



Drinking Water Project Needs Assessment (PNA) Form

Water Quality Control Division

General Information

Facility Name: CEDAREEDGE, TOWN OF Original ID: _____

Mailing Address 1: PO Box 398 Mailing Address 2: _____ County: _____

City: Cedaredge State: CO Zip Code: 81413

Property Address 1: PO Box 398 Property Address 2: _____ County: _____

City: Cedaredge State: CO Zip Code: 81413

Latitude : 39.7517291 Longitude : -104.992107

Name of Project: Northridge Water System Upgrade

Type of Project (Check all that apply)

Treatment Distribution / Transmission Water Supply Water Storage

Please enter the following information for your organization if you have it.

1. Applicant Information:

First Name: Kami Middle Name: _____ Last Name: Collins

Phone Number: 970-856-3123

Mailing Address1: PO Box 398 Mailing Address2: _____

City: Cedaredge State: CO Zip Code: 81413

E-mail: kcollins@cedaredgecolorado.com

Consulting Engineer Information:

First Name: Dan Middle Name: _____ Last Name: Quigley

Phone Number: 970-497-8852

Mailing Address1: 222 S. Park Avenue Mailing Address2: _____

City: Montrose State: CO Zip Code: 81401

E-mail: dquigley@buckhornengineering.com

Self-Certification:

Yes No Does the system intend to self-certify all or a portion of the project?

If yes, please identify the portions of the project that the system will self-certify.

- Distribution system piping Pump station (without integral treatment) Valves, hydrants, and/or meters

Provide additional explanation, if necessary:

Replacement of approximately 20,300 linear feet of existing steel pipes with new DR14 C900 PVC pipes. Project also includes 32 new gate valves, 8 new fire hydrants and two totalizing meters for improved operations and system monitoring.

2. Executive Summary

The existing Northridge subdivision distribution system experiences frequent leaks and unscheduled repairs which present an operations challenge and potential health risk. Additionally, there is minimal looping to maintain water quality, insufficient fire hydrants to provide adequate fire protection, and few valves for operations. The selected alternative replaces the majority of undersized steel mains in the Northridge system and adds 8 new fire hydrants and 32 new gate valves for improved fire protection, water quality and capacity.

3. System Structure and Operation

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

First Name: Town of Cedaredge

Mailing Address1: PO Box 389 Mailing Address2: _____

City: Cedaredge State: CO Zip Code: 81413

Phone Number: 970-856-3123 Fax: _____

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: Garrett Middle Name: _____ Last Name: Reed

Certification Number: 14623 Certification Expiration Date: 11/27/2023

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)

Yes No 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?

Explain the impact of the proposed project on the required operator in responsible charge (ORC) certification level and other predicted staffing changes.

No impact to the ORC's current duties. Replacement of distribution mains only.

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.

The Town, including the water department, abides by the State of Colorado's Municipal Records Management and keeps all water-related documents both paper and digitally as required by the specific retention schedule. Records are kept at Town Hall.

3.7 Annual Budget (TMF: Financial-1)

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

Please provide a narrative of the process for annual budgeting and financial planning.

The annual budget is prepared every summer/fall and adopted in early December. The budget is prepared using two years actual financial data and current year budget with projections. A Capital Improvement Plan is in place and plans for projects for five years and a "five plus years" category for long term planning. The CIP is the financial tool in place to help plan for large scale projects.

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.

A professional vendor completed a water/wastewater study in 2017 to provide for capital needs of both systems; recommendations from that study were implemented and both systems are in good financial health. Water users are charged different rates based on residency (in town or out of town limits) and on base fees, depending on tap size (larger users/developments are serviced with larger taps and/or lines). Every user is charged usage on top of the base fees, and water usage is billed in 1,000-gallon increments. Rates are reviewed annually to ensure enough is being charged for O&M as well as future project planning. Future projects are planned for in the annual Capital Improvement Plan, which plans out projects for five years. In an effort to foster conservation, drought rates are charged on top of regular water rates only in years of extreme drought. In 2021, the Board committed funds from drought rates to be used in future water repair, replacement or acquisition projects; there is currently about \$102,000 earmarked in that fund. The water system has approximately \$2.3 million in long-term debt in the form of two bonds. Reserves are held in the Water Fund per the contract on the bonds in order to pay the semiannual payments.

