WaterSMART

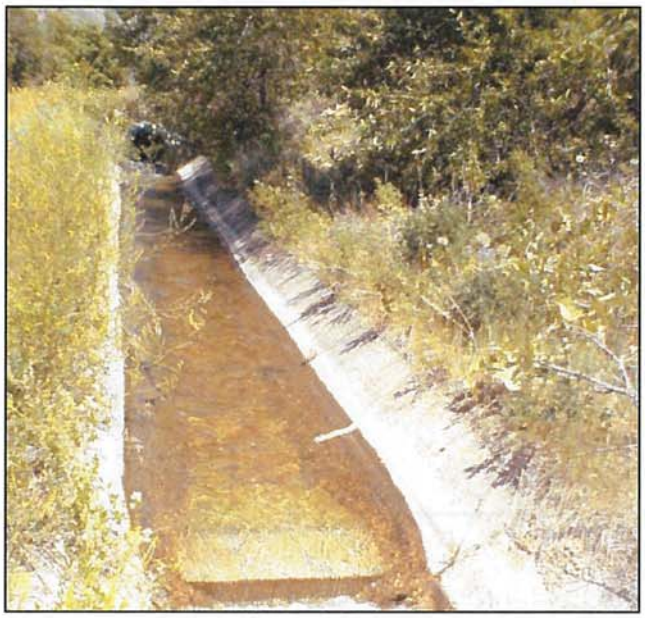
Water and Energy Efficiency Grants for FY 2018

Funding Opportunity Announcement No. BOR-DO-18-F006

Funding Group I

Hobble Creek Ditch Piping Project

Mapleton, Utah



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May 10, 2018

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Appendices

Technical Proposal and Evaluation Criteria

Executive Summary

The executive summary should include:

- *The date, applicant name, city, county, and state*
- *A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA*
- *State the length of time and estimated completion date for the proposed project*
- *Whether or not the project is located on a Federal facility*

Date:	Application due date is May 10, 2018
Applicant:	Mapleton Irrigation District and Company (MIDC) Mapleton, Utah County, Utah
Project Title:	Hobble Creek Ditch Piping

Project Summary:

The proposed project involves replacing three miles of existing open canals and box culvert in Hobble Creek Canyon with a pressurized pipeline. This project will contribute to accomplishing the FOA goals by eliminating water losses due to seepage, evaporation, and/or ditch failure. It is estimated that about 1,685 acre-feet of water can be conserved on an annual basis when these losses are eliminated through completion of this project.

Specific project activities would consist of removing the existing pipe and structures, constructing a new diversion structure, installing a new 24-inch HDPE pipeline, installing new turnouts at existing locations, and installing other related appurtenances (air vents, meters, etc.) as needed. It is anticipated that the proposed pipeline alignment would follow the existing ditch/pipeline alignment and allow flows up to 15 cfs. The entire pipeline will be pressurized with maximum pressures close to 60 psi. Turnouts will be designed so that the water can be delivered to an existing ditch or water users could connect directly to the pressurized pipeline.

Maintenance costs related to maintain the open portions of ditch every year will be reduced, and the new diversion structure will decrease the amount of silt entering the system. Also, MIDC will continue to coordinate with Mapleton City to provide secondary water to residents through the Mapleton City secondary irrigation pond as the existing farms develop into homes and businesses.

Approximate Length:	20 Months
Completion Date:	May 2020
Federal Facility:	The project is not located on a Federal facility.

Background Data

Applicant's Water Supply

As applicable, describe the source of water supply, the water rights involved, current water uses (e.g., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply. If water is primarily used for irrigation, describe major crops and total acres served.

MIDC was formed in 1914 to provide irrigation water to residents in Mapleton City within an area of approximately 3,000 acres. MIDC receives a portion of its water from Maple Creek and Hobble Creek. MIDC also receives water from Strawberry Reservoir via the Strawberry Valley Project. Water from the reservoir is delivered through the Springville Mapleton Lateral via 36-inch and 54-inch HDPE pipes. There are also many small water rights from wells and springs.

Residential growth in this area has resulted in farms and irrigable land being converted to subdivisions and developments. MIDC has worked with developers and Mapleton City to alter the delivery system to allow for growth while continuing to deliver water to its shareholders.

MIDC has many water rights to deliver water to its shareholders; however, because this project only diverts water from Hobble Creek, the application will only include the water rights found in Hobble Creek. The water rights from Hobble Creek are shown in Table 1. Water is diverted from the creek into the Hobble Creek Ditch and conveyed to users within the area of use. According to the Utah Division of Water Rights the area of use is approximately 3,000 acres.

Table 1: MIDC Water Rights from Hobble Creek

Water Right	Type	Priority	Quantity/Flow	Source
51-5218	Water User's Claim	1851	42.5 cfs OR 12267.13 ac-ft	Hobble Creek
51-5601	Water User's Claim	1852	22.1 cfs	Hobble Creek
51-5602	Water User's Claim	1853	34.7 cfs	Hobble Creek

Water Delivery System

Describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements (e.g., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.

