WaterSMART Project Design Grant Fiscal Year 2024

Bureau of Reclamation

Notice of Funding Opportunity No. R23AS00109

# Juniata Enlarged Ditch Piping Project

# Grant Application

May 21, 2024

City of Grand Junction

Grand Junction City Hall

250 North 5th Street

Grand Junction, CO, 81501

*Project Manager Name: Mark Ritterbush, Water Services Manager*

*Project Manager Address: 333 West Ave, Building E, Grand Junction, CO 81501*

*Project Manager Email: markri@gjcity.org*

*Project Manager Telephone: 970-256-4185*

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# Technical Proposal and Evaluation Criteria

## Executive Summary

Date: May 21, 2024
Applicant Name: City of Grand Junction
City: Grand Junction
County:  Mesa County
State: Colorado

Task Area: Task B - Project Design Grant
Category A Applicant

**Project Summary**

The Juniata Enlarged Ditch conveys water from Kannah Creek to the Juniata Reservoir for municipal water supply in Grand Junction, Colorado, which serves approximately 30,000 users. It also conveys water to the Juniata Ditch which provides irrigation supplies to several agricultural water users. The Juniata Enlarged Ditch typically experiences approximately 30% water loss due to evaporation and seepage. The proposed project would develop engineering plans for piping the Juniata Enlarged Ditch, which would serve to eliminate this water loss, strengthening the water supply for both municipal and agricultural users. The proposed project would build on several foundational studies and planning efforts undertaken by the City of Grand Junction (City), which indicate that the City should maximize the use of their existing water supplies from Kannah Creek. These studies include a water marketing strategy and infrastructure engineering study funded by a FY2018 WaterSMART grant, as well as the 2023 Grand Junction Regional Water Efficiency Plan.

The proposed project would take approximately 12 months to complete. The estimated completion date is April, 2026 (assuming an award date of April 1, 2025).

The proposed design effort will not involve Federal land.

## Project Location

The Juniata Enlarged Ditch Piping Project is located in Mesa County, Colorado, approximately 15 miles southeast of the City of Grand Junction. The project latitude is 38°96′N and longitude is 108°23′W. The project is within the Gunnison River Basin, with Kannah Creek, a tributary to the Gunnison River, as its source. The project location is shown in Figure 1. The City's water service area covers 9 square miles and serves a population of almost 30,000 people. The Grand Junction Water Service Area is located in the center of the City as reflected in Figure 2.

