



State of Connecticut Department of Public Health Environmental Health & Drinking Water Branch

Capacity Development Strategy

Revised 2022

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Introduction

The State of Connecticut Department of Public Health (DPH) has prepared this Capacity Development Strategy Report as required by the 1996 Amendments to the federal Safe Drinking Water Act (SDWA). The Capacity Development Strategy (Strategy) must help to create and maintain viable PWS with adequate technical, managerial, and financial (TMF) capacity as described below:

Technical capacity refers to a PWSs ability to operate and maintain water system infrastructure and includes elements such as source water adequacy, infrastructure condition and the technical knowledge of its operators.

Managerial capacity refers to a PWSs ability to properly administer water system operations and includes elements such as organizational structure, governing documents/bylaws, asset management programs, capital improvement planning, operator training, record keeping, customer service and an understanding of regulatory responsibilities.

Financial capacity refers to a PWSs ability to properly manage system financial obligations while generating sufficient reserve funds to maintain infrastructure and includes elements such as rate structure, budget preparation, collection services and credit worthiness.

The DPH believes that building capacity for PWS is interwoven with all the DWS functional units, programs, tools and activities. All interactions with PWS can help us learn if systems are lacking TMF capacity and by following the framework described in this Strategy, it will show how to best allocate internal and external resources to meet those TMF needs of each public water system. The Strategy will first discuss how adequate capacity is achieved during the development of new PWSs and then how to create and maintain capacity for existing PWSs.

Connecticut PWS Demographics

There are 3 types of public water systems that are regulated in the State of Connecticut:

Community Water Systems (CWS): Water systems that provide service to 25 or more residents at least 60 days per year. Systems can range widely in size from large municipal or privately owned systems to small rural neighborhoods or an apartment building that share a common water supply.

Non-Transient Non-Community (NTNC) Systems: Non-residential water systems that serve 25 or more of the same people at least 6 months out of the year that include schools, daycare centers, factories, and office buildings.

Transient Non-Community (TNC) Systems: Non-residential water systems that serve 25 or more people, but not necessarily the same people each day, for at least 60 days out of the year that include restaurants, parks, churches, campgrounds and gas stations.

Connecticut's relatively small geographic footprint contains a large number of public water systems (PWSs), as 492 community water systems (CWSs) serve residential populations and 501 non-transient non-community (NTNC) systems, and 1394 transient non-community (TNC) systems serve non-residential populations. To really examine the distribution of community PWS vs. population served, see the table below

Number of Community PWS	Population Served
39	> 10,000 people
53	1,000 – 9,999 people
31	500 – 999 people
189	100 – 499 people
180	< 99 people

The distribution of population served shows the importance of a comprehensive strategy to help achieve and maintain acceptable levels of TMF capacity. Generally speaking, the lower the population, the greater the chances that there are issues at the PWS that could be improved by TMF resources. As it is shown above, approximately 80% of the community systems in CT serve under 500 people and with that knowledge it is important to ensure that the strategy addresses the unique challenges faced by both large and small PWS.

Capacity Development Strategy Goals

The goals of Connecticut's Capacity Development Strategy are to:

- Ensure that CT PWS are consistently providing safe and adequate water by maintaining compliance with state and federal regulations
- Track and prioritize PWS that are out of compliance, and provide assistance as needed
- Systematically work to eliminate factors that impair capacity development for PWS
- Encourage the development of asset management plans for PWS to ensure long-term viability
- Continue stakeholder engagement and understanding of the strategy.

Capacity Development Strategy – New Systems

Basis of Authority

Connecticut is required by the federal SDWA Section § 1420(a) to have the authority to implement a program that assesses the TMF capacity of all new CWS and NTNC systems. The primary mechanism to ensure the development of an adequately funded, designed, built and operated small public water system (PWS) along with the goal of preventing the proliferation of new small PWSs is the Certificate of Public Convenience and Necessity (CPCN) process. Pursuant to Connecticut General Statutes (CGS) section 16-262m, all applicants must obtain a CPCN prior to construction of a new PWS. The CPCN regulatory review process requires that prospective new systems must first evaluate feasible interconnection with existing public water systems (PWSs). This is conducted through coordination with the state's Water Utility Coordinating Committees (WUCC)s.

Section 25-33i of the CGS states that no public water supply system may be approved within a public water supply management area after the Commissioner of Public Health has convened a water utility coordinating committee unless: (1) an existing public water supply system is unable to provide water service or (2) the committee recommends such approval. CPCN applications are routed through the respective WUCC region for review and potential action early in the CPCN process. The statutes and regulations are silent as to the specific procedures of WUCC approval, leaving it up to the individual WUCCs as to how to process, review, and act on an application, including when in the CPCN process the WUCC takes action. The WUCCs, in practice, evaluate each submission and consider it against local and regional development and water supply availability to determine the best long-term viable water supply for the proposal.

If an interconnection is not feasible, the CPCN regulations establish minimum design standards for new water systems and require new systems to demonstrate acceptable levels of TMF capacity prior to the issuance of a CPCN. The CPCN regulatory review process is conducted by the DPH. When a designated Exclusive Service Area (ESA) provider exists, the CPCN process requires a designated ESA provider to own any new CWS system created in the approved service area (which is determined during the WUCC approval) pursuant to CGS 25-33g. The WUCC regions and ESA boundary maps, as well as the program flyer, are included as Appendix A.

Public Act No. 16-197 which became effective on October 1, 2016, was the most recent change in our authority which expedites the review of CPCN applications. Under PA 16-197, the DPH reviews CPCN applications and issue CPCNs for community (residential) water systems as is currently done for non-community (non-residential) water systems. For those systems that are regulated by the Public Utilities Regulatory Authority (PURA) or when ownership is not being assigned to an ESA provider, PURA will conduct the financial capacity review of the proposed system. Under the old statute, DPH and PURA jointly reviewed CPCN applications and issued CPCNs for every community water system. The new process has reduced redundancies in the CPCN process by ensuring there is no duplication of efforts between the two agencies.

Further, CGS Section 8-25a states that no proposal for a development using water supplied by a company incorporated on or after October 1, 1984, shall be approved by a planning commission or combined planning and zoning commission unless such company has been issued a (CPCN) certificate pursuant to section 16-262m. The municipality in which the planning commission or combined planning and zoning commission is located shall be responsible for the operation of any water company created without a certificate after October 1, 1984, if the water company at any time is unable or unwilling to provide adequate service to its consumers.

These laws together, at the local and state level, ensure that a new PWS can be approved and developed only if it secures a CPCN demonstrating that the applicant meets all federal and state standards for a water supply system; the person that will own the water supply system has the financial, managerial and technical resources to (A) operate the proposed water supply system in a reliable and efficient manner, and (B) provide continuous adequate service to persons served by the water supply system.

Control Points

The DPH's Strategy lists the CPCN process as the primary mechanism to manage the TMF Capacity of new PWS. The following control points are included as part of the CPCN process:

- WUCC/ESA Review and Approval
- Local Planning and Zoning Approval
- TMF Capacity Review
- Source Review and Approval
- System Construction Approval
- Operator Certification
- Cross Connection Program

DWS will continually work to strengthen its ability to minimize the creation of new PWS, as well as streamline the process to make it easier for new PWS to understand and therefore comply. The DPH recognizes that early identification of potential new systems is critical. To achieve success requires coordination and involvement at the local community level. Local health departments, in support to the local planning and zoning commissions, use forms developed by the DWS to screen development projects to determine if a CPCN may be required. The DWS plans to update both the community and non-community CPCN applications in concert with the Capacity Development Strategy to encourage concepts of asset management, resilience assessment, operation planning, emergency response and fiscal planning among other updates. This is an example of how the Strategy framework remains consistent, however as needs are identified the tools used to develop and maintain TMF capacity are routinely updated.

The WUCC, ESA and local development process has worked well to encourage new developers to use smart planning concepts and interconnect with viable public water systems with access to demonstrated TMF capacity when feasible. All planners, municipalities and developers understand the process better now that the WUCCs have been established statewide. Work has

begun as part of the effort to implement the recommendations in the WUCC Coordinated Water System Plans to improve the outreach and interaction with local decision-makers. Specifically, a workgroup was convened to develop standard operating procedures, guidance, and outreach to encourage local municipalities to consider the following in local Plans of Conservation and Development: public water system Exclusive Service Areas (ESAs), future water service extension potential, desired public water service areas, and water management through zoning regulations.

The systematic phases of the CPCN process encompass all aspects of creating a new PWS beginning with wise planning decisions. Once the decision has been made to create a new PWS, there is a rigorous system construction process which considers sources of supply, treatment, distribution, cross connection control, and TMF planning to ensure long term viability. Finally, a certified operator is required for every new Community or NTNC PWS. Upon receipt of a CPCN for a new PWS, the DPH issues a PWS Responsibilities Letter that details all the regulatory requirements for that system and includes the water quality monitoring and compliance schedule which is also maintained on the DPH website. These tools help ensure that new PWS starting out having a strong understanding of their responsibilities and an adequate TMF capacity roadmap right from the beginning.

