



Submittal ID: **71973** App Name: **DWRF03 - Project Needs Assessment**
 Submitted Date: **9/1/2023 4:26:32 PM** Submitted by: **Ken Charles**
420 Central Avenue, PO Box 630
Dolores CO 81323
970-882-7720
manager@townofdolores.com



Status:

3.1 Legal Ownership of System (TMF: Managerial-1)

Name
 Town of Dolores
Mailing Address 1 **Mailing Address 2**
 420 Central Ave P.O. Box 630
City **State** **Zip Code**
 Dolores CO 81323
Phone Number (i.e. 555-555-5555) **Fax Number**
 970-882-7720

3.2 Organizational Chart

Include an Organizational Chart as Attachment 2.

3.3 Plans (TMF: Managerial-2)

Monitoring Plan - Include a copy of the Monitoring Plan as Attachment 3.

Cross Connection Control Plan - Include a copy of the Cross Connection Control Plan as Attachment 4.

Water Conservation Plan (if system sells over 2,000 acre feet of water annually) - Include a copy of the Water Conservation Plan as Attachment 5. Not Applicable

3.4 Current Operator in Responsible (ORC) Charge (TMF: Technical-14)

First Name **Last Name**
 Randy McGuire
Certification Number **Certification Expiration Date**
 CWP-D1-00047-0604 06/01/2025
Operator Certification Level (check one) Staff Operator Contract Operator
Treatment Class D Class C Class B Class A
Distribution Class 4 Class 3 Class 2 Class 1
Combined Treatment/Distribution Class S Class T

3.5 Operator Certification (TMF: Technical-15)

Do the system operators have adequate operator certification levels for the proposed project as defined by Regulation 100 Water and Wastewater Facility Operators Certification Requirements? Yes No

Explain the impact of the proposed project on the required operator in responsible charge (ORC) certification level and other predicted staffing changes. (No more than 2,000 Characters)

The proposed project would not impact operator certification level or necessitate staffing changes.

Include a copy of the written delegation of duties, including constraints and conditions requiring consultation with the ORC, as Attachment 6.

3.6 Record Keeping (TMF: Managerial-3)

Describe the system's record retention policy that meets the requirements of the Colorado Primary Drinking Water Regulations (Regulation 11) including: record type, retention period, and record location. (No more than 2,000 Characters)

The Town of Dolores follows CDPHE records retention policy. All records are kept at the drinking water plant and at Town Hall, and are available for a minimum of 5 years. The Town's retention policy can be found at the following address:
<https://www.colorado.gov/pacific/archives/municipal-records-retention-manual>



3.7 Annual Budget (TMF: Financial-1)

Does the system prepare an annual budget? Yes No

Does the system prepare and maintain a Capital Improvement Plan? Yes No

Please provide a narrative of the process for annual budgeting and financial planning. (No more than 2,000 Characters)

The Town prepares yearly budgets for the water system that incorporate income from water user and tap fees, additional grant revenue, and expenses including employee/administrative expenses, operational costs, and capital outlay. Budgets are presented to and approved by the Town Board of Trustees. Budgets are audited yearly to comply with State requirements.

Provide a copy of the annual budget as Attachment 7.

3.8 Financial Status (TMF: Financial-2)

Describe the current financial status and multi-year financial planning for the system including O&M costs, existing debt, required reserve accounts, rate structure, other capital improvement programs, and the system's reserve policies. (No more than 2,000 Characters)

The Town utilizes periodic Master Planning efforts to identify necessary capital improvements for their water system, their expected costs, and revenue adjustments that are required to continue adequately funding the water system operations and capital improvement projects. The Town is currently implementing water system projects that were identified in a 2018 Master Plan. Budget targets are developed each year by reviewing expenditures from the previous year, estimated increases to operation and maintenance costs, and capital improvements costs. The

20-year cash flow projection

Include a copy of the 20-year cash flow projection as Attachment 8.

3.9 Audits (TMF: Financial-5)

Has the system submitted audits to the Department of Local Affairs or the State has granted exemption of the statutory audit requirement?

- Yes - Provide a copy of the most recent audited financial statement or exemption from State as Attachment 9.
- No

3.10 Insurance (TMF: Financial-6)

Does the system maintain general liability insurance?