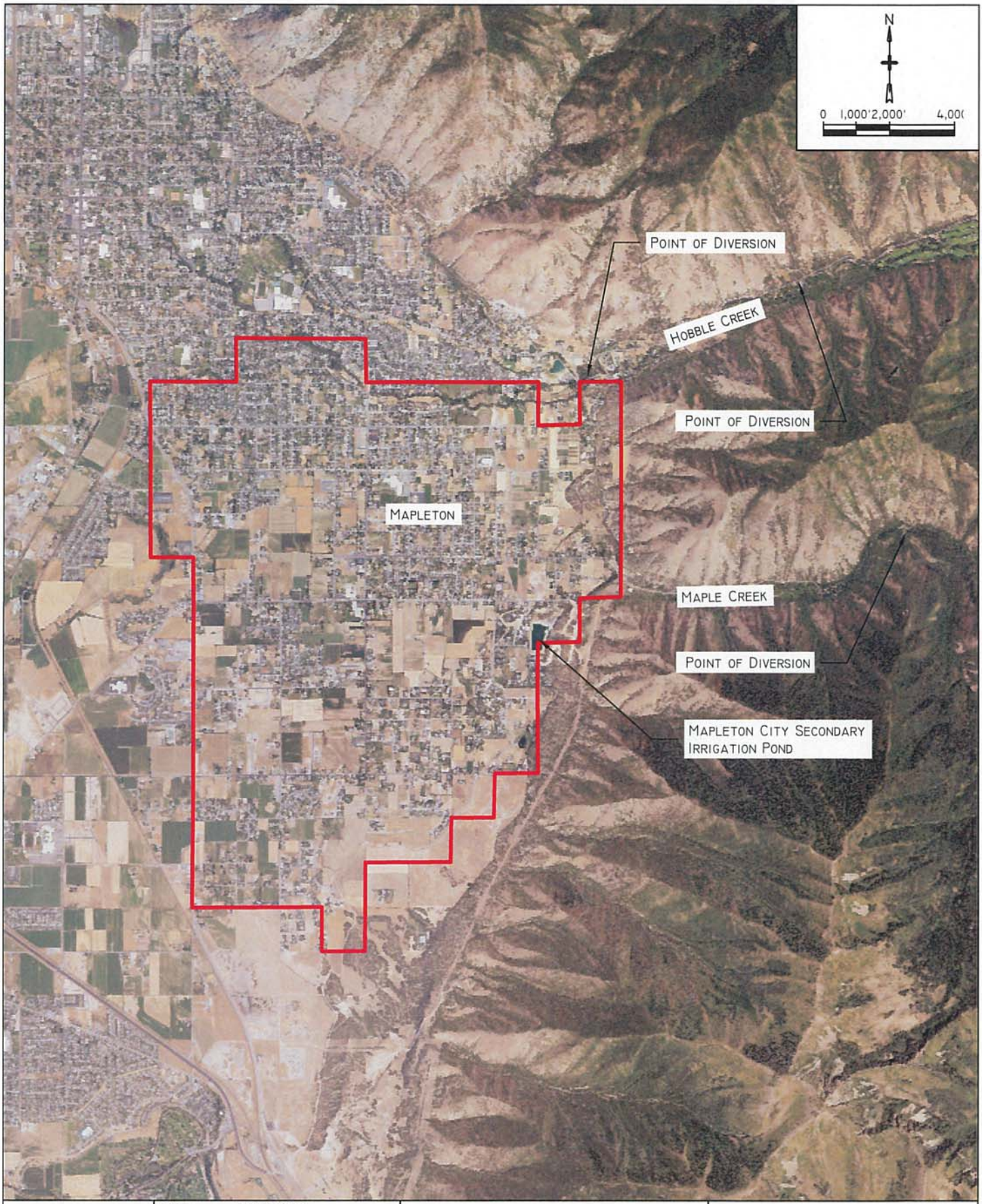
Water delivered to MIDC users comes from three main sources: 1) Maple Creek, 2) Hobble Creek, and 3) piped water through the Springville Mapleton Lateral. All the sources feed the MIDC distribution system. MIDC estimates that they have approximately 37 miles of ditches and laterals. Figure 1 shows the MIDC service area.

1) Maple Creek is in Maple Canyon east of Mapleton City and is south of the larger Hobble Creek. Flows in the creek are small year-round with larger flows occurring in the spring when there is large runoff from snowmelt. MIDC has the water rights to essentially use all of the Maple Creek flows. The creek rarely flows high enough to fully utilize the rights (12.75 cfs). Flows from this creek are diverted into a ditch that is about 2 miles long and then flows into their main distribution system.

2) MIDC's water rights largely come from Hobble Creek (30 cfs). Hobble Creek begins near Daniels Summit and flows nearly 21 miles where it joins Utah Lake. Base flows average around 20 cfs throughout the year and flows increase dramatically during spring runoff. Hobble Creek is an important part of the local ecosystem and has been the subject of recent studies for potential June Sucker habitat. MIDC diverts water from Hobble Creek into a ditch that is about 3 miles long. Portions of the ditch have been piped or lined, but the conveyance is in disrepair.

3) MIDC has a contract with Central Utah Water Conservancy District (CUWCD) to receive water from Strawberry Reservoir as part of the Strawberry Valley Project (SVP). The water is conveyed through a pipeline called the Springville Mapleton Lateral. MIDC pays per acre-foot of water delivered as well as an annual assessment. MIDC receives approximately 5,000 acre-feet per year depending on water needs.

The area has seen a large amount of growth involving irrigable land being converted to subdivisions and developments. MIDC has worked with developers and Mapleton City to alter the delivery system to allow for growth and also to continue delivering water to its shareholders. This has resulted in piping many open ditches within Mapleton City boundaries. As developments continue to grow, more ditches will be piped.



FRANSON CIVIL ENGINEERS

DATE: MAY 3, 2018

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MAPLETON IRRIGATION DISTRICT & COMPANY

HOBBLE CREEK PIPING PROJECT

FIGURE 1

MIDC WATER RIGHT AREA

Hydropower or Energy Efficiency

If the application includes hydropower or energy efficiency elements, describe existing energy sources and current energy uses.

Not Applicable.

Prior Work with Reclamation

Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

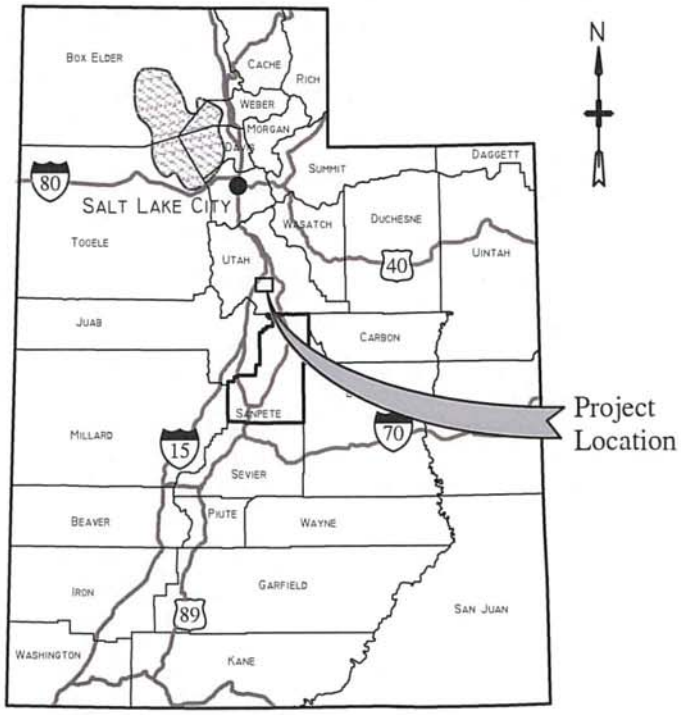
MIDC has a contract with Central Utah Water Conservancy District (CUWCD) to receive water from Strawberry Reservoir, which is part of the Reclamation Strawberry Valley Project (SVP) and Central Utah Project (CUP). The water is conveyed through a pipeline called the Springville and Mapleton Lateral. The existing Springville Mapleton Lateral, an SVP facility, starts from a connection to the Spanish Fork Canyon Pipeline and extends north through the cities of Mapleton and Springville, Utah, a distance of 5.7 miles. The pipeline was completed in August of 2009 and delivers water to Springville and Mapleton Irrigation Districts. In addition to SVP water deliveries, the new Springville Mapleton Lateral pipeline delivers CUP water to Utah Lake via Hobble Creek to assist with spawning and recovery of the endangered June sucker fish. MIDC pays per acre-foot of water delivered as well as an annual assessment. MIDC receives approximately 5,000 acre-feet per year depending on water needs.

