



Bureau of Reclamation WaterSMART
Water and Energy Efficiency Grants Fiscal Year 2024

Town of Garden City

The Garden City, Hodges, and Swan Creek Irrigation Canal
Piping Project



Project Contact:

Mike Leonhardt, Mayor
69 N. Paradise Pkwy
Garden City, UT 84028
435-946-2901
mikel@gardencityut.us

Project Manager:

Quinn Dance, P.E.
69 N. Paradise Pkwy
Garden City, UT 84028
435-713-9514
qdance@jub.com

TECHNICAL PROPOSAL AND EVALUATION CRITERIA.....	1
EXECUTIVE SUMMARY	1
<i>Applicant Info</i>	1
<i>Project Summary</i>	1
<i>Length of Time and Estimated Completion Date</i>	1
<i>Federal Facility</i>	1
PROJECT LOCATION.....	2
PROJECT DESCRIPTION	2
EVALUATION CRITERIA	4
<i>Evaluation Criterion A – Quantifiable Water Savings (25 Points)</i>	4
(1) Canal Lining/Piping.....	6
<i>Evaluation Criterion B – Renewable Energy (20 Points)</i>	8
Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery	8
Subcriterion No. B.2: Increasing Energy Efficiency in Water Management	9
<i>Evaluation Criterion C – Other Project Benefits (15 Points)</i>	9
<i>Evaluation Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits (15 points)</i>	17
<i>Evaluation Criterion E—Complementing On-Farm Irrigation Improvements (8 points)</i>	20
<i>Evaluation Criterion F—Readiness to Proceed (8 points)</i>	22
<i>Evaluation Criterion G—Collaboration (5 points)</i>	24
<i>Evaluation Criterion H – Nexus to Reclamation (4 Points)</i>	24
PERFORMANCE MEASURES.....	25
BUDGET NARRATIVE	25
ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE.....	26
REQUIRED PERMITS OR APPROVALS	27
OVERLAP OR DUPLICATION OF EFFORT STATEMENT.....	27
CONFLICT OF INTEREST DISCLOSURE STATEMENT.....	27
UNIFORM AUDIT REPORTING STATEMENT	27
CERTIFICATION REGARDING LOBBYING	27
LETTERS OF PROJECT SUPPORT AND LETTERS OF PARTNERSHIP.....	27

ATTACHMENTS

- Attachment A - Project Location Map**
- Attachment B – Project Detail Map**
- Attachment C – Water Loss Report**
- Attachment D – Disadvantage Population Map**
- Attachment E – On-Farm Signature List**
- Attachment F – Service Area Map**
- Attachment G – Letters of Support**
- Attachment H – Budget Detail and Narrative**

Technical Proposal and Evaluation Criteria

Executive Summary

Applicant Info

Date: February 22, 2024

Applicant Name: The Town of Garden City (Town)

City, County, State: Garden City, Rich County, UT

Project Manager:

Name: Quinn Dance P.E., Town Engineer

Phone: 435-713-9514

E-mail: qdance@jub.com

Applicant Category: Category A

Project Funding Request: \$1,132,269.00

Total Project Cost: \$2,264,537.00

Funding Group: Group II

Project Summary

A one-paragraph project summary that provides the location of the project, a brief description of the work that will be carried out, any partners involved, expected benefits, and how those benefits relate to the water management issues you plan to address.

The Garden City, Hodges, and Swan Creek Irrigation Canal Piping Project will replace an open earth-lined canal with a piped system, installing approximately 3,600 feet of 48-inch High-Density Polyethylene (HDPE) pipe, a splitter structure, concrete measuring flumes, and an 11.6 kW solar array at the Garden City town office or Public Works Building. This will stop an estimated 555 acre-feet of water loss from seepage and reduce the risk of canal failure on a hillside above homes and recreational areas. Additionally, the project will improve water quality by reducing sediment flowing into Bear Lake. Garden City is partnering with local irrigation companies, Hodges Irrigation Company and Swan Creek Canal Company, to complete this important project that benefits agriculture, residents, and the environment.

Length of Time and Estimated Completion Date

State the length of time and estimated completion date for the proposed project. Note: proposed projects should not have an estimated construction start date that is prior to December 31, 2024.

The project is ready to go. The environmental document is expected to be a categorical exclusion, which should be 90 percent complete and 60 percent designed by December 2024—pipe installation (September 2025 – May 2026), solar installation (June – September 2026), and final reports and project closeout (September – December 2026). The project will be accomplished within the two-year allowance.

Federal Facility

Whether or not the project is located on a Federal facility.

No, the project is not located on a Federal facility.

Project Location

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

The project is located in Garden City, Rich County, Utah on the shores of Bear Lake, approximately 40 miles Northeast of Logan, Utah and 15 miles south of Montpelier, Idaho. The project latitude is {39°30'39" N} and longitude is {111°32'49" W}. See Attachment A - Project Location Map.

Project Description

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

The Garden City, Hodges, and Swan Creek Irrigation Canal Piping Project involves piping an open, unlined canal on the hillside above homes, campgrounds, and recreational facilities in Garden City, Utah. It includes installing approximately 3,600 feet of 48-inch High-Density Polyethylene (HDPE) pipe, a concrete splitter structure, two concrete measuring flumes, monitoring equipment for the east and west channels, and a 11.6 kW solar array at the Garden City offices or Public Works facilities. This project will address two canal sections currently losing an estimated 555 acre-feet of water from seepage from the open, earthen canal. It will reduce the risk of failure along the hillside and improve water quality by reducing sediment transport downstream into Bear Lake, a pristine lake in Utah and Idaho. Garden City is a large shareholder in Hodges Irrigation Company (HIC) and Swan Creek Canal Company (SCCC) and will partner with these companies to accomplish this important project. HIC and SCCC provide agricultural, outdoor residential, and stock water within the Town of Garden City and Rich County, Utah.

Photo 1 Earthen Canal that is Breaching due to Hillside Encroachment



Background:

As with many canal systems, the existing channel is mostly unlined with a grass/weed earthen channel and is losing water. HIC and SCCC receive their water from Swan Creek, where the diversion structure is high on the hillside of the east side of the Bear River mountains. At the diversion structure on Swan Creek, the water is delivered to three separate canal companies in two different channels, one moving water north and the other moving water south. During the 2021 Water Loss Study, the south channel diverted approximately 6,823 acre-feet of water

during the irrigation season to where the channel splits, delivering water to HIC and SCCC.

The open, unlined canal sits upon the hillside above homes, campgrounds, and recreational facilities in Garden City. In 2022, the canal had two failures, one in May and another in July. It happened again when they finished fixing the breached section from the May failure. Luckily, they could shut the water down quickly during both events before it flooded residents and recreation areas below. However, if they could not shut the water down, it would have been devastating and caused significant flooding, economic loss, and possibly death.

Due to unprecedented growth and excavation below the canal for new development, the stability of the hillside where this canal is located has been a concern for the past few years. In addition, over the past few years, extreme drought in the area has dried out the vegetation, causing the soil to shrink and weaken. Rain and snow events in 2023 soaked the reduced vegetative areas, causing even more weakening to the ground. Due to the failure noted above, no water could be delivered through this section of the canal in the 2023 irrigation season.

As we continue to see water loss in the canal and drought and rainfall become more extreme and unpredictable due to climate change, the security of the open, unlined canal on the hillside becomes increasingly more at risk for failure. Piping this section of the canal is anticipated to stabilize the channel, help mitigate the water loss, and improve the safety of the residents and recreationists below the canal. For a project location, see Attachment A – Project Location Map and Attachment B – Project Detail Map.

The 2021 Water Loss Study indicated that the system loses 40 percent of the water as it moves through the canal, meaning only 60 percent efficiency. This project is just the first phase of a multi-phase water savings project that will need to be completed to reduce all of the losses in the system. Implementing this project phase will save 555 acre-feet of water.