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 has the received State 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 - Provide a copy of the most recent audited financial statement or exemption from State as Attachment 9.

No

4. 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.

The existing system is in general compliance with Drinking water standards but is prone to leaks due to age and the potential for contamination due to he leaks is a source of concern. additionally, the current system lacks adequate valves, looping and fire hydrants to comply with current State and Town standards.

4.2 Existing facility limitations

Summarize existing water system facility(ies) limitations that necessitate the proposed project.

The 40+ year old steel pipes are undersized to deliver adequate flows and are prone to leaks requiring unscheduled maintenance. There are numerous dead-end lines which can affect water quality and require frequent flushing to maintain fresh water.

4.3 Operations and Maintenance Issues

Summarize operational and maintenance (O&M) issues with the existing water facilities.

Due to the age of the existing mains, there are several leaks per year that require reactive, unscheduled repairs which stress the staffing resources of the Town's Public Works Department. Additionally, the current system lacks adequate valves to operate the and control the system in the event of leaks. This contributes to elevated water losses in the Northridge portion of the Town's domestic water distribution system.

5. Existing Facilities Analysis

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

- Not applicable (for distribution and storage projects, only)

5.1.2 Water Rights (TMF: Technical-3)

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.

The existing system is gravity fed from the Town's treatment facility approximately 6 miles north and 1,800 feet above the Town. The age of the Northridge distribution system is in excess of 40 years and consists of steel mains. No AC pipe is known to be in the Northridge distribution system. There are 8 pressure zones in the Town's distribution system and two of those zones are located in the proposed Northridge project area. Pressure is maintained by existing pressure Reducing Valve (PRV) stations which regulate pressures in a range from 40 to 90 psi in each zone. there is a 600,000-gallon chlorine contact time at the Water Treatment Facility (WTF) upstream of the Northridge project area and two (2) 1-million gallon storage tanks downstream of the project area that serve Town.

Discuss the estimated distribution system losses (i.e., the percent of water lost in the distribution system and not delivered/billed to customers).

System losses are currently estimated at 17%.

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.

The system is able to maintain minimum system pressure of 20 psi during fire flow events and maintains a range of system pressures from 40 to 90 psi in each pressure.

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.

The existing Northridge distribution system includes water meters for all active water taps.

6.Facility Planning Analysis

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/permitted 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

Yes No Is the project within or near an urban growth boundary?

6.1.3 Local and Regional Issues

Yes No Were local and regional planning efforts considered?

Please describe.

The replacement of the Northridge distribution system primarily impacts that subdivision which is approximately 95% built out. Due to increased capacity in that system, residents of the Town downstream will see slightly improved flows but impacts to the region would be minimal.

Yes No Were local and regional water quality and/or quantity efforts considered?

Please describe.

By replacing aging mains prone to leaks, this project will improve local water quality by adding looped mains to the system and reducing potential contamination from leaks.

Yes No Was consolidation with another water system / treatment facility considered?

If yes, describe the consolidation considerations. If no, please indicate why consolidation was not considered.

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: _____

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.

Population growth for the Town of Cedaredge is estimated at 2.4% per year for the next 20 years. Population growth in the Northridge service area is limited to 7 new taps to achieve full buildout of that development.

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.

The Town is working hard on identifying and repairing or replacing old water lines that leak or are otherwise not performing as optimally as possible. This loan will fund such a project, saving an estimated 17% water loss in the entire system. The Town also works diligently to identify and rebuild raw water springs and reservoirs. Additionally, in the 2021-22 adopted Strategic Plan of the Board of Trustees, acquiring new raw water sources is a priority goal, which the Town is actively pursuing.

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.

The Town commissioned a professional study in 2002 that projected that the Town's water supplies would be enough to supply water to the projected growth for 20 years. That population estimate was higher than the actual population growth the Town has seen, resulting in current water supplies that far outweigh the projected growth from that study. By reducing unaccounted for water lost due to leaking and otherwise inadequate lines and continuing to acquire new raw water sources, the Town is confident in our ability to collect, treat, maintain and supply water to utility customers for the next 20 years. That said, the water study bears an update given drought and climate changes in the past 20 years, and the Board is discussing the timeline to conduct another professional study.