Project Location

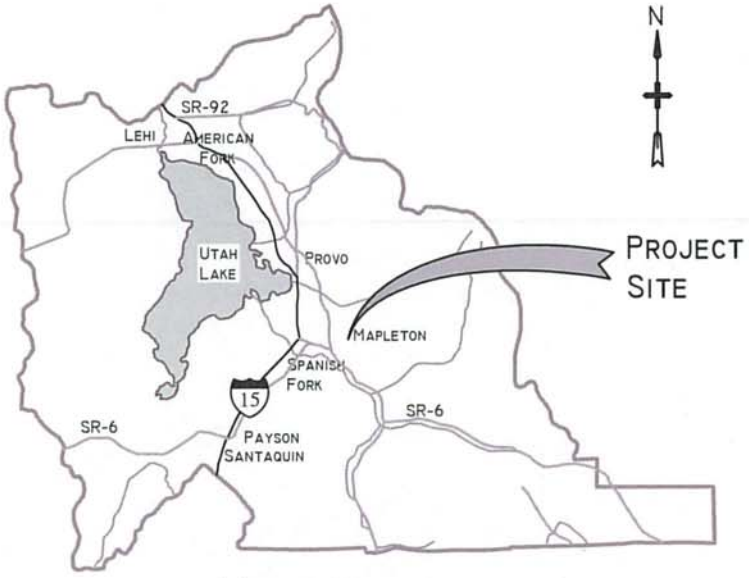
Provide specific information on the proposed project location or project area including a map showing the geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g. northeast} of {nearest town}. The project latitude is {##°##'N} and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

1. *Shapefile (.shp)*
2. *KMZ/KML (.kmz or .kml) aka Google Earth File, not an exported Google Earth map*
3. *AutoCAD (.dwg)*
4. *PDF map (.pdf)*

The Hobble Creek Ditch Piping Project begins approximately 1.5 miles east of Mapleton City and ends at the secondary irrigation pond in Mapleton City, Utah County, Utah. The project latitude is 40°09'24"N and 111°31'50"W and the area is shown in Figure 2.



Utah



Utah County

FRANSON CIVIL ENGINEERS	DATE: May 3, 2018 SCALE: Figures.dwg P:\UT\Central\Mapleton City\MIDC Hobble Creek WaterSMART Application\Drawings	Mapleton Irrigation District & Company Hobble Creek Piping Project	Figure 2 Location Maps

Technical Project Description

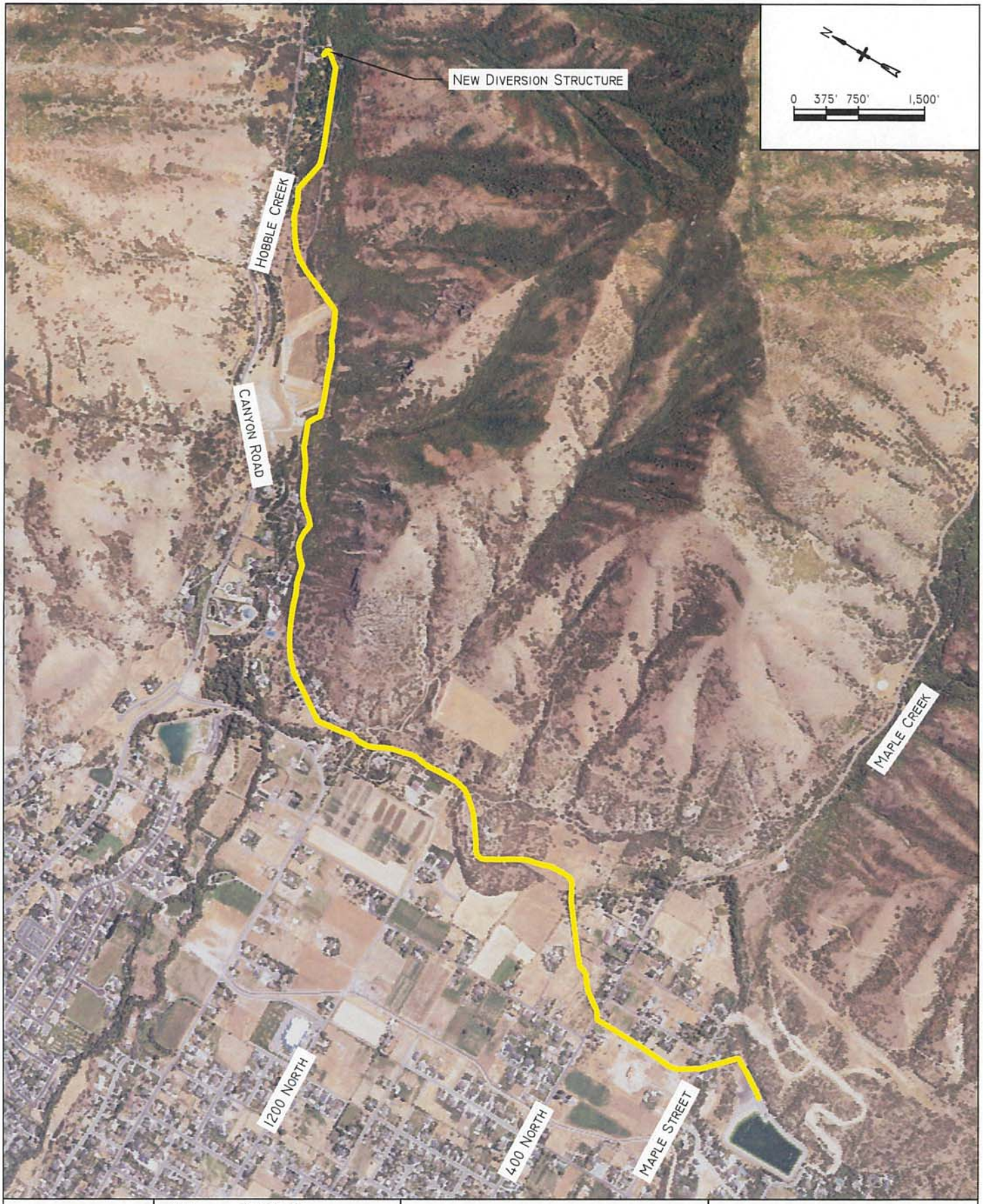
The technical project description should describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

The project involves replacing the existing ditch in Hobble Creek Canyon with a pressurized pipeline as shown in Figure 3. The pipeline will deliver water to irrigators and to the Mapleton City secondary irrigation pond. Approximately 3 miles of the existing open canals and box culvert will be replaced with a pressurized pipeline. All materials used will be from well-known manufacturers and meet general Natural Resources Conservation Service (NRCS) irrigation standards. It is anticipated that nearly 1,685 acre-feet of water will be conserved annually through this project by eliminating seepage and evaporation losses.

Preliminary design efforts needed to prepare this application indicate that high-density polyethylene (HDPE) pipe will be used for enclosing the canals. The anticipated pipe size is 24 inches in diameter to convey a flow of 15 cfs. The pipeline will be designed not to exceed the industry accepted standard water velocity of 5 feet per second. A hydraulic model will be prepared based on the determined design flows to evaluate potential surges and to verify sizing and pressure requirements. Air-valves, control valves, drains, fittings, and relief valves will be installed at appropriate locations to ensure proper operation of the pipeline.