Capacity Development Strategy – Existing Systems

Basis of Authority

Connecticut is required by the federal SDWA §1420(c) to develop and implement a Capacity Development Strategy (Strategy) that addresses PWSs technical, managerial and financial needs to maintain viable water systems that can reliably provide safe and adequate water to its consumers. Further, the 1996 SDWA amendments focus on capacity development through two major provisions; both of which are associated with the Drinking Water State Revolving Fund (DWSRF). The DWSRF provisions are set forth in Section 1452 of the SDWA which enables EPA to withhold up to twenty percent of the annual DSWRF capitalization grant if DPH does not implement the tenants of the Strategy and also ties a PWS's ability to receive funding from the DWSRF to the system's technical, managerial and financial capacity.

Most recently the America's Water infrastructure Act of 2018 (AWIA) amended Section 1420(c) of the SDWA to include 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.

In addition to the authority granted by the 1996 Amendments of the SDWA, and AWIA, the State of Connecticut has numerous state statutes and regulations governing public water systems that work in concert to help develop and maintain acceptable TMF capacity for CT's public water systems. Appendix B is a listing of some of those statutes and regulations over which the

Department has jurisdiction and each assist in ensuring in part the TMF capacity of an existing PWS. This is not, however, an exhaustive list of all the statutes and regulations.

Control Points

The following Strategy control points align with the DPH Drinking Water Section organizational structure and are the primary methods/criteria that DPH uses to identify and prioritize the PWSs most in need of help to improve TMF capacity:

- Source Water Protection
- Water Quality and Compliance Data
- Operator Certification Program
- Distribution System & Cross Connection Protection
- Sanitary Survey Program/TMF Capacity Review
- DWSRF Capacity Review
- PWS Water Supply Planning Data
- Emerging Contaminants

1) Source Water Protection: Having a code-compliant and protected source is the first barrier in the multi-barrier approach to ensure a viable PWS. DWS uses the authority it has under the statutes and regulations to identify needs and ensure that:

- I) The land owned by the water company is not altered, assigned, disposed, or transferred without prior approval.
- II) New sources of water supply or upgrades to existing sources meet location, protection, and construction standards.
- III) New or replacement sources are tested and deemed acceptable prior to use.
- IV) Existing sources meet sanitation standards.
- V) Annual watershed surveys are conducted and violations, when found, are addressed.
- VI) Land use on the watershed and within the aquifer recharge area are not conducive to pollution, promoting harmful algae blooms or has the potential to introduce emerging contaminants such as PFAS.

2) Water Quality and Compliance Data: DWS identifies systems in need of capacity development assistance by the system's ability to respond to the compliance requirements for prescribed regulations and to report this compliance data to the DWS. Compliance data is managed in the Safe Drinking Water Information System (SDWIS) database and compliance determinations are run on a continual basis. In addition, DPH data management staff has created publicly available water quality monitoring and compliance schedules for each individual PWS in compliance with applicable federal rules and state regulations. Examples of data that may identify a system in need of assistance would include MCL violations, M&R violations and Treatment Technique (TT)

violations among others. This approach attempts to prevent systems from being placed on EPA's Enforcement Targeting Tool (ETT) list. Systems that are, or become placed on, the ETT list are given priority technical assistance.

3) Operator Certification Program: The Operator Certification program is accountable for DPH oversight of the qualifications of individuals who operate and maintain PWSs. This program ensures that Community and NTNC PWSs are operated by qualified and skilled certified operators. It has been repeatedly demonstrated that a competent certified operator is a large asset for a public water system. When a CWS or NTNC system does not meet minimum operator certification requirements this could be a sign of capacity weakness. Further operators with large amounts of violations at the systems they operate can be an indicator that technical assistance may be needed. The program is drafting revised regulations that will further improve identification of capacity weakness in professional system operations. DPH staff provides technical assistance to those systems that are in violation to help achieve compliance. If compliance cannot be achieved through technical assistance, then formal enforcement actions are initiated.

4) Sanitary Survey Program/Capacity Assessment Tool (CAT) Data: During a sanitary survey the physical infrastructure of the water system as well as other elements including monitoring and reporting, operator certification, management and operations and security are assessed to determine if there are significant violations or deficiencies that could present long and/or short-term sustainability problems. The DWS continuously modifies elements of the question sets into the sanitary survey process to determine if systems are adequately employing sustainability concepts such as level of service and useful service life with their physical assets. Recently, fiscal questions were incorporated into the survey to assess the financial capacity of community water systems. Sanitary surveys are conducted at least every three (3) years for CWSs and every five (5) years for non-community systems. The capacity assessment tool (CAT) has also been incorporated into the sanitary survey process and is included in Appendix C. All CWS are required to complete a capacity questionnaire that will update their baseline CAT at the time of the survey. The CAT data was an integral part of measuring and developing capacity through the initiation of the WUCC process and keeping the data updated and relevant is key. DPH is developing a CAT database module to increase efficiencies with respect to measuring and evaluating capacity strengths and weaknesses at existing PWSs. Completion of the CAT database module has been delayed due to staffing limitations but DPH will continue to develop this tool as resources are available.

5) DWSRF Program Capacity Review: All PWS that apply for DWSRF funding must demonstrate adequate TMF capacity in order to obtain a loan. Reviews of financial qualification are conducted by the Office of the Treasurer (OTT) and, if the PWS is a privately owned rate-regulated utility, also by the Public Utilities Regulatory Authority (PURA). Technical and managerial reviews are performed by the DWS and include a historical review of regulatory compliance as well as infrastructure deficiencies that were identified during the most recent sanitary survey. Any financial issues that are identified must be addressed before a PWS is qualified to receive a loan.

Any technical or managerial violations that are identified must be addressed either prior to receiving a loan or as part of the project that receives a loan. Since 2011, the DWSRF Program has placed additional incentives for PWS to enhance TMF capacity through asset management (AM) planning. PWS with existing AM plans are provided additional priority points in the priority ranking system to increase project(s) ranking on the DWSRF Project Priority Lists. Additionally, the DWSRF Program provided incentives beginning in State Fiscal Year 2019 for small PWS to implement AM plans by offering subsidization towards project(s) if systems had existing AM plans or would undertake AM planning as part of the project(s). The DWSRF unit utilizes a “TMF Capacity Review Checklist” Appendix D to document the capacity review completed for DWSRF funding recipients. This checklist ensures that all available aspects of capacity are reviewed, including routine compliance, formal enforcement, EPA Enforcement Targeting Tool (ETT) score, most recent sanitary survey, capacity assessment tool score, and fiscal and asset management planning. Any PWS which is found to not have sufficient capacity will be referred for technical assistance so that they may improve their capacity in order to be eligible for a DWSRF loan.

6) Distribution System and Cross Connection Protection: Maintaining water quality once it enters the distribution system is a critical control point. The PWS capacity needs can be shown through distribution system requirements such as water quality monitoring within the distribution system under the SDWA requirements and state requirements (physical parameters), inspection of water storage tanks, flushing programs, valves exercising schedule, unaccounted for water reviews, annual cross connection surveys, consumer complaints and water service interruptions (planned and emergency). Further, distribution system planning tools such as materials inventories to identify lead service lines, chlorine residual optimization and partnerships with large/critical users to reduce occurrence of legionella, development of sample siting plans that meet all regulatory requirements and ensure reliable data, and distribution system mapping are important tools to ensure water quality is being tracked and maintained in the distribution system. Information from the distribution system helps the DWS to identify existing TMF needs concurrent with frequent outages or bulk water hauling, catastrophic infrastructure failures, sampling discrepancies, cross-connection issues and/or customer complaints, and elevates capacity issues to the surface resulting in prioritization for technical assistance and/or formal enforcement actions. It will be important for DPH to appropriately manage the new rules that have a significant impact on the distribution system such as the Lead and Copper Rule Revisions (LCRR) and the Lead and Copper Rule Improvement (LCRI).

7) PWS Planning Requirements:

Water Supply Plan (WSP) Requirements: Fifty-two water companies that serve more than 1,000 people must submit individual WSPs to the DPH, DEEP, the Office of Policy and Management (OPM) and regional planning agencies every six to nine years. The 52 water companies that are required to submit plans are further comprised of 183 individual CWSs as many water companies have multiple distinct divisions addressed within their individual plan. This process incorporates TMF capacity element reviews and is a large part of the strategy for large CWSs. The core elements of these plans are:

- A description of the existing water supply system including sources of water, available

water and margin of safety.

