



State of Arizona Capacity Development Strategy for New & Existing Public Water Systems

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OUR MISSION and VISION

The Arizona Department of Environmental Quality's (ADEQ's) mission is to protect and enhance public health and the unique environment in Arizona. To achieve this, ADEQ administers the state's environmental laws and delegated federal programs to prevent pollution of the air, water and land, and to ensure cleanup when pollution occurs.

ADEQ's vision is to be the No. 1 state in the nation in:

- Balanced, leading edge environmental protection through
- Technical and operational excellence, and
- Radical simplicity for customers and staff

TABLE OF CONTENTS

TABLE OF ACRONYMS.....	4
TABLES & FIGURES	5
1.0 INTRODUCTION.....	6
2.0 DEMOGRAPHICS OF ARIZONA PWSs.....	8
3.0 STRATEGY FOR NEW PUBLIC WATER SYSTEMS.....	9
4.0 SDWA SECTION 1420(c)(2)(A-F) ELEMENTS.....	10
A. METHODS OR CRITERIA TO PRIORITIZE WATER SYSTEMS.....	10
B. FACTORS THAT ENCOURAGE/IMPAIR CAPACITY DEVELOPMENT.....	12
C. USE OF 1420(c)(2) AUTHORITY & RESOURCES TO IMPROVE CAPACITY.....	14
D. ESTABLISHING BASELINE & MEASURING IMPROVEMENTS.....	15
E. IDENTIFYING ACTIVE STAKEHOLDERS.....	16
F. PROMOTING ASSET MANAGEMENT PLANNING.....	18
5.0 IMPLEMENTATION PLAN.....	20
APPENDICES.....	24

TABLE OF ACRONYMS

AAC	- Arizona Administrative Code
ACC	- Arizona Corporation Commission
ADEQ	- Arizona Department of Environmental Quality
AMS	- Arizona Management System
AOC	- Approval of Construction
ARS	- Arizona Revised Statutes
ATC	- Approval to Construct
AWIA	- America's Water Infrastructure Act of 2018
CWS	- Community Water System
EBP	- Elementary Business Plan
EPA	- U.S. Environmental Protection Agency
ETT	- Enforcement Tracking Tool
KOUI	- Known, Ongoing, Unpermitted, Impacts
KPI	- Key Performance Indicator
MAP	- Monitoring Assistance Program
MCL	- Maximum Contaminant Level
MPL	- Master Priority List
NTNCWS	- Non-Transient/Non-Community Water System
O&M	- Operations & Maintenance
PWS	- Public Water System
RWIC	- Rural Water Infrastructure Committee
SDWA	- Safe Drinking Water Act
SDWSF	- Small Drinking Water System Fund
SMS	- Short Message Service
SWPP	- Source Water Protection Program
TMF	- Technical, Managerial, Financial
TNCWS	- Transient Non-Community Water System
WIFA	- Water Infrastructure Finance Authority



TABLES & FIGURES

Table 1. Number of Factors that Encourage or Impair Capacity Development.....	Page 12
Table 2. Stakeholder Meetings.....	Page 17
Table 3. Strategies to Encourage Development of Asset Management Plans.....	Page 19
Table 4. Strategies to Encourage Implementation of Asset Management Plans.....	Page 19
Table 5. Capacity Development Strategy Implementation Plan and Schedule.....	Page 22
Figure 1. Arizona PWSs by System Type as of June 30, 2021.....	Page 8
Figure 2. Types of PWSs in Arizona	Page 8
Figure 3. Sampling of the Master Priority List for FY2022.....	Page 10
Figure 4. Safe Drinking Water Program’s Key Performance Indicators.....	Page 15
Figure 5. Metrics to Measure Improvements.....	Page 15
Figure 6. Stakeholders Identified for Development of Capacity Development Strategy.....	Page 16



1.0 INTRODUCTION

As a result of the 1996 amendments to the SDWA, the U.S. Environmental Protection Agency (EPA) required states to develop a Capacity Development Strategy and program to strengthen the technical, managerial, and financial (TMF) capacity of public water systems. *Capacity Development* is defined as a process for water systems to acquire and maintain adequate TMF capacity to provide healthy drinking water consistently, reliably and cost-effectively.

Technical Capacity | The physical and technical capability of the system, including but not limited to, source water adequacy, infrastructure sufficiency and technical knowledge of certified operators.

Managerial Capacity | The administrative and organizational structure of the system, including but not limited to, ownership accountability, staffing, corporate structure and communication.

Financial Capacity | The financial resources to maintain the system now and in the future, including but not limited to, revenue sufficiency, credit worthiness and fiscal controls.

The Arizona Department of Environmental Quality's (ADEQ) original Capacity Development Strategy was developed in 1999, approved by the EPA in 2000, but has not been updated in the intervening 20 years. Various regulatory requirements, drinking water industry standards, practices, and the economy have significantly changed over the last 20 years. Therefore, ADEQ has chosen to revisit each of the elements to capture the current state of issues and opportunities for public water systems.

This updated strategy describes the programs, methods and tools ADEQ will implement to ensure adequate TMF capacity of new and existing public water systems (PWSs) in the State of Arizona*, as mandated by Section §1420(c)(2) of the SDWA, amended 1996 and 2018. Updated strategies must be submitted to EPA for approval by December 31, 2022.

In developing and implementing this Capacity Development Strategy, the State must consider, solicit public comment on, and include as appropriate the following five elements [§1420(c)(2)(A-E)]:

- A. Methods or criteria to **prioritize** public water systems
- B. Factors that **encourage or impair capacity** development
- C. How the State will use the authority and **resources of the SDWA**
- D. How the State will establish a **baseline** and measure improvements in capacity
- E. Procedures to identify **interested parties**

As a result of the passage of the America's Water Infrastructure Act of 2018 (AWIA), Section 2012 of AWIA amends Section 1420(c)(2) of the SDWA to add a new element (F) to the strategy. Specifically, state drinking water programs must include a description of how the State will promote and encourage the development of **asset management** plans and assist, through technical assistance and training, in the implementation of such asset management plans.

* Excluding tribal water systems

According to EPA guidance¹, Arizona must document the following to demonstrate that it has met the basic requirements of SDWA Section 1420(c):

- **Public comment:** Arizona must verify that it solicited public comment on the six elements as part of the preparation of its Capacity Development Strategy. As part of the formal public review, ADEQ must describe relevant public comments and its responses to them.
- **Consideration of the Section 1420 (c)(2)(A-F) Elements:** Arizona must describe which of the listed elements were included or excluded from its strategy, and why.
- **Capacity Development Strategy:** Arizona must describe how the selected elements together can rationally be considered to constitute a strategy to assist PWS in acquiring and maintaining technical, managerial and financial capacity.
- **Strategy Implementation:** Arizona must describe how it will implement its strategy and evaluate its progress toward improving PWS capacity.
- **Ongoing Reporting Requirements:** In addition to the annual report to EPA, every three years, ADEQ must submit to the Governor a report on the efficacy of the Capacity Development Strategy and the progress made towards improving the capacity of public water systems in the state. AWIA amended Section 1420 subsection (c)(3) of the SDWA to require that, no later than September 30, 2023, and every three years thereafter, Arizona address how asset management is being promoted and implemented in its triennial Governor's report.