The complete design of the project will be done by a professional engineering firm to ensure the irrigation system meets industry standards of quality. All design drawings will be stamped by a professional engineer and be available to Reclamation for review if requested.

If a grant from Reclamation is awarded, the irrigation company will submit a loan application to the Utah Division of Water Resources for approval. Once funding is secured, an engineering design report will be prepared to finalize the best alignment options, pipe sizes, and complete all required permits. Once environmental clearance is obtained, the engineering design and construction documents will be prepared.



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DATE: MAY 7, 2018

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MAPLETON IRRIGATION DISTRICT & COMPANY

HOBBLE CREEK PIPING PROJECT

FIGURE 3

HOBBLE CREEK ALIGNMENT

Evaluation Criteria

Evaluation Criterion A: Quantifiable Water Savings

Up to 30 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings. All applicants should be sure to address the following:

Water Savings

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.*

This project is anticipated to conserve approximately 1,685 acre-feet of water per year by eliminating seepage and evaporation losses in the Hobble Creek Ditch. The water savings for the system was estimated from inflow/outflow tests. MIDC installed ramp flumes in 2012 and began taking measurements. It was found that about 33% of the diverted water is lost to seepage in the Hobble Creek Ditch. The seepage was determined by calculating the loss between the flumes. The results are shown in the table below.

Table 3: Seepage Calculations

Date	Flow at Upper Flume (cfs)	Flow at Lower Flume (cfs)	Loss (cfs)	Estimated Seepage (%)
6/7/2012	7.34	5.6	1.74	24%
6/13/2012	7.34	5	2.34	32%
6/19/2012	6.41	4.2	2.21	34%
6/28/2012	6.23	4	2.23	36%
7/6/2012	6.23	4	2.23	36%
7/16/2012	7.53	4.6	2.93	39%
7/25/2012	7.72	5.0	2.72	35%
7/30/2012	8.71	5.4	3.31	38%
8/8/2012	8.11	5.3	2.81	35%
6/8/2013	7.53	5.2	2.33	31%
6/14/2013	7.53	5.2	2.33	31%
6/23/2013	7.34	5.2	2.14	29%
7/2/2013	7.53	5	2.53	34%
7/10/2013	7.15	5	2.15	30%
7/14/2013	7.53	5.03	2.5	33%
7/26/2013	7.53	5.2	2.33	31%
8/2/2013	7.53	5.2	2.33	31%
Average Percent Lost				**33%**

The average diversion from Hobble Creek by MIDC was found using a USGS gauge and utilizing the MIDC water right. MIDC can take 22.7% of the Hobble Creek flow up to 42.5 cfs. Above 42.5 cfs, MIDC can divert an additional 27.1% of the flow up to 72.6 cfs. Above 72.6 cfs, they can divert an additional 42%.

The figure below shows the Hobble Creek flows and how much MIDC can divert. The average total amount of diverted water is 5,100 acre-feet and 33% of that number is the 1,685 acre-feet of water that is estimated to be lost to seepage.

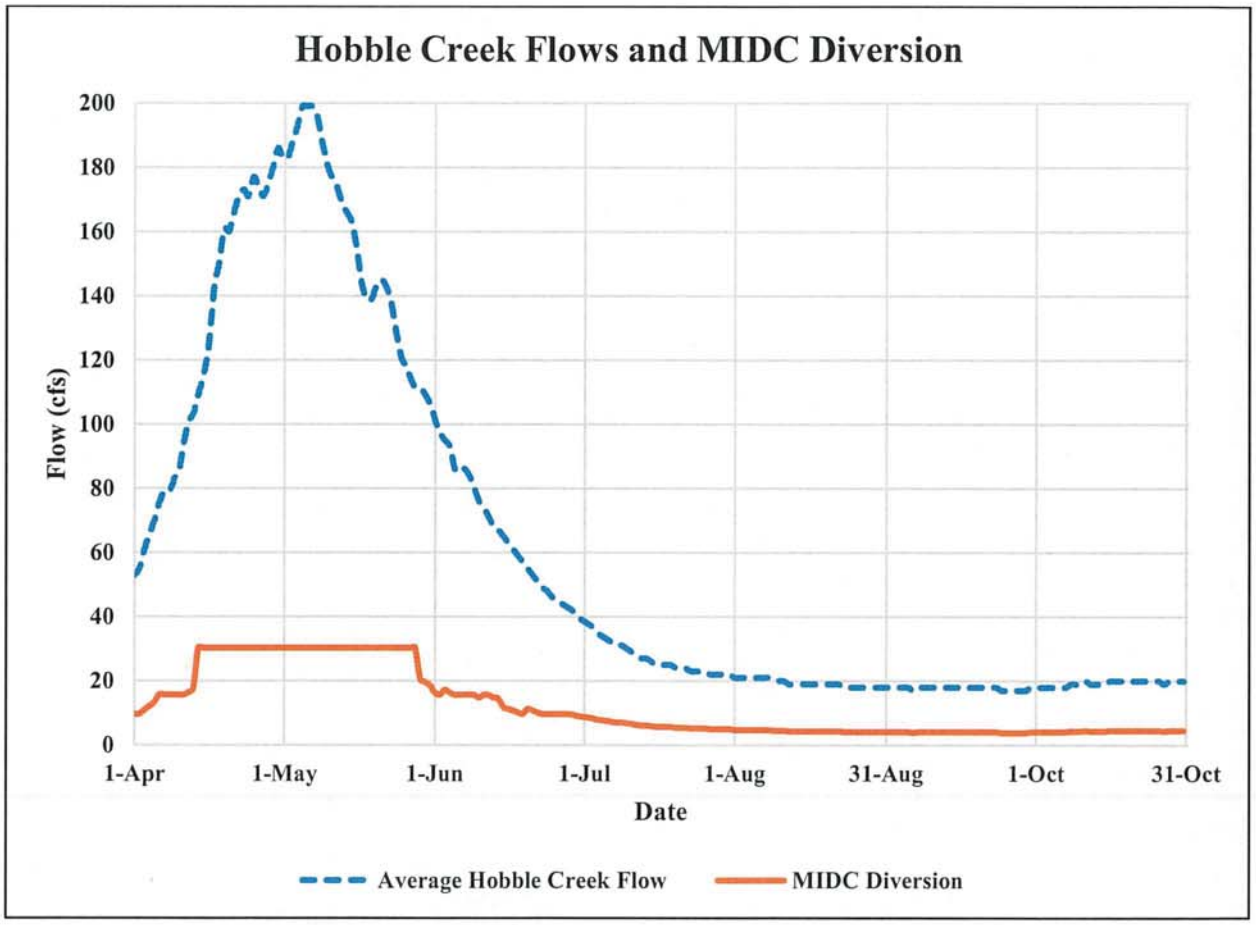

Figure 4. Hobble Creek flows and MIDC diversion.

Current Water Losses

Describe current losses: *Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

The current 1,685 acre-feet of water lost in the Hobble Creek Ditch is seeping into the ground and evaporating into the atmosphere. It is expected that all seepage and evaporation losses will be eliminated by piping the first three miles of the transmission system.