- Analysis of present and future supply demands for the 5, 20 and 50-year plan periods.
- Assessment of potential alternative sources of supply.
- Water supply emergency contingency plan that encompasses contamination of water, power outages, drought, flood, and the failure of any or all critical system components.
- Necessary system improvements including new sources of supply, storage facilities, treatment processes, and distribution/pumping system upgrades that will ensure an adequate quantity and quality of supply and an effective delivery of water service for all system operating demand conditions for the 5, 20 and 50-year planning periods.
- Forecasted land sales including address, associated source of supply and acreage for each parcel of land anticipated to be sold in the 5, 20 and 50 year planning periods.
- A strategic ground water monitoring plan and an evaluation of source water protection measures including an analysis of potential hazards to public water sources of supply.
- An analysis of the impact of water conservation practices and a strategy for implementing supply and demand management measures.

Comprehensive WSPs are intended to ensure that larger CWSs have detailed sustainability plans and are able to meet present and future challenges. The WSPs undergo thorough review and must be approved by the DPH, the Department of Energy and Environmental Protection (DEEP), and the Public Utilities Regulatory Authority (PURA), where applicable.

Fiscal and Asset Management Plan Requirement: Since the smaller CWS are not subject to the water supply plan process described above, DPH proposed a bill which passed during the 2018 legislative session requiring small community public water systems serving less than 1,000 year-round residents to prepare a fiscal and asset management (F&AM) plan of their systems' assets, including a prioritized assessment review of their hydropneumatic pressure tanks, if applicable. The bill was codified into the Connecticut General Statutes (CGS) Section 19a-37e.

DWS developed resources (including document templates, instructions, guidance documents and training opportunities) for PWS to meet the requirements of the statute. The prioritized fiscal and asset hydropneumatic storage tank assessment was due by May 2019 for any small community system with an operational hydropneumatic storage tank. By January 1, 2021, the full fiscal and asset management plan was due to be created. The DWS template is included as Appendix E and was formatted to include all information that is needed to meet the statute including; PWS General Information Section, Asset Management Section with asset inventory, assessment and prioritization, capital improvement plan, level of service goals, a Financial Management Section with rates, rate structures, current and future budgets and other financial questions, and finally an Unaccounted for Water (UAW) Section with amount of UAW, causes and ways to reduce UAW. This template aligns with the EPA's 5 core concepts for asset management.

Capacity Implementation Plan Requirement: To further impress upon CWS the need to implement the findings of the F&AM Plan, DPH was able to pass another statutory requirement

during the 2021 legislative session aimed at demonstrating that these small CWS have adequate technical, managerial and financial capacity and mandating implementation of their F&AM plan. The initial capacity implementation plan is required to be completed by all small CWS by July 1, 2025 and updated annually. There are 11 required items including financial capacity information, water production and consumption, capital improvement schedule for the five and twenty-year planning periods, ownership and management information and description of various maps, plans and programs required to be maintained by the small CWS. DWS will be working during the upcoming year to develop the capacity implementation plan template and associated guidance documents and training to aid small CWS in meeting this new requirement.

PWS data gathered from the three different planning processes described above will be used to determine which PWS may be in need of assistance in building TMF.

Emerging Contaminants: DPH created a new unit across the Environmental Health and Drinking Water Branch recently to help PWS prepare to meet the challenges of the future. The staff of the emerging contaminants unit are a key member of the Governor's PFAS Task Force, responsible for implementation of the recommendations identified within the plan. Several recommendations in the Final PFAS Action Plan support public water system capacity and are currently being implemented including: (1) Support measures that provide financial assistance to public water systems for infrastructure improvements, including treatment and/or interconnections to nearby public water systems. (2) Installation of laboratory instrumentation for PFAS analysis at the State Department of Public Health Laboratory to be used specifically to promote health equity by supporting disadvantaged communities vulnerable to PFAS contamination; and (3) continue to provide technical assistance, education, and outreach to local health departments and other officials through publications and in-person and web-based training. Further, DPH just released lower health advisory levels for some PFAS compounds and will provide technical assistance to PWS to reduce PFAS in water provided to customers. Other initiatives this unit works on is identifying and providing technical assistance to public water systems that detect unregulated contaminants through the EPA's Unregulated Contaminant Monitoring Rule, leading a sodium and chloride stakeholder workgroup, and work on the Connecticut Source Water Protection Project to bring awareness to cyanotoxins that can plague surface water sources.

Factors That Encourage or Impair Capacity Development

Factors that Encourage Capacity Development

There are many factors that encourage the development of TMF capacity for PWS within the state of CT. First and foremost, the Safe Drinking Water Act (SDWA) establishes safety standards designed to ensure that consumers served by public water systems across the country receive high quality drinking water. In addition to public health protection benefits, achieving the goals of the SDWA provides economic benefits. Proactively avoiding incidents such as waterborne disease outbreaks can prevent loss of life and reduce considerable health care costs. Many

businesses also require high quality water to meet strict standards associated with their operations or manufacturing processes.

In addition to the federal regulations, the State under the authority of CT DPH has legislated and approved regulations and passed statutes to ensure that public water systems, small or large, are:

1. Protecting the sources of water supply from contaminations (RCSA Sections 19-13-B32 and 19-13-B51)
2. Maintaining the water assets to support the daily water demand (RCSA Sections 19-13-B102f, n, o and p)
3. Protecting the water assets from cross-contamination (RCSA Sections 19-13-B102f and 19-13-38a)
4. Prepare an emergency response plan and providing a generator to sustain the water supply during emergencies (RCSA Section 19-13-B102w)
5. Retaining certified water operators to oversee the operation and maintenance of water treatment and water assets (RCSA Section 25-32-1 to 25-32-14)
6. Employing water and fiscal and asset management and planning concepts to ensure long term viability (CGS §19a-37e, and 25-32)
7. Transfer, with the concurrence of PURA, inadequately operated and managed water system to a suitable water company with proven record of superior TMF capacity to own, operate and rejuvenate the troubled system. (CGS §16-262n and 16-46)

Not only do PWS have access to CT DPH staff which provide endless assistance with respect to compliance with the regulations, PWS can avail themselves of technical assistance and technical trainings from training partners such as Connecticut Section American Water Works Association (CTAWWA), New England Water Works Association (NEWWA), Resources for Community and People (RCAP), Environmental Finance Center Network (EFCN), Atlantic States Rural Water and Wastewater Association (ASRWWA) and others. See Appendix F for more details on services offered. DPH works hard to coordinate timely and useful technical assistance and training offerings with these external stakeholders in an ongoing basis.

There are many funding programs available to PWS. The most notable is the Drinking Water State Revolving Fund (DWSRF) program, but other programs such as the Department of Agriculture Rural Development, the Community Development Block Grant, and other state grants such as STEAP and STAG grants have also been used in the state for drinking water planning and infrastructure needs previously. Further, the State provides financial capacity assistance to water systems through rate setting reviews by the Public Utilities Regulatory Authority (PURA) to regulated water companies also has advocated for the use of state bond funds on priority drinking water projects. CT DPH will continuously advocate for additional funding and work on ways to streamline funding requirements to help PWS, but that should not be used as a substitute

for the establishment of adequate PWS rates that cover the full cost of doing business including taking depreciation into account.

Factors that Impair Capacity Development

The DWS recognizes several factors that could slow down the efforts to improve the TMF capacity of public water systems. Small water system can be affected more due to the reliance for compliance on a single individual or volunteer board instead of a large water system organizational structure. Some of these factors include the following:

1) Managerial challenges: Many small water systems are associated with schools, factories, shopping plazas, manufactured mobile home parks, apartments, condominiums or smaller residential single family home developments or housing clusters where the water system was never intended to be the main focus. Most small community water systems are managed by a volunteer board, which has no experience operating or managing a water company, has trouble finding volunteers, and/or no longer believes in the members' ability to manage or own the water system given the extensive list of rules and regulations that need to be complied with and liability associated therewith. For larger PWS, over recent years, there has been an influx in retirements at the management and chief operator levels and sometimes with that, limited transitioning planning to share institutional knowledge. In short, the following is a summary of common managerial challenges:

- Lack of volunteers to fill in Board member vacancies at small CWS
- Lack of management expertise of Board members and/or owners
- Inadequate knowledge of the applicable rules & regulations or understanding of their role by Board members and/or water system owners (lead service line inventories for example)
- More focus on the primary business that the water system serves
- Inadequate transfer of institutional knowledge upon retirements/resignations of long-time water company managers leaving those left at a disadvantage
- Lack of asset management plan and up to date emergency response plan

2) Technical Challenges: The majority of the small water systems in CT including homeowner's associations were built between the 1950s – 1970's by developers using a single well on a small lot or simply a well with an access easement. Land ownership is not usually well defined or well understood. Predominantly the well sites are not protected by a sanitary easement and are surrounded by residential lots with on-site leaching systems. The wells and tanks (pressure and atmospheric) are mainly the original water assets installed by the developers or the original owner, have shown significant signs of deterioration and corrosion, and are vulnerable to contaminations due to inadequate physical and structural protection. For larger PWS the time has come when many key water system components are fully depreciated and must be replaced at

the same time or consecutively while costs of materials and labor has increased significantly. Additionally, the lack of skilled certified operators is affecting larger PWS as well. The following is a summary of common technical challenges:

- Aging and corroding water infrastructure with inflated replacement costs
- Lack of sanitary easements and or ownership control of the sanitary radius
- Poorly protected wells and tanks
- Lack of source and system redundancy
- Layout of the water infrastructure especially the water delivery system is not well understood
- Lack of water service meters and operable water shut off valves
- Lack of defined role and responsibilities of the small system operator
- Lack of operational plan
- Shortage of skilled and competent small system operators

3) Financial challenges: Many small systems do not have consistent revenues sufficient to pay the operational cost and to make the necessary improvements. Notably, the financial condition of the small water systems is poor due to inadequate rate assessments, inability to consistently collect assessments and user fees, increasing operational costs, increasing regulatory testing requirements, low cash reserves, inability to obtain financing, and the need to make substantial capital improvements. For larger PWS, increased cost of treatment chemicals and supplies and pressures to keep rates low by governing bodies can play a big role. In short, the following sums up the financial challenges:

- Inadequate revenues to pay for operational and maintenance expenses
- Inconsistent collection of unpaid assessments
- Pressure to keep user rates low
- Lack of emergency fund to pay for emergency repairs
- Lack of reserve fund to pay for water infrastructure improvements
- Failure to access or pursue grants and loans available from the USDA and the DWSRF
- Lack of an overall financial plan
- Extremely high cost to interconnect to public water (if available)

4) Small water system affordability: The affordability threshold of \$160 per month per household was calculated using EPA's rule affordability relationship is considerably higher than the current monthly water rates in CT. Based on water rates survey conducted by the Engineering firm of Tighe & Bond in 2019 for 155 public water providers in CT, the monthly water bill on average is \$50 per household with a maximum of \$78. The average rate of \$50 per month per household is, for most of the systems surveyed, considered necessary based on financial analysis conducted by

PURA in rate cases to cover current operating expenses and future upgrades. As a result, it takes a minimum of 15 households or service connections to afford maintaining and sustaining a small community water system in CT that is fully compliant with all applicable requirements under the Safe Drinking Water Act (SDWA). Based on information gathered from fiscal and asset management plans, many PWS are not charging rates up to \$160 month. As regulations change or are added, it increases the cost of compliance, making this a moving target that is likely to increase.

5) Acquisition and takeover process---- Current laws authorize the DPH and PURA to jointly (in cases administered under CGS 16-46 and 16-262n) or PURA alone (in cases administered under 16-20) to hold public hearings to review and assess the viability of a small water system and come to an agreement on the actions that need to be taken and the expenditures that may be required, including the acquisition of the water company by a suitable public or private entity, to assure the availability and potability of water and the provision of water at adequate volume and pressure to the persons served by the water company at a reasonable cost.

Most often these joint cases can be drawn out several years and in some cases PURA objects to an involuntary acquisition due to these concerns:

- The impact of the costs of acquiring and rehabilitating troubled small water systems on the revenue requirements of the acquiring company. PURA believes that small system owners and customers should no longer expect that the acquiring company will bear the cost of necessary capital improvements, particularly when a smaller system has not adequately funded necessary upgrades or charged appropriate rates.
- Imposition of a reasonable surcharge to prevent legacy ratepayers from paying for the full amount of improvements by recovering a reasonable percentage of the revenue requirement from the existing small water system members and customers.
- Lack of a negotiated settlement and appropriate surcharge agreement between the small system and the large system prior to hearing.
- Applications filed by the small water systems that are requesting to cease operations, fail to provide detailed operational, financial and source of supply information.
- Lack of a certified title search of land owned or controlled by the small system prior to hearing.

6) Receivership Laws: The responsibilities, cost and burdens imposed on the receiver under this law prohibit finding a suitable receiver to operate and manage the troubled water system and serve the best interests of its customers. Most often revenues generated from the system are

not enough to cover the operation and maintenance cost, and understandably, receivers are not willing to cover the outstanding expenses using their own coffers.

7) Staffing Shortage: Early retirement and high demand for skilled engineers, managers and scientists by the public and private employers have drained the workforce of skilled engineers, planners and analysts which has reduced staff availability to provide the comprehensive oversight and technical assistance needed to shore up the TMF capacity of water systems.

8) Certified Operator Shortage: Similarly, retirement and high demand for skilled and competent operators have left the workforce with limited capacity to meet the demand needed to sustain the high level of technical capacity required of a well maintained and operated water system.

9) Partners Competency: Many organizations are funded by the EPA and the USDA to provide technical assistance and trainings to shore up the capacity of water systems. These partners seem to be impacted by the same skilled staff shortage experienced at the state level and system operation level. Weakened partners translates to a weakened technical assistance program highly sought for by water systems especially the smaller ones.

Capacity Development Approach for PWS in Need

Identifying Resources to Assist PWS in Improving their Capacity

The Staff of the DPH Drinking Water Section will always be one of the most powerful resources that will be employed for improving PWS capacity. Recruiting, training, and retaining staff will be of utmost importance as new federal and state rules are promulgated. Currently the DPH is struggling in these areas and will continue to do so, until acceptable levels of staffing are achieved. Further, continuing education for DPH technical staff will ensure that the primacy agency workforce will be able to meet the needs of PWS as they evolve. A large part of being a regulator is providing education for PWS owners, operators, and managers during the many interactions with a water system in order to assist them in complying with the National Primary Drinking Water Regulations. In addition to the standard compliance-oriented units, the department also has developed staff resources in the areas of source water protection, emerging contaminants, planning and GIS, an interdisciplinary lead team, legionella team and climate change adaptability and resiliency, all with an eye on health equity to grow and meet the needs of public water systems today and into the future.

The way DPH conducts business has changed significantly since the time the original capacity development strategy was written and approved, more than twenty years ago. In that time, the use of technology has increased exponentially both internally (inside the DPH) and externally (within the regulated PWS community). Many of today's resources are readily available on the internet and the majority of our communication with the regulated community is electronic. DPH has expanded its website to include many technical and managerial capacity resources such as web pages for each federal rule, capacity development, sanitary surveys, DWSRF program,

technical guidance documents, operator certification information and training resources, department publications and circular letters and much more.

Below is a table of the different types of state resources available for public water systems as they work to improve their capacity. The table below lists both internal and external resources in broad terms as the individual tools change and are updated often in response to specific PWS needs.

Internal Resources	Type of Resource	Comment/Topic
DWS Staff	TM	Provide group and individual training and technical assistance to PWS and operators. Work to implement new regulations and teach PWS owners and operators on such.
DWS Website	TMF	Electronic versions of all PWS guidance, regulations, operator certification resources and more
Water Quality Monitoring & Compliance Schedules	TM	Summary of current compliance status and monitoring requirements by PWS
Sanitary Survey Program	TMF	Ensure technical compliance and routine surveys and provide feedback on technical, managerial and financial issues
Operator Certification Program	TM	Provide training and development of a competent certified operator workforce and work to strengthen regulations in this area as needed.
GIS/Database Development	TM	Tools that allow DPH staff to better assist PWS and analyze data more efficiently
Drinking Water State Revolving Fund	TMF	Low interest loan program for community and not for profit NTNC to help in meeting compliance, infrastructures upgrades, specialty programs developed for small systems, emergency generators,
Water Supply Planning Initiatives	TMF	Water Supply Plans, F&AM Plans, water conservation, source protection and incorporation of plans into Water Company Land Permits to transfer institutional knowledge.
Emergency Planning	TM	Developed emergency power requirements for CWS, worked to build partnerships within DPH regarding critical healthcare facilities and other agencies to be enacted during statewide emergencies enabling priority power restoration to critical PWS infrastructure.
Area Wide Optimization Program Participation	TMF	Resources on optimization of water systems for state staff to learn and pass onto the

		regulated community thereby increasing capacity at PWSs
Emerging Contaminants	TM	Prepare PWS to meet future challenges while ensuring simultaneous compliance with existing regulations.
Lead Team	TM	A special team within DPH dedicated to working on this unique rule and the challenges presented by revisions including lead service line inventories, monitoring of schools and childcare centers as well as the new lead trigger level.
External Resources		
Certified Water Treatment and Distribution Operators	TM	Certified operators are one of the most important resources to help a PWS maintain compliance and plan for the future
Federal Technical Assistance Contractors	TMF	Multiple contractors including Environmental Finance Center Network, RCAP and Rural Water available to help PWS of all sizes with various issues through grants from EPA.
EPA	TMF	Many useful resources including online tools and guidance documents on creating and establishing capacity for PWS
Water Utility Coordinating Committees	M	WUCCs have been established statewide and are a valuable planning tool available to all PWS as the state grows/changes to identify smart water planning concepts.
Asset Management Software for Utilities	MF	Software (at a cost to PWS) to create and track asset management across the PWS.
EPA Technical Hub		EPA supports the development of regional technical hubs to provide technical assistance to states and PWSs in need.