This revised Capacity Development Strategy for New and Existing Public Water Systems describes how ADEQ is going to ensure new water systems possess TMF capacity prior to the system commencing operation and how it will assist existing water systems in acquiring and maintaining TMF capacity to meet the requirements of 1996 and 2018 SDWA Section 1420(c) amendments.

Public Involvement

ADEQ held five stakeholder meetings to get input on revising the Capacity Development Strategy. Due to the public health concerns and social distancing requirements surrounding the COVID-19 pandemic, all the meetings were held virtually using the GoToWebinar platform and a variety of polling tools. The efforts are further described in Section 4. E.

¹Guidance on Implementing the Capacity Development Provisions of the Safe Drinking Water Act Amendments of 1996

2.0 ARIZONA PWS DEMOGRAPHICS

Like many other states, a majority of Arizona PWSs serve 500 or fewer persons. A large number of these small water systems often lack the TMF resources to meet drinking water quality and quantity challenges. As a result, these systems represent the majority of compliance actions ADEQ takes, and represent most of the requests it receives for technical assistance.

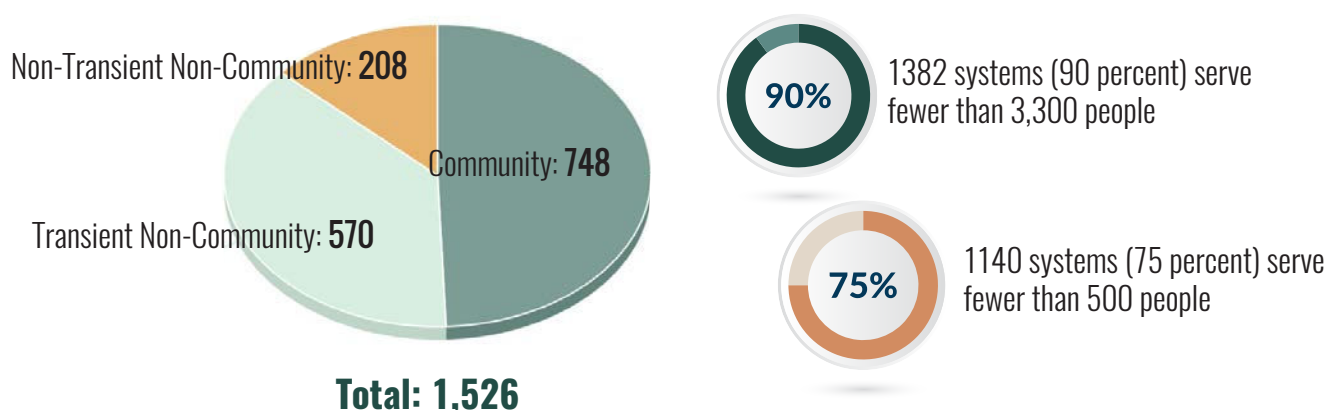


Figure 1. Arizona PWSs by System Type, as of June 30, 2021

PWSs can be operated by cities or towns, by federal or state agencies, by other political subdivisions like water districts and co-ops, or by private, for-profit companies. Table 2 shows the various types of systems in Arizona.

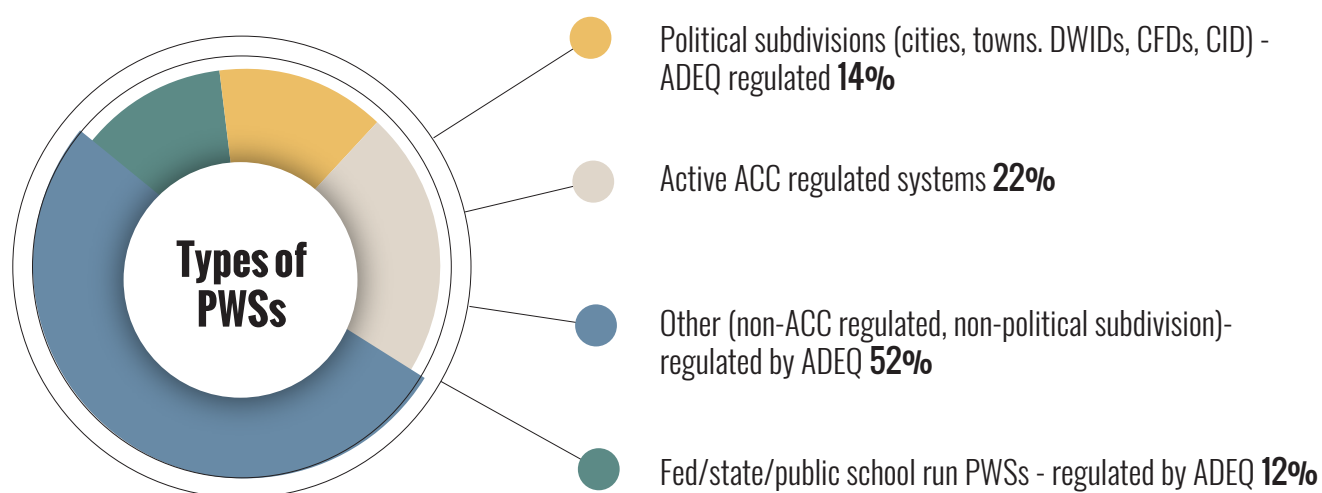


Figure 2. Types of PWSs in Arizona

3.0 CAPACITY DEVELOPMENT STRATEGY FOR NEW PUBLIC WATER SYSTEMS

Section 1420(a) of the SDWA requires the state to ensure that all new community water systems (CWS) and non-transient non-community water systems (NTNCWS), beginning operations after October 1, 1999, demonstrate they have the TMF capacity to comply with both state and federal drinking water requirements. Arizona's legal authority to implement this requirement is in statute (A.R.S. Title 49-353-(A)(3)) and rule (A.A.C. Title 18, Chapter 4, Article 6: Capacity Development Requirements for a New Public Drinking Water Systems).

ADEQ's capacity development rules require a new CWS and NTNCWS water system to submit an Elementary Business Plan (EBP) demonstrating it has adequate TMF capacity, for review and approval prior to commencing operations of the public water system (A.A.C. R18-4-602(B)). The rules require a formal determination that the new public water system has adequate TMF capacity prior to receiving the 'Approval of Construction' for the drinking water infrastructure.

The goal of the current TMF capacity development requirements for new CWS and NTNCWS is to document that the water system has the TMF capacity to provide its customers with healthy drinking water, meeting state and federal requirements, consistently, reliably and cost effectively now and in the future. The components of the Plan are designed to ensure the owner understands the commitment and funding necessary to own a public water system.

The control point for the original 1999 Capacity Development Strategy for New Water Systems was the simultaneous submittals of the EBP with the Approval to Construct (ATC) application. Current practice finds that the ATC is often issued prior to final approval (or denial) of the EBP. This practice allows an owner to become financially committed prior to ADEQ's determination that the new water system does indeed have adequate TMF capacity.

Notwithstanding the financial investment, ADEQ is not proposing any changes to the control points. However, ADEQ will promote the submittal of EBPs prior to ATC submittal to demonstrate TMF capacity before significant monetary investment in the system.