Support/Documentation of Water Savings

Describe the support/documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal.*

As described above, MIDC constructed two ramp flumes in the Hobble Creek Ditch in two locations. Flows over the flumes were measured several times throughout the year and the difference between the measured flows represents how much water is being lost to seepage and evaporation. There are no turnouts between the ramp flumes, so the difference in flows is directly related to losses. It is expected that implementation of this project will eliminate these losses such that water savings are equivalent to water losses.

Project Types

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

(1) ***Canal Lining/Piping:*** *Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:*

a. *How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.*

The water savings will be equal to the amount of water that is currently lost through seepage and evaporation. As previously described, the annual water savings is 1,685 acre-feet. Table 2 represents two years of collected data.

b. *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.*

As indicated above, inflow/outflow tests were completed during 2012 and 2013 using two flumes in the system. The inflow/outflow tests showed about 33% of the diverted water is lost to seepage and evaporation.

c. *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)?*

Seepage losses will be completely eliminated. The ditch will be replaced with HDPE pipe. With good construction practices, the losses will be near zero.

d. *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?*

There will be 16,000 feet or about 3 miles of ditch replaced with HPDE pipe. The total conservation amount is estimated to be 1,685 acre-feet, so there will be about 548 acre-feet per mile each year. This is found by dividing the 1,685 acre-feet by the 3 miles of ditch being replaced.

e. *How will actual canal loss seepage reductions be verified?*

Measuring devices will be installed at the beginning of the pipeline and at any turnout or diversion. The flow records will be used to verify the seepage loss reduction.

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

Preliminary design indicates that the ditch will be replaced with HDPE pipe. The preliminary pipe size is 24 inches in diameter. An inlet and outlet structure will be incorporated into the system along with isolation valves, air-vacuum valves, and water measuring devices to improve water management and efficiency.

Evaluation Criterion B: Water Supply Reliability

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

- *Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?*
  - *Is there widespread support for the project?*
  - *What is the significance of the collaboration/support?*
  - *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

There is support for this project among company shareholders and Mapleton City. The city has included a letter of support in Appendix A. The city is funding this application and also recently funded the creation of a Capital Facilities Plan for MIDC.

Mapleton City is growing and there is a growing need to provide secondary water to developments and residents. This project will supply additional water to the Mapleton City secondary irrigation pond, which continues to provide a reliable, sustainable source of water for the city and its residents.

- *Will the project make water available to address a specific water reliability concern? Please address:*
  - *Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.*
  - *Describe where the conserved water will go/how it will be used. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)? Will it be left in the river system?*
  - *Describe how the project will address the water reliability concern.*
  - *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?*
  - *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*
  - *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*
  - *Indicate the quantity of conserved water that will be used for the intended purpose.*

Hobble Creek flows are highly dependent upon snowpack and most of the high flows occur during runoff in early spring. In drier years, the flows are impacted greatly and during those years the required supplemental water is called for and delivered from the Springville and Mapleton Lateral, which delivers water from the Strawberry Reservoir. With drought a common occurrence in the area, the water from Strawberry Reservoir is called for often and is more expensive than the Hobble Creek water. This project will ensure the water that is diverted is used to its full potential rather than losing what is diverted to seepage and evaporation. It will also lead to less water called through the Springville Mapleton Lateral because of the conserved water.

Another issue comes with the growth of the area and reduction of farmland. MIDC pays for operation and maintenance, water shares from Strawberry Reservoir, and projects through assessments to shareholders. As more and more farms convert to subdivisions or developments that means there are fewer assessments and fewer funds for MIDC needs. Mapleton City and MIDC are currently working together to find a way to use the water that was being used on a farm to be used on the new development or subdivision. This results in revenue for MIDC and a secondary water source for Mapleton City as its water needs grow. This project is proposing to connect to the Mapleton City secondary irrigation pond which will be able to supply residents and businesses.

Hobble Creek leads directly into Utah Lake and has been an important habitat for the June Sucker, an endangered species. As less water is lost to seepage there will be less water diverted which could help increase flows in the creek and aide the June Sucker.

- *Will the project benefit Indian tribes?*

Not Applicable.

- *Will the project benefit rural or economically disadvantaged communities?*

As indicated above, the Mapleton area is growing quickly, and farms are being converted to subdivisions and developments. When these farms convert, it results in fewer assessments for MIDC resulting in less money to use in operation and maintenance, purchasing water shares, and for projects. This project will aide MIDC and Mapleton City.

- *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.*

This project would benefit the June Sucker, an endangered fish native to Utah Lake that has historically used tributaries such as Hobble Creek in the past. The June Sucker Recovery Plan (JSRIP) lists establishment of a second spawning run in a tributary to Utah Lake other than Provo River as a requirement for long-term protection and eventual recovery of the June sucker. Efforts are being implemented by the JSRIP and other entities to establish Hobble Creek as this second spawning tributary. These efforts include reconstruction and restoration of the lower Hobble Creek channel where it enters Utah Lake, and delivery of supplemental flows to lower Hobble Creek. This project would lead to less water being lost to seepage and evaporation, and result in less water being diverted and more water left in Hobble Creek.

Will the project address water supply reliability in other ways not described above?

Not Applicable.

Evaluation Criterion C: Implementing Hydropower

Up to 18 points may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.

Not Applicable.

Evaluation Criterion D: Complementing Future On-Farm Irrigation Improvements

Up to 10 points may be awarded for projects that describe in detail how they will ***complement on-farm irrigation improvements*** *eligible for NRCS financial or technical assistance.*

If the proposed projects 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.*
  - *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*
  - *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*
  - *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

There are several farmers that divert water from the Hobble Creek Ditch that currently flood irrigate who have shown interest in converting to sprinklers or upgrading their system if this project were to proceed. Their letters of support are found in Appendix A. There are also some farmers who do not currently receive enough water to irrigate their land. If this project were to proceed, the farmers would have enough water and are also interested in upgrading their systems.

- *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.*

OR

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

As stated above, there are several farmers who would be interested in converting their flood irrigation to sprinklers provided this project is completed. Currently they do not have enough pressure to sprinkle irrigate or they do not have enough water at the end of the ditch due to seepage losses. This project will provide water and pressure to those who currently don't have it. Letters of support are found in Appendix A.

- *Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.*
  - *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.*

It is estimated that a sprinkler irrigation system is 20 percent more efficient than a flood irrigation system. Each on-farm conversion from flood to sprinkler system will improve on-farm efficiencies by 20 percent. Depending on how many irrigators make these improvements, the potential on-farm water savings amount will vary. However, these on-farm conversions made possible by this project will result in significant water conservation measures in addition to eliminating conveyance seepage losses.