The existing canal channel carries water from the northern areas of Garden City to just beyond the

Photo 2 Canal on the Hill

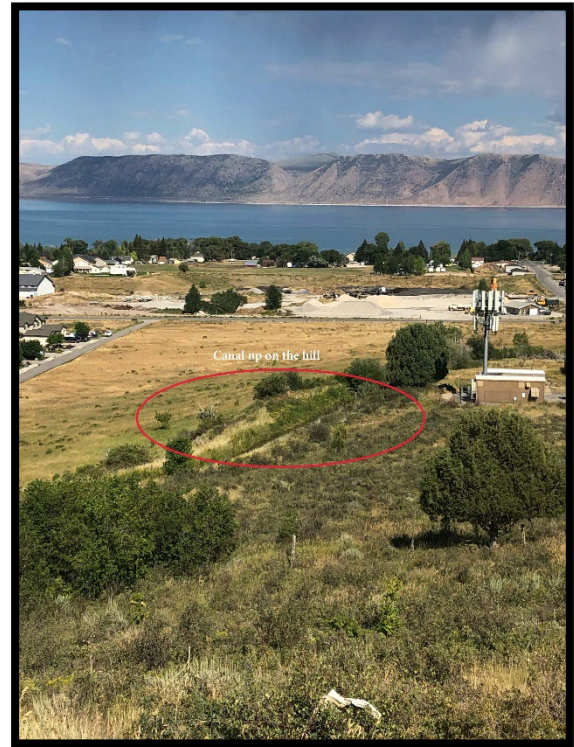


Photo 3 Garden City and Bear Lake



south boundary of the Town into Rich County. The irrigation water provides water for a recreational fishing pond within Garden City and the tailwater contributes water to Bear Lake and supplies water ecosystem in the southern area of the Town.

The Town of Garden City is a small rural community located in Utah on the shores of Bear Lake, which is also shared with Idaho. Half of the Lake is in Utah, and the other half is in Idaho. Garden City has a population of approximately 600 full-time residents. Although the year-round population is small, the Town is an extremely popular summer resort destination nicknamed the "Caribbean of the Rockies," where every year, hundreds of thousands of visitors flood the Town to swim, boat, fish, camp, and enjoy the vast freshwater lake that has a unique turquoise blue tint due to suspended limestone deposits. The Town also offers a variety of other year-round activities for visitors, including hiking, biking, shopping, dining, snowmobiling, and skiing, along with several events such as the Bear Lake Raspberry Festival in July, the Bear Lake State Park Fishing Derby in June, and the Bear Lake Winterfest in February.

A 2022 study by the Bear Lake Economic Council estimated that Bear Lake receives approximately 1 million visitors each year, making it a major economic driver for the region, with tourism being one of the largest industries in Rich County. Visitors to Bear Lake come from all over the world and spend money on lodging, food, activities, and other goods and services. The 2022 study estimated that visitors to Bear Lake spent \$48 million in the region in 2021.

Over the last few years, the Town and the entire region, including towns in Idaho, have seen a significant increase in tourism activity and new residential construction, adding unprecedented demand and stress to the area's infrastructure and water supply. The Town of Garden City culinary water system currently serves approximately 1,250 acres and 1,400 connections. Roughly 80 percent of these connections are residential homes, and commercial connections make up the other 20 percent. The canal is essential to the sustainability of the Town's drinking water in that it can help relieve the need to use treated water for outdoor use in the future. Piping this canal is twofold for Garden City: 1) it will provide a safe, secure, closed piped delivery system that sits above many homes and recreational areas, and 2) a delivery system for the water needed in the near future for outdoor watering to help preserve the highly vital treated water for drinking.

Evaluation Criteria

Evaluation Criterion A – Quantifiable Water Savings (25 Points)

- *Describe the amount of estimated water savings: For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.*

The total water savings as a direct result of the piping project is 555 acre-feet annually, and over the 75-year life of the project, it will be 41,625 acre-feet of water saved for its intended purpose.

- *Describe current losses: Please explain where the water that will be conserved is currently going and how it is being used. Consider the following:*
 - *Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

The water is seeping into the ground, destabilizing the hillside and threatening the populated areas below.

- *If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?*

The water losses are an extreme safety issue for the area. The water is seeping into the hillsides and eventually into the groundwater or being taken up by trees and other vegetation.

- *Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?*

Losses are mainly taken up by trees and flood properties below.

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

On August 17, 2021, a study was conducted on the combined Hodges Canal and Swan Creek Canal channel flow measurements to observe potential water loss. The flow measurements were performed using a Teledyne R.D. Instruments StreamPro acoustic doppler profiler and WinRiver II companion data collection software. The data was processed using QRev, a quality control software produced by the U. S. Geological Survey (USGS).

Photo 4 Canal Breach and the Hillside

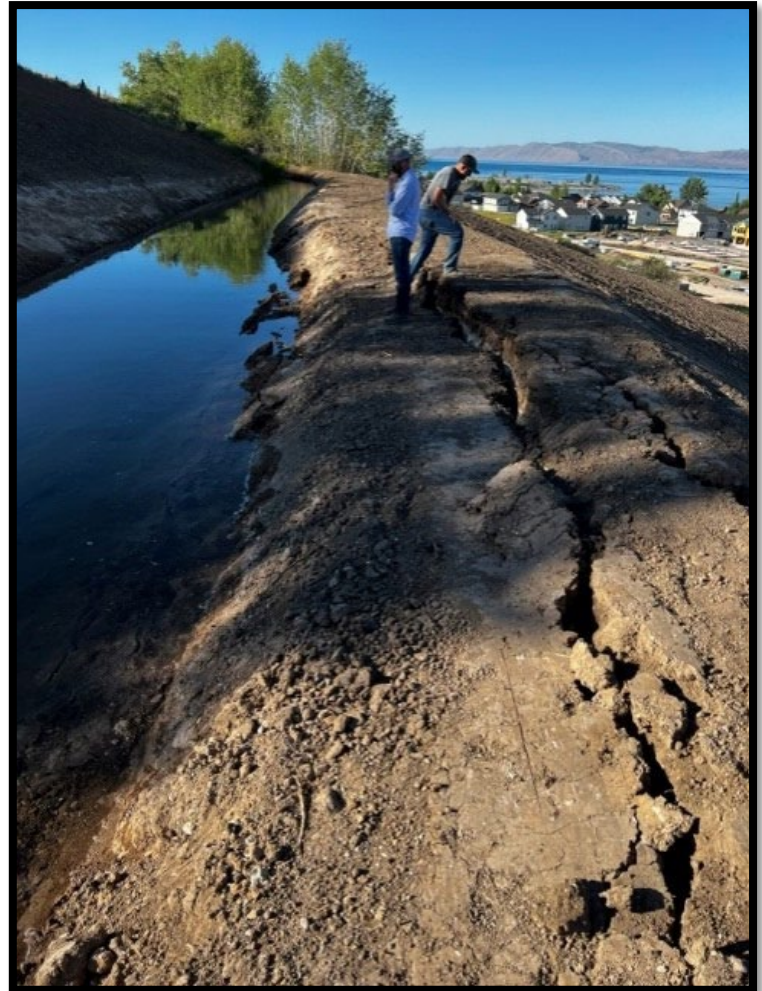
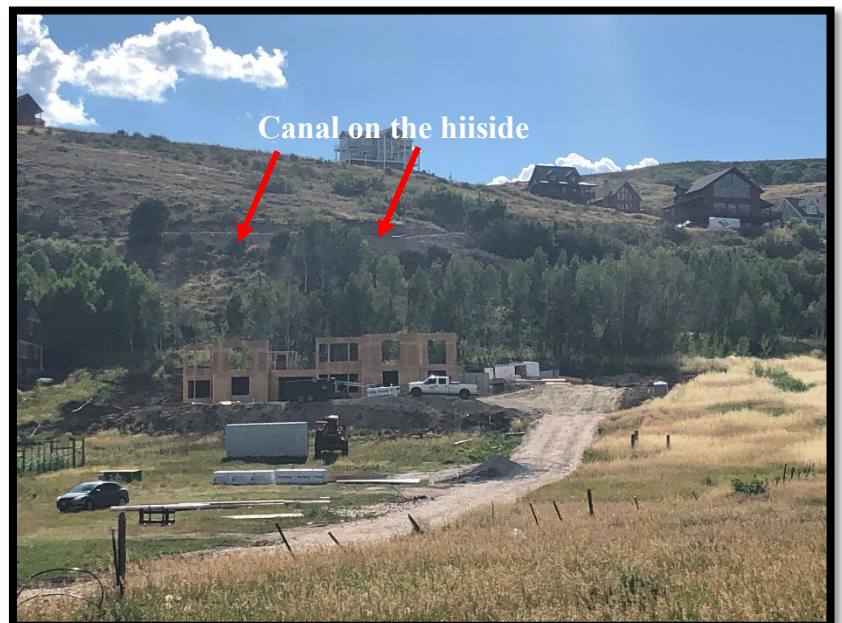