*Figure 1. Juniata Enlarged Ditch Piping Project*

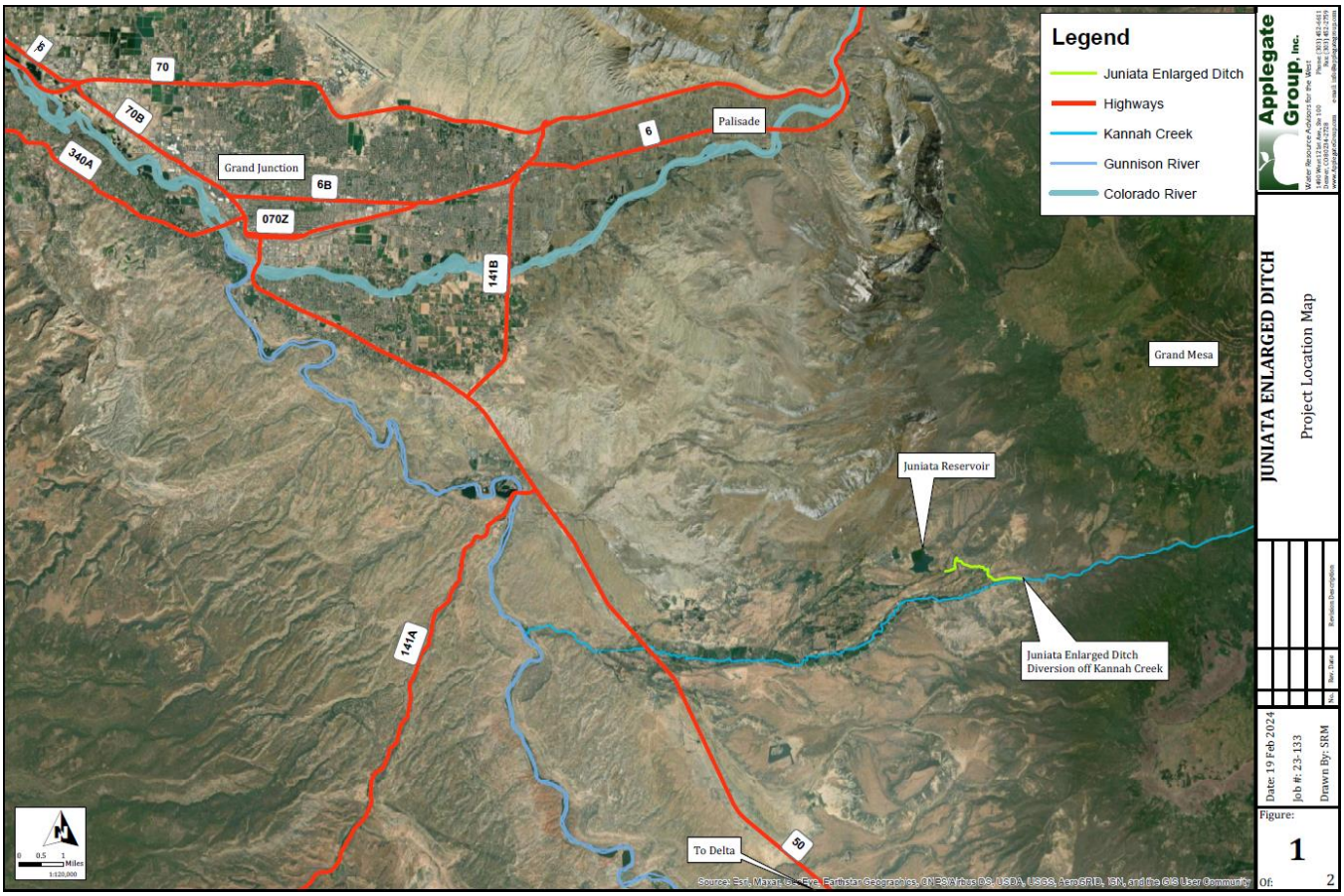
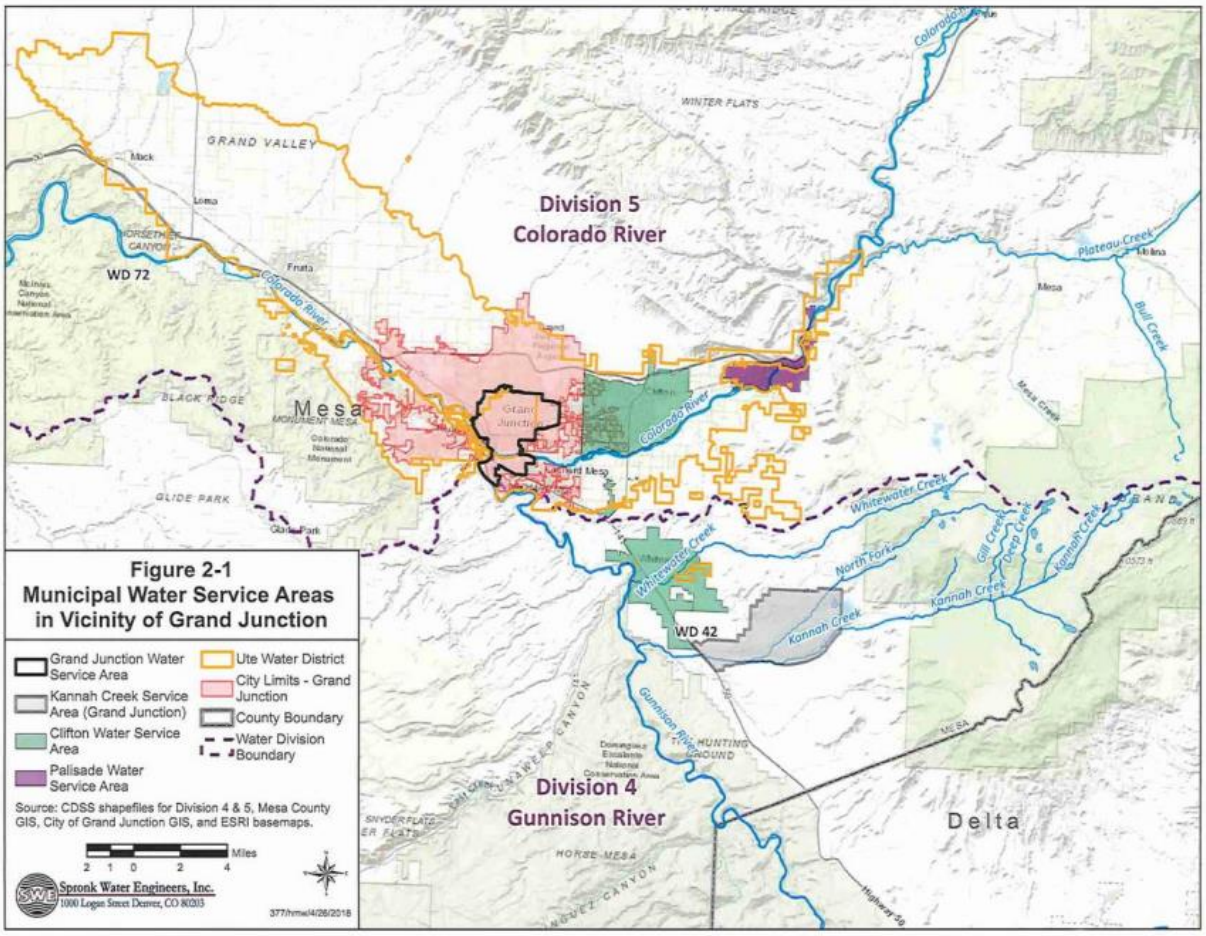