- Yes - Include documentation of general liability insurance as Attachment 10.
- No

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Project Purpose and Need

Discuss the issue or concern that the proposed project will address. Specific issues are outlined below. All issues must be discussed in each sub section below even if they are not the project driver.

4.1 Health and Compliance

Summarize the system's compliance status that necessitates the proposed project. (No more than 2,000 Characters)

There are no compliance issues in the existing water system.

4.2 Existing facility limitations

Summarize existing water system facility(ies) limitations that necessitate the proposed project. (No more than 2,000 Characters)

Limitations in the existing distribution system include aging infrastructure, lack of redundant storage, and inadequate fire flow. Fire flow availability through large areas of town is poor due to low distribution system pressures, small diameter piping, and lack of looped piping in critical areas. Under existing conditions, roughly 78% of the model nodes in SGM's hydraulic water model receive less than 1,500 gpm in available fire flow, which the minimum fire flow required by the newly adopted 2021 International Building Code.

4.3 Operations and Maintenance Issues

Summarize operational and maintenance (O&M) issues with the existing water facilities. (No more than 2,000 Characters)

Town staff regularly replace water system infrastructure and perform routine maintenance on accessible and/or above ground appurtenances. The Town has historically observed water main breaks in the fall and spring, associated with extreme freezing events absent protective snow cover. Once excavated, broken pipelines often exhibit a cleanly broken (sheared) through perpendicular to the direction of flow. The broken pipelines are often found at an inadequate burial depth with improper bedding (large cobbles) in the pipe trench.

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Status:

5.1 Existing Source Water- Section required for treatment and supply projects

Not applicable (for distribution and storage projects, only)

Include copies of supporting documentation for water rights or other supply agreements as Attachment 12.

5.2 Existing treatment- Required for treatment and supply projects only

Not applicable (for distribution and finished water storage projects, only)

5.3 Distribution - Required for distribution and storage projects only

Not applicable (for supply and treatment projects, only)

5.3.1 Overall Distribution System Description (TMF: Technical-11 and -12)

Discuss the existing finished water distribution system including: gravity vs. pumped pressurization, facility age, material type, condition of materials, amount of AC pipe, number of pressure zones, pump stations, and storage tanks. (No more than 2,000 Characters)

The distribution system is composed of the following components:

- Approximately 58,400 LF of water lines, no AC pipe. The majority of the Town's water lines are 4" or 6" in diameter cast iron pipe and were originally constructed in the 1960's.
- C900 PVC pipe is used for new water lines.
- One pressure zone.

Discuss the estimated distribution system losses (i.e., the percent of water lost in the distribution system and not delivered/billed to customers). (No more than 2,000 Characters)

SGM reviewed billing and production data for the Town's water system. In 2022 there was 54,038,000 gallons of water produced at the WTP and 41,760,009 gallons billed to customers, equating to 23% unaccounted for water. The EPA white paper titled Water Audits for Water Loss Control for Public Water Systems states that the average water loss in water systems is 16%. This distribution system project will replace aging water lines to address these water losses.

5.3.2 Pressure (TMF: Technical-13)

Discuss if the existing distribution system is designed to maintain a minimum pressure of 20 psi at all ground level points in the distribution system under all conditions of flow as required in the CDPHE Design Criteria for Potable Water Systems (Design Criteria). The Design Criteria also recommends a normal working pressure in the distribution system of approximately 60 psi, and not less than 35 psi. Discuss how the distribution system meets the required and recommended distribution system pressures. (No more than 2,000 Characters)

The existing distribution system can maintain 20 psi, but it cannot maintain 60 psi. Some locations can only maintain pressures less than 35 psi. The current distribution system does not meet recommended system pressures.

Include a map illustrating any locations where a minimum pressure of 20 psi cannot be provided under all conditions of flow as Attachment 15.

Not Applicable

5.3.3 Meters (TMF: Financial-4)

Discuss if the existing distribution system includes water meters. (No more than 2,000 Characters)

The existing system includes water meters. This project will reuse existing meters.



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6.1 Planning Area Description

6.1.1 Project Area Map

Provide a map showing a minimum of a 3-mile radius around the project area that includes environmental features (lakes, streams, wetlands, floodplains). Map must include current and proposed service area, existing drinking water facilities (plants, major distribution lines, water sources, storage facilities), existing wastewater outfalls/permited discharge points, and any new or affected sources with regard to the pertinent watershed. Include the map as Attachment 16.