Control points:

1. EBP approval prior to issuance of AOC
2. AOC submittal requires complete O&M Manual and all required sampling plans (e.g. Microbiological Site Sampling Plan (MSSP), lead and copper sampling plan, and Stage 2 Disinfection By-products Monitoring Plan).

4.0 SDWA SECTION 1420(c)(2)(A-F) ELEMENTS

A. Methods or Criteria to Prioritize Water Systems

The methods or criteria that the state will use to identify and prioritize the public water systems most in need of improving technical, managerial, and financial capacity.

With over 1500 public water systems, ADEQ needs a process to prioritize PWSs to receive technical assistance aimed at improving their TMF capacity. In the original strategy, ADEQ identified 9 data points it would use in prioritizing PWS for assistance. Many of these ended up codified in rule under A.A.C. R18-4-803 as the Master Priority List (MPL) which is an annual list produced by ADEQ in the spring for use the following fiscal year. Current rule requires ADEQ to assign priority to those PWSs with the most operations or maintenance violations (A.A.C. R18-4-803(C)). Figure 3 shows the data fields used in creating each water system's score.

Master Priority List for FY2022

Priority	County	Public Water System No.	Public Water System Name	Initial Monitoring Year	Monitoring Year Points	Source Water	Population Served
	General System Information			Physical Characteristics			
				MP			
1	YUMA	AZ0414055	MOHAWK VALLEY SCHOOL DISTRICT	1995	5	5	20
2	PIMA	AZ0420549	USAF DAVIS MONTHAN AFB	1994	5	0	0
3	YUMA	AZ0414030	MOHAWK UTILITY COMPANY	1994	5	5	20
4	YUMA	AZ0414004	FAR WEST WATER & SEWER INC	1995	5	5	0
5	MARICOPA	AZ0407286	ALMA RANCHETTES	1995	5	0	20
6	PINAL	AZ0411035	KELVIN SIMMONS COOP	1998	5	0	20
7	COCHISE	AZ0402044	PUEBLO DEL SOL WATER COMPANY	1995	5	0	0

Figure 3. Sampling of the Master Priority List for FY2022

The primary drawback with the MPL is that it is a snapshot in time. It is also heavily influenced by the PWSs current Enforcement Tracking Tool (ETT) score, an EPA points system based on MCL and O&M violations. If ADEQ were to recreate the MPL more frequently, it is likely to change top priorities fairly significantly which would be difficult to manage given the number of contractors and the time necessary to address specific water system issues in the fiscal year.

Going forward, ADEQ proposes a prioritization process for technical assistance based primarily on protection of public health followed by TMF capacity building and ensuring compliance. As a part of the Arizona Management System, ADEQ has developed a specific process to identify and prioritize mitigation and resolution of sites with known, ongoing, unauthorized, impacts to public health and the environment (KOUIs). In drinking water, KOUIs are public water systems that are not meeting primary drinking water standards (e.g. Maximum Contaminant Levels). The agency prioritizes KOUI site(s) and allocates resources, such as staff time, funding and external contractors, to urgently identify the root-cause and implement a remedy to bring the sites back into compliance.

Due to the limitations of the MPL, ADEQ uses it in conjunction with the KOUI prioritization process. As part of the 2021 Capacity Development Strategy, ADEQ proposes to modify A.A.C. R18-4-803 with the following prioritization process. Rule revision requires approval from the Governor's Office and takes a few years to implement. Once approved, ADEQ's drinking water technical assistance program will prioritize public water systems that have:

- Health-based standard violations with consideration given to factors such as: acute vs. chronic pollutant, concentration level, age of the violation, population sensitivity;
- Treatment technique violations;
- Projected exceedances of a health-based standard based on predictive modeling;
- Need for TMF capacity building (e.g., optimization, aging/failing infrastructure, water loss, rate review, corporate structure);
- Enforcement actions requiring technical support to resolve (e.g., design, permitting, funding); or
- Other TMF needs

B. Factors that Encourage/Impair Capacity Development

A description of the institutional, regulatory, financial, tax, or legal factors at the federal, state, or local level that encourage or impair capacity development.

ADEQ's Capacity Development Program held several stakeholder meetings to solicit public comment on the institutional, regulatory, financial, tax, or legal factors at the federal, state, or local level that encourage or impair TMF capacity development. Through this process, stakeholders identified five (5) factors that encourage TMF capacity development and ten (10) factors that impair TMF capacity development (see Table 1 below).

Factor Type	Enhancements	Impairments
Institutional	4	3
Regulatory and Legal	0	3
Financial and Taxes	1	4

Table 1. Number of Factors that Encourage or Impair Capacity Development

The full list of the factors is provided below and in Appendix 1.

Institutional

Institutional factors are defined as factors related to the function of agencies, associations or other entities that affect public water systems (e.g. federal or state regulating agencies, technical assistance providers, drinking water associations, etc.). ADEQ and stakeholders identified a total of four institutional enhancements to TMF capacity development including training, free resources to assist with compliance and the Arizona Corporation Commission's (ACC) Small Water Ombudsman Office:

1. **ACC's Small Water Ombudsman Office** - The office provides guidance and assistance regarding recordkeeping, assembly of information for rate case and financing applications and technical review of water system needs and compliance requirements for safe, effective small water company operation and maintenance of ACC regulated water systems.
2. **ADEQ's Capacity Development and Operator Certification Programs** - These programs conduct workshops statewide, both independently and in partnership with private consulting firms and nonprofit organizations, to improve the technical, managerial, and financial capacity of existing PWSs. ADEQ will continue focusing on training PWS owners and managers on budgets and financing, rate setting, asset management, water audit/loss detection and emerging technologies for small water systems.
3. **Free Resources** - ADEQ strives to make free resources available to help public water systems with TMF capacity related items. These include information sharing on the ADEQ webpage, factsheets, and frequent updates on upcoming deadlines for sampling, public notice, compliance, and or reporting. The Capacity Development Program plans to expand this to include SMS reminders for monitoring and reporting to increase compliance.
4. **Encouraging regionalization/collaboration/partnerships among PWSs** - The Capacity Development Program encourages consolidation or acquisition of non-viable water systems whenever possible with the goal to improve compliance. In addition, ADEQ seeks to limit the creation of new water systems by steering water system applicants toward an existing water system. To further these efforts, ADEQ plans to develop a strategy for consolidation and acquisition of water systems lacking TMF capacity. ADEQ also plans to foster partnerships through different professional associations to promote collaboration between PWSs and emergency preparedness.

ADEQ and stakeholders identified 3 institutional impairments to TMF capacity development:

1. PWSs being run by voluntary boards,
2. The lack of coordination between all the regulatory agencies, and
3. Outdated reporting documents that create challenges for achieving compliance.

Lack of proper ownership structure is one of the main challenges facing small water systems in Arizona. A proper corporate or ownership structure positions PWSs for financial opportunities, as the need arises. An estimated 10% of Arizona's PWSs lack any form of corporate structure. They are systems that likely grew either organically and crossed the 15 connection or 25 person threshold or were subdivided not knowing they were creating a PWS. While a PWS without a corporate structure can receive technical assistance, it would be difficult for the system to obtain financial support from the SRF or other funding entities to implement solutions. Getting these small PWSs to obtain a legal entity or corporate structure has been prioritized as one of ADEQ's key focuses going forward.