Evaluation Criterion E: Department of the Interior Priorities

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
   a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;*
   b. *Examine land use planning processes and land use designations that govern public use and access;*
   c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards.*
   d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;*
   e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;*
   f. *Identify and implement initiatives to expand across to DOI lands for hunting and fishing;*
   g. *Shift the balance towards providing greater public access to public lands over restrictions to access.*

This project is directly meeting the DOI's goal by utilizing science and technological advances to install a pipeline that will conserve water in a drought-ridden area and allow the local water authorities to better manage the scarce water resources available to them. The project also enhances distribution systems to irrigators and Mapleton City.

2. *Utilizing our natural resources*
   a. *Ensure American Energy is available to meet our security and economic needs;*
   b. *Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;*
   c. *Refocus timber programs to embrace the entire 'healthy forests' lifecycle;*
   d. *Manage competition for grazing resources.*

Not Applicable.

3. *Restoring trust with local communities*
    a. *Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;*
    b. *Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*

This project enhances the trust between MIDC and Mapleton City to ensure water is sustainable for both farmers and the growing community.

4. *Striking a regulatory balance*
    a. *Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*
    b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*

The project will aid in protecting an endangered species, the June Sucker. The project will conserve water which will go downstream into Utah Lake and the species habitat.

5. *Modernizing our infrastructure*
    a. *Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;*
    b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;*
    c. *Prioritize DOI infrastructure needs to highlight:*
        1. *Construction of infrastructure;*
        2. *Cyclical maintenance;*
        3. *Deferred maintenance.*

The existing ditch is deteriorating, and the overall existing infrastructure is out of date and adversely affecting those using the system. This project proposes to modernize the infrastructure by installing a pipeline that will eliminate seepage and evaporation losses and provide the necessary quality infrastructure. Reclamation's assistance will ensure that this step to modernize the infrastructure is a success.

Evaluation Criterion F: Implementation and Results

Up to 6 points may be awarded for these subcriteria.

Subcriterion No. F.1 – Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? *Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.*

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

MIDC does not currently have a Water Conservation Plan in place for the conveyance system. However, they do have a Capital Facilities Plan that addresses their conveyance systems and this project was one of the projects identified in the plan. Also, the Utah State Water Plan does outline overall water conservation goals and key strategies to plan for the future that include the project area.

In the near future, MIDC will be creating a Water Conservation Plan to meet the requirements for a Utah Division of Water Resources loan.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).

The Utah State Water Plan for the Utah Lake Basin emphasizes water conservation and efficient management of developed water supplies as key strategies in providing for the present and future water needs in the state.

Subcriterion No. F.2 – Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

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).

Measuring devices will be installed at several locations along the pipeline including the inlet to measure flows coming in to the pipeline. Using these measurement devices, water losses will be quantified (by comparing to historic records) and compared to the expected water savings.

Evaluation Criterion G: Nexus to Reclamation Project Activities

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

- *Is the proposed project connected to Reclamation project activities?*
  - *Does the applicant receive Reclamation project water?*
  - *Is the project on Reclamation project lands or involving Reclamation facilities?*
  - *Is the project in the same basin as a Reclamation project or activity?*
  - *Will the proposed work contribute water to a basin where a Reclamation project is located?*

MIDC receives water from the Reclamation SVP as part of the Reclamation CUP through the Springville Mapleton Lateral. They call for water from the SVP every year and average about 5,000 acre-feet of diverted water annually.

- *Will the project benefit any tribe(s)?*

Not Applicable.

Evaluation Criterion H: Additional Non-Federal Funding

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\textit{Non-Federal Funding}}{\textit{Total Project Cost}} = \frac{\$920{,}000}{\$1{,}220{,}000} = \mathbf{75\%}$$

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.

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:

- *The amount of funding commitment*
- *The date the funds will be available to the applicant*
- *Any time constraints on the availability of funds*
- *Any other contingencies associated with the funding commitment*

Commitment letters from third party funding sources should be submitted with your application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the

applicant's organization (e.g., loans or State grants), should be secured and available to the applicant prior to award.

Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost-share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.

The funding plan must include all Project costs, as follows:

- *How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).*

The company will contribute $138,000 which will consist of monetary and in-kind contributions. This contribution will be made through accounts and assessments.

- *Describe any costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:*
  - *The project expenditure and amount*
  - *The date of cost incurrence*
  - *How the expenditure benefits the Project*
  - *Provide the identity and amount of funding to be provided by funding partners*

Expenses incurred include engineering fees for a preliminary design of the proposed system, preparation of this funding application, and preparation of a loan application to the Utah Division of Water Resources. Engineering assistance was essential to determine the scope and cost of the proposed project. The engineering services were also essential for funding procurement.

Mapleton City funded a project to prepare an MIDC Capital Facilities Plan which included this project for $15,000 with Franson Civil Engineers for preliminary analysis. Mapleton City also funded $5,000 to complete this funding application to Reclamation. These costs were incurred between January 2018 and May 2018.

- *Describe any funding requested or received from other Federal partners.*

No other applications for funds have been requested from any other Federal funding agency.

- *Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.*

Funding from the Utah Division of Water Resources is pending. However, if funds are not secured from Reclamation, the project will not move forward. The company does not have enough funds to pay for the remaining cost of the project.

Please include the following chart to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

Table 5: Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Utah Division of Water Resources Loan	$782,000
2. MIDC*	$138,000
Non-Federal Subtotal	**$920,000**
Requested Reclamation Funding	**$300,000**
TOTAL PROJECT FUNDING	**$1,220,000**

Budget Proposal

*The budget proposal shall include detailed information on the categories listed below and must clearly identify **all** Project costs, including those that will be contributed as non-Federal cost share. Unit costs must be provided for all budget items including the cost of work to be provided by contractors. The budget proposal should also include any in-kind contributions or donations of goods and services that will be provided to complete the project. It is strongly advised that applicants use the budget proposal format shown below or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs.*

Table 6: Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Environmental Services	$150/hr	200	Hours	$30,000
Engineering Services	See Appendix C			$66,000
Construction Observation	See Appendix C			$64,000
Construction Contract	See Appendix D			$1,060,000
TOTAL ESTIMATED PROJECT COSTS				**$1,220,000**

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. If in-kind contributions or donations of goods and services are included in the budget proposal, the narrative should identify the source(s)

and describe how the value of the goods and services was determined. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of in-kind contributions and donations, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

MIDC board members will not earn a salary, wages, fringe benefits or reimbursements from funding obtained to implement this project. All contributions by MIDC board members will be volunteered.

Contractual

Identify all work that will be accomplished by subrecipients, consultants, or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Identify how the budgeted costs for sub-recipients, consultants, or contractors were determined to be fair and reasonable.

All funding for the project will be used to pay consultants and construction contractors. These include engineering, environmental, and construction services. Detailed tasks to be completed, estimated time, rates, supplies and materials for each task is outlined in the appendices as follows:

Appendix C – Engineering Services
Appendix D – Construction Services

The costs shown in the appendices were prepared by a professional engineering firm. Costs for construction services were estimated using bid abstracts from similar projects. Bid abstracts used for the construction estimate are available for review upon request.

