



Drinking Water Project Needs Assessment (PNA) Form

Water Quality Control Division

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Drinking Water Project Needs Assessment (PNA) Form

Water Quality Control Division

1 Application Information

Entity Name:

Name of Project:

Type of Project (check all that apply)

Treatment Distribution / Transmission Water Supply Water Storage

Applicant Information:

Name:

Address:

Email:

Phone:

Consulting Engineer Information:

Name:

Address:

Email:

Phone:

Signatures:


This PNA was prepared by _____ on _____
(Print Name) (Date)

Signature _____ License # _____

Engineer Seal:

Include the Engineer's Seal as Attachment 1.

Self-Certification

Does the system intend to self-certify all or a portion of the project?  (more information)

Yes No

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:

2 Executive Summary

Provide a narrative that summarizes the system needs, selected alternative, and the public health benefits of the proposed project.

3 System Structure and Operation

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

Name:

Address:

Phone:

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)

Name(s):

Certification Number:

Certification Expiration Date:

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.

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.

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.

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.

3.8.1 *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, please explain

3.10 Insurance (TMF: Financial-6)

Does the system maintain general liability insurance?

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

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.

4.2 Existing facility limitations

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

4.3 Operations and Maintenance Issues

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

5 Existing Facilities Analysis

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

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

5.1.1 *Raw Water Supply (TMF: Technical-2)*

Explain the system's existing raw water source(s), seasonal variability, and availability. Explain the system's raw water quality including primary water quality parameters of concern, variability and potential sources of contamination in the watershed or source aquifer. Identify whether sources are classified as surface water, groundwater, or groundwater under direct influence of surface water (GWUDI). Explain water usage including multiple sources of differing qualities.

Source name:

Source classification:

- Surface water
- Groundwater
- GWUDI

Source description:

Source name:

Source classification:

- Surface water
- Groundwater
- GWUDI

Source description:

Source name:

Source classification:

- Surface water
- Groundwater
- GWUDI

Source description:

Provide discussions of additional sources as Attachment 11.

5.1.2 *Water Rights (TMF: Technical-3)*

Describe the system's existing water rights and if the water rights are sufficient to meet existing water demands.

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)

5.2.1 *Overall treatment description (TMF: Technical-5)*

Provide a current treatment description including: treatment processes used, major design parameters (e.g., process capacities, detention times, unit loading rates, disinfection log inactivation).

5.2.2 Existing Process Flow Diagram (TMF: Technical-8)

Include an existing treatment facility process flow diagram as Attachment 13.

5.2.3 Current Compliance Status (TMF: Technical-1)

Discuss the system's current compliance status with Regulation 11, as well as violations and significant deficiencies documented during sanitary surveys.

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

Discuss if the existing treatment process(es) are appropriate to meet Regulation 11 considering existing source water quality and potential sources of contamination.

5.2.5 Capacity of Treatment Technologies (TMF: Technical-7)

Is the capacity of the existing water treatment system appropriate to meet water demands through the next 20 years? Yes No

Please explain:

5.2.6 Operational Controls (TMF: Technical-10)

Describe if the existing treatment process(es) has appropriate operational controls.

5.2.7 Residuals Management (TMF: Technical-9)

If the treatment process produces waste residuals, please discuss the water system's residuals management strategy.

List documentation for all existing discharge permits and/or residuals for the water treatment plant including residuals for disposal or beneficial use (e.g., NPDES discharge permits, EPA UIC Permit, HMWMD radioactive materials license, HMWMD Solid Waste licenses).

Include a copy of discharge permits and/or residual documentation as Attachment 14. Not Applicable

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.

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

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.

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.

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*

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

If yes, describe how the project is conformance with the boundary and any other planning limitations.

6.1.3 Local and Regional Issues

Were local and regional planning efforts considered?

Yes No Please describe.


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

Yes No Please describe.

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.

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.

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.

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.

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.

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:

Alternative 1 Description (2000 character limit):

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

Alternative 1 Advantages and Disadvantages (2000 character limit):

Alternative 2 Title:

Alternative 2 Description (2000 character limit):

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

Alternative 2 Advantages and Disadvantages (2000 character limit):

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.

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

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

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.

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.

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.

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.

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.

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.

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?

8.10 Green Project Reserve

Check one or more green category that applies to the project:

Green Infrastructure Water Efficiency Energy Efficiency Environmentally Innovative

Describe any green components incorporated into the selected alternative.

The system must reference the most recent copy of the EPA Green Project Reserve guidance and procedures. These references are available on the CDPHE WQCD GLU website under "Green Project Reserve": <https://www.colorado.gov/pacific/cdphe/wq-green-project-reserve>

Include a business case for the project as Attachment 21, if applicable.

8.11 Environmental Checklist

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

8.12 Project Implementation

8.12.1 *Proposed Schedule*

Loan application	_____
Design Plans (60 day review period)	_____
Advertisement for bids	_____
Award Contracts	_____
Start Construction	_____
Complete Construction	_____

8.12.2 *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.

Include the following with the Project Needs Assessment submittal:

Attachments

- Attachment 1 - Engineer's Seal
- Attachment 2 - Organizational Chart
- Attachment 3 - Monitoring Plan
- Attachment 4 - Cross Connection Control Plan
- Attachment 5 - Water Conservation Plan
- Attachment 6 - Written delegation of operator duties
- Attachment 7 - Annual budget source descriptions
- Attachment 8 - 20-year cash flow projection
- Attachment 9 - Copy of most recent audited financial statements or exemption from State
- Attachment 10 - Documentation of general liability insurance
- Attachment 11 - Additional water source descriptions
- Attachment 12 - Existing water rights
- Attachment 13 - Existing process flow diagram
- Attachment 14 - Copies of discharge permits and/or residual documentation
- Attachment 15 - Pressure map
- Attachment 16 - Project area map
- Attachment 17 - Population and water demand projections
- Attachment 18 - Documentation of water rights
- Attachment 19 - Additional alternatives descriptions
- Attachment 20 - Proposed process flow diagram
- Attachment 21 - Green Project Business Case
- Attachment 22 - Environmental checklist
- Attachment 23 - Documentation of public meeting

Projecting Water Flows Method 1: Population based projections

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 per Capita Flow Rate		Gallons per capita day	
Maximum Daily per Capita Flow Rate		Gallons per capita day	
Peak Hour Factor			

Year	System Population	Service Area Population (if different)	Average Daily Flow	Maximum Daily Flow	Peak Hour Flow
+0					
+5					
+10					
+15					
+20					

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

A	Number of Active Residential Taps - As calculated in the Pre-Qualification Form	
B	Total Annual Consumption (gallons per year) - Residential	
C	Estimated equivalent residential tap water usage Annual flow per ERT=A/B	
D	Total Annual Consumption (gallons per year) - Commercial / Industrial / Irrigation	
E	Estimated Commercial / Industrial / Irrigation flow in ERT # of commercial / industrial / irrigation ERT = D / C	
F	Total ERTs = A + E	

Population and Flow Assumptions / Data			Information Source
Current System Population		People	
Current Service Population (if providing water to neighboring community)		People	
Population Growth Rate		% increase / year	
Average daily flow per ERT		Gallons per capita day	
Maximum daily per ERT		Gallons per capita day	
Peak hour factor		Gallons per capita day	

Year	System Population	Service 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										