Partnerships to Enhance Capacity

DPH continually tries to bring PWS together with each other, their local communities, the certified operator community and technical experts. Some of the other ways DPH encourages partnerships are through a monthly webinar series, workgroup facilitation, referral and/or targeted trainings to federal technical assistance contractors and the Connecticut Water and Wastewater Agency Response Network (CtWARN). In response to the Covid-19 pandemic, DPH started a weekly webinar series to communicate broadly important time sensitive information to public water systems, certified operators and environmental laboratories. This has evolved into a monthly webinar still in place two years after the beginning of the pandemic because of the value that public water systems have stated it provides. The monthly webinar is facilitated by DPH to provide information and updates, and at the end is opened up to PWS, operators and laboratories to share information among each other, provide updates or ask questions. DPH also

facilitates several important workgroups such as the TopOps (for certified operator initiatives and feedback), WUCC Regional and Implementation workgroups, Environmental Laboratory Advisory Committee, the P3 group, and emerging contaminant workgroups like the sodium and chloride stakeholder group, PFAS Taskforce workgroup and local chief elected officials, health departments and consumers.

DPH tries to take full advantage of the federal technical assistance contractors that provide PWS and operator training, fiscal and asset management as well as PWS managerial expertise. DPH participates in annual workplan development with contractors to coordinate relevant training. Through routine interactions as well as during priority projects and response activities, PWS in need of specialized technical assistance in these areas are referred to contractors as resources are available. DPH has also participated in the steering committee for CtWARN and encourages PWS to join this voluntary group which provides mutual aid between its members during emergencies thereby improving PWS resiliency.

Operator Training and Certification

It has been repeatedly shown that a strong and trusting relationship between a PWS and a certified operator can pay positive dividends. Certifications are issued for treatment plant, distribution system, small water system operators, backflow prevention device testers, and cross connection survey inspectors based on criteria established in regulation. Certification applicants must meet a combination of education, experience, and examination requirements to become certified pursuant to requirements specified in regulations that include provisions for renewal, reciprocity and enforcement. The Operator Certification program is also responsible for providing training and guidance for certified operators related to their duties and responsibilities and exercises quality control over the certification examination. Operators are required to maintain minimum training contact hours to renew their certification. Training sessions cover subject matter including operator duties/ responsibilities, regulatory compliance, source protection, water quality, sampling, infrastructure components, customer service, safety and management. The unit also approves other operator training course providers, operator training course curriculum and coordinates internal staff training for the Section. When capacity needs are identified, DPH works to create new learning opportunities for the certified operator workforce who is a critical first barrier to protect public health.

Recommendations for Improvement

Listed below, are items for the state to consider as the capacity development program moves forward and as resources become available, or regulations are able to be amended. Based on past experience, strengthening the program in the following areas may

Create Dedicated Capacity Staff: Dedicate engineering or environmental analyst staff with focus on capacity development, support and funding. This group will use the mechanisms and tools identified above to identify and prioritize the water system needs and determine the appropriate ways to help them. Currently capacity development is integrated with everyone's daily tasks, but by establishing a dedicated unit for capacity, it may relieve some of the burden currently experienced by DWS staff and not let capacity issues fade away due to competing priorities. Any training identified by this focused group can then be delegated to organizations that are funded by the EPA to train and assist small water systems such as ASRWWA and RCAP to conduct the training and reach out to provide the technical assistance.

Capacity Assessment Tool (CAT): DPH has developed a Capacity Assessment Tool (CAT) and a Sanitary Survey Capacity Questionnaire to track capacity issues and understand system needs. This tool and the sanitary survey should be enhanced to identify systems with infrastructure deficiencies that typically are not captured in the regulations, such as corroded and rusted assets, frequent water line breaks, frequent breakdown of pumps, frequent water interruptions, water losses or unusually high pumping volume for the population served, number of lead service lines, severity of customer complaints and also factors like frequent staff and managerial turnover. DPH should consider making the annual CAT publicly available. The CAT could play an important role in educating the public, property owners, realtors, town officials, banks and mortgage companies about the value of a particular property. The disclosure of the CAT could be a motivating factor for the water system to turn the system from a liability to an asset.

Health Equity: The DWSRF program and also work conducted related to PFAS in the Emerging Contaminants Unit has already begun work to integrate the use of CDC's social vulnerability index and other tools such as EPA's Justice 40 Initiative to bring more resources to disadvantaged communities. Use of these tools should be incorporated more consistently throughout the Drinking Water Section to ensure health equity for all consumers of public water throughout the state. Health equity is the perfect compliment to capacity development, as both concepts provide methodologies, tools and mechanisms to deliver additional support to the communities most in need.

Integration of Technology: The DPH constantly receives data from PWS and many others during the course of routine business. Working to create a more user friendly, accessible, and automated data portal system for routine work items like monthly water treatment effluent logs, source capacity reporting, lead service line inventories and other priority information will enable DWS staff to spend their time on analysis and follow-up instead of manual entry and compilation.

Capitalization of State and Health Partners: Many other partners exist in the regulatory and health arena. Local health departments (LHDs) perform health inspections of food service establishments (FSEs), which includes an assessment of the water supply adequacy and safety, DPH facility licensing (FLIS) staff perform safety inspection of health care facilities, which includes an assessment of the facility's water management plan, and in CT, the Office of Early Childhood (OEC) staff perform safety inspections of licensed childcare facilities and youth camps, which

includes an evaluation of the safety and adequacy of water supply. The EHDW Branch should coordinate the sanitary survey of FSEs (883 systems) with LHDs, the sanitary survey of health care facilities (57) with FLIS, and the sanitary survey of childcare centers and youth camps with OEC. This coordination would give staff of LHDs, FLIS and OEC a better understanding of the water supplies serving the facilities they regulate and foster an aligned front from all the regulators/inspectors to achieve a quick resolution to any non-compliance issues or deficiencies noted during the coordinated survey.

Certificate of Public Convenience and Necessity (CPCN): A goal for the future years will be to modify the CPCN process to provide clearer guidance upfront with evaluating all options first, and then further elaborate on/incorporate sampling plans, contracting certified laboratories, and other elements required for a successful water quality monitoring program as the majority of the new PWS ETT points stem from monitoring & reporting violations. This effort will better enable new PWS to start off on the right foot.

Interconnection & Consolidation: Interconnecting small water systems increases source redundancy and consolidations have the potential to reduce operational costs, increase redundancy and resiliency, and reduce risk through elimination of separate small systems. Many towns have clusters of small systems that could be consolidated. Examples include Brookfield, Danbury, Durham, East Hampton, Mansfield, Marlborough, Montville, New Milford, and Ridgefield. Typical barriers to interconnecting or consolidating small systems include lack of funding and/or desire to make the investment, lack of interest from the small system, potential changes in water quality, potential changes in pressure and limited mechanisms to provide communication, education, and guidance to these systems. The Department in collaboration with the WUCC should initiate a plan to identify these clusters, determine the most logical large public water system to serve or the ESA holder, seek routes and estimates to interconnect and consolidate the systems, educate the small systems about the benefit of consolidation, and work with partners and legislators to secure private/public funding to support the consolidation.

Additionally, there are cases when contaminated private wells look to interconnect to local public drinking water systems to share water of a higher quality. Staff could focus on providing technical assistance to public water systems and communities with private well contamination, which would include working directly on statewide planning issues regarding interconnections of contaminated private wells to local public drinking water systems. This would also include interpreting water quality test results, utilizing GIS to develop maps showing location of private wells with respect to available public water supplies, conducting supply and demand calculations to determine ability of the community public water system to supply new customers, assisting with statewide issues regarding interconnections of contaminated private wells to local public drinking water systems, and assisting in the coordination of water utility and regional water supply planning efforts as they relate to private wells connecting to public water supplies.

Revenues & Delinquent Accounts: Public water systems can't afford unpaid assessments by homeowners or tenants. Mechanisms to collect payment from all the beneficiaries of the water

system need to be instituted by PWSs. To support the efforts of reducing unpaid assessments, the Department of Social Services (DSS) has been awarded funds from the federal Department of Health and Human Services to administer the first Low-Income Household Water Assistance Program. This new federal program will provide funds to assist low-income households with water and wastewater bills. DWS should continue to advocate for this program to be in place.

