



Drinking Water Project Needs Assessment (PNA) Form

Water Quality Control Division

General Information

Facility Name:	Walden, Town of		Original ID:	_____
Mailing Address 1:	PO Box 489	Mailing Address 2:	County:	_____
City:	Walden	State:	CO	Zip Code: 80480
Property Address 1:	PO 489	Property Address 2:	County:	_____
City:	Walden	State:	CO	Zip Code: 80480
Latitude :	39.7517291	Longitude :	-104.992107	
Name of Project:	Walden Water System Improvements			
Type of Project (Check all that apply)				
<input type="checkbox"/> Treatment	<input checked="" type="checkbox"/> Distribution / Transmission	<input type="checkbox"/> Water Supply	<input type="checkbox"/> Water Storage	

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

1. Applicant Information:

First Name:	Mark	Middle Name:	_____	Last Name:	Russell
Phone Number:	970-723-4344				
Mailing Address1:	PO 489	Mailing Address2:	_____		
City:	Walden	State:	CO	Zip Code:	80480
E-mail:	biosolid@hotmail.com				

Consulting Engineer Information:

First Name:	Ken	Middle Name:	_____	Last Name:	Hardesty
Phone Number:	303-570-9124				
Mailing Address1:	2062 Dolomite Way	Mailing Address2:	_____		
City:	Castle Rock	State:	CO	Zip Code:	80108
E-mail:	hardestyeng@gmail.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:

We are self-certifying all projects, as applicable, including the transmission line replacement, meter replacements and the new finished water pump VFD's.

2. Executive Summary

The proposed projects include 1. new water meters with automated meter reading (AMR), 2. two new VFD operated finished water pumps at the Water Treatment Plant, 3. replacement of an old 8-inch steel and iron water line and related distribution piping, valves and fittings, 4. GIS mapping and water system plans to replace outdated drawings. These are the identified priority improvements for the Town's Water Utility that have not been completed to lack of funding in previous years.

3. System Structure and Operation

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

First Name: Town of Walden

Mailing Address1: PO 489 Mailing Address2: _____

City: Walden State: CO Zip Code: 80480

Phone Number: 970-723-4344 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: Mark Middle Name: _____ Last Name: Russell

Certification Number: 1360 Certification Expiration Date: 04/26/2025

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)

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 on the ORC; however, with a two person public works department with manual real water meters, the installation of AMR water meters will free up personnel to commit time to other important projects.

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.

Records are kept at the treatment plant and retained for the specified time.

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 budget is processed according to Colorado statutes. The Town Board reviews all expenses and approves the budget and financial documents.

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.

See audit documents

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 proposed improvements are necessary to maintain a well operated utility, and there have been issues related to manually operating valves for pumping operations and leaks associated with old pipelines. The proposed improvements will improve water system quality by eliminating bottlenecks and improving water flow from the water plant to treated water storage tanks. State law requires better mapping and location of pipeline utilities as well as knowledge of age and type of utility piping, and the Town's current mapping cannot be updated and needs to be transferred to an electronic GIS data base.

4.2 Existing facility limitations

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

The existing water meters are outdated and the Town is losing revenue while tying up limited operations staff with meter reading. The existing finish water pumps are outdated, and new pumps, motors and VFDs will enhance operations. The pipelines and related items to be replaced are beyond expected life, need periodic emergency repairs, negatively impact operations and potentially impact water quality within the system. Systems mapping is outdated and not on an electronic data base as is expected by Colorado utilities. GIS mapping and platform will enhance ongoing maintenance and operations of the water utility.

4.3 Operations and Maintenance Issues

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

As previously noted, the current meters are very old and necessitate manual reading, so new meters should enhance income potential while decreasing staff time reading meters. The older pipelines and related items are causing periodic concerns with pipeline leaks and are a bottle neck to optimal water utility operations, thus taking up staff time. The old booster pumps require manual adjustment of valves to throttle flow rates to match treatment rates, which is inefficient. New VFD pump operations will be more efficient and require less operator attention.

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)

South Well: GUDI shallow well #76972
Middle Well: GUDI shallow well #76971
Surface water: (Michigan River- aquatic life cold 1, recreation N, agriculture, water supply)

The water rights are sufficient to meet existing water demands.

Attachment not needed for this submittal – Documents on file with the state.

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)

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 town has experienced a stagnant growth pattern and low to moderate growth is expected. There are no specific planning efforts at this time. With an aging infrastructure, a transmission main beyond its life expectancy and old valves, potential for leaks and the inability to isolate them efficiently, there would be major water loss, low water pressure and potential for contamination.

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

Please describe.

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: 600

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.

The Master Plan projected 1.8% local development, however 1.5% is more realistic with recent stagnant growth.

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 diligently working on improving raw water flexibility and capabilities with the project with the upgraded VFDs and transmission line. No other efforts are indicated based on current growth.

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 is currently reviewing its water rights with a water attorney. Attachment not needed for this submittal – Documents on file with the state.

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.

The water supply infrastructure is currently capable of meeting demands, both current and projected.

