigation measures and initiate drought response actions.

Drought Monitoring	Mitigation Measures	Drought Response Initiation
 Review the current and projected water supply for the year and the established drought level done by WBWCD. Monitor existing groundwater levels for drought impacts to wells. Report the drought level impacts to the City Council Make water management decisions based on drought level reports from Weber Basin and groundwater levels 	 Coordinate with WCWCD for drought mitigation measures from their Drought Contingency Plan that they have put into place. Review and determine most impactful drought mitigation measures from city's plan Propose mitigation measures to the City Council Authorize implementation of specific mitigation measures 	 Notify residents of water restrictions put in place by WBWCD. Notify residents of drought status and implement restrictions on water deliveries as directed by City Council Assist with communication and implementation of drought response actions. Implement water restrictions with public notices and implement other response actions Manage public messaging and other response actions Approve implementation of response actions

8 Review Effectiveness and Plan for Continued Drought

The water year for the State of Utah goes from October 1st to September 30th. Clinton city's potable water year goes from January 1st to December 31st. The city monitors its water use continually and prepares detailed water use reports for the state each spring. In January after droughts, Clinton city will review the effectiveness of their drought plan and mitigation measures and make adjustments to mitigation measures. The city will also look to the future to determine what new mitigation measures make be needed if the drought continues.