Funding: Access to adequate and dedicated funding will be key for many of the consolidation and individual water system infrastructure projects. While municipal water systems have access to funding through municipal bonding, the availability of such bonding may be limited by other legitimately competing infrastructure and municipal service needs. The majority of public water systems rely on rates, assessments, fees, business expense, grants, and/or loans to finance operations. Although DPH provides low-interest loans for water system improvements through the Drinking Water State Revolving Fund, there is a need to supplement this source of funding for:

- small system interconnection and consolidation
- small system acquisition by a suitable large water system
- Regional management assistance and oversight to small water systems that lack managerial capacity
- Receiver oversight cost of the operation and management of small systems received per CGS Sec.
- Technical assistance to small water systems by a qualified provider

Licenses & Certifications: The Department should submit the proposed amendments to the operator certification regulations for Legislative Regulatory Review Committee approval. This amended regulation will clearly set the responsibilities of small system operators and strengthen the disciplinary action that the department can take against an incompetent operator. The Department should consider the development of “small water system manager” license to ensure that small water systems are managed by individuals who have the necessary skill, knowledge, and experience, and not influenced by turnover, retirement, new ownership, etc.

Regulations: Amend the CT PWS definition in the RCSA Section 19-13-B102 to align it with the federal rule and ensure that population served is based on regular and year-round use, following EPA WSG 61A.

How will State Evaluate and Verify Program in Future

The preparation of the Annual Capacity Development Report for EPA and triennial Governor’s Capacity Development Report will serve as the formal and comprehensive review on the implementation of the new and existing systems Strategy during each state fiscal year. Capacity

development implementation is ongoing and much of the work within the listed control points is incorporated into the daily routine work tasks within the DWS including weekly Compliance Section meetings, quarterly and annual meetings with TA providers, utility feedback gathered from regular WUCC meetings and sanitary surveys, capacity assessment tool results, and development and evaluation of PWS and Certified Operator training materials and classes. All functional units within the drinking water section work together to prepare and review the annual and triennial capacity reports before they are submitted to EPA.

New Systems: As part of the Annual Capacity Development Report, the Department will conduct an analysis of the capacity status for new systems during the first three years as a regulated entity. The capacity status will be evaluated for new systems created through the CPCN process and compared to new systems activated for other reasons (discovered system or new owners/reactivation). The goal will always be to reduce the number of violations/issues encountered during the first few years of activation of a new public water system. Annual evaluation of this metric will guide the department as to what resources, training, and or protocol/regulation changes may be required.

Existing Systems: As part of the Annual Capacity Development Report, the Department will compile an annual list of accomplishments of work completed to develop capacity during the previous year. Additional details and analysis will be provided in high priority capacity areas such as fiscal and asset management, DWSRF program, emerging contaminants, PWS partnerships, operator certification and WUCC implementation. If/when weaknesses are identified, the department will work to address any weakness and to increase opportunities for capacity building in those areas. Keeping the PWS capacity data included in the Capacity Assessment Tool updated will also enable the department to measure progress. The department will continue and expand the use of all current authorities and resources to carry out an effective Strategy.

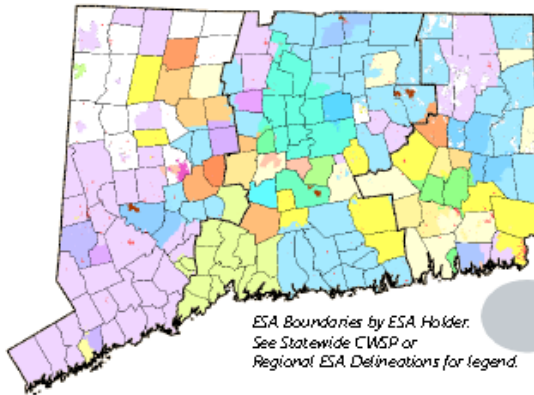
Stakeholder Identification and Involvement

DPH worked first to create a draft of the revised capacity development strategy and then developed a presentation based on the revised strategy to be used for stakeholder engagement meetings. DPH utilized groups and tools already in place to conduct much of the stakeholder feedback. Presentations were made by the Capacity Development Coordinator at WUCC Meeting, the Top Operators Workgroup, a special DPH webinar for all PWS and partner agencies, and a review of the draft strategy by the federal contractor EFCN. All the comments and feedback provided during these various meetings were incorporated into the final Strategy. Meeting Minutes from the various presentation made are available in Appendix G.

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APPENDIX A
WUCC SUMMARY AND MAP

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ESA boundaries delineate existing and potential future service areas of public water systems, identify responsible parties to own and operate "community" (residential) public water systems developed through the Certificate of Public Convenience and Necessity process (CGS § 16-262m), and resolve competing future service area claims by public water systems resulting from the assignment of overlapping franchise areas over time by the state legislature. When municipal land use and development goals result in the need for the creation of a new public water system, the designated ESA provider will be part of that process.

The CWSPs identify potential regional projects to encourage system resiliency and redundancy, provide a desktop review of potential environmental impacts of new supply sources identified in water supply plans that may meet regional needs, and quantifies how water conservation may reduce projected water demands. The CWSPs identify regional needs as opposed to site-specific capital improvement projects, leaving such decisions to the individual utilities to evaluate with assistance from the respective WUCC. Several potential projects are identified in order to facilitate further discussion and possible funding.

Each CWSP contains more than 60 recommendations for the WUCC to pursue in order to improve public water supply conditions through the year 2030. These recommendations fall into the topic areas of responsible planning, drought management, source protection, water conservation, resiliency, and funding. Some recommendations will require action by DPH or other state agencies, while others will rely on action by COGs or by individual public water systems. These recommendations provide the basis for discussion and action by each WUCC and its members over the next 10 years.

WHAT IS THE OUTCOME OF THE WUCC PROCESS? The DPH has interpreted the primary messages of the each CWSP into the following top needs for public water systems in the state, which are intended to serve as guiding principles for future regulations, water planning, capital improvement projects, and funding goals. They are:

1. **Regionalization and Interconnections**
Ensure redundant and environmentally responsible supplies.
2. **Water Conservation and Water Efficiency**
Reduce future demands and unnecessary water use.
3. **Reduce Clustering of Small Water Systems**
Encourage consolidations and ensure responsible planning to mitigate proliferation of adjacent small systems.
4. **Assistance to Small Public Water Systems**
Ensure proper technical, managerial, and financial capacity of small public water systems.
5. **Investment in Infrastructure**
Replace aging infrastructure, including mains a century old.
6. **Funding**
Provide grants and loans for planning, projects, and small systems in line with the above needs.
7. **Drought Management and Resilience**
Increase awareness of drought impacts and standardize responses to the extent practicable.
8. **Resiliency to Storms and Climate Change**
Reduce recovery time and adapt to future conditions.
9. **Protection of Watersheds and Supplies**
Continue to ensure adequate water supplies with high water quality.
10. **Improvements to Water Demand and Water Quality Planning**
Avoid the development of unnecessary new sources and ensure proper consideration of regulated and unregulated contaminants.

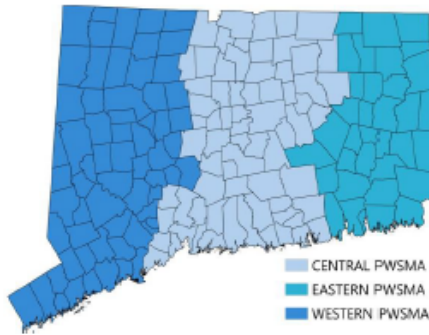
WHAT ARE THE NEXT STEPS? Each WUCC will work to implement the recommendations of their CWSP, including ensuring that water demand and projection data in the CWSPs are updated sooner than is required to facilitate regional planning, and working with DPH to provide assistance to small water systems. DPH plans to hold workshops in 2019 to educate public water systems on the outcome of the planning process and to work towards implementation of regional and statewide public water supply projects.

WHAT IF I WANT MORE INFORMATION? Visit the WUCC webpages located on the DPH website at <https://portal.ct.gov/DPH/Drinking-Water/WUCC/Water-Utility-Coordinating-Committee/>



Connecticut's Water Utility Coordinating Committee (WUCC) Process A Coordinated Planning Approach for the State's Public Drinking Water Supply

WHAT ARE THE WUCCs? The Western, Central, and Eastern WUCCs are comprised of one representative from each public water system and one representative from each regional council of government (COG) within three Public Water Supply Management Areas (PWSMAs) established by the Department of Public Health (DPH) pursuant to CGS § 25-33f.



WHY DO THE WUCCs EXIST? Connecticut's regional public water supply planning process was prompted by the State's extended drought in the early 1980s. Public Act 85-535, "An Act Concerning a Connecticut Plan for Public Water Supply Coordination," directed the DPH to administer a procedure to coordinate the planning of public water supply systems in an effort to maximize their efficient and effective development and to promote public health, safety, and welfare. The legislative finding associated with this Public Act was codified in CGS § 25-33c.

WHAT ARE THE WUCCs DOING? In June 2016, the DPH convened the Water Utility Coordinating Committee (WUCC) for each PWSMA and directed each WUCC to implement the 2-year planning process established by CGS §§ 25-33g and 25-33h.