Regulatory & Legal

Regulatory factors are defined as any rules, regulations, and/or code requirements a public water system must implement to ensure compliance is met at all times. PWSs have competing regulatory agencies that enforce additional compliance requirements outside of the SDWA. In Arizona, PWSs have regulatory requirements from multiple state agencies including ADEQ, ADWR and/or the ACC. Stakeholders discussed numerous times the confusion over multiple reports and reporting deadlines.

Water systems are faced with federal, state, and local rules or regulations which can be complex and require onerous technical and managerial requirements. The overall cost of meeting compliance continues to increase as new federal and state regulations become effective, such as the anticipation of a PFOA and PFOS MCL determination and the implementation of the Lead and Copper Rule Revisions.

Financial & Taxes

Financial factors are defined as factors that may affect a water system's revenue sufficiency, credit worthiness and fiscal controls. These factors affect a water system's ability to fund needed infrastructure improvements to meet standards and ensure long-term operation.

Stakeholders identified the Rural Water Infrastructure Committee (RWIC) as a key factor that encourages water system TMF capacity. The RWIC meets quarterly and is composed of state, federal and non-profit organizations that can provide technical and financial assistance to small water systems. Water systems present their projects and needs and the individual organizations share what programs they have and follow up directly with the water systems. A complete list of the RWIC partners is found in Appendix 2.

Financial factors identified as impairing TMF capacity include the overall complexity of the funding process; and the fact that rate cases, especially those before the ACC, are a huge undertaking, are expensive and often result in insufficient change in rates. As a result, many small water systems lack the ability, the expertise or the willingness to seek funding or raise rates. Additionally, SDWA program costs are high for small water systems with a very small rate base. Lastly, there was a discussion about operator compensation being a factor in not being able to obtain/retain good and reliable operators.

To adequately address these impairments and ensure the successful implementation of ADEQ's Capacity Development Strategy, ADEQ continued the stakeholder process by:

- holding problem solving sessions to determine the root cause of each impairment, and
- developing countermeasures to address each impairment

The results are discussed in Sections C & F.

C. Use of 1420(c)(2) Authority & Resources to Improve Capacity

- a. assist public water systems in complying with national primary drinking water regulations;*
- b. encourage the development of partnerships between public water systems to enhance the technical, managerial, and financial capacity of the systems; and*
- c. assist public water systems in the training and certification of operators.*

ADEQ's Capacity Development Strategy is centered around the assurance that all new PWSs can demonstrate adequate TMF capacity at all times. ADEQ will use its SDWA authority to assess the TMF capacity for any new CWSs or NTNCWSs through submission of an elementary business plan (EBP) in order to address suspected or future issues such as adequate water capacity, safe water quality, failing infrastructure, and appropriate staffing. An EBP must be approved by the cap dev coordination prior to issuing the approval of construction (AOC). New CWSs or NTNCWs supplement the EBP by submitting a new source analysis (NSA). The NSA demonstrates the water systems ability to deliver water which meets the National Primary Drinking Water Standards. Prior to commencing operation, all new water systems are required to have an O&M plan and all relevant or applicable sampling plans.

However, we also need to assess the TMF capacity of existing water systems. To that end, ADEQ has developed a tool to assess the TMF capacity of all public water systems. This tool will assist ADEQ in evaluating the overall health of our public water systems and identify strengths and weaknesses.

It is ADEQ's goal to conduct a baseline assessment of all public water systems in year 1. It is anticipated that re-assessments will happen in accordance with sanitary survey schedules or as needed (e.g. WIFA loan application, complaint investigation, compliance...). Once ADEQ has gained a clearer understanding of statewide TMF capacity needs, the department will continue to utilize DWSRF set-asides in order to contract third party technical assistance providers to assist water systems.

The Monitoring Assistance Program, otherwise known as "MAP", is a state mandated sampling program. This program has continued to assist many public water systems in complying with routine monitoring of inorganic, synthetic organic contaminants and volatile organic contaminants, nitrate/nitrite, and/or radionuclide monitoring and reporting requirements since the 1990's. This program provides water systems with required baseline sampling at an economies of scale rate by contracting large volumes of sampling in a competitive bid environment. It is recommended by stakeholders, for ADEQ to explore expanding MAP to include distribution system sampling requirements and/or monitoring for unregulated contaminants.

ADEQ will continue to develop tools, opportunities, and approaches for operators and water systems to collaborate in achieving and maintaining TMF capacity. In order to assist or facilitate partnerships among water systems, ADEQ will develop a process or strategy to assist in consolidation, regionalization, or acquisition for systems lacking TMF capacity to create economies of scale as part of the new strategy implementation.

Furthermore, the department has plans to develop additional tools and resources for water systems, operators, and managers to utilize in order to efficiently meet all aspects of operation. ADEQ will:

- develop an operator switchboard to help facilitate cross training, expansion of knowledge, and a forum to assist operators of different backgrounds to gain more technical expertise, and
- create a detailed informational document targeted to assist new public water systems, but can be utilized with existing public water systems. This document will be a road map and outline to guide public water systems in developing and improving TMF capacity.

D. Establishing Baseline & Measuring Improvements

A description of how the state will establish a baseline and measure improvements in capacity with respect to national primary drinking water regulations and state drinking water law.

Beginning in 2015, ADEQ began implementing the Arizona Management System (AMS) to achieve improved environmental compliance. AMS is a set of concepts, principles, and tools used to create and deliver the most value from the customer's perspective and provides the foundation for engaging people in continuous improvement. These concepts have helped the Safe Drinking Water Program to improve its tools and implement activities that further technical, managerial, and financial capacity development in public water systems.

One of the key elements in identifying opportunities for continuous improvement is to establish metrics and capture data reflecting the program's performance. Several metrics identified in Figure 4 have been established as the Safe Drinking Water Program's key performance indicators since 2015 and will continue to be captured.

Ensuring safe drinking water for all Arizonans



Figure 4. Safe Drinking Water Program's key performance indicators

ADEQ has identified the need to establish baseline metric(s) to evaluate the overall health of the state's regulated public water systems, as indicated by their TMF capacity. In order to achieve this baseline, ADEQ's TMF assessment tool will capture key and critical aspects of a public water system's TMF capacity and identify strengths and weaknesses to be addressed. ADEQ will have the ability to query the assessments to identify trends in TMF capacity issues (e.g., lack of storage, no certified operator, lack of redundancy). In addition, ADEQ will re-assess PWSs periodically to capture changes in TMF capacity.

ADEQ has identified the following metrics in Figure 5 to measure how the TMF capacity development program is performing in accordance with the implementation plan, found in Table 3.

Figure 5. Metrics to measure improvements

1. Increase services from ADEQ
 - # of operator certification courses offered; # of attendees
 - # of other training events held
 - # of PWSs provided technical assistance through ADEQ staff or third party contractor
 - # of TMF assessments completed
2. Improving TMF capacity
 - % of PWSs having a certified operator holding the correct grade and class
 - % of PWSs without monitoring and/or reporting violations
 - # of PWSs without treatment technique violations
 - Reduction in the # of PWSs without corporate structure w/o should read 10% without any identified corporate structure
 - # of PWSs with an Asset Management Plan

E. Identifying Active Stakeholders

Identification of the persons that have an interest in and are involved in the development and implementation of the Capacity Development Strategy (including all appropriate agencies of federal, state, and local governments, private and nonprofit public water systems, and public water system customers).