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 : Do Nothing

Alternative 1 Description (2000 character limit):

This alternative is based on the Town not being financially able to improve the system components that have been targeted as system priorities. Thus, nothing would get done at this point in time.

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

This alternative has no capital costs, but the old and aging system components will drive the utility to periodically operate in emergency response operations mode with limited their limited staffing. The longer term operations and maintenance costs will likely exceed the ability of the utility to maintain adequate quality water system operations and deliver water at adequate pressure to its customers. Ultimately, O&M costs will escalate as the staff will be constantly repairing and replacing failed system components.

Alternative 1 Advantages and Disadvantages (2000 character limit):

There are no advantages to deferring the upgrade of the utility at this time, as the Town has already deferred improvements due to lack of adequate funding for several years. The disadvantage of the old meters is that they reduce income potential and require a lot of staff time to read each month. The other older facilities are beyond their expected lifespan and need replacement in order to maintain a well functioning utility. The mapping of the system is limited and incomplete with regards to identifying the locations, age and material of water system distribution piping.

Alternative 2 Title : Preferred Project List

Alternative 2 Description (2000 character limit):

This preferred project alternative includes 1. new AMR based service meters, 2. new WTP VFD operated booster pumps, 3. prioritized replacement of old system piping, and 4. the new GIS based mapping system. These are the necessary priority improvements needed by the Town's Water Utility to continue to provide good quality water service to its customer base.

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

Capital costs are as follows: 1. AMR meters = \$300k, 2. Water Pumps w/ VFDs = \$150k, 3. Waterlines = \$1,500k, 4. GIS mapping = \$50k. These improvements will not increase operations costs, and are expected to decrease labor for reading meters, throttling pumps flows, and adjusting raw water intakes to accommodate low flows to the WTP.

Alternative 2 Advantages and Disadvantages (2000 character limit):

The clear advantages of the preferred improvements are that the system will be more reliable, income from new meters should be enhanced, operations labor reduced by not having to read meters, etc. and water quality/delivery enhanced throughout the system. These are long term priority objectives that are critical to future system operations and maintenance and there are no known disadvantages to completing these improvements.

Alternative 3 Title :

Alternative 3 Description (2000 character limit):

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

Alternative 3 Advantages and Disadvantages (2000 character limit):

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 rational.

The Preferred Alternative 2 provides for the completion of long standing priority items that have been identified for replacement and upgrade over the past several years. The need for these improvements is underscored by the fact that the existing water utility staffing is stretched between the water, wastewater, stormwater, street, and other Town utilities and facilities and is made up of 2 individuals. With the preferred projects, staff can better operate facilities without the need to read manual meters, to throttle pumps flows out of the WTP, to make emergency repairs on older pipelines that have exceeded their normal lifespan and to better manage facilities longer term with GIS mapping in place.

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

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

For the preferred improvements, components are as follows: 1. AMR based meters for all existing services, 2. Two new VFD operated WTP finish water pumps, 3. Replacement of approximately 4,000' of 8-inch thin steel and iron water lines with 10-inch ductile iron pipeline and related items, 4. GIS mapping and maintenance programming for the water utility.

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.

There is no change to the water treatment processes.

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.

All of the work will occur in disturbed areas that are out of the floodplain, wetland areas, habitats, and historical/archaeological properties. All areas are either owned by the Town or the Town has the proper easements in place for maintenance and construction of replacement facilities.

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.

As noted above, all improvements are to be completed within existing properties and easements currently owned by the Town.

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.

The construction activities will be completed under normal construction conditions. There are no access issues, and if high seasonal water is encountered the Contractor will be obliged to obtain the necessary water handling and discharge permit from the State. We foresee no long term negative impacts on operations.

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.

The improvements are all expected to enhance operations and do not require certifications beyond those for existing facilities. Operations will be simplified.

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)

Capital costs are as follows: 1. AMR meters = \$300k, 2. Water Pumps w/ VFDs = \$150k, 3. Waterlines = \$1,500k, 4. GIS mapping = \$50k, for a total of \$2,000,000.

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?

Depending on grants and principle forgiveness, expected impacts between \$6.50 and \$13.00 per month per equivalent residential tap.

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 10/03/2022
 Advertisement for bids 03/01/2023
 Start Construction 08/01/2023

Design Plans (60 day review period) _____
 Award Contracts 04/03/2023
 Complete Construction 12/29/2023

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

Current System Population 660 People
 Current Service Area Population (If providing water to neighboring community) 0 People
 Population Growth Rates 1.5 % increase/year
 Average Daily per Capita Flow Rate 250 Gallons per capita day
 Maximum Daily per Capita Flow Rate 750 Gallons per capita day
 Peak Hour Factor 1000 Gallons per capita day

Information Source

2020 Census

Master Plan
Town Water Records
Town Water Records
Town Water Records

Year	System Population	Service Area Population (if different)	Average Daily Flow	Maximum Daily Flow	Peak Hour Flow
+0	0	0	165000	520000	1000
+5	710	710	171000	530000	1000
+10	760	760	177000	540000	1000

+15	810	810	183000	550000	1000
+20	860	860	189000	560000	1000

10. 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	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	0
F	Total ERTs = A + E	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										