Photo 5 Canal sitting up on the Hill



The flow measurements were taken at six locations from the diversion structure to the splitter structure. A summary of the locations, conditions, and flow measurements are as follows:

Location	Description	Canal Condition	Average Flow (ft ³ /s)	Approx. Distance (ft)
Swan Creek Diversion	Hodges Canal diversion from Swan Creek	Rocky, earth-lined channel with a broken existing concrete liner	17.2	N/A
Swan Creek North	North end of Swan Creek Village	Gravelly, earth-lined channel	13.4	3,400
Swan Creek South	South end of Swan Creek Village	Sandy, earth lined channel	13.0	5,400
Marina Overflow	North edge of Marina Overflow parking lot	Gravelly, earth-lined channel	12.0	5,100
Harbor Village North	North end of Harbor Village	Sandy, earth lined channel	11.8	2,300
Canal Split	Hodges Canal Split	Sandy, vegetated earth-lined channel	10.4	4,500

The data in the table above shows that the water loss from the diversion to the splitter structure totals 6.8 cfs. Over the annual irrigation season of April 15 – November 1 this equates to approximately 2,698 acre-feet or a 40 percent loss over the nearly four miles of combined channel.

2021 Field Measurements – Project Area

The flow measurement locations applicable to the section of the channel proposed to be improved in this project are depicted in the map in Attachment C – Water Loss Report. A summary of the conditions and flow measurements are as follows:

Location	Description	Canal Condition	Average Flow (ft ³ /s)	Approx. Distance (ft)
Harbor Village North	North end of Harbor Village	Sandy, earth lined channel	11.8	N/A
Canal Split	Hodges Canal Split	Sandy, vegetated earth-lined channel	10.4	4,500

Estimated Water Loss – Project Area

With the data in the table above, the water loss within the project area totals 1.4 cfs. Over the annual irrigation season of April 15 – November 1, the losses equate to approximately 555 acre-feet or an 8 percent loss over the project area channel.

- *Please address the following questions according to the type of infrastructure improvement you are proposing for funding:*

(1) Canal Lining/Piping

- *How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data. How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been*

conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.

The Hodges Irrigation Company (HIC) and Swan Creek Canal Company (SCCC) share a canal channel for approximately 3.9 miles. This occurs from a joint diversion structure to a splitter structure, after which, the channels separate. HIC owns a water right (23-219) that allows the company to divert nearly 23 cfs from the Swan Creek tributary. SCCC holds a water right that allows 26 cfs. With both companies combined, there is the potential to divert just over 49 cfs through the shared channel.

Historically, the shared channel has not been able to convey the full right without compromising or threatening the stability of the existing slopes. Based on historical knowledge obtained from company board members and shareholders, the maximum flows diverted down the shared channel have ranged from 25-30 cfs. In the summer of 2021, measurements and a water loss evaluation of the described portion of the channel were taken.

At that time, the diverted water was measured to be approximately 17 cfs at the diversion structure. This equates to about 35 percent of the available water rights that the companies are entitled to.

The flow measurements were performed using a Teledyne R.D. Instruments StreamPro acoustic Doppler profiler and WinRiver II companion data collection software. The data was processed using QRev, a quality control software produced by the U. S. Geological Survey (USGS).

The flow measurements were taken at six locations, from the diversion to the splitter structure (see table above). The water loss within the project area totals 1.4 cfs. The annual irrigation season of April 15 – November 1, the loss equates to approximately 555 acre-feet of water or an 8 percent loss over the project area channel.

- *What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?*

The post-project losses within the project area are minimal to no loss due to the proposed material. A large-diameter high-density polyethylene (HDPE) pipe is being proposed that is constructed with fused joints that result in a zero-leak rate according to manufacturer specifications.

- *What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?*

Over the combined channel length of 3.9 miles, 2,698 acre-feet are lost due to seepage. This equates to approximately 691 acre-feet per mile of transit loss reductions. Over the project area of 0.85 miles, there are 555 acre-feet lost. Therefore, the annual transit loss within the project area equals approximately 651 acre-feet per mile.

- *How will actual canal loss seepage reductions be verified?*

The current measuring system for the canals is a staff gauge at the headwaters diversion from Swan Creek, the tributary, and then basic flume measurement at the splitter location

where the two companies split into separate channels. With the project's improvements to the canal channel, both companies will see improved flow measurements. This will allow the companies to better understand water loss and plan for future improvements.

The initial proposed locations for installing flow measurement devices are at the exact locations where flow measurement was taken in the water loss report – Harbor Village North and the Canal Split. This would allow for measurement at two locations before the channels split.

- *Include a detailed description of the materials being used.*

HDPE pipe is being proposed for this project. This pipe material is being proposed for several reasons: durability, flexibility, high performance, and long life expectancy. This material provides a lay length of 40-50 feet, which limits joints. The joints are butt-fused before installation. The proposed pipe specifics are a PE 4710 48-inch diameter pipe size with a DR 21 rating.

Evaluation Criterion B – Renewable Energy (20 Points)

Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

Describe the amount of energy capacity. *For projects that implement renewable energy systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.*

The proposed project includes installing a 29-panel 11.6 kW solar array on the Town office or the Public Works facility. The proposed solar array will provide approximately 14,010 kWh per year, which will be used to offset the energy demands of pumping the culinary water.

Describe the amount of energy generated. *For projects that implement renewable energy systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate. Please explain how the power generated as a result of this project will be used, including any existing or planned agreements and infrastructure.*

Yes, the proposed project includes installing a 29-panel 11.6 kW solar array on the roof of the Town office or the Public Works facility. The proposed solar array will provide approximately 14,010 kWh per year that will be used to offset energy demands from pumping culinary water. The proposed solar project is estimated to offset about 21,889 pounds of CO₂ per year, reducing the Town's carbon footprint.

Describe any other benefits of the renewable energy project: *Please describe and provide sufficient detail on any additional benefits expected to result from the renewable energy project, including:*

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

Solar panels will provide a renewable energy source that is considered a sustainable green infrastructure. The solar array will produce enough energy to reduce 21,899 pounds of carbon dioxide annually and 547,475 pounds over 25 years, reducing the greenhouse gases contributing to climate change. By reducing carbon dioxide emissions, solar energy can help mitigate the effects of climate change and improve air quality.

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

The proposed 29-panel 11.6 kW solar array is anticipated to:

- Reduce greenhouse gas emissions
- Improve air quality
- Protect water quality

- *Expected environmental benefits of the renewable energy system*

The proposed solar project delivers significant environmental benefits beyond simply powering Garden City's facilities. By generating clean energy, it is estimated by the EPA Greenhouse Gas Equivalencies Calculator to offset annually the equivalent of 11,122 pounds of coal burned, 975 gallons of diesel gas consumed, and 25,453 miles driven by an average gasoline-powered passenger vehicle.