Due to the public health concerns and social distancing requirements surrounding the COVID-19 pandemic, ADEQ concluded that virtual meetings were an excellent forum to engage stakeholders about its Capacity Development Strategy. The stakeholder process was initiated by developing a list of stakeholders that affect PWSs (See Figure 6). These included PWS owners, operators and representatives, state and federal regulatory agencies, technical assistance coordinators, funding agencies, contractors, and professional associations. Appendix 3 contains a summary of those that participated in the stakeholder meetings.

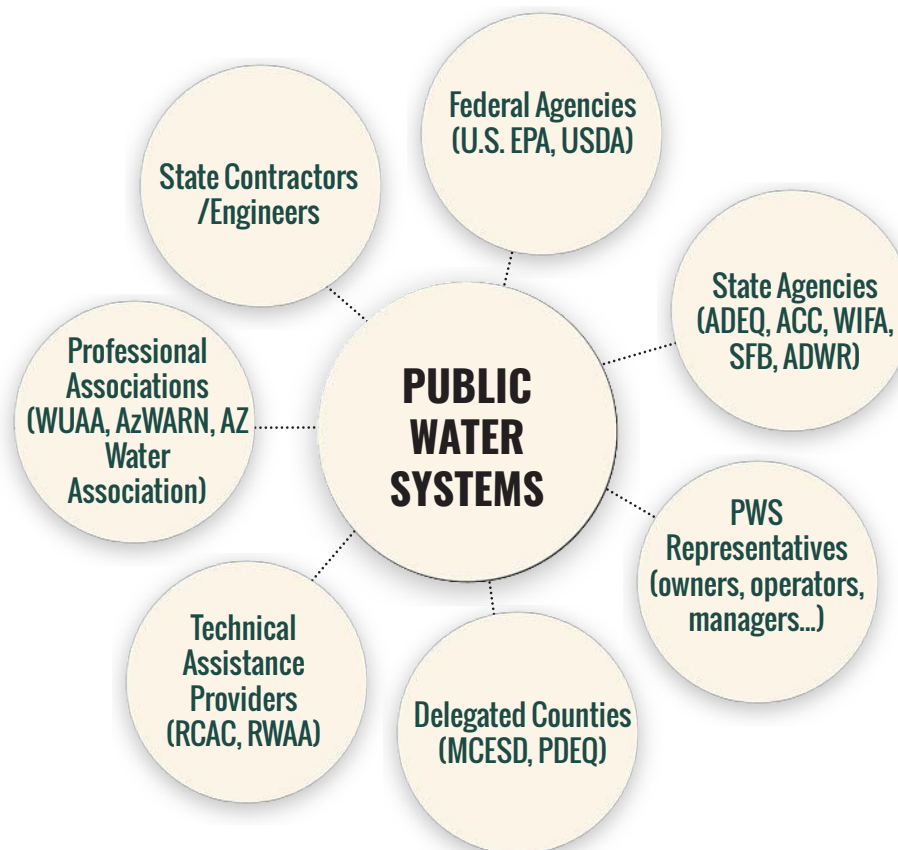


Figure 6. Stakeholders Identified for Development of Capacity Development Strategy

Meetings with stakeholders were facilitated by ADEQ's Office of Continuous Improvement using the GoToWebinar platform and a variety of polling tools. Tasks accomplished are included in Table 2 below.

Table 2. Stakeholder Meetings

Meeting Dates	Agenda
November 3, 2020	Kick-off Meeting - discussed the purpose of the Capacity Development Program; reviewed existing strategy; and identified factors that encourage or impair water system TMF capacity to stay in compliance with State and Federal requirements.
January 7, 2021	Problem Solving Session - recap of previous meeting; problem solving exercises to explore reasons behind the technical and managerial issues faced by public water systems, the complexity of regulatory requirements, and the division of responsibilities between water system owners and operators; and development of actions to address these impairments.
March 2, 2021	Problem Solving Session - recap of previous meeting; problem solving exercise to explore reasons behind the financial issues faced by public water systems; and development of actions to address these impairments.
May 6, 2021	Countermeasures - recap of previous meetings; stakeholders ranked the impact of the proposed countermeasures on water system TMF capacity; stakeholders also ranked the impact of technical, managerial and financial factors on TMF capacity; discussed the requirements of AWIA Section 2012 regarding asset management plans.
August 31, 2021	Draft Strategy - Presented the framework for the draft Capacity Development Strategy and went over proposed countermeasures and ADEQ's implementation plan.
September 2021 - March 2021	Draft Strategy Review - Review by U.S. EPA and ADEQ staff
April 2022	Submit Final Capacity Development Strategy to the EPA

F. Promoting Asset Management Planning

A description of how the state will, as appropriate,

- (i) encourage development by public water systems of asset management plans that include best practices for asset management; and*
- (ii) assist, including through the provision of technical assistance, public water systems in training operators or other relevant and appropriate persons in implementing such asset management plans*

Section 2012 of the America's Water Infrastructure Act (AWIA) requires state drinking water programs to consider and include a description of how asset management will be promoted and included into their state Capacity Development Strategies. PWSs need asset management to address aging water infrastructure, make sound investment decisions to maximize limited financial resources and make costs transparent to support financial decisions. With a proper plan for asset management, a PWS can improve service and reliability, reduce risk and unexpected costs and enhance communication with customers and stakeholders while realizing many additional benefits.

An asset management plan is the foundation for an effective asset management program and is defined, by the American Water Works Association (AWWA), as “a written representation of the intended approaches for the management of infrastructure assets over their life cycle based on the organization’s understanding of service level requirements. A key purpose of asset management plans is to drive longer term thinking and planning and ensure the organization is operating in a financially sustainable manner.”

An asset management plan typically includes level of service, current performance, future demand, risk management, life cycle management plans (e.g. maintenance plans, rehabilitation and replacement plans), and financial forecasts.

EPA has a specific framework centered around five core questions states must use to encourage the development of, and assist in the implementation of, asset management plans. The framework is composed of the following five core questions:

1. What is the current state of the utility’s assets?
2. What is the utility’s required “sustainable” level-of-service?
3. Which assets are critical to sustained performance?
4. What are the utility’s best “minimum life-cycle cost” capital improvement plan and operations and maintenance strategies?
5. What is the utility’s best long-term financing strategy?

ADEQ’s technical assistance program will use DWSRF set asides and third party contractors to provide training on these five core elements. Training will include using EPA’s Asset Management Handbook for Small Public Water Systems* to help PWSs develop asset management plans, tools & techniques for inventory development, water system mapping, financial planning and implementation strategies.

ADEQ will also assist small water systems in the development of asset management plans and will work with them to ensure that their rate structure, budget and reserves are sufficient to support their capital improvement plan. ADEQ has developed an asset management plan template based on the EPA Handbook, which can be found in Appendix 4.