Environmental and Regulatory Compliance Costs

Applicants must include a line item in their budget to cover environmental compliance costs. "Environmental compliance costs" refer to costs incurred by Reclamation and the recipient in complying with environmental regulations applicable to an award under this FOA, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), and other regulations depending on the project. Such costs may include, but are not limited to:

- *The cost incurred by Reclamation to determine the level of environmental compliance required for the project*
- *The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports*
- *The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant*

- *The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures*

The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation's cost to review environmental compliance documentation. How environmental compliance activities will be performed (e.g., by Reclamation, the applicant, or a consultant) and how the environmental compliance funds will be spent, will be determined pursuant to subsequent agreement between Reclamation and the applicant. The amount of funding required for Reclamation to conduct any environmental compliance activities, including Reclamation's cost to review environmental compliance documentation, will be withheld from the Federal award amount and placed in an environmental compliance account to cover such costs. If any portion of the funds budgeted for environmental compliance is not required for compliance activities, such funds may be reallocated to the project, if appropriate.

A total of $30,000 is budgeted for environmental services. It is anticipated the NEPA compliance for this project will be at the level of a small Environmental Assessment. The budget amount is approximately 2.5% of the total project cost, which is the estimate based on recent similar projects.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost-share amounts.

The total project cost is $1,220,000.

Environmental and Cultural Resources Compliance

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants must respond to the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include answers to:

- *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.*

Much of the project will be placing pipe in the existing ditch alignment. The alignment is not expected to disturb any animal habitat. Because the construction must be done when water is out of the canal, the majority of work will be done in the winter and early spring when the soil is wet. If the earth-disturbing work is done when the soil is dry, better management practices will be taken to ensure dust is minimized.

- *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?*

There are seven potential threatened or endangered species that are listed in Utah County and could possibly be affected by the project; the June Sucker, the Western Yellow-billed Cuckoo, the Canada Lynx, the Deseret Milkvetch, the Clay Phacelia, the Maguire primrose, and the Ute ladies-tresses. Before the project begins, a registered environmental firm will perform an environmental survey to ensure no species are within the project area.

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

Currently it is not expected that there are any wetlands or surface water that fall under the CWA inside the project boundaries. Before construction begins, a registered environmental firm will perform an environmental survey to ensure no protected wetlands are affected.

- *When was the water delivery system constructed?*

The earliest and main water rights are from 1851. It is thought that the water delivery system was originally constructed around that year.

- *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 ditch will be replaced with pipelines in a pressurized system. As such, all the ditches and their structures in Hobble Creek will be abandoned. The headgates and canals have been there since the construction of the canal. Some canals have been lined with concrete and have had typical maintenance performed. The headgates have been replaced as needed over the years. Flumes and measurement devices have been in the canal for years as well, and no extensive alterations or modifications have been made.

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

It is unknown if any structures are listed or eligible for listing on the National Register of Historic Places database or archeological sites. A complete cultural resources report will be prepared prior to any construction activities in the area, which will include consultation with the Utah State Historic Preservation Office (SHPO), a complete Class I literature search to identify any archeological and historic architectural resources within the project area, and a Class III pedestrian

inventory of the pipeline corridor, laterals, and staging areas. It is not anticipated that the project will impact any archeological sites or historic structures.

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

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

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

The project will not affect tribal lands.

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

The project will not contribute to the spread of noxious weeds.

Required Permits or Approvals

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

An environmental clearance will be required before construction can begin. The permits are not expected to have any major issues. Preliminary check of the National Register of Historic Places and the National Wetlands Inventory showed no apparent issues. All the required permits should be relatively easy to obtain.

Letters of Support

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. Letters of support received after the application deadline for this FOA will not be included with your application.

Letters of Support are included in Appendix A.

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body, or for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- *The identity of the official with legal authority to enter into an agreement*
- *The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted*
- *The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan*
- *That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement*

An official resolution meeting the requirements set forth above is mandatory. *If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline.*

The signed Official Resolution is shown in Appendix B.

Unique Entity Identifier and System for Award Management

All applicants (unless the applicant has an exception approved by Reclamation under 2 CFR §25.110[d]) are required to:

(i) Be registered in the System for Award Management (SAM) before submitting its application;
(ii) Provide a valid unique entity identifier in its application; and
(iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.

MIDC is in the process of registering with SAM under DUNS 079982570. It will be completed within 30 days of this application deadline.

Appendix A

Letters of Support

(not counted in page limitations)

MAPLETON CITY CORPORATION

April 26, 2018

Mike Miner
Mapleton Irrigation District and Company
25 West 200 South #2
Springville, UT 84663

Dear Mr. Miner,

Mapleton City is very supportive of your plans to pipe and rehabilitate your company's irrigation facilities in Maple and Hobble Creek canyons. The Mayor and City Council have financially supported your company's irrigation system by partially funding a systemwide master plan the results of which identified the projects for which you now seek funding. In addition, the City is funding the grant application prepared by Franson Civil Engineers. We look forward to a continued partnership with Mapleton Irrigation District and Company.

Sincerely,

Steven J. Lord P.E.
Public Works Director

Mr. Mike Miner, President
Mapleton Irrigation District & Company
PO Box 924
Springville, Utah 84663

Re: Hobble Creek Ditch Piping Project.

Dear Mr. Miner:

I am writing this letter to show my support for the Mapleton Irrigation District & Company in pursuing the enclosure of the Hobble Creek Ditch and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

MORRIS WARREN Morris Warren 5-4-18

Sign and Write Name Date

Mr. Mike Miner
President
Mapleton Irrigation District & Company
PO Box 924
Springville, Utah 84663

Re: Hobble Creek Ditch Piping Project.

Dear Mr. Miner:

I am writing this letter to show my support for the Mapleton Irrigation District & Company in pursuing the enclosure of the Hobble Creek Ditch and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Jay Snow Jay Snow
Sign and Write Name

5-4-2019
Date

Mr. Mike Miner, President
Mapleton Irrigation District & Company
PO Box 924
Springville, Utah 84663

Re: Hobble Creek Ditch Piping Project.

Dear Mr. Miner:

I am writing this letter to show my support for the Mapleton Irrigation District & Company in pursuing the enclosure of the Hobble Creek Ditch and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

John L. Legge

Sign and ~~Write~~ Name

5-2-10

Date

Mr. Mike Miner, President
Mapleton Irrigation District & Company
PO Box 924
Springville, Utah 84663

Re: Hobble Creek Ditch Piping Project.

Dear Mr. Miner:

I am writing this letter to show my support for the Mapleton Irrigation District & Company in pursuing the enclosure of the Hobble Creek Ditch and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

PAUL CARNESECCA

Sign and Write Name

5/4/2018

Date

Mr. Mike Miner, President
Mapleton Irrigation District & Company
PO Box 924
Springville, Utah 84663

Re: Hobble Creek Ditch Piping Project.

Dear Mr. Miner:

I am writing this letter to show my support for the Mapleton Irrigation District & Company in pursuing the enclosure of the Hobble Creek Ditch and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

CLAYNE WEIGHT

Clayne Weight

Sign and Write Name

5/4/18

Date

Mr. Mike Miner, President
Mapleton Irrigation District & Company
PO Box 924
Springville, Utah 84663

Re: Hobble Creek Ditch Piping Project.