The Regulations of Connecticut State Agencies (RCSA) § 25-33h-1(d) requires each WUCC to prepare a CWSP consisting of the following elements in addition to the utilities' individual *Water Supply Plans* prepared for systems within the PWSMA:

- Completion of a *Water Supply Assessment* of regional water supply conditions and problems;
- Establishment of exclusive service area (ESA) boundaries delineating each public water system's potential service area;

- Completion of an *Integrated Report* providing an overview of public water systems and addressing area-wide water supply issues, concerns, and needs to promote cooperation among public water systems; and
- Completion of an *Executive Summary* to serve as an abbreviated overview of the CWSP.

The WUCCs were required by RCSA § 25-33h-1(f) to submit each of the four components of its CWSP to the DPH within specified timeframes spanning a two-year planning process. Each WUCC held monthly meetings that were open to the public to facilitate this work. Efforts were made throughout this process to be inclusive of diverse viewpoints from water utilities, state and local government, stakeholders, and the public.

Each WUCC prepared its CWSP and submitted the plan to DPH in May (Western and Eastern regions) and June (Central region) of 2018. The CWSPs are required to be updated as necessary or at least every 10 years.



Eastern WUCC Meeting, June 2018

WHAT IS THE IMPACT OF THE WUCC PROCESS? Each of the three regional CWSPs evaluates current water supply conditions and problems in the PWSMA, establishes ESA boundaries assigning responsibility for providing future public water supply to areas where it may be needed, and presents current and projected water demands for public water systems.

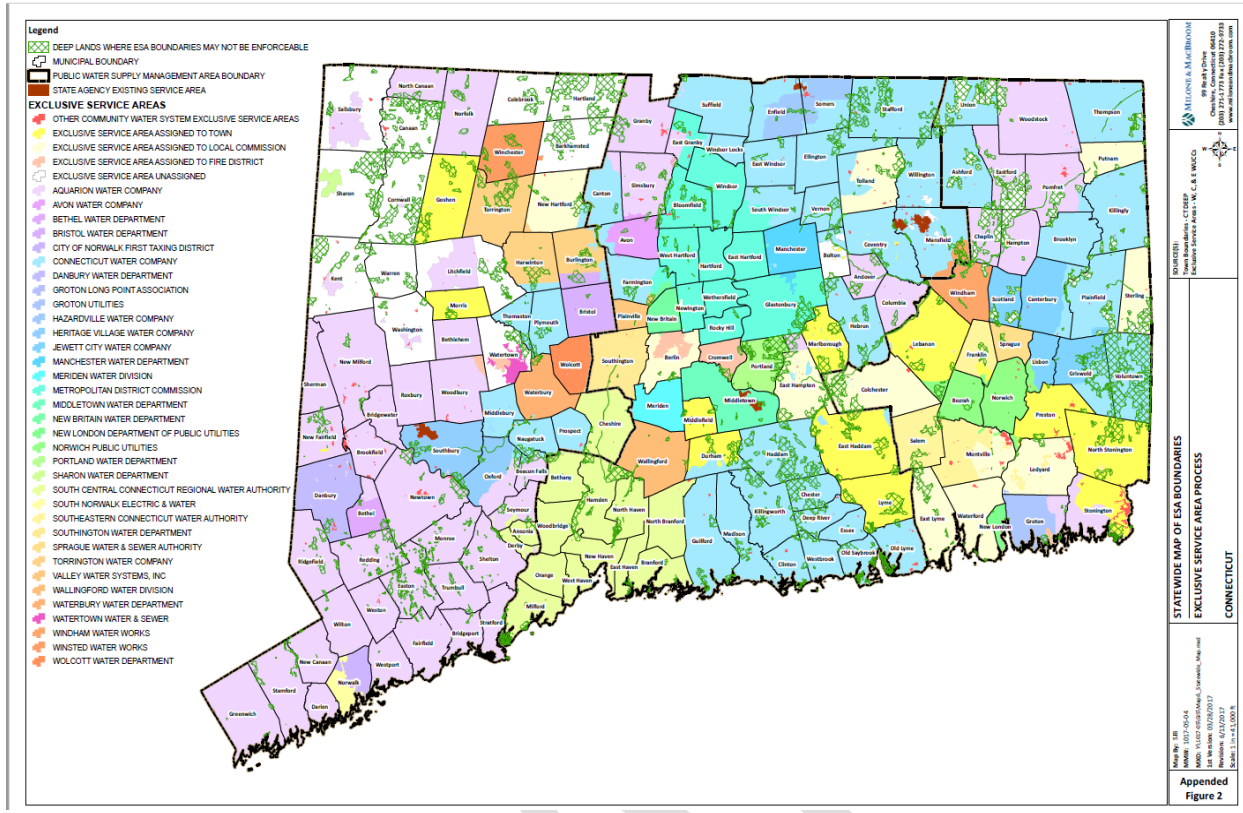
WHAT IS THE VISION FOR THIS PLANNING PROCESS? As envisioned in Connecticut General Statute (CGS) § 25-33c, "an adequate supply of potable water for domestic, commercial and industrial use is vital to the health and well-being of the people of the state. Readily available water for use in public water systems is limited and should be developed with a minimum of loss and waste." This vision statement guided the Coordinated Water System Plan (CWSP) process and requires sustained vigilance by state agencies and public water systems to ensure adequate water quality and quantity is maintained. The CWSP prepared by each WUCC evaluates current public water supply conditions and future needs at a regional scale and provides guidance towards improving regional coordination and the technical, managerial, and financial capacity of public water supply systems.

November 19, 2018

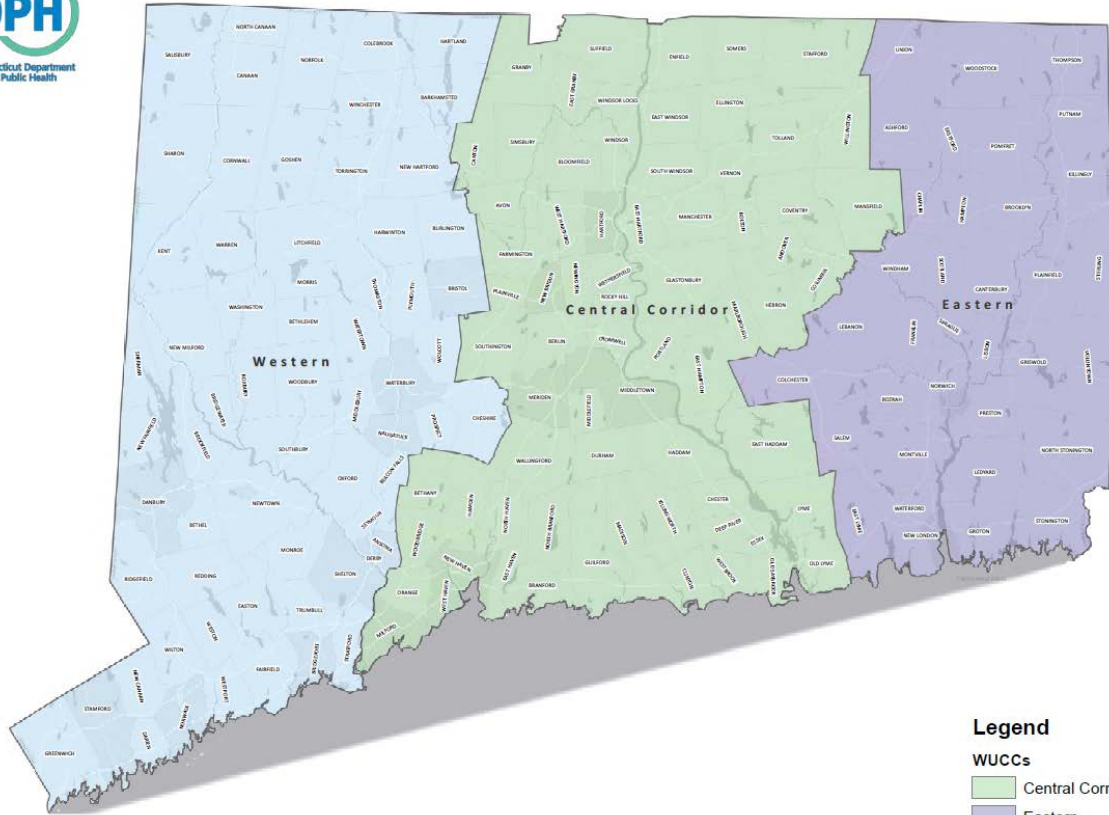


MILONE & MACBROOM





WUCC Boundaries



Legend

WUCCs

 Central Corridor

 Eastern

 Western

APPENDIX B
STATUTES AND REGULATIONS

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Source Water Protection:

CGS Sec. 22a-417. (Formerly Sec. 25-26a). Discharge of sewage into tributaries of water supply impoundments. (a) No person or municipality shall discharge any sewage into any waters of the state which are tributary to an existing water supply impoundment or any proposed water supply impoundment identified in the long-range plan for management of water resources prepared and adopted pursuant to section 22a-352. This law ensures that our drinking water sources remain pristine and will not be vulnerable to sewage or wastewater discharges. This law is unique to CT with possible similar restrictions in RI, NY and the remaining states do not have this statutory barrier.