* nepis.epa.gov/Exe/ZyPDF.cgi/P100R808.PDF?Dockey=P100R808.PDF

ADEQ has identified the following strategies to encourage the development of asset management plans that:

Table 3. Strategies to encourage development of asset management plans

Strategy	Implementation Schedule	Difficulty / Impact
Continue offering asset management training (basic, intermediate, advanced).	Ongoing	Low Difficulty / Medium Impact
Provide tools and assistance to owners/operators on our website (e.g., life cycle charts, rank assets)	Ongoing	Low Difficulty / Low Impact
Explore offering a certificate after successfully completing asset management training (each level)	Year 4	Medium Difficulty / Medium Impact
Provide AMP preparation assistance to small PWS	Ongoing	Medium Difficulty / High Impact
Require inventory of water system infrastructure prior to activation of new or existing PWS	*Rule change*	High Difficulty / High Impact

ADEQ has identified the following strategies to assist, including through the provision of technical assistance, PWSs in training operators or other appropriate persons in implementing asset management plans:

Table 4. Strategies to encourage implementation of asset management plans

Strategy	Implementation Schedule	Difficulty / Impact
Once AMP is completed, review impact on budgeting and reserves	Year 2	Medium Difficulty / High Impact
Query how the AM program is being used and maintained during routine sanitary survey and/or during a system failure	Year 3	Low Difficulty / Medium Impact

To date, ADEQ's technical assistance program has completed asset management plans for numerous PWSs and has provided support for needed system improvements. Following this support, the PWSs are offered rate review to ensure they are setting aside sufficient funding to properly maintain and manage these improvements. An adequate and well-maintained asset management plan is a key component of meeting technical, managerial, and financial capacity requirements.

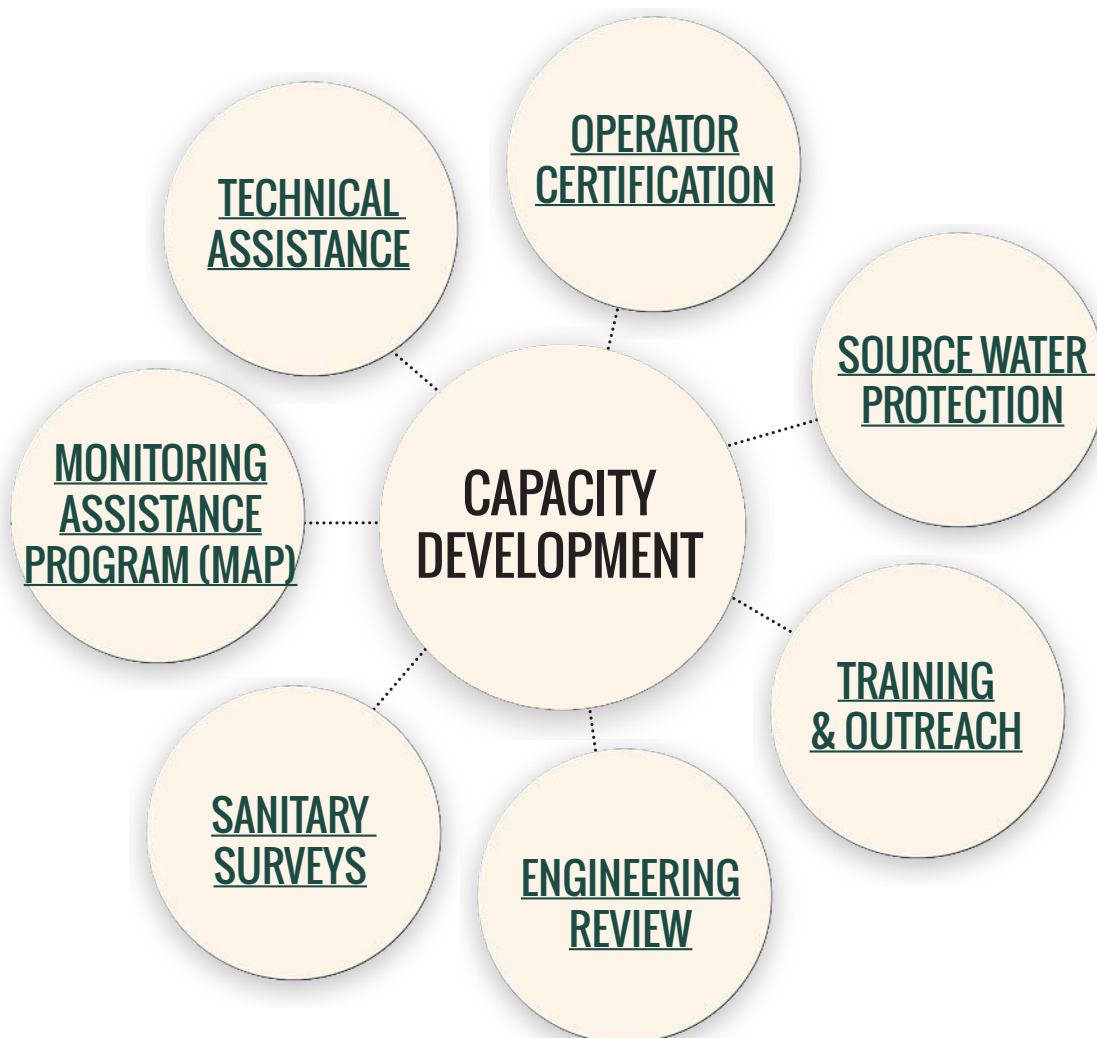
ADEQ has developed a methodology to prioritize PWSs with the most need for an asset management plan based on the following factors:

- PWSs that exceed a health-based standard (KOUI sites),
- PWSs likely to exceed a health-based standard based on predictive modeling,
- PWSs with TMF capacity building needs including those with newly installed treatment, and
- PWSs that have requested assistance.

ADEQ's TMF assessment tool will help identify PWSs needing asset management plans and track progress in developing and implementing plans.

5.0 IMPLEMENTATION PLAN

Improving TMF capacity for PWSs and helping them serve healthy drinking water are collective efforts among ADEQ's drinking water professionals and leadership. ADEQ implement strategies to help PWSs improve their TMF capacity to provide consistent, sustainable, and healthy drinking water to their customers. Capacity development activities include helping with compliance-related issues, providing technical assistance, developing asset management tools, revising budgets and finances, certifying operators and providing training for operators, owners and managers.



ADEQ plans to review its Capacity Development Strategy every 5 years to evaluate the effectiveness of its program. This will coincide with ADEQ's 5 year rule review of the capacity development rules (A.A.C. R18-4, Article 6).

Technical Assistance Program

Our Safe Drinking Water Technical Assistance Program (TA) has developed new approaches to improve small water systems' TMF capacity. Technical assistance is often provided to address water quality or infrastructure-related issues. Technical assistance contractors, assist our public water systems, evaluating non-treatment and cost-effective solutions first, before considering more complex and expensive treatment solutions. These less complex, less expensive solutions include blending with a second source, raising/lowering the pump in the well column, rehabilitation of the existing well, zonal sampling to isolate the contaminant(s), and consolidation with a nearby, existing water system which demonstrates TMF capacity. While the contractors are working on solutions, staff works with the water system to identify funding sources for improvements, which often depend on their corporate structure and the scope of necessary improvements.

Operator Certification Program

ADEQ's Operator Certification Program is a pivotal partner in building technical capacity at small public water systems. The program issues certifications to ensure that individuals who operate drinking water systems are qualified and capable of performing their duties.