*Figure 2. Profile of Existing Water supply System. City of Grand Junction's Water Service Area is outlined in black* (*GJWEP, 2023*).




## Project Description

The City is proposing to develop final engineering plans for piping the Juniata Enlarged Ditch.

The Juniata Enlarged Ditch can divert up to 129 cubic feet per second (cfs) from Kannah Creek. The ditch is approximately 2.3 miles long and conveys water to the Juniata Reservoir. Stored water in the reservoir is then conveyed via pipeline to the City's treatment and distribution system for delivery to municipal water users within the Grand Junction Water Service Area. In addition, the Juniata Enlarged Ditch conveys water to the Juniata Ditch, which provides irrigation supplies to several agricultural water users.

Historical diversions since 2000 through the Juniata Enlarged Ditch average about 4,750 acre-feet per year, of which about 3,040 acre-feet per year goes to agricultural users and 1,710 acre-feet goes to the Juniata Reservoir for municipal water supply.

The proposed project would conduct project planning and design tasks to reach final design. This includes initial data gathering and surveying, as well as an alternatives analysis to evaluate hydraulics for diverse pipe types and sizes, shotcrete lining, and potential alignment changes to identify the most cost-efficient design. Following the alternatives analysis, the project would develop final design construction plans, a revegetation plan, a basis of design document detailing design criteria and justifications, construction cost estimates, and a detailed project schedule with key milestones. The project would also conduct permitting research to determine necessary construction permits, as well as an evaluation of potential grant opportunities to address environmental or cultural consultations. The City would hire an engineering firm to provide these services.

## Evaluation Criteria

### Evaluation Criteria A: Project Benefits (35 Points)

*Identify the threats to water supply, water quality, and river-based ecosystem or watershed health.*

In 2018, the City obtained a WaterSMART grant from the Bureau of Reclamation to develop a water marketing strategy for its conditional and absolute water rights on the Colorado and Gunnison Rivers. As part of that grant funding, the City undertook a series of technical investigations to analyze and understand the potential threats to the water supply and identify solutions to mitigate the threats these conditions present. The results of these investigations are described below and included in the City's Water Marketing Strategy Report (DiNatale, 2021).

Through this process, the City identified two threats to their ability to divert raw water supplies to meet their municipal demands. These include 1) the increased need for supplies due to **municipal growth**; and 2) the potential reduction or change in available surface water supplies due to **climate impacts**. The combined impact from these two threats result in an increased need of 2,025 to 2,125 acre-feet on average annually of municipal water supply.

**Municipal Growth:** The City currently supplies water to approximately 30,000 people and has an annual water demand of approximately 5,300 acre-feet on average (equivalent to a daily average of 4.7 million gallons per day). The City currently sources water from several streams and reservoirs in the Kannah Creek watershed, which lies approximately 15 miles southeast of the City. The City's WaterSMART-funded technical analyses indicate that the population within the City's service area could increase by 19,500 people by 2070, resulting in a total future municipal demand of approximately 7,300 acre-feet on average annually (DiNatale, 2021). As such, the City will need approximately 2,000 additional acre-feet of municipal supplies to meet the expected growth within their service area.

**Climate Impacts:** As the demand for water increases in the future, changing climate has the potential to reduce the available streamflow to meet those future demands. As part of their WaterSMART-funded water marketing strategy effort, the City investigated a range of future

climate conditions and the potential impact these conditions would have on their existing supply (DiNatale, 2021). The analyses in the marketing strategy report relied on the range of climate projections developed by the State of Colorado for their *2014 Climate Change in Colorado Report* (CWCB, 2014). The report indicates that the average temperature in the Grand Junction area is expected to increase between 4 and 4.5°F from the historical annual average, with increases of up to 5°F from May to September by the middle of the century. Precipitation is expected to increase annually by 5% to 10% by mid-century, although decreases in precipitation are expected in the months of May and June. Under future climate projections, the Kannah Creek watershed is expected to have decreasing flows, earlier spring runoff, an earlier summer demand, and repeating drought years (DiNatale, 2021). Based on these projections, the technical analyses modified the City's historical hydrology model to simulate future climate conditions in the Kannah Creek watershed. Under future climate conditions, the report found an average annual reduction of 25 to 125 acre-feet of municipal supply from the Kannah Creek watershed may occur.