This translates to a cleaner environment, reduced reliance on fossil fuels, and valuable protection for regional ecosystems.

- *Any expected reduction in the use of energy currently supplied through a Reclamation project*

No.

- *Anticipated benefits to other sectors/entities*

Benefits and beneficiaries:

- Reduced greenhouse gas emissions are a step in the right direction for combatting climate change. The proposed solar project will offset approximately 21,889 pounds of CO₂ per year compared with coal plant generation.
- The power generated will allow Garden City to offset electrical usage. In a small way, this will reduce the peak usage that Rocky Mountain Power is required to deliver.

- *Expected water needs, if any, of the system*

No additional water will be required to operate the solar panel array.

Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

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

N/A.

Evaluation Criterion C – Other Project Benefits (15 Points)

Resilience and Sustainability Benefits:

Will the project address a specific water and/or energy sustainability concern? Please address the following: Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:

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

The Garden City Mayor indicated that "Garden City had over 33 percent growth in short-term vacation rental homes that have come online over the last ten years. This 33 percent increase means more than 600 rental properties are now just along the western shore of Bear Lake in Garden City alone". This has changed the demand for water in the Bear Lake Vally significantly.

Bear Lake water levels have declined due to extended drought and water allocation from the Lake for crop irrigation in Cache County and Bear Lake County. Impact on water levels include:

- Although details are scarce, available data suggests Bear Lake water levels did experience a decline in 2022 due to the statewide drought. However, specifics about the extent of the decrease are not readily available.
- ***Unveiling historical structures:*** Lower water levels exposed previously submerged remnants of historical structures, drawing attention and sparking conversations about water conservation and the impact of droughts.
- ***Increased risk of algae blooms:*** Lower water levels and warmer temperatures created conditions conducive to algae blooms, raising concerns about water quality and potential harm to the lake ecosystem.
- ***Reduced fish habitat:*** Lower water levels could have impacted fish habitat, potentially affecting fisheries and recreational fishing.

- *Describe recent, existing, or potential drought or water scarcity conditions in the project area.*

Garden City, HIC, and SCCC have faced severe water scarcity challenges due to drought over the past ten years, and then during the 2022 – 2023 winter season, record snowfall happened! Reports indicate accumulations exceeding 15 feet of snow contributing to a significant snowpack in the mountains surrounding the Town.

Fortunately, the snowmelt process was delayed due to low temperatures, which slowed down the melting process, and Bear Lake stayed frozen for later in the season. This played a crucial role in further delaying the release of meltwater.

The drought and record snowfall have had a major impact on the stability of the canal, causing infrastructure issues and operational difficulties. During the 2023 irrigation season, no actual diverted irrigation water flowed through the canal. The hillside where a past breach had been fixed became unstable, leaving irrigators without water for the entire irrigation season.

Photo 6 Flooding on the roads in Garden City Spring 2023

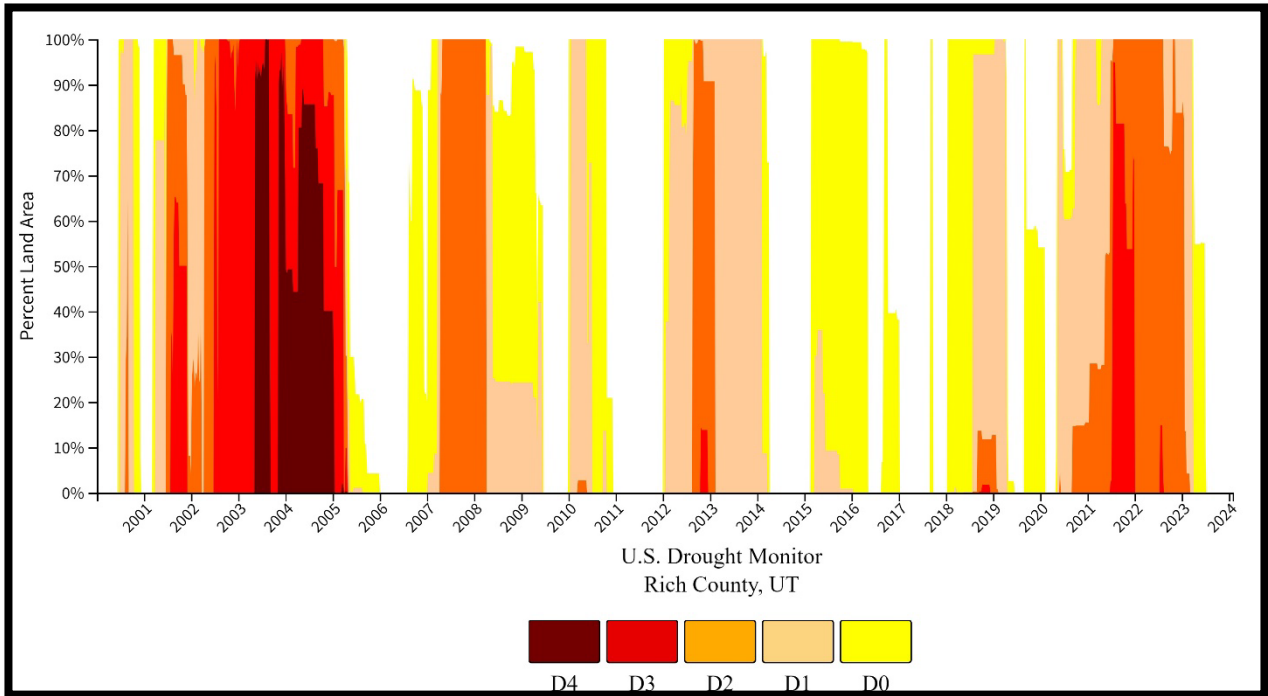


- *Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?*

The project area in Garden City has experienced "exceptional" and "severe" drought conditions. The U.S. Drought Monitor measures drought intensity and documents them over the years. The U.S. Drought Monitor indicates that the Garden City area in Rich County has fluctuated between the "Exceptional Drought" and "Severe Drought" categories for much of the past 24 years, indicating persistent dryness. See Figure 1 below.

Over the past ten years, the project area has had a severe and extreme drought that has significantly impacted Garden City's culinary water source and the ability for irrigators to receive their water. Irrigation seasons were shortened, and with the system's breaches over the past few years, irrigators have felt the impacts of the drought even more.

Figure 1 U.S. Drought Monitor for Rich County



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

Temperatures in Utah are projected to increase by 3-6°F by the 2060s and 4-10°F by the end of the century. This warming trend can lead to:

- **Earlier snowmelt:** Earlier snowmelt translates to less water stored in winter snowpack, impacting spring and summer streamflow.
- **Increased evaporation:** Higher temperatures lead to increased evaporation from reservoirs and land surfaces, further exacerbating water scarcity.

Projections for precipitation changes are less clear. Some models predict slight increases, while others suggest decreases. However, a general trend towards more extreme precipitation events (intense storms followed by drier periods) is predicted.

These combined factors contribute to a higher risk of drought in the future. Less winter snowpack, increased evaporation, and potential decreases in summer precipitation create a challenging scenario for water availability.

Agriculture, a significant part of Rich County's economy, is particularly vulnerable to water scarcity. Reduced water availability could impact crop yields and livestock production.

Resources used:

Climate Change, Water Resources, and Potential Adaptation Strategies in

Utah: https://water.utah.gov/wp-content/uploads/2020/09/Final-Report_ClimateChangeUtah_May_2020.pdf

State of Utah Hazard Mitigation - Climate Change: <https://geology.utah.gov/hazards/>

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

Rich County and Garden City rely on fossil fuels just like the entire State of Utah. As of 2022, natural gas accounted for 66 percent of Utah's electricity generation, followed by coal at 22 percent. Renewables only contributed 12 percent.