Dear Mr. Miner:

I am writing this letter to show my support for the Mapleton Irrigation District & Company in pursuing the enclosure of the Hobble Creek Ditch and funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Hal L. Black
Sign and Write Name

4 May 2018
Date

Appendix B

Signed Official Resolution

(not counted in page limitations)

OFFICIAL RESOLUTION
OF THE
Mapleton Irrigation District and Company

RESOLUTION NO. 2018 - 1

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has announced the *WaterSMART Water and Energy Efficiency Grants* in order to prevent water supply crises and ease conflict in the western United States, and has requested proposals from eligible entities to be included in the WaterSMART Program, and

WHEREAS, the Mapleton Irrigation Company has need for funding to complete the Hobble Creek Ditch Piping Project.

NOW, THEREFORE, BE IT RESOLVED that the Board Members agree and authorizes that

1. The Board Members have reviewed and support the application submitted;
2. The applicant is capable of providing the amount of funding and/or in-kind contributions, specified in the funding plan; and
3. If selected for a WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

DATED: April 10, 2018

Mike Miner

Mike Miner, President

ATTEST:

Jay Snow

Board Member

Appendix C

Probable Cost for Engineering Services

(Engineering Design and Construction Management)

Mapleton Irrigation District and Company

Probable Cost Opinion for Engineering Services

Task Description	Hours By Personnel Category						Total Hours	Total Labor Charges	Total Fee
	1	3	4	5	6	11			
	Principal	Senior Engineer	Field Manager	Staff Engineer	Designer	Office Assistant			
Engineering Design/Planning/Permitting									
Task 1. Design Team Management	10	10					20	$2,980	$2,980
Task 2. Client Meetings & Coordination	15			25			40	$5,285	$5,285
Task 3. Coordination with Division of Water Resources	5						5	$845	$845
Task 4. Coordination on Environmental Clearance	5			30			35	$4,145	$4,145
Task 5. Coordination with Reclamation	5			40			45	$5,245	$5,245
Task 6. Coordination with Mapleton City	10			8			18	$2,570	$2,570
Task 7. Preliminary Analysis/Pipe Alignment/Easements	5			20			25	$3,045	$3,045
Task 8. Site Visits/Surveying				10			10	$1,100	$1,100
Task 9. Design Criteria Document	5			10		8	23	$2,425	$2,425
Task 10. Preliminary Analysis/Pipe Alignment/Easements	5	5		10		8	28	$3,070	$3,070
Task 11. Hydraulic Analysis and Model		5		10			15	$1,745	$1,745
Task 12. Surge Analysis and Protection		5		8			13	$1,525	$1,525
Task 13. Air-Valves Sizing		5		4			9	$1,085	$1,085
Task 14. Pipe Inlet & Outlet Structural Design		8		4			12	$1,472	$1,472
Task 15. Construction Drawings Draft		8		20	65		93	$9,667	$9,667
Task 17. Construction Drawings Final	8	8		20	70	8	114	$11,994	$11,994
Task 18. Construction Specifications	8	8		25		8	49	$5,614	$5,614
Task 19. Bid & Award Coordination	8			5		10	23	$2,502	$2,502
SUBTOTAL	89	62	0	249	135	42	577	$66,314	$66,314
Construction Management									
Task 1. Construction Team Management/Meetings	10	15	15	30			70	$8,725	$8,725
Task 2. On-Site Observation and Documentation	10			250			260	$29,190	$29,190
Task 3. Submittal Reviews	5	10	20				35	$4,535	$4,535
Task 4. Contractor Coordination	5	10	20	30			65	$7,835	$7,835
Task 5. Record Drawings Preparation	5	5	10		20	10	50	$5,270	$5,270
Task 6. O&M Manual	5	5	20		10	10	50	$5,480	$5,480
Task 7. Project Closeout	5		5			20	30	$2,645	$2,645
SUBTOTAL	45	45	90	310	30	40	560	$63,680	$63,680
Project Totals	134	107	90	559	165	82	1,137	$129,994	$129,994

Appendix D

Probable Cost for Construction Services

Mapleton Irrigation District & Company – Hobble Creek Ditch Piping
Construction Costs

Item	Description	Unit	Quantity	Unit Cost	Total Cost
1	Mobilization	LS	1	$50,000	$50,000
2	Surveying (pipe alignment, topography, construction stationing and elevation control)	LS	1	$15,000	$15,000
3	Furnish and Install 24" HDPE Water Pipe (PE 4710 IPS DR 32.5)	LF	16,000	$52	$824,230
4	Furnish and Install Turnout	EA	6	$5,000	$30,000
5	Furnish and Install Air Vents	EA	10	$2,500	$25,000
6	Construct New Diversion Structure	LS	1	$50,000	$50,000
7	Furnish and Install 24" Mag Meter	EA	2	$25,000	$50,000
8	Connect to Existing MIDC Pipeline to Mapleton City Pond	LS	1	$15,000	$15,000
Construction Subtotal Rounded to Nearest $1,000					**$1,060,000**

Budget Narrative

All unit costs above were estimated using actual construction bids from projects recently completed. The total cost was rounded to the nearest $1,000. The bid abstracts include:

- St. John Irrigation District Canal Enclosure, September 2016
- Upper High Creek Canal Enclosure and Hydropower Development Project, July 2015
- Ivie Creek Pipeline Project, November 2017

The bid abstracts are available for review upon request. More detail is provided below.

Item 1 - The mobilization is based on 5% of the total construction cost. The percentage was based on the Upper High Creek bid abstract, of which the average of the four lowest bidders was about 5.4%.

Item 2 - The surveying was based on the Ivie Creek bid abstract. It is an average of the four lowest bidders reduced by $5,000 for being in an area that is slightly smaller.

Item 3 - Pipe installation cost was obtained by contacting ISCO, a local supplier of HDPE pipe. They indicated that the furnishing cost was currently $1.35 per pound of 24-inch HDPE pipe. 24-inch HDPE pipe weighs 23.344 pounds per foot which results in a furnishing cost of $31.51 per foot. The cost was rounded up to $32 per foot. They also indicated that installation costs were typically $20 per foot. The result was $52 per foot to furnish and install the 24-inch pipe.

Items 4 - The cost of furnishing and installing the turnouts was estimated using the bid abstract from the St. John Project. Values were rounded down to $5,000.

Item 5 - The cost of the air valves was based on the St. John Project. It is an average of the five lowest bidders and rounded to the nearest $500.

Item 6 - The cost of the new diversion structure was based on the average bid of the five lowest bidders in the Ivie Creek Project and rounded down to $50,000.

Item 7 - The cost of the meter was based on the average bid of the five lowest bidders in the Upper High Creek Project. The mag meter used in that project was more expensive due to the meter type, so the cost was lowered to $25,000.

Item 8 - The cost of the pipeline to pond connection was based on the outlet structure found in the Ivie Creek Project. The average of all the bids was used and rounded to the nearest $1,000.