Training

ADEQ conducts training workshops statewide, both independently and in partnership with private consulting firms and nonprofit organizations, to improve the technical, managerial, and financial capacity of existing PWSs. The operator training program focuses primarily on the technical knowledge required to treat and deliver healthy drinking water and maintain compliance with the Safe Drinking Water Act. Each workshop provides operators with opportunities to earn professional development hours (PDHs).

In addition to operator training, ADEQ has developed training for owners, managers and decision makers of small water systems and targeted workshops, which are outreach events that address a contaminant of focus that is particularly problematic in the area where outreach is held.

Engineering Review

The Drinking Water Engineering Review Program conducts a detailed technical review of public water system designs prior to and after construction to ensure the water systems are designed and built to standards that provide safe, potable water to customers.

More recently, the Engineering Review Program has expanded internal technical assistance by assisting PWSs with determining, designing, and implementing solutions to address health-based violations.

Monitoring Assistance Program

Developed in the 1990s, Arizona's Monitoring Assistance Program (MAP), is one of the first programs in the nation to provide sampling assistance to drinking water systems. This program supports public water systems' compliance with the Safe Drinking Water Act by assisting with the collection, transportation, analysis and reporting of regulated contaminants. All community and non-transient/non-community public water systems (except state or federally owned water systems), serving less than 10,000 people, are required to participate in MAP. The program is currently assisting over 830 small drinking water systems.

Sanitary Surveys

Sanitary surveys assess a public water system's capacity to provide safe drinking water by inspecting the physical integrity of its infrastructure and reviewing monitoring, sampling, and reporting procedures. Sanitary surveys are generally conducted every three to five years and are scheduled ahead of time to provide PWSs an opportunity to prepare and gather required records.

Source Water Protection

ADEQ's Source Water Protection Program (SWPP) is a voluntary program that was developed to protect Arizona's drinking water sources from contamination through the implementation of best management practices (BMPs).

Going forward, ADEQ will continue to implement its core program but also seek to expand services to assist small PWS in attaining and maintaining capacity. Table A outlines ADEQ Capacity Development Implementation Program Initiatives and proposed schedule.

Table 5. Capacity Development Strategy Implementation Plan and Schedule

Objectives	Objective Metrics	Initiative
Training	# of operator certification courses offered; # of attendees # of other training events held	Ongoing & Expand: <ol style="list-style-type: none"> 1. Offer in person and virtual training for operators, owners & managers. Focus: board training focusing on long-term planning, financial management, rates, corporate structure, and roles & responsibilities, asset management; consolidation, partnerships & collaboration; risk assessment and emergency preparedness. 2. Continue to leverage DWSRF set-asides to support training for small PWSs. 3. Record trainings and put in centralized location. 4. Have an annual funding workshop with the main funders describing their process.
Increased services from ADEQ to improve TMF Capacity	# of PWS without treatment technique violations # PWSs without monitoring and reporting violations # of PWS having proper certified operator # of TMF assessments completed Reduction in the # of PWSs without a corporate structure	Ongoing & Expand: <ol style="list-style-type: none"> 1. Provide frequent updates on upcoming deadlines for sampling, public notice, compliance, and or reporting. Focus: Different forms of reminders from ADEQ like text to keep up with required documents/reporting. 2. Market hiring and contracting guide for new public water systems (operator & owner). 3. Continue to encourage small PWSs to have their data submitted to ADEQ via the Compliance Monitoring Data Portal (CMDP) to report data with fewer errors and more efficiently. Year 1: <ol style="list-style-type: none"> 1. Create a template for a business plan that identifies the rules and responsibilities of staff. 2. Develop and deploy TMF Assessment Tool. Year 2: <ol style="list-style-type: none"> 1. Once an EBP is approved, develop a roadmap for the water system to maintain compliance with the SDWA. 2. Develop a brief document that lists legal requirements and responsibilities with contact information and resource links. 3. Publish a resource list that systems can contact to ask questions and get help. The resource list should include regulators, experienced operators, engineers, etc. who want to help. Funding matrix/calendar of what funding opportunities are open etc. Year 3: <ol style="list-style-type: none"> 1. Develop strategy for consolidation or acquisition for systems lacking TMF capacity to create economies of scale. 2. Develop an operator forum/switchboard to allow operators to communicate expertise or seek assistance from other operators. 3. Support, maintain and expand SWAP. Focus: Modifying assessment to fit Arizona's geology and hydrology for groundwater systems. Year 4: <ol style="list-style-type: none"> 1. Develop a centralized electronic portal for the submittal of documents.

Objectives	Objective Metrics	Initiative
Partnerships	# of PWSs presenting at RWIC	<p>Ongoing & Expand:</p> <ol style="list-style-type: none"> 1. Integrate partnerships with Drinking Water TA providers, associations, and other non-profit organizations to apply their resources toward assisting systems with insufficient revenue. 2. Market the RWIC forum (ACC, ADWR, ADEQ, and funding agencies). 3. Coordinated effort amongst agencies and circuit riders to help water systems in need. <p>Year 1:</p> <ol style="list-style-type: none"> 1. Foster partnerships through AzWARN to promote security and all-hazards preparedness throughout the state's drinking water community. 2. Communicate stakeholder comments to other agencies.
Technical Assistance	# of PWSs receiving technical assistance	<p>Ongoing & Expand:</p> <ol style="list-style-type: none"> 1. Continue providing technical assistance for small PWSs. 2. Continue to leverage DWSRF set-asides to support technical assistance for small PWSs. 3. Continue to leverage federal funding (e.g. WIIN) to help small and disadvantaged communities.
Asset Management	# of PWSs with an AMP	<p>Ongoing & Expand:</p> <ol style="list-style-type: none"> 1. Continue offering asset management training (basic, intermediate, advanced). 2. Provide tools and assistance to owners/operators on our website (e.g., life cycle charts, rank assets). 3. Provide AMP preparation assistance to small PWS. <p>Year 2:</p> <ol style="list-style-type: none"> 1. Once AMP is completed, review impact on budgeting and reserves. <p>Year 3:</p> <ol style="list-style-type: none"> 1. Query how the AM program is being used and maintained during routine sanitary survey and/or during a system failure. <p>Year 4:</p> <ol style="list-style-type: none"> 1. Explore offering a certificate for successfully completing asset management training.
Program Changes to Increase TMF		<p>The following items were brought up during the stakeholder effort. ADEQ will continue discussion with stakeholders. An implementation schedule has not been determined since a rule change is required. Rule changes are dependent on ADEQ's strategic plans and priorities, require the Governor's approval and may take three to five years.</p> <ol style="list-style-type: none"> 1. Expand Monitoring Assistance Program to include increased monitoring. 2. Require inventory of water system infrastructure prior to activation of new or existing PWS. 3. Require all PWS owners to complete training on their responsibilities and what they can do to get help. 4. Amend the A.A.C R18-4-605 to remove Appendices C and D to make the financial application of the Elementary Business Plan more flexible depending on PWS structure (e.g., community versus industry). 5. Develop an operations program for small water systems similar to the Monitoring Assistance Program. PWS pays fee and program provides a remote operator. 6. Review and enhance certificate requirements for operators to: <ul style="list-style-type: none"> • increase operator skill and accountability, • require hands on technical training in addition to testing requirements for grade 1 treatment and distribution certifications. 7. Replace A.A.C R18-4-803 to allow for a prioritization process based primarily on protection of public health followed by capacity building and ensuring compliance.