*How do the threats identified in your response to the preceding bullet impact specific water uses or sectors in the geographic area of the planning or design project?*

The City's current firm yield[1] of municipal supply from the Kannah Creek watershed is approximately 6,400 acre-feet on average annually (DiNatale, 2021). As noted above, the City's current municipal demand is 5,300 acre-feet on average annually, indicating that the City can meet its current demand using their existing supplies and can also accommodate some future municipal growth within its service area. The City's WaterSMART-funded technical analyses indicate, however, that after accounting for future municipal growth and a changing climate, the City has an average annual shortfall of 925 to 1,025 acre-feet. Accounting for future municipal growth trends alone, the City's demand will exceed the firm yield from Kannah Creek by the year 2039. Coupled with the threat of climate change, the City's demand may exceed firm yield even earlier, potentially by 2035. This potential shortfall directly impacts the City's ability to supply clean, safe, and reliable drinking water in the future. Failure of the City to plan for and develop new water supplies to meet the future demands would be devastating to the health and safety of the City's population and would be disastrous for the economic stability of the Grand Valley region. Conserving existing water supplies through the proposed Juniata Enlarged Ditch piping project would offset this shortfall by increasing the City's firm yield of their Kannah Creek supplies.

*How will the design project help address the threats to water supplies and water uses identified in your response to the preceding bullets?*

The City analyzed the water supplies that would be conserved as the result of the proposed Juniata Enlarged Ditch piping project using historical diversion records and an estimate of ditch

[1] Firm yield is the amount of water the City can deliver annually while meeting certain reliability criteria. The firm yield as described in the water marketing strategies report is the annual amount of raw water delivered from the Kannah Creek watershed through a repeat of historical hydrology (1974 to 2016) while maintaining one-year's supply in storage (DiNatale 2021).

loss. The City estimates ditch loss on the Juniata Enlarged Ditch is between 30% to 40% of total diversions; however, the City's water supply planning efforts use a 30% ditch loss estimate. Total diversions through the Juniata Enlarged Ditch are 4,750 acre-feet on average per year (CDSS, 2024), of which approximately 3,040 acre-feet of the diversions are conveyed to Juniata Ditch for irrigation purposes and 1,710 acre-feet of the diversions are conveyed to Juniata Reservoir for storage and subsequent use by the City. With a 30% ditch loss, approximately 510 acre-feet on average annually of additional supply can be delivered to Juniata Reservoir with the piping project. This conserved water, representing approximately half of the City's projected shortfall, provides high quality water that can be treated by the City's existing treatment processes and can be directly integrated into their existing water distribution system.

The piping project will also provide additional supply to the Juniata Ditch for use within their irrigation systems. Again, assuming a 30% ditch loss, approximately 910 acre-feet on average annually of additional irrigation supply can be delivered to the Juniata Ditch agricultural users. This results in additional water reaching the field, leading to increased crop growth on the 1,000 acres of irrigated farmland served by the ditch. In total, approximately 1,420 acre-feet on average annually of water will be conserved as a result of the proposed piping project in the Juniata Enlarged Ditch.

*Is the planning or design effort for the purpose of providing domestic water supplies to a Tribe, insular area, or disadvantaged community(ies) that do not have reliable access to water supplies?*

The City currently supplies water to approximately 30,000 people, of which approximately half live in census tracts that are considered to be disadvantaged based on the Climate and Economic Justic Screening Tool. While the City already provides reliable water supply to these communities, the Juniata Enlarged Ditch piping project will allow the City to continue providing this service in the future when water supplies would otherwise become unreliable.

*Does the planning or design effort involve the improvement of nature-based features? If so, please describe.*

The proposed piping project for the Juniata Enlarged Ditch does not involve any nature-based features.

*Is the project for the purpose of meeting existing environmental mitigation or compliance obligations under Federal or State law?*

The project's main purpose is to conserve the City's existing water supplies and use those water savings to meet future municipal growth and offset the impact of a changing climate. The Water Conservation Act of 2004 (Colorado House Bill 04-1365) requires all covered entities (i.e. retail water providers that sell 2,000 acre-feet or more on an annual basis) to have a state approved water efficiency plan containing certain required minimum plan elements (CWCB, 2024). This legislation requires entities that have the legal obligation to supply, treat, and distribute municipal supplies to develop a plan and monitor progress towards implementing

water conservation and drought planning. To meet the requirements of this state legislation, the City, along with Clifton Water District and Ute Water Conservancy District, completed the *Grand Junction Regional Water Efficiency Plan* in 2023 (GJWEP, 2023) and submitted the plan to the Colorado Water Conservation Board for approval. The plan identifies the water saving measures and programs that are currently in place and those that will be implemented in the future by the regional water providers for water conservation. The proposed Juniata Enlarged Ditch piping project serves as one of the water saving measures the City will take to reduce system inefficiencies and promote water conservation efforts as required by the Water Conservation Act of 2004.