Air pollution in Rich County is less harmful than in areas along the Wasatch Front or Cache County just west of Rich County. Utah ranks poorly in air quality nationally, with emissions from fossil fuel power plants contributing significantly.

Water scarcity is an issue because major hydropower is produced from Bear Lake, requiring the water to move from the Lake based on agreements with the power company in the area; this can potentially exacerbate water scarcity concerns in this drought-prone area.

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

The project can potentially address the concerns of increasing drought severity and decreasing snowpack. The project's core objective is to reduce water loss by 555 acre-feet annually. This conserved water directly combats the scarcity caused by drought and reduced snowpack by making more water available for users. Replacing open, earthen canals with HDPE pipe and installing meters enables water management and equitable distribution. This helps to ensure users receive their allocated share efficiently, preventing overuse and maximizing available resources during droughts.

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

The project is expected to directly result in more efficient water supply management. Replacing the open canal with a piped system will eliminate seepage losses, significantly increasing water availability for irrigation and other uses.

Installing concrete measuring flumes will provide more accurate water measurement, allowing for better control and distribution of water resources. This can help ensure that water is delivered where needed most and used efficiently.

The piped system is less susceptible to weather events and development impacts on an open canal. It provides a safer canal as it sits on the hillsides above homes and recreational areas. Enclosed pipes minimize evaporation losses compared to an open canal, especially during hot and dry periods. This further contributes to water conservation.

- *Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

The existing canal channel carries water from the northern areas of Garden City to the southern boundary of Rich County. The remaining tailwater contributes to Bear Lake and

supplies the ecosystem south of the Town. Primarily, this project will provide a more balanced water supply to the agricultural water users in the service area, allowing them to have a reliable water source. Utah's recent drought years have significantly reduced the number of cuts of hay and alfalfa, causing farmers to buy more feed. As the years go by with no sign of improved drought conditions, installing the proposed piping and measurement equipment has become necessary to build drought resiliency and provide safety for the people who live below and around the canal.

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

All 555 acre-feet of water saved by the piping project will be directed towards agricultural purposes. This includes supplementing existing water allocations for irrigators facing shortages, enabling crop diversification, and expanding different crop opportunities and opportunities for residential outdoor use.

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

Replacing the earth-lined canal with a 48-inch HDPE pipe will eliminate seepage and conserve an estimated 555 acre-feet of water annually. New flow meters will also be installed to measure and document the water moving through the canal. This saved water will be strategically directed through the existing canal system.

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

The project will help states and water users comply with the Bear River Commission Compact. This is because the project increases water levels in Bear Lake, which is crucial for meeting irrigation demands in Idaho, Utah, and Wyoming, as outlined in the Compact.

Key Point of the Compact:

- The Bear River Commission Compact apportions water between the three states and manages storage allocation.
- The project addresses a Compact provision by adding water to Bear Lake, aiding irrigation reserve compliance.
- While the Compact doesn't directly manage Bear Lake, provisions within it influence lake operations and help maintain higher water levels.
- Two specific Compact provisions directly impact Bear Lake's elevation:
 - Restricting upstream storage when the Lake is low.
 - Restricting releases solely for power generation when the Lake is high.

Overall, the project contributes to Compact compliance by ensuring sufficient water in Bear Lake for essential irrigation needs.

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

Within this basin, there are no litigation or concerns, but any project benefits within the basin are indirectly tied to the Great Salt Lake through the Bear River. The Great Salt Lake is currently the subject of growing concern within the State. The Great Salt Lake plunged to its lowest recorded level in November 2022, and recent data shows a downward trend in overall lake levels. The project may indirectly help prevent a water-related crisis in the Great Salt Lake, but currently, there are no conflicts or litigation within the Bear River basin.

The Great Salt Lake has received more attention in recent years because lowering water levels have affected not only the local brine shrimp and bird populations but also industry, air quality, and recreation. In 2019, the Great Salt Lake Advisory Council published a report titled "Consequences of Drying Lake Systems around the World" detailing many of the consequences of lower water levels. The proposed project will result in conserved water, increasing its resilience to drought and improving water levels in Bear Lake and, ultimately, the Great Salt Lake. Increased surface flow levels will occur in Swan Creek as irrigators conserve 555 acre-feet annually.

Ecological Benefits:

. Please provide information regarding how the project will provide ecosystem benefits, including the following:

- *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a State listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).*

Yes, the proposed project will allow HIC and SCCC to reduce any need to over-allocate water in order to get it to the water users at the end of the canal for their water allocations. If they can reduce the water diverted from Swan Creek during summer months when stream flows are at their lowest levels, this will increase water levels in Swan Creek and reduce water temperatures to benefit ecological habitats in the area. Swan Creek eventually ends up in Bear Lake, so improved stream flow will also increase water levels in Bear Lake to enhance habitat for several species, including:

- **Bear Lake Cutthroat Trout** are endemic to Bear Lake and are listed as Federally endangered. Increased water levels would provide more habitat for this species, including spawning and rearing areas.
- **Bonneville Cutthroat Trout** are listed as Federally threatened and are found in several streams and tributaries that flow into Bear Lake. Increased water levels in the Lake would improve habitat connectivity for this species and make it easier for them to move between different spawning and rearing areas.
- **Bald Eagles** are listed as Federally threatened and are known to nest and forage around Bear Lake. Increased water levels would provide more habitat for fish, a primary food source for this species.
- **Osprey** are listed as Federally threatened and are known to nest and forage around Bear Lake. Increased water levels would provide more habitat for fish, a primary food source for this species.
- **American White Pelicans** are listed as Federally threatened and are known to migrate through Bear Lake. Increased water levels would provide more habitat for fish, a primary food source for this species.
- **Snowy Plover** are listed as Federally threatened and are known to nest on the shores of Bear Lake. Increased water levels would create more nesting habitat for this species.

- **Wilson's Phalarope** are listed as Federally threatened and are known to migrate through Bear Lake. Increased water levels would provide more habitat for insects, a primary food source for this species.
- **Bonneville Cisco** is native to Bear Lake and is listed as a Wildlife Species of Concern by the Utah Division of Wildlife Resources. Increased water levels would provide more habitat for this species, including spawning and rearing areas.

Photo 7 Bonneville Cisco



In addition to these species, increased water levels in Bear Lake would benefit various other wildlife, including waterfowl, shorebirds, and mammals.

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

This project's development will allow more water to be saved and delivered from Swan Creek to Bear Lake. The conserved water can be held in Bear Lake as part of the Bear Lake Compact to keep enough for downstream irrigators.

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

It is unlikely that this project alone would be enough to reduce the likelihood of any of these species' listing. Still, there is little doubt that this project is an excellent step towards better overall water management that will provide ecological benefits and improved habitat. Many other factors can affect the water levels in Bear Lake, including climate change, water use, and other irrigation practices. It is essential to take the steps necessary to increase the effectiveness and efficient use of Utah's limited water resources in a way that benefits both people and wildlife.

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

N/A.

Climate Change:

E.O. 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.

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

By preventing an estimated 555 acre-feet of water loss annually, the project directly enhances climate change resilience and community adaptability to drought. The saved water can be strategically used to supplement agricultural water allocations during dry periods, ensuring farmers can maintain productivity and protect their livelihoods. Additionally, conserved water can help sustain critical river flows to Bear Lake, benefiting aquatic ecosystems and promoting environmental stability within the community. This improved water security

contributes to a more resilient and adaptable community against the on-going challenges of climate change and drought.