APPENDICES

APPENDIX 1 - FACTORS THAT ENCOURAGE OR IMPAIR CAPACITY DEVELOPMENT

APPENDIX 2 - RURAL WATER INFRASTRUCTURE COMMITTEE (RWIC) PARTNERS

APPENDIX 3 - LIST OF STAKEHOLDERS

APPENDIX 4 - ASSET MANAGEMENT PLAN TEMPLATE



Appendix 1. Factors that encourage or impair capacity development

ENCOURAGE	Institutional	Regulatory & Legal	Financial & Tax
In person & online training opportunities	X		
Rural Water Infrastructure Committee meetings			X
ACC Small Ombudsman Office	X		
Encouraging regionalization/collaboration/ partnerships among PWSs	X		
The availability of free resources to help water systems with capacity related items	X		
IMPAIR			
Voluntary boards are no longer a viable structure	X		
Complexity of the overall funding process			X
The large number of agencies involved in PWS oversight and regulation		X	
Lack of coordination among the state agencies	X		
The assumption that it is easy to find competent service providers or technical expertise in rural areas to achieve regulatory compliance		X	
Rate cases take a lot of effort, paperwork and money to process; resulting in PWSs lacking the ability, expertise or willingness to raise rates			X
Outdated documents & reporting create challenges for achieving compliance	X		
SDW program costs are high for a small water system that does not have a lot of revenue			X
Division of responsibility between owners and operators are not always understood		X	
Lack of options for generational transfer of a water system		X	
Operator compensation			X

Appendix 2. RWIC Partners

- Arizona Corporation Commission (ACC)
- Arizona Department of Environmental Quality (ADEQ)
- Arizona Department of Housing (ADOH)
- Arizona Department of Water Resources (ADWR)
- North American Development Bank (NADBank)
- Rural Water Association of Arizona (RWAA)
- U.S. Department of Housing and Urban Development (HUD)
- Water Infrastructure Finance Authority of Arizona (WIFA)
- U.S. Department of Agriculture Rural Development (USDA-RD)
- Rural Community Assistance Corporation (RCAC)
- U.S. Department of Interior Bureau of Reclamation (BOR)
- U.S. Environmental Protection Agency (EPA)

Appendix 3. List of Stakeholders

List of Stakeholders - Invited	
Category	Jurisdiction/Entity
All public water systems (~1,526)	N/A
Federal Agencies	U.S. Environmental Protection Agency
	U.S. Department of Agriculture Rural Development
State Agencies	Water Infrastructure Finance Authority of Arizona (WIFA)
	Arizona Corporation Commission (ACC)
	Arizona School Facilities Board
	Arizona Department of Water Resources (ADWR)
	Arizona Department of Environmental Quality (ADEQ)
Counties	Maricopa County Environmental Services Department (MCESD)
	Pima Department of Environmental Quality (PDEQ)
Professional Groups	Water Utilities Association of Arizona (WUAA)
	AzWARN
	AZ Water Association
Technical Assistance Third Party Contractors/Engineers	Rural Community Assistance Corporation (RCAC)
	Rural Water Association of Arizona (RWAA)
	Engineered with Layton
	KUV Consultants LLC
	Carlson Engineering
	Tata & Howard
	GHD Group
	NCS Engineers

List of Stakeholders - Attendees	
First Meeting (Kick-off)	Tucson Water
	Environmental Finance Center Network (EFCN)
	Arizona Corporation Commission (ACC)
	City of Gilbert
	Water Infrastructure Finance Authority of Arizona (WIFA)
	US Army - Kofa Firing Range
	Q Mountain Vista MHP
	Water Utilities Association of Arizona (WUAA)
	Rural Community Assistance Corporation (RCAC)
	Pima Department of Environmental Quality (PDEQ)
	Maricopa County Environmental Services Department (MCESD)
	McNeal Water Company
	City of Surprise
	KUV Consultants LLC
	Caterpillar Inc
	Chino Valley Schools
	Town of Parker
	AZ Water Association
	Town of Jerome

List of Stakeholders - Attendees	
Second Meeting	City of Avondale
	Timberland Acres DWID
	City of Nogales
	AZ Public Service Co
	Arizona Corporation Commission (ACC)
	City of Gilbert
	AZ Electric Power
	Pima Department of Environmental Quality (PDEQ)
	City of Peoria
	Arizona Department of Emergency & Military Affairs
	Gort Consulting
	Pima Department of Environmental Quality (PDEQ)
	City of Yuma
	AZ Water Association
	Liberty Utilities
	City of Flagstaff
	Rural Community Assistance Corporation (RCAC)
	Water Utilities Association of Arizona (WUAA)
	Global Water Resources Inc.
	Pinto Valley Mine
	Sanders School District
	City of Glendale
	Sanders Dollar General

List of Stakeholders - Attendees	
3rd Meeting	City of Nogales
	AZ Public Service Co
	Mohawk Utility Company
	Maricopa County Environmental Services Department (MCESD)
	West End Water Company - Wittman
	AZ Water Association
	Community WC of Green Valley
	City of Douglas
	Gort Consulting
	Rural Community Assistance Corporation (RCAC)
	Pima Department of Environmental Quality (PDEQ)
	AZ Electric Power
	McNeal Water Company
	City of San Luis
	Tucson Water
	EPCOR
	Villa Grande DWID
	Smithfield Hog Production
	Liberty Utilities
	City of Lake Havasu
	Superstition Water Coop

List of Stakeholders - Attendees	
4th Meeting	Timberland Acres DWID
	Town of Duncan
	AZ Public Service Co
	Apache Nitrogen Products Inc
	Lagoon Estates Water Company
	City of Eloy
	Catalina Village
	City of El Mirage
	Maricopa County Environmental Services Department (MCESD)
	West End Water Company - Wittman
	City of Chandler
	Majestic View Estates
	Town of Queen Creek
	City of Payson
	City of San Luis
	City of Phoenix
	Arizona State University (ASU)
	Tucson Electric Power
	City of Douglas
	City of Yuma
	Town of Cave Creek
	Rural Community Assistance Corporation (RCAC)
	Pima Department of Environmental Quality (PDEQ)
	Tucson Water
	City of Kingman
	City of Gilbert
	KUV Consultants LLC
	City of Glendale
	Whetstone DWID
	Flowing Wells Irrigation District
	Community WC of Green Valley
	AZ Electric Power
	Old Concho Water Users
	Arcosanti Camp
	Soldier Camp Permittees

List of Stakeholders - Attendees	
5th Meeting	Arcosanti Camp
	Triangle Y Ranch Camp
	Town of Kearny
	Cordes Junction Motel RV Park
	AZ Water Association
	Bonita Creek Water Company
	Goodyear Water Department
	City of Chandler
	KUV Consultants LLC
	City of Scottsdale
	Liberty Utilities
	AZDEMA Buckeye Armed Forces Reserve Center
	AZ Public Service Co
	Pima Association of Governments

Appendix 4 - Asset Management Plan Template

static.azdeq.gov/wqd/capdev/am_worksheet.xlsx





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