### Evaluation Criteria B: Inclusion of Stakeholders, Stakeholder Support, and Previous Planning Efforts: Task B – Project Design (25 points)

*If the project(s) being designed is/are supported by an existing water planning effort, please describe that effort.*

The City has recently undertaken several water supply planning efforts to identify and evaluate options that provide a reliable water supply to meet their long-term municipal demands. As described under Evaluation Criteria A, the City applied for and received a WaterSMART grant from Reclamation in 2018 to develop a water marketing strategy for water that it owns in the Colorado and Gunnison Rivers. Work from the grant involved an inventory of the City's water rights; a modeling project using the RiverWare modeling platform to evaluate the City's water rights to meet current and future municipal demands; outreach to water providers in the region; and development of water marketing projects and strategies (DiNatale, 2021).

Parallel to this effort, the City also undertook an infrastructure engineering study with funding from the WaterSMART grant to evaluate water treatment options and infrastructure needed for the City to supply water during peak demand and emergency conditions and improve the reliability of the system (BM, 2021). One significant finding from these efforts was the superior quality of the water supplies from Juniata Reservoir and Kannah Creek currently used by the City compared to the quality of other water sources, including the mainstem of the Colorado and Gunnison Rivers. Specifically, the report cited that high levels of total dissolved solids and turbidity present in the Gunnison and Colorado River mainstem supplies would require additional treatment processes prior to delivery to potable water customers. The water options assessment study evaluated and ranked fifteen potential water supply options regarding their ability to provide operational redundancy and/or long-term resiliency. The evaluation process relied on qualitative, non-monetary selection criteria to rank each option, and the ranking occurred during a series of meetings that included key stakeholders from the City, Clifton Water District, Ute Water Conservancy District, and Orchard Mesa Irrigation District. Four projects received the highest ranked scores; two projects that would provide multiple ways to access the City's supply from their water rights in the Kannah Creek watershed and two projects that would provide long term resiliency through connections with neighboring communities' treated water supplies (BM, 2021).

Information and results from the marketing strategies and water options reports were integrated into the Grand Junction Regional Water Efficiency Plan (GJWEP, 2023), which has the stated mission to "promote water conservation by example, education, and innovation for the purpose of securing the future water needs of the Grand Valley". This collaborative effort between the City, Clifton Water District, and Ute Water Conservancy District helped these water providers improve their overall water use efficiency by addressing issues of supply and demand problem areas and providing a defined method of solving problems, dealing with system inefficiencies, and promoting water conservation efforts. The City provided information regarding current and future municipal demands for water and current programs, measures the City has developed to conserve water or educate the public about water conservation, and actions the City would take in response to drought conditions (Appendix B in the Water Efficiency Plan). The plan concluded with future measures and programs the region would take to continue meeting water efficiency and conservation goals in the future. These future measures and programs include increased metering, implementation of water efficiency-oriented rates and tap fees, management and reduction of system water losses, replacement of irrigated areas with low-water use cover, irrigation audits, identification of high water users, increased reuse through their Graywater Ordinance (2022), and continued outreach and educational opportunities.

These foundational studies and planning efforts led the City to undertake projects that maximize the use of their existing supplies from Kannah Creek. The studies highlighted the fact that these supplies are of a higher quality that can be treated by the City's existing treatment processes and they can be directly integrated into their existing water distribution system. These planning efforts emphasized the need for water conservation and improved efficiency to help meet future water supply needs in the region, and called on water providers to lead by example.

The proposed Juniata Enlarged Ditch piping project was not specifically identified or evaluated in these reports or planning efforts. However, the proposed project has been analyzed using the tools and information from the reports; aligns with the findings of the reports; and implements the stated goals of the City on water use. More specifically, the City internally analyzed the potential water savings of the piping project using the aforementioned RiverWare modeling platform and future demand assumptions from the marketing strategies report. This analysis served as the basis for water savings from the proposed project described in more detail in the Project Benefits criteria section of this grant application. The proposed piping project aligns with the recommendations included in the water options report by reducing losses of the City's Kannah Creek supplies resulting in improved long-term resiliency and operational redundancy when coupled with other high ranked water options. The project also directly implements the goals of the water efficiency planning effort by dealing with system inefficiencies, promoting water conservation efforts, and developing supplies to meet future demands.

*Describe any planned efforts for public outreach and stakeholder engagement during the design process.*

During the design process the City will engage with the Juniata Ditch Company Board and the Highline Ditch Company Board during their regular board meetings.