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.

For a time several years ago, the Town shared our water plant with another nearby domestic water treatment company until their plant could be built. The Town processed water for our customers and for the other company's customers for a period of several years, so the Town has evidence the water plant can treat more raw water supply as demand increases. The capacity of the Town's water plant will allow for many years future growth.

7. Assessment of Alternatives

7.1 Alternatives

For each alternative, please provide:

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

Alternative 1 Title : No Change

Alternative 1 Description (2000 character limit):

This alternative proposes no change to current operations which involve reactive response to leaks and minor system replacement where practical in the area of those leaks.

Alternative 1 Capital and Operation and Maintenance Costs (2000 character limit):

Estimated annual cost of leak repairs in materials, labor and lost time is \$10,000.

Alternative 1 Advantages and Disadvantages (2000 character limit):

Advantage: Low cost

Disadvantages: (1) Unscheduled repairs take the Town's few staff members from other vital projects, (2) present potential health risks from system contamination, (3) are difficult to budget for and may require utilizing capital funds allocated elsewhere, (5) does not enhance system operations of fire protection capability.

Alternative 2 Title : Phased Replacement

Alternative 2 Description (2000 character limit):

This alternative proposed to replace the central 8-inch steel main with a new 8-inch DR14 C900 PVC main in Phase 1 and replacement of smaller mains plus fire hydrants and valves in Phase 2.

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

Estimated cost of Phase 1 is \$250,000
Estimated Cost of Phase is \$2.1 million

Alternative 2 Advantages and Disadvantages (2000 character limit):

Advantage: Lower cost option for Phase 1 infrastructure replacement which limits Town's financial obligations.

Disadvantages : (1) Project funding for both phases is riskier and requires 2 funding request package submittal so more cost to the Town.
(2) Based on market conditions, Phase 2 may cost significantly more than estimated again running the risk of not obtaining funding for the project.
(3) Remainder of the system continues to age and experience leaks with inadequate fire protection.

Alternative 3 Title : Complete Upgrade Project

Alternative 3 Description (2000 character limit):

As listed previously in the PNA, project replaces approximately 20,300 linear feet of aging steel mains with new PVC pipe, 32 new valves, 8 new fire hydrants and 2 totaling meters.

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

Estimated cost of the project is \$2.3 million

Alternative 3 Advantages and Disadvantages (2000 character limit):

Advantages:(1) Replaces 40+ year old system with new pipes and valves for better operations and fewer unscheduled repairs. (2) Provides improved water quality by constructing looped sections which don't exist now. (3) Improved fire protection by adding 8 new hydrants, (4) improved operations with more system valves and two totalizing meters for improved loss control and system flow characteristics. Disadvantages: (1) Loan funding adds debt to the Town's budget and obligates the Town for a long period of time.

Provide discussions of additional alternatives as Attachment 19.

8. Selected Alternative

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.

The Town's aging Northridge water system presents many problems for operations & maintenance staff and potential for health risks due to leaks and poor water quality due to lack of looping. The proposed alternative takes care of these issues and provides the Town with a new service area for 91 domestic water users which will allow Town staff to concentrate on other areas of Town and Northridge water users with an improved system with more fire protection and improved water quality.

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

For the selected alternative, please describe all proposed project components and assumed design parameters.

Design parameters assume the existing system, with the exception of 1.5-inch mains which have been upsized to 2-inch mains, is adequate to serve the Northridge subdivision as it has in the past. DR14 C900 PVC pipes will provide improved flow characteristics assuming a Hazen-Williams "c" factor of 140 versus a "c" factor for aging steel pipe of 100. 20,300 linear feet of new PVC pipe ranging in diameter from 2 to 8-inches is proposed along with 32 new gate valves also ranging from 2 to 8 inches, 8 new fire hydrants, Air Relief Valves as needed for the terrain and two totalizing meters to improve system monitoring.

8.3 Proposed Process Flow Diagram

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

N/A - distribution replacement only.

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.

See separate Environmental Assessment. Project is under review by the following agencies:
CDWR, USFWS, USACOE, CPW and USDA-NRCS

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 new easements are required. All construction to be in existing road right-of-ways or utility easements. Two CDOT utility permit will be required to install new pipe under SH 65 in horizontal bores.