6.1.2 Urban Growth Boundary

Is the project within or near an urban growth boundary?

 Yes No

6.1.3 Local and Regional Issues

Were local and regional planning efforts considered?

 Yes No

Please describe. (No more than 2,000 Characters)

Yes, this project is part of a 20 year capital improvement plan.

Were local and regional water quality and/or quantity efforts considered?

 Yes No

Please describe. (No more than 2,000 Characters)

The Town of Dolores has excellent water supply, water quality, and treatment capacity. Improvements to those areas are not included in this project.

Was consolidation with another water system / treatment facility considered?

 Yes No

If yes, describe the consolidation considerations. If no, please indicate why consolidation was not considered. (No more than 2,000 Characters)

The closest feasible water supplier is Montezuma Water Company. We know that the utility is facing water treatment capacity issues meeting their current customer's demands.

6.2 Population and Water Demand Projections (TMF: Technical-2)

For a 20 year planning period, forecast the population growth, projected increase in Equivalent Residential Taps (ERT), and projected drinking water demands.



Current ERT - As Calculated in the Prequalification Form: 555

Population and Demand Projections - The department generally accepts two methodologies for projecting water flows over the 20 year planning period. Other methodologies are acceptable with a clear explanation and all assumptions and parameters listed:

- Method 1: Population based projections. Recommended for primarily residential systems and/or for systems without water meter data.
- Method 2: Equivalent Residential Taps (ERT) Analysis. Recommended for systems with a high multifamily, commercial, industrial, irrigation demands.

Method 1 and 2 templates can be found at the end of this form.
 Attach the population projection as Attachment 17.

Discuss supporting data and reasons for projected future growth during the 20 year planning period.

Note: Projects designed solely to serve future development or population growth are not eligible for State Revolving Fund financing. (No more than 2,000

Characters)

In the last 5 years, water taps have increased by 6.



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6.3 Source Water Planning

6.3.1 Overall Water Resource Management Description (TMF: Technical-2)

For a 20 year planning period, describe the system's water resource management plan. (No more than 2,000 Characters)

During the winter, the well (groundwater) is the only supply water used. During the summer, water is pulled from the well and the Dolores River which the Town has extensive water rights to.

6.3.2 Water Rights (TMF: Technical-3)

For the 20 year planning period, discuss how the system will be able to meet the projected population and increased industrial/commercial water demands. (No more than 2,000 Characters)

Population growth in Montezuma county averages 1.16% over the past 20 years. If that same metric is used to calculate population growth for the Town of Dolores, water use increases minimally. With the extensive water rights to the Dolores River during the summer and more than adequate production from the groundwater well in use, meeting projected population increase in water demands will not be an issue.

Provide documentation supporting the system's water rights, if not provided in section 5.1.2 above, as Attachment 18.

6.3.3 Source Water Supply Capacity (TMF: Technical-4)

For the 20 year planning period, discuss if the source water supply infrastructure is capable of delivering adequate source water to meet projected needs. (No more than 2,000 Characters)

The source water supply infrastructure for pulling water from the Dolores River is capable of meeting projected needs.

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7. Assessment of Alternatives

This section should contain a description of the reasonable alternatives that were considered in planning a solution to meet the identified needs. If the proposed project includes new technology then the please discuss whether or not the technology is covered in the CDPHE Design Criteria.

7.1 Alternatives

For each alternative, please provide:

- A description of the alternative addressing the issues identified in Section 4: Project Purpose and Need. (TMF: Technical-7)
- Capital cost estimates and annual operation and maintenance costs.
- Advantages and Disadvantages of each alternative.

Alternative 1 Title : Replace and upsize waterline

Alternative 1 Description (2000 character limit):

Fewer waterline breaks can be expected if new waterlines are installed with proper bedding and increased burial depth. Looping will result in fewer dead ends and decreased water age in pipes. Replacement of waterlines will be expensive and will result in a financial burden on the Town of Dolores.

Alternative 1 Capital and Operation and Maintenance Costs (2000 character limit): (No more than 2,000 Characters)

Phase 2 Alternative 1 is projected to cost \$4,650,000 for design and construction.