RCSA Sec. 19-13-B32. Sanitation of watersheds. This regulation prohibits sewage disposal or manure storage on a drinking water supply watershed.

RCSA Sec. 19-13-B102(b) Watershed survey. A public water system (PWS) using surface water as an active source of supply shall make a sanitary survey of the watershed to the intake at least annually. A report on the survey shall be submitted to the CT DPH by March 1 each year covering the preceding calendar year. This annual comprehensive survey by the PWS will ensure that the sanitation laws and requirements on the watershed are met. Many states do not have this regulatory barrier.

Conn. Gen. Stat. § 25-32(b): *Conn. Gen. Stat. § 25-32(b)* requires a water company to obtain a permit before it sells, leases, assigns or otherwise disposes of or changes the use of water company land.

Conn. Gen. Stat. § 25-32d(a): *Conn. Gen. Stat. § 25-32d(a)* requires a water company that supplies water to one thousand or more persons or two hundred fifty or more consumers, as well as any other water company requested by the Commissioner of Public Health, to submit a water supply plan to the Commissioner of Public Health for review and approval. There are about 80 companies subject to the requirements of the statute. Water companies are also required under *Conn. Gen. Stat. § 25-32d(a)* to submit updates to such water supply plans not less than six years or more than nine years after the date of the most recently approved plan.

Conn. Gen. Stat. § 25-33(b): *Conn. Gen. Stat. § 25-33(b)* requires the Department to review and approve plans for a new additional source of water supply and for the construction or expansion of a system of water supply owned or used by a water company.

Conn. Gen. Stat. § 25-33k(b): *Conn. Gen. Stat. § 25-33k (b)* states: “No source of water supply shall be abandoned by a water company or other entity without a permit from the Commissioner of Public Health.” This provision requires the applicant to notify the chief elected official of any municipality and any local health department or district in which such source of supply is located and the Commissioner to take into account any

comments received. The Department has received approximately 29 source abandonment permit applications since 2009 and has issued permits for 23 applications.

Conn. Gen. Stat. § 25-43c(b): *Conn. Gen. Stat. § 25-43c(b)* authorizes the Commissioner of Public Health, upon application by a water company, to issue to the water company a permit authorizing recreational activities on the water company's storage and distribution reservoirs or aquifer protection areas.

Conn. Gen. Stat. § 22a-358: *Conn. Gen. Stat. § 22a-358* requires the Commissioner of Public Health's approval when a public water system with water reserves in excess of the amount it requires wants to sell such excess water to another public water system. The Commissioner of Public Health may issue such approval only after an extensive investigation as to whether the applicant has clearly established that such abundant supplies are in existence and will continue to be in existence for ten years, and the purchasing community public water system being supplied such excess water has agreed to restrict water usage in the same manner as the applicant when necessary in accordance with the emergency contingency provisions of the applicant's water supply plan. The Commissioner may issue such *Conn. Gen. Stat. § 22a-358* approvals for a period of up to ten years, after which the approvals may be renewed. Since 2012, the Commissioner has issued 25 approvals under *Conn. Gen. Stat. § 22a-358*.

Conn. Gen. Stat. § 25-33(b): *Conn. Gen. Stat. § 25-33(b)* requires the Department to review and approve plans for a new additional source of water supply and for the construction or expansion of a system of water supply owned or used by a water company.

Conn. Gen. Stat. §§ 22a-477 through 22a-482, inclusive: *Conn. Gen. Stat. §§ 22a-477 through 22a-482, inclusive*, is Connecticut's DWSRF statutes that the Department administers. Under the DWSRF program, the Department provides funding assistance to eligible public water systems for the planning, design, and construction of water infrastructure improvement projects. The Department reviews projects, including engineering plans, determines based on such review which projects are eligible to receive money from the DWSRF, and enters into funding agreements and reimburses the public water systems for such projects.

P.A. 19-194 amended Sec. 22a-483f. Public water system improvement program. to authorize the State Bond Commission for the issuance of bonds of the state in one or more series and in principal amounts not exceeding in the aggregate twenty million dollars. The proceeds of the sale of said bonds, to the extent of the aggregate amount of 20 million dollars shall be used by the Department of Public Health for the purpose of providing grants-in-aid, which may be provided in the form of principal forgiveness, to eligible public water systems for eligible drinking water projects for which a project funding agreement is made on or after July 1, 2014, between the Commissioner of Public Health and the eligible public water system pursuant to sections 22a-475 to 22a-483, inclusive, under the public water system improvement program established in this section. An

eligible public water system that serves ten thousand or fewer persons may receive financial assistance pursuant to this section for up to fifty per cent of eligible project costs.

As noted above, public water systems, small or large, are required to provide safe and adequate drinking water meeting all the requirements promulgated under the National Primary Drinking Water Regulations ("NPDWRs). These regulations are: the Arsenic Rule, Consumer Confidence Report Rule, the Filter Backwash Recycling Rule, the Ground Water Rule, the Interim Enhanced Surface Water Rule, the Lead and Copper Rule and Lead and Copper Rule Revisions, Long Term 1 Enhanced surface Water Treatment Rule, Long Term 2 Enhanced Surface Water Treatment Rule, the Public Notification Rule, the Total Coliform Rule and Revised Total Coliform Rule, the Stage 2 Disinfectants and Disinfection Byproducts Rule, the Standardized Monitoring Framework, promulgated in the Phase II Rule, the Surface Water Treatment Rule, and the Radionuclide Rule, the Small Systems Record Keeping Rules, and the Variances and Exemptions Rule. All of these rules are implemented and enforced in CT predominantly under the RCSA Sec. 19-13-B102.

APPENDIX C
CAPACITY ASSESSMENT TOOL (CAT)

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APPENDIX D
DWSRF TMF CAPACITY REVIEW CHECKLIST

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State of Connecticut, Department of Public Health
Drinking Water Section, Drinking Water State Revolving Fund (DWSRF)
Technical Managerial Financial Capacity Review Checklist

Clear Form (temporary)

Applicant PWS Name: _____ **PWSID:** _____
Project Name: _____
DWSRF Project Number: _____ **Pop Served by PWS:** _____

DWSRF funding assistance requires the applicant to have adequate technical, managerial, and financial capacity in order to be eligible to receive funding. The Office of the State Treasurer (OTT) reviews the financial capacity of each borrower (item #12). This form documents the Technical and Managerial Capacity review by the Drinking Water Section.

The technical, managerial, and financial capacity review is considered complete when all applicable items have been reviewed. Add comments as necessary.

-
1. Current Overall Capacity Assessment Tool (CAT) Score: Date run:
Managerial Score Technical Score Financial Score
2. Is this PWS under any formal enforcement action by DPH? ☐ Yes ☐ No
3. Is this PWS listed on the current Enforcement Targeting Tool (ETT) list? ☐ Yes ☐ No
If yes, how many points: Date of List:
4. Is PWS in compliance with Certified Operator requirements? ☐ Yes ☐ No
5. Does this PWS have any unresolved deficiencies from the most recent sanitary survey inspection?
If yes, is the PWS actively working towards resolving the deficiencies?
(i.e. has TRFA accepted their proposed resolution?) ☐ Yes ☐ No ☐ Yes ☐ No
6. Has this PWS completed its Sanitary Survey Capacity Questionnaire? ☐ Yes ☐ No
If submitted with DWSRF FAA-Part I, give to Cap. Dev. Unit for CAD input
7. Does this PWS have a current Water Supply Plan (WSP)? ☐ Yes ☐ No ☐ N/A
If so, is the project(s) submitted for DWSRF supported by the WSP? ☐ Yes ☐ No
If so, and the WSP is >5 years old, is project(s) on current Capital Improvement Plan? ☐ Yes ☐ No
8. Does this PWS have an Asset Management plan? ☐ Yes ☐ No
9. Does this PWS have a Fiscal Management plan? ☐ Yes ☐ No
10. If a Small PWS serving <1,000, do they have a Fiscal and Asset Management Plan? ☐ Yes ☐ No ☐ N/A
Has this plan(s) been reviewed? ☐ Yes ☐ No
Which, if any, have been found acceptable? ☐ AM ☐ FM
(If the AM plan is acceptable for small PWS, this PWS is eligible for federal subsidy)
11. Has DWSRF staff met with TRFA/survey staff to discuss overall system? ☐ Yes ☐ No
Are there any Technical or Managerial Capacity issues? ☐ Yes ☐ No
Are there any water system issues? ☐ Yes ☐ No
Are there other needs which should/must be prioritized over the proposed DWSRF project