*Describe stakeholder support for the proposed project.*

There is broad support for the proposed Juniata Enlarged Ditch piping project among City stakeholders. As noted above, this proposed project conserves existing water supplies for the City in a way that promotes their water conservation goals and aligns with other water development options they may pursue to increase operational redundancy and long-term resiliency. Additional support for the project comes from the 40 agricultural users on the Juniata Ditch. The Juniata Enlarged Ditch delivers the City's municipal water to the Juniata Reservoir as well as irrigation supplies to agricultural users on the Juniata Ditch. As such, the agricultural water users will also experience reduced conveyance losses and more of their irrigation water delivered to the Juniata Ditch as a result of the proposed piping project. The City presented the proposed piping project to members of the Juniata Ditch Company Board in February, 2024. The board expressed support for the project during these meetings and provided a letter of support for the project. The project is also supported by the Gunnison Basin Roundtable. The Gunnison Basin Roundtable is comprised of a diverse group of stakeholders and plays a major role in water management discussions and solutions in western Colorado. Letters of support are included as an attachment to this technical proposal.

*Is there opposition to the proposed project?*

There is no known opposition to the proposed piping project.

## Evaluation Criteria C: Ability to Meet Program Requirements (20 points)

*Describe how the project will address the program specific requirements described in the appropriate program-specific appendix.*

The City will work with a professional engineering firm licensed in the state of Colorado to address all requirements specific to the project design grant. This firm will perform four major tasks: Meeting and Project Coordination; Data Gathering; Engineering Design; and Permitting and Compliance Research. These tasks were developed based on a preliminary analysis of the Juniata Enlarged Ditch completed in early 2024.

**Task 1 - Meeting and Project Coordination:** The City anticipates several meetings will be needed as part of the Juniata Enlarged Ditch piping project design phase. The task includes attending meetings and general project coordination for the Juniata Enlarged Ditch piping project. These meetings will be attended by the professional engineering services firm. This work will also include engaging stakeholders (e.g., Juniata Ditch Company Board during their regular board meetings) in the design process.

**Task 2 - Data Gathering:** The professional engineering services firm will conduct site visits to examine the existing ditch infrastructure, the proposed pipe alignments, and structure

locations. This may include earthwork contractors and/or concrete contractors on one site visit to obtain their opinion on constructability issues that could impact the design. If geologic investigation is needed, the firm will hire a subcontractor to conduct field survey and testing for slope stability. A professional land surveying company will be hired to obtain the survey data necessary to reach final design. The surveyor, licensed in the state of Colorado, will perform a survey of the ditch invert and various structures along the ditch. Existing structures include the intake system on Kannah Creek, existing pipe segments, culverts, and the divider structure at the downstream end of the project. This data would be used in conjunction with available LiDAR data as the basis for project design. A City representative may be present at site visits to discuss historical aspects of the ditch and the goals of any proposed improvements.

**Task 3 – Engineering Design:** The professional engineering services firm will be responsible for developing engineering plans for the Juniata Enlarged Ditch piping project. The firm will identify data needed for design and obtain additional data from online sources (such as State diversion records) and the City (such as system loss analysis). The firm will then synthesize the data and analyze hydraulics for numerous pipe types and sizes along with sections eligible for shotcrete lining. This firm will also investigate the technical and legal feasibility of alignment changes, such as installing siphons, that would minimize the total length of improvements.

Specific site constraints and constructability issues will be taken into consideration. The final design will include approximately 12,200 feet of ditch pipeline or shotcrete lining and will specify which sections will be piped or lined and with which pipe type and size. Structures needed to tie the project together will be designed. Pipeline appurtenances such as air vents will have locations and sizes specified. The design will be performed to meet or exceed typical NRCS standards.

The engineering firm will generate a final set of engineered drawings containing pipeline and/or shotcrete liner alignments including elbows and fittings, profiles and pipe sizes. Detailed structure design drawings will also be included. A revegetation plan with schedule and seed mix will be specified. The firm will produce technical specifications for all the components necessary for project construction. They will also generate a basis of design document to support design decisions. The basis of design document will outline the project goals, present relevant data, and list design criteria for different project elements including pipe material and pressure rating, pipe velocity, appurtenances, pipe installation, concrete structures and more. This document will include justifications for design decisions that will be reflected in the construction plans.

The firm will develop a cost estimate to help determine how the construction phase of the project could be funded through grants, loans, and other funding sources. The firm will also generate a project implementation plan, which will include a project schedule and key milestones for projects tasks from final permitting to construction completion.

**Task 4 – Permitting and Environmental Compliance Research:** The engineering firm will research the permitting and environmental compliance requirements for piping the Juniata Enlarged Ditch. The goal of this task is to understand what permitting and environmental compliance documentation will be needed for the construction phase of the project and any associated costs. This research will include determining how NEPA compliance will be accomplished for this project, and identifying information needed to comply with Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act.