Alternative 1 Advantages and Disadvantages (2000 character limit):

Fewer line breaks can be expected with increased burial depth. Looping will result in no dead ends and no aging of water in pipes. Replacement of waterlines will be expensive and will result in increased water costs in Dolores.

Alternative 2 Title : Reduced Scope 1st to 4th St

Alternative 2 Description (2000 character limit):

Replacement of fewer waterlines will be less expensive than Alternative 1 and will result in less of a financial burden on the Town of Dolores.

Alternative 2 Capital and Operation and Maintenance Costs (2000 character limit):

Phase 2 Alternative 2 is projected to cost \$2,600,000 for design and construction.

Alternative 2 Advantages and Disadvantages (2000 character limit):

Delaying replacement of waterlines now will lead to more costly replacements in the future.

Alternative 3 Title : No intervention

Alternative 3 Description (2000 character limit):

Leave the existing system as is, with no looping or pipe replacement.



Alternative 3 Capital and Operation and Maintenance Costs (2000 character limit):

\$0

Alternative 3 Advantages and Disadvantages (2000 character limit):

This is the most up front cost effective alternative. However, there will be cost build up with continued pipe breakage resulting from improper burial depth and corrosion from lack of looping.

Provide discussions of additional alternatives as Attachment 19.

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8.1 Justification of Selected Alternative (TMF: Technical-6)

Please demonstrate why the selected alternative best meets system needs based on both monetary and non-monetary considerations. For treatment facility projects, if the EPA-BAT technology is not selected then the report must include a treatment rationale. (No more than 2,000 Characters)

The current water lines are aging, placed at an improper depth with inadequate backfill, and are due for replacement. The selected alternative will replace gate valves and fire hydrants that require attention and correct utility conflicts. The new water lines will be buried deeper with proper bedding and backfill so they will not break as often.

8.2 Technical Description and Design Parameters (TMF: Technical-5)

For the selected alternative, please describe all proposed project components and assumed design parameters. (No more than 2,000 Characters)

The proposed alternative will include C900 PVC waterlines and ductile iron fittings and valves installed in accordance with AWWA's distribution system standards.

8.3 Proposed Process Flow Diagram

Include a proposed treatment facility process flow diagram or map of the distribution system, if applicable as Attachment 20.

8.4 Appropriateness of Treatment Technologies (TMF: Technical-6)

Discuss appropriateness of the proposed treatment process(es) to meet Regulation 11 considering anticipated source water quality and potential sources of contamination. (No more than 2,000 Characters)

N/A

8.5 Environmental Impacts

Describe direct and indirect impacts on floodplains, wetlands, wildlife habitat, historical and archaeological properties, etc., including any projected permits and certifications. (No more than 2,000 Characters)

There are no anticipated impacts to floodplains as the project is completely buried underground. Although historical and archaeological properties were identified in the attached State Historic Preservation Office file search, we believe the water distribution system upgrades in the Right-of-Ways would have no impact on these historical properties.

8.6 Land Requirements

Identify all necessary sites and easements, permits and certifications, and specify if the properties are currently owned, to be acquired, or leased by the applicant. (No more than 2,000 Characters)

An easement will be required for one property on the North side of town where north loop will be placed.

8.7 Construction Requirements

Discuss construction concerns such as subsurface rock, high water table, limited access, or other conditions that may affect cost of construction or operation of a facility. (No more than 2,000 Characters)

The existence and prevalence of subsurface rock is of concern in the area when excavating to replace waterlines.



8.8 Operational Aspects

Discuss the operator staffing requirements, operator certification level requirements (including distribution), the expected basic operating configuration and process control complexities, and the operational controls and equipment that allows operational personnel to respond to routine and unanticipated treatment challenges, such as flow rate, chemical feed dosing, and process monitoring. (No more than 2,000 Characters)

There are no new complexities to the system. It should operate as it currently operates with no new certification level requirements or trainings for the current operator.

8.9 Costs (TMF: Financial-2 and -3)

Summarize the capital costs associated with the selected alternative. The 20 year cash flow projection included in Attachment 7 must reflect the capital and operation and maintenance costs associated with the selected alternative. (No more than 2,000 Characters)

See attached Engineer's Opinion of Probable Cost. Total design and construction are estimated as \$4,650,000.