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.

Subsurface basalt boulders are a known issue in the project area. In many sections, the existing disturbed alignment will be easier to excavate, but rocks excavation will be assumed in the bid schedule of quantities. Groundwater is not an issue in the project area. Traffic control will be important in the residential sections of the project.

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 changes in staffing are required to operate this replacement distribution system.

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)

The total project cost is \$1.9 million, excluding engineering, which was paid for with a DOLA planning grant (which is now completed). The project estimate includes all capital costs, except for \$46,830, which is allocated for pay/performance bonds. The costs include new pipe and fitting; fire hydrants; steel casings for boring; valves and meters; asphalt repairs; and labor.

Cost Category Selection (Assign a percent to each applicable category)

Planning and Design Only (non-construction)	2
Construction - Treatment	0
Construction - Transmission and distribution	98
Construction - Source	0
Construction - Storage	0
Purchase of Systems	0
Restructuring	0
Land Acquisition	0
Water Rights	0
Other	0
Total: (must equal 100%)	100

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?

Due to this project, there are no anticipated increases to Northridge water users at this time because the Board of Trustees is discussing annual water rate increases for all users, which, if approved, will be implemented in January 2023. Across the board increases will help fund not only this project, but other planned repairs and capital projects to the Town's water system.

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	<u>07/29/2022</u>	Design Plans (60 day review period)	<u>08/01/2022</u>
Advertisement for bids	<u>02/01/2022</u>	Award Contracts	<u>03/15/2023</u>
Start Construction	<u>04/03/2023</u>	Complete Construction	<u>10/31/2023</u>

8.11.2 Public Meeting

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

Include the public meeting documentation as Attachment 23.

Or, will be provided to the Grants and Loans Unit project manager after the meeting takes place.

9. Projecting Water Flows Method 1: Population based projections

Assumptions/Data

Information Source

Current System Population	2300	People	Town website
Current Service Area Population (If providing water to neighboring community)		People	
Population Growth Rates	2.4	% increase/year	Town Master Plan
Average Daily per Capita Flow Rate	219	Gallons per capita day	2021 flow data
Maximum Daily per Capita Flow Rate	475	Gallons per capita day	2021 flow data
Peak Hour Factor	2.4	Gallons per capita day	2021 flow data

Year	System Population	Service Area Population (if different)	Average Daily Flow	Maximum Daily Flow	Peak Hour Flow
+0	0	0	500000	1100000	1200
+5	2589		566991	1238217	1319
+10	2915		638385	1393370	1450
+15	3283		718977	1559425	1530
+20	3695		809205	1755125	1665

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

Current Equivalent Residential Taps (ERT)		
A	Number of active residential taps:	1412
B	Total annual consumption (gallons per year) - Residential	110715000
C	Estimated equivalent residential tap water usage Annual flow per ERT = B / A	78410.0566572238
D	Total annual consumption (gallons per year) - Commercial / Industrial / Irrigation	7768000
E	Estimated Commercial / Industrial / Irrigation flow in ERT # of commercial / industrial / irrigation ERT = D / C	99.0689247166147
F	Total ERTs = A + E	1511.06892471661

Population and Flow Assumptions / Data

Information Source

Current System Population	<u>2300</u>	People	<u>Census</u>
Current Service Area Population (If providing water to neighboring community)	<u></u>	People	<u></u>
Population Growth Rates	<u>2.4</u>	% increase/year	<u>Town Master Plan</u>
Average daily flow per ERT	<u>330</u>	Gallons per capita day	<u>2021 Flow Data</u>
Maximum daily flow per ERT	<u>727</u>	Gallons per capita day	<u>2021 Flow Data</u>
Peak Hour Factor	<u>2.4</u>	Gallons per capita day	<u>2021 Flow Data</u>

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	2300		1412		27		1439	474870	1046153	3453
+5	2589		1587		30		1512	498960	1099224	3629
+10	2915		1784		34		1584	522720	1151568	3802
+15	3283		2004		39		1664	549120	1209728	3994
+20	3695		2254		43		1754	578820	1275158	4210