A cultural resource specialist will perform a preliminary cultural resource assessment of the project alignment to determine if there are any significant concerns that would impact the cost and ability to obtain a permit for construction. In addition, an environmental specialist will conduct a review of existing documentation to determine if there are any potential endangered or threatened species within the project area. A site assessment will also be performed to further verify if any such species are present in the project area and what complications their presence may pose to obtaining a future permit for the project. The environmental consultant will also provide input on other permits that will likely be required as well as the cost and estimated timeline for obtaining such permits. This task will help determine the level and costs of environmental or cultural consultation that may be needed during the construction phase of this project. The task does not include funds for obtaining the necessary documentation.

*Describe the approach that will be undertaken to meet the applicable program components and requirements.*

The following sections outline a preliminary project schedule, budget, and description of prior planning work that will be relied upon as part of the Juniata Enlarged Ditch piping project.

**Preliminary Project Schedule:** The preliminary project schedule shown in

Table 1 outlines the project completion timeline by task. The design process will be completed over 12 months with the assumption that work will commence as soon as the grant contract has been signed. A professional engineering firm licensed in the state of Colorado will be responsible for all the tasks as outlined above. The schedule was provided by a local engineering firm and is based on other projects funded by the Bureau of Reclamation that were similar in size and scope.

*Table 1. Project Timeline*

| Year | 1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quarter | 1 | | | 2 | | | 3 | | | 4 | | |
| Month | *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* | *11* | *12* |
| Meetings and Project Coordination | | | | | | | | | | | | |
| Data Gathering | | | | | | | | | | | | |
| Engineering Design | | | | | | | | | | | | |
| Permitting Research | | | | | | | | | | | | |

**Prior Planning Work:** The project will rely on preliminary planning activities completed in early 2024, including an initial site visit conducted in February 2024, as outlined below.

### *Availability and Quality of Existing Data*

The City, accompanied by Applegate Group, a local engineering firm, conducted a preliminary site visit of the Juniata Enlarged Ditch on February 5th, 2024 to gather existing data and better understand existing conditions of the ditch. Existing issues associated with the ditch include seepage, vegetation encroachment, and slope instability issues. While the Kannah Creek headgate structure is not currently in need of modification or replacement, seepage and vegetation issues are apparent immediately downstream of the headgate. The City is investigating shotcrete lining of the ditch between the headgate and flume to address those issues.

*Figure 3: Juniata Enlarged Ditch viewed from headgate looking downstream towards flume*

About a quarter mile downstream of the headgate, slope instability becomes a major issue (Figures 3, 4, and 6). In years past, the Highline

Ditch, located up gradient to the Juniata Ditch, has slid off the hillside causing significant damage to the Juniata Ditch. While much of the instability of the Highline Ditch has been addressed through piping, rockfall and sluffing of soil from above still affects the Juniata Ditch. About 1200 linear feet of the ditch is piped through this reach; however, the corrugated metal pipe is deteriorating and needs to be replaced imminently (Figure 4).

The ditch turns northward after traversing the hillside section and flows under Purdy Mesa Road. Willows and grasses typically line the ditch. There are also multiple large cottonwoods present in several locations. The ditch winds around several drainages as it flows towards the reservoir. These could be bypassed with siphons, which warrants further exploration for potential cost savings.

For the most part, access to the ditch is relatively well maintained as ditch cleaning operations are conducted regularly. The existing access roads would allow for concrete trucks to access for shotcrete application. The initial visit indicated native on-site soils would generally be suitable for backfill and therefore significant hauling of materials for backfill would not be necessary.

*Figure 4: Ditch enters ~1200LF of corrugated metal pipe along steep hillside prone to instability; gaining infrastructure in need of replacement*

*Figure 5: Typical section of ditch, about ¾ of a mile from the headgate*

*Identify staff with appropriate technical expertise and describe their qualifications. Describe any plans to request additional technical assistance from Reclamation or by contract.*

The City does not have in-house capacity to design this project and will contract with an engineering firm to prepare the design documents.

No technical assistance will be requested from the Bureau of Reclamation or by contract.

*Describe any new policies or administrative actions required to implement the plan or project being designed.*

No new policies or administrative actions would be required.

## Evaluation Criteria D: Presidential and Department of the Interior Priorities (15 points)

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

This project is expected to reduce the impacts of climate change to local water supply resources in the future. As described under Evaluation Criteria A, as the demand for water increases in the future, climate change has the potential to reduce the available streamflow to meet those future demands. Under future climate projections, the Kannah Creek watershed is expected to have decreasing flows, earlier spring runoff, an earlier summer demand, and repeating drought years (DiNatale, 2021).