Cost Categories Selection		
assign a percentage to each applicable category		
<input checked="" type="checkbox"/>	Planning and Design Only (non-construction)	400000
<input checked="" type="checkbox"/>	Construction - Treatment	0
<input checked="" type="checkbox"/>	Construction - Transmission and distribution	420000
<input checked="" type="checkbox"/>	Construction - Source	0
<input checked="" type="checkbox"/>	Construction - Storage	0
<input checked="" type="checkbox"/>	Purchase of Systems	0
<input checked="" type="checkbox"/>	Restructuring	0
<input checked="" type="checkbox"/>	Land Acquisition	50000
<input checked="" type="checkbox"/>	Water Rights	0
<input checked="" type="checkbox"/>	Other	0
	Total: (must equal 100%)	465000

Please include an estimate of the projected increase in and total average monthly user charges. Does the user charge system allow for billing, collection, and enforcement? (No more than 2,000 Characters)

We estimate an initial base rate increase of \$7 per tap followed by annual increases. We would like to review this further with CDPHE and DOLA staff.

8.10 Environmental Checklist

Include the Environmental Checklist for the Selected Alternative as Attachment 22.

8.11 Project Implementation

8.11.1 Proposed Schedule

Loan application	11/15/2024
Design Plans (60 day review period)	11/15/2024

Advertisement for bids	12/09/2024
Award Contracts	03/15/2024
Start Construction	04/15/2024
Complete Construction	12/15/2024

8.11.2 Public Meeting

Provide documentation of a public meeting held or describe when and where the meeting will be held. The meeting notice must be posted at least 30 calendar days prior to date of meeting. Provide the public notice, proof of publication, sign in sheet, and agenda as Attachment 23 to the project manager in the Grants and Loans Unit after the meeting has taken place.



- Include the public meeting documentation as Attachment 23.
- will be provided to the Grants and Loans Unit project manager after the meeting takes place.

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Projecting Water Flows Method 1: Population based projections

<u>Assumptions/Data</u>			<u>Information Source</u>
Current System Population	1620	People	State Demography County IV
Current Service Area Population (If providing water to neighboring community)	1620	People	State Demography County IV
Population Growth Rates	1.16	% increase/year	State Demography County IV
Average Daily per Capita Flow Rate	115	Gallons per capita	Billing and production data 21
	day		
Maximum Daily per Capita Flow Rate	281	Gallons per capita	Billing and production data 2
	day		
Peak Hour Factor	2.4	Gallons per capita	Billing and production data 21
	day		

<u>Year</u>	<u>System Population</u>	<u>Service Area Population (if different)</u>	<u>Average Daily Flow</u>	<u>Maximum Daily Flow</u>	<u>Peak Hour Flow</u>
+0	1620		0.165	0.40	40464
+5	1716		0.175	0.43	42866
+10	1818		0.185	0.45	45411
+15	1926		0.197	0.48	48106
+20	2040		0.209	0.51	50962

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Projecting Water Flow Method 2: Equivalent Residential Taps (ERT)

Current Equivalent Residential Taps (ERT)		
A	Number of active residential taps:	0
B	Total annual consumption (gallons per year) - Residential	0
C	Estimated equivalent residential tap water usage Annual flow per ERT = B / A	<input type="text" value="0"/>
D	Total annual consumption (gallons per year) - Commercial / Industrial / Irrigation	0
E	Estimated Commercial / Industrial / Irrigation flow in ERT # of commercial / industrial / irrigation ERT = D / C	<input type="text" value="0"/>
F	Total ERTs = A + E	<input type="text" value="0"/>

Population and Flow Assumptions / Data

Information Source

Current System Population	People
Current Service Area Population (If providing water to neighboring community)	People
Population Growth Rates	% increase/year
Average daily flow per ERT	Gallons per capita day
Maximum daily flow per ERT	Gallons per capita day
Peak Hour Factor	Gallons per capita day

Year	System Population	Service Area Population (if different)	Residential Taps (ERTs)	Multifamily Residential Taps (ERTs)	Commercial/Industrial Taps (ERTs)	Irrigation Taps (ERTs)	Total Taps (ERTs)	Average Daily Flow	Maximum Daily Flow	Peak Hour Flow
+0										
+5										
+10										
+15										
+20										

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