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

While primarily aimed at improving water management in agriculture, the project's impacts extend beyond this. By conserving water for environmental needs, reducing pollution, and setting a precedent for sustainable practices, the project indirectly strengthens the ecosystem's resilience against climate change, adding further value to its overall benefits. The following are some of the ways this project will help to improve resilience to climate change:

- **Conserved water for environmental flows:** By saving an estimated 555 acre-feet of water annually through reduced seepage, the project provides additional resources that can be strategically used to support the Swan Creek and Bear Lake ecosystem. This includes:
 - Maintaining critical flows during low-water periods, especially during droughts when natural flows are diminished.
 - Protecting endangered species and sensitive ecosystems: The improved water flow could benefit specific fish species by supporting spawning periods or restoring depleted wetlands.
- **Reduced evaporation and pollution:** Replacing the open, earth-lined canal with pipes minimizes water loss by evaporation, leading to potentially increased water availability for environmental needs. Additionally, piping reduces the risk of agricultural pollutants like fertilizers and pesticides entering Swan Creek and Bear Lake, contributing to a cleaner ecosystem.
- **Promoting sustainable practices:** The project demonstrates a commitment to responsible water management and conservation, setting a positive example for other sectors within the region. This can encourage broader adoption of sustainable practices, contributing to long-term ecological resilience against climate change impacts.
- **Indirect benefits:** By stabilizing water availability for agriculture, the project indirectly aids ecological resilience.

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

While the project's primary focus is on water conservation and management, it indirectly contributes to reducing or mitigating some climate pollutants:

- a. **Reduced greenhouse gas emissions/lower energy consumption:** Replacing the open, earth-lined canal with pipes requires less maintenance, potentially reducing energy consumption and associated greenhouse gas emissions from equipment used to maintain the canal.
- b. **Reduced agricultural runoff:** Piping minimizes seepage into the ground, potentially reducing the amount of agricultural pollutants like fertilizers and pesticides reaching groundwater or surface water sources.
- c. **Lower evaporation:** By reducing water loss via evaporation, the project contributes to maintaining water levels in Swan Creek and Bear Lake, potentially diluting existing pollution and improving overall water quality.
- d. **Potential for renewable energy integration:** Solar power generation within this project will help Garden City reduce its reliance on fossil fuels and mitigate associated air pollution.

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

Yes, this project will add solar panels to the roof of the Town office or Public Works facility, producing 11.6 kW of power and providing 14,009 kWh per year. With the development of this solar array, Hodges Irrigation Company (HIC) will be able to continue utilizing the power on-site, reducing the cost of outside power sources and environmental impacts throughout the entire year.

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

N/A.

Evaluation Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits (15 points)

Disadvantaged Communities

- *If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?*

The Garden City, Hodges, and Swan Creek Irrigation Canal Piping Project has the potential to benefit the disadvantaged population in Montpelier, Idaho, and Bear Lake County, Idaho, in several ways, even though it is located 30 miles north in Idaho on the upper side of the Lake.

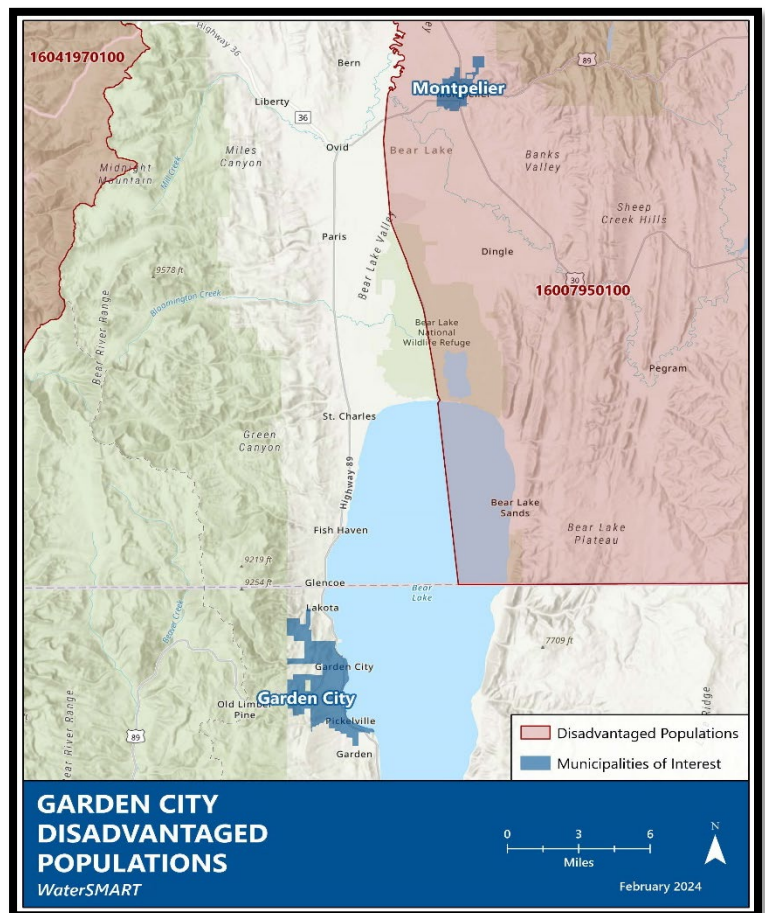
Figure 2 Disadvantaged Population Map

This area is critical for the tourism industry in both Garden City and the surrounding areas, including Montpelier and Bear Lake County. By improving water security, the project can help stabilize the tourism industry, a significant source of jobs and income for many residents, including those in disadvantaged populations. For a larger view of Figure 2, see Attachment D – Disadvantage Population Map.

The disadvantaged population will benefit in the following ways:

Improved water security and environmental benefits:

- **Reduced water loss:** By preventing the estimated 555 acre-feet of water loss from seepage, the project will ensure more water is available for agricultural use. This can be crucial for farmers and those who work on



farms in Rich County, Montpelier, and Bear Lake County. Increased water availability can lead to higher crop yields and more stable income for these communities.

- **Reduced risk of canal failure:** Replacing the open canal with a piped system reduces the risk of canal failure, which could devastate the water supply for irrigation and domestic use. This would disproportionately affect low-income households, who may not have the resources to cope with such a disruption.
- **Stable tourism industry:** A reliable water supply is essential for maintaining healthy Bear Lake water levels, which are critical for the tourism industry in both Garden City and the surrounding areas, including Montpelier and Bear Lake County. By improving water security, the project can help stabilize the tourism industry, which is a significant source of jobs and income for many residents, including those in disadvantaged communities.
- **Improved water quality:** Reducing sediment flow into Bear Lake will benefit the lake ecosystem and improve the quality of drinking water for residents in both Garden City and surrounding communities, including Montpelier and Bear Lake County. This can have positive health impacts, especially for vulnerable populations.

Enhanced economic opportunities:

The Bear River Association of Governments, in partnership with the U.S. Department of Commerce Economic Development Administration, the State of Utah Permanent Community Impact Fund Board, the Idaho Department of Water Resources, and the Idaho Department of Parks and Recreation, commissioned the Regional Economic Contributions of Bear Lake report (2022 Regional Economic Report) in May 2022.

Bear Lake is a natural amenity that attracts visitors and seasonal residents, provides numerous recreational opportunities, and provides water-based ecosystem services. The economic demand for Bear Lake recreation spurs abundant regional economic contributions in terms of employment and income. The 2022 Regional Economic Report states that the economic future for the Bear Lake region depends on maintaining water quantity and healthy water quality, attributes that are at risk given current drought conditions and ever-increasing pressures on water demand in the arid Intermountain West.

Stable tourism industry: A reliable water supply is essential for maintaining healthy Bear Lake water levels, which are critical for the tourism industry in both Garden City and the surrounding areas, including Montpelier and Bear Lake County. By improving water security, the project can help stabilize the tourism industry, a significant source of jobs and income for many residents, including those in disadvantaged communities. The project may create temporary construction jobs, benefiting unemployed or underemployed individuals in Montpelier and Bear Lake County.

Bear Lake visitors are crucial to this region's sustainability and quality of life and are the number-one driver for the region's economic contribution and the development of jobs. Montpelier has a population of 1,600 and is the largest city in the Bear Lake region. It is also where the disadvantaged population is located. Montpelier is number one, with 539 jobs in the Bear Lake economy. Table 1 below indicates the top ten cities where people who work in Bear Lake County live.