Based on these general climate trends and on expected population growth, the City estimates it will need between 2,025 and 2,125 acre-feet on average annually of municipal supply to meet future demands and mitigate the effects of climate change. The proposed project would reduce water loss in the Juniata Enlarged Ditch, conserving approximately 510 acre-feet per year to meet future municipal demand.

*Does this proposed project strengthen water supply sustainability to increase resilience to climate change?*

The proposed project would strengthen water supply sustainability and increase resilience to climate change. The Juniata Enlarged Ditch typically experiences approximately 30% water loss due to evaporation and seepage. Piping the Juniata Enlarged Ditch would eliminate this water loss, strengthening the water supply for both municipal and agricultural users.

*Describe how the project benefits the disadvantaged or underserved communities identified using the Climate and Economic Justice Screening Tool.*

The proposed project would serve all households within the City's water service area. The project would serve five census tracts considered disadvantaged based on the Climate & Economic Justice Screening Tool: 08077000300, 08077000500, 08077000602, 08077000700, and 080770002000. Together, these census tracts are home to nearly 16,000 people, or half of the City's service area population.

## Evaluation Criteria E: Nexus to Reclamation (5 points)

*Is there a Reclamation project, facility, or activity within the planning area? Is the planning area in the same basin as a Reclamation project, facility, or activity?*

The City is located in the heart of Reclamation's Grand Valley Project. The Grand Valley Project includes a diversion dam, a powerplant, and nearly 100 miles of canals that divert and deliver irrigation supplies to approximately 40,000 acres of farmland in the Grand Valley area (WPRS, 1981). Since construction on the project began in 1912, the City has served as the municipal, commercial, educational, and cultural center for water users under the project. Additionally, Reclamation's Western Colorado Area Office is located in Grand Junction (USBR, 2024).

*In what way will the proposed project benefit a basin where a Reclamation project, facility, or activity is located?*

As the proposed piping project helps to meet the City's water needs, it consequently directly serves the needs of Reclamation's water users and staff that live in and/or rely on the services the City provides.

## References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# Recommended Application Components

## Environmental and Cultural Resources Compliance

The proposed project would develop engineering plans for piping the Juniata Enlarged Ditch and does not include any ground-disturbing activities. The proposed project includes researching the permitting and environmental compliance requirements for piping the Juniata Enlarged Ditch.

## Required Permits and Approvals

The proposed project includes researching the permitting and environmental compliance requirements for piping the Juniata Enlarged Ditch. This research will include determining how NEPA compliance will be accomplished for this project, and identifying information needed to comply with Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act. A cultural resource specialist will perform a preliminary cultural resource assessment of the project alignment to determine if there are any significant concerns that would impact the cost and ability to obtain a permit for construction. In addition, an environmental specialist will conduct a review of existing documentation to determine if there are any potential endangered or threatened species within the project area. A site assessment will also be performed to further verify if any such species are present in the project area and what complications their presence may pose to obtaining a future permit for the project. The environmental consultant will also provide input on other permits that will likely be required as well as the cost and estimated timeline for obtaining such permits. The proposed project does not include improvements to Federal facilities.

## Overlap of Duplication of Effort Statement

The City of Grand Junction has no known overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or committed key personnel.

The proposal submitted for consideration under this program does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding source.

## Conflict of Interest Disclosure Statement

The City of Grand Junction has no known actual or potential conflict of interest at the time of submission of this application. The City of Grand Junction will disclose in writing any potential conflict of interest to the federal awarding agency or pass through entity in accordance with applicable Federal awarding agency policy and Federal Uniform Guidance 2 CFR Part 200. Please find included with this application, the City's Financial Assistance General Certifications and Representations document as **Attachment 1**.

## Uniform Audit Reporting Statement

The City of Grand Junction was required to submit a Singe Audit report for the most recently closed fiscal year. The City's Employee Identification Number (EIN) is 84-600059 and this report is available through the Federal Audit Clearinghouse website.

## Letters of Support

**Letters of support from the following entities are included:**

**Gunnison Basin Roundtable**

The project is supported by the Gunnison Basin Roundtable. The Gunnison Basin Roundtable is comprised of a diverse group of stakeholders and plays a major role in water management discussions and solutions in western Colorado. Letters of support are included as an attachment to this technical proposal. **See Attachment 2**

**Juniata Ditch Company**

The project is supported by Juniata Ditch Company. The Juniata Enlarged Ditch delivers the City's municipal water to the Juniata Reservoir as well as irrigation supplies to agricultural users on the Juniata Ditch. The City presented the proposed piping project to members of the Juniata Ditch in February, 2024. The board expressed support for the project during these meetings and provided a letter of support for the project. **See Attachment 3**

## Official Resolution

The Resolution No. 30-24 was presented to and approved by City Council on May 1, 2024. A copy is included with this application as **Attachment 4.**