Table 1 Top 10 Cities Where People Who Work in Bear Lake County Live, 2020

City of Residence	Count of All Jobs	Percentage of Total Jobs
Montpelier, ID	539	39.8%
Paris, ID	53	3.9%
Bennington, ID	51	3.8%
Georgetown, ID	44	3.3%
Pocatello, ID	23	1.7%
Bloomington, ID	18	1.3%
Logan, UT	16	1.2%
Source: US Census Bureau		

Facts about visitors:

- An estimated 1,115,000 visits were made to Bear Lake in 2021. Visits are not unique but represent one person spending one day or night in the Bear Lake region. Expenditure data from 2021 surveys were extrapolated to 880,000 visits after removing resident, non-primary, and off-season visits.
- Over the summer of 2021, Bear Lake visitors spent approximately \$48 million in the region associated with their trips. These regional expenditures were entered into 16 industry sectors as a final demand to initiate the regional economic contribution analysis.
- Bear Lake visitation was directly responsible for 450 full- and part-time jobs in the surrounding gateway communities. Including indirect and induced effects, 575 full- and part-time jobs were generated by Bear Lake tourism. Converting employment to full-time equivalents (FTEs) to account for the seasonal nature of Bear Lake visitation reveals that Bear Lake tourism contributed approximately 500 FTEs when including indirect and induced effects.
- Bear Lake visitation generated \$38 million in direct regional output and \$54 million in regional total production (including indirect and induced output). The total effects are shown below in Table 2. Bear Lake tourism generated over \$6 million in total taxes at the sub-county, county, state, and federal levels.
- Multiplier effects, or the measure of recirculated regional contributions, ranged from 1.29 for employment to 1.42 for output. These multipliers are indicative of very rural economies and show that new stores (e.g., Mike's Market in 2021) and services in the region can help reduce the leakage of visitor expenditures to other areas. Visitors come from across the United States to visit Bear Lake, with the majority (80 percent) coming from Idaho and Utah. Numerous Bear Lake visitors come from the greater Salt Lake City area.

Table 2 Total Effects and Multipliers for Bear Lake Visitor Expenditures (\$2021)

Impact	Employment	Labor Income (Millions)	Value Added (Millions)	Output (Millions)
Direct Effect	447.1	\$8.97	\$17.55	\$37.66
Indirect Effect	100.4	\$1.77	\$3.38	\$12.40
Induced Effect	28.4	\$0.55	\$1.67	\$3.57
Total Effect	575.9	\$11.29	\$22.60	\$53.63
Multiplier Effect	1.29	1.26	1.29	1.42

Tribal Benefits

No Tribal Benefits will be realized with this project.

Evaluation Criterion E—Complementing On-Farm Irrigation Improvements (8 points)

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

- *Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.*
 - *Provide a detailed description of the on-farm efficiency improvements.*

This project will help provide a safer, more reliable, and more efficient water delivery system for the canal. This will allow farmers to install pipes, sprinklers, and pivots to make their irrigation systems more efficient and allow for higher crop yields and less flooding potential in residential neighborhoods continually encroaching on agricultural lands.

The canal system is elevated so anyone can connect to the canal to provide sufficient pressure for an agricultural sprinkler system. This project will not change the ability to provide pressure irrigation to farms. This project will be a positive move toward ensuring that shareholders receive their water shares through a piped canal so water can be delivered more efficiently.

After contacting irrigators, SWCC and HIC are aware of a few local farms considering contacting NRCS to inquire about implementing the EQIP program. Most of the projects for EQIP would be ditch expansions, piping of ditches, and conversion of water deliveries from flood irrigation to sprinklers. The following is a list of those interested in on-farm efficiency projects. See Attachment E – On-Farm Signature Page.

- *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*

The landowners listed below are strongly interested in participating in NRCS funding programs. These projects will allow for better safety and conservation. They have not yet requested assistance from NRCS, but they plan to.

- *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*

Landowner	Acreage
Terry Allen	8
Ned Calder	57
Dennis Hodges	14
Joe Sargetakis	5

Paul Webb	2
Bill Cox	71
Garden City	12

- *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

See Attachment E – On-Farm Signature List

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

No.

OR

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

The proposed WaterSMART project directly facilitates on-farm improvements by supporting the transition from flood irrigation to gravity-fed sprinkler systems. This shift can reduce tailwater waste by up to 50%, as demonstrated in a study by Utah State University entitled "Irrigation Water Loss and Recovery in Utah". It states that "water losses to deep percolation in surface irrigation can be as high as 50%–70%, particularly at the top of a field and/or the bottom if water is allowed to pond while trying to adequately irrigate the middle of the field. Flat or steeply sloped fields generally have higher losses."

Additionally, improved metering and monitoring enabled by the project can help farmers adjust irrigation based on real-time data, potentially saving an average of 20% water per season. Furthermore, the project promotes adoption of drip irrigation, which has proven to reduce water use by up to 70% compared to sprinklers. As the Utah State University study mentioned, these improvements directly translate to higher yields, lower water costs, and increased farm profitability.

Link to Study:

Irrigation Water Loss and Recovery in Utah by Utah State University:

<https://extension.usu.edu/crops/research/irrigation-water-loss-and-recovery>

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

Based on 2021 Water Loss Study	Quantity	Unit
Annual Volume Diverted	6,244	AF
Annual Volume Lost (6824 x 25%)	1,561	AF
Annual Volume Delivered	4,683	AF

Assumed Flood Irrigation Efficiency	50%	
Assumed Sprinkler Irrigation Efficiency	75%	
Flood vs. Sprinkler Efficiency Difference	25%	
Total Acres Irrigated	1,986	ACRES
Total Acres Flooded	621	ACRES
% Acres Flooded	31%	
Water Lost to Inefficient Application	1,463	AF

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

See Attachment F – Service Area Map

Evaluation Criterion F—Readiness to Proceed (8 points)

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

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

Garden City anticipates a notice of award by July 2024 and a signed agreement to be completed by December 2024. **The Town requests pre-award costs to meet 80 percent of the design and 90 percent of the Categorical Exclusion (CE) by December 2024.** One hundred percent of the design will be completed by January 2025, and the contract's advertising, bidding, and awarding will be from February to March 2025. Construction is proposed to start in September to December 2025, then start again in March to May 2026, with a completion date in September 2026. Construction will occur outside of the irrigation season and after the snow season in the spring. It will be completed within two years, with final reports expected by 2026.

The project's primary tasks include contracting, environmental assessment, design, advertising and bidding, construction, and project closeout.

- Contracting includes executing agreements between Reclamation and Garden City.
- CE includes the necessary surveys and assessments to meet the NEPA requirements for the project area and review by Reclamation.
- Design includes a topographic survey, design review and stakeholder coordination, 50 percent design review, 90 percent design review, and final preparation of bidding documents.
- Advertising and bidding include advertising the project, distributing bid documents, pre-bid meetings, opening bids, and awarding contracts.
- Construction includes preparation of construction documents and preconstruction meetings, obtaining permits, pipeline construction, project walk-through, final grading, surface restoration, substantial completion walk-through, solar installation, and project closeout.

- *Construction includes preparation of construction documents and preconstruction meetings, obtaining permits, pipeline construction, project walk-through, final grading, surface restoration, substantial completion walk-through, solar installation, and project closeout. Describe any permits that will be required, along with the process for obtaining such permits.*

An excavation permit from Garden City Public Works staff will be required. It will require a simple form that the contractor will complete and submit to the Town.

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

The following have been performed in support of the project:

- 30 percent design to develop the preliminary cost estimates
- Water loss analysis
- Hydraulic calculation

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

Garden City will prepare a Memorandum of Understanding (MOU) to work with HIC and SCCC on the matching funds they will bring to the project and how the money transactions and reporting will be conducted. This will have to be approved by both Boards and the Garden City City Council.

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

The project is currently in the modeling and preliminary design phase. It is expected that before an agreement with Reclamation is signed in December 2024, The Town, as part of a pre-award cost, will have completed 80 percent design and 90 percent of the CE. This means minimal additional design work will be needed to finalize the design to 100 percent and get the CE approved. Completing 90 percent of the CE is crucial to staying on the project's schedule and achieving the target of 100 percent design by January 2025.

- *Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?*

Major Task and Milestones	Start	End
80% Design & Categorical Exclusion (CE) 90% completed	July 2024	December 2024
100% Design and approved CE	November 2024	January 2025
Advertising/Bidding/Award of the Contract	February 2025	March 2025
Approved Permits	March 2025	May 2025
Order Pipe and Materials	June 2025	September 2025
Canal Piping Mobilization and Construction (50% of Total Project Complete)	September 2025	December 2025
Canal Piping Construction (100% of Total Project Complete)	March 2026	May 2026
Solar Array Mobilization and Construction (100% of Total Project Complete)	June 2026	September 2026
Final Reports and Project Closeout	September 2026	December 2026

Evaluation Criterion G—Collaboration (5 points)

Up to 5 points may be awarded for projects that promote and encourage collaboration among parties in a way that helps increase the sustainability of the water supply.

Please describe how the project promotes and encourages collaboration. Consider the following:

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

HIC and SCCC boards have both expressed a desire to improve the existing canal channel, which is 100 years old. Water loss has increased over recent years, and ongoing maintenance has not mitigated those losses. The majority of shareholders have expressed support for this project to reduce water loss and improve the channel corridor's safety as development occurs. As a large shareholder, the Town of Garden City has taken the initiative to be the applicant and bring additional funding from other sources to complete the project.

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

The collaboration signifies the joint effort between the private sector (canal companies/shareholders) and the public sector. These groups have been coming together to address canal issues in recent years. This also sets the stage for potential collaboration efforts in the future.

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

HIC and SCCC shareholders include agricultural and residential water users. The Town has made strides to meter its culinary water services and charge appropriate fees for over-water use to incentivize its water users to conserve water.

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

The proposed project will allow the Town of Garden City to reduce its reliance on culinary water use on Swan Creek's surface flows, thereby increasing water levels in Swan Creek and ultimately Bear Lake, which could improve recreation on the lake.

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

See Attachment G – Letters of Support

Evaluation Criterion H – Nexus to Reclamation (4 Points)

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 a 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?*

The Town of Garden City, HIC, or SCCC are not a Reclamation contractor and do not receive any of its water from Reclamation.

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

No.

- *Is the applicant a Tribe?*

No.

Performance Measures

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

There are two areas of this project where performance measures can be documented and quantified to show the benefits upon project completion. These include renewable energy that will be generated and water that is saved.

The current measuring system for the canals is a staff gauge at the headwaters diversion from Swan Creek, the tributary, and then basic flume measurement at the splitter location where the two companies split into separate channels. This project will implement multiple flow meters, allowing the companies to better understand water savings and plan for future improvements.

The initial proposed locations for installing flow measurement devices are at the exact locations where flow measurement was taken in the water loss report, Harbor Village North, and Canal Split. This would allow for measurement at two locations before the channels split. The measurements will be documented monthly and presented to the two irrigation boards annually to ensure that the water savings are being recorded.

The energy produced by the solar array will be metered, and the metered output will be recorded monthly and compared to this application's estimation of power generation. During annual board and shareholder meetings, this information will be provided to the Garden City, HIC, and SCCC boards.

Photo 8 Current Measuring System Staff Gauge



Budget Narrative

Pre-Award Costs: The budget includes pre-award costs for the 80 percent design and the 90 percent CE that will be started in July 2024 after the notice of award, and it is understood that these costs are at Graden City's own risk. **The timing of these costs is necessary for the efficient and timely performance of the scope of work due to the need to construct this project outside of the irrigation season and keep it within the two-year timeline.** These costs are documented in Attachment H – Budget Detail and Narrative.

Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. 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 piping a canal in an existing predisturbed canal right-of-way. The proposed project improvements will occur entirely within the existing easements. In the past, similar projects have had minimal impacts and were approved as a Categorical Exclusion.

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

The Town of Garden City is unaware 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.

The Town of Garden City is unaware of any impacts to wetlands in this area.

When was the water delivery system constructed?

The water right is around 1882, and the canal is approximately 100 years old, with many changes being made to the canal over the years.

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

No.

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

A 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?

The Town of Garden City is unaware 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.

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

No.

Required Permits or Approvals

An excavation permit from Garden City Public Works staff will be required. It will require a simple form that the contractor will complete and submit to the Town.

Overlap or Duplication of Effort Statement

There is no overlap or duplication of effort at the time of submission.

Conflict of Interest Disclosure Statement

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

Uniform Audit Reporting Statement

The Town of Garden City has not expended more than \$750,000 in Federal award funds in any fiscal year and has not been required to complete a Single Audit report.

Certification Regarding Lobbying

The Town of Garden City does not retain a lobbyist. They will be self-certifying with Federal form G.G. – Certification for Lobbying form.

Letters of Project Support and Letters of Partnership

Include letters from interested stakeholders supporting the proposed project.

See Attachment G – Letters of Support

Hodges Irrigation Company and Swan Creek Canal Company – Funding commitment and partnership letter.

Attachment G -
Hodges Irrigation Company and Swan Creek
Canal Company
10 S. Bear Lake Blvd., Garden City, UT 84028

Bureau of Reclamation
Funding Opportunity No. R23AS00008
WaterSMART Water and Energy Efficiency Grants for FY 2024

Re: The Garden City, Hodges, and Swan Creek Irrigation Canal Piping Project

February 16, 2024

Dear Bureau of Reclamation WaterSMART Review Team,

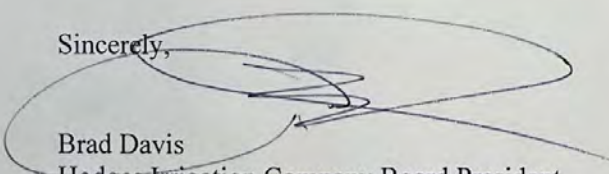
The Hodges Irrigation Company (HIC) and the Swan Creek Canal Company (SCCC) are individually registered in Utah and provide agricultural water to approximately 122 shareholders with over 1,600 shares within their respective delivery systems. While both companies lack full-time paid employees, we are collaborating with Garden City, a major shareholder in both HIC and SCCC, to pursue this funding opportunity. Garden City, also a category A applicant, possesses the staff and resources necessary to manage the grant funds, complete the required reports, and oversee project implementation.

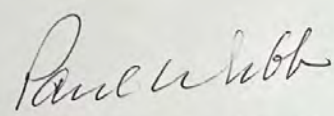
This letter serves to formally certify the funding and partnership commitment of all parties involved:

1. **Funding Commitment:** HIC, SCCC, and Garden City are dedicated to providing the required cash-matching funds for this project.
2. **Partnership:** We are partnering with Garden City to implement the Garden City, Hodges, and Swan Creek Irrigation Canal Piping Project. We fully support and endorse the submitted application and its contents.
3. **Active Participation:** We intend to remain actively involved throughout the project by providing input on design decisions, collaborating with Garden City, and facilitating access to relevant easements and property.
4. **Operation and Maintenance:** Upon project completion, both HIC and SCCC commit to the ongoing operation and maintenance of the metering structures, piped canal sections, and other canal areas within our ownership.

We appreciate your consideration of our application and welcome any further questions you may have. Please do not hesitate to contact us for additional information.

Sincerely,


Brad Davis
Hodges Irrigation Company Board President


Paul Webb
Swan Creek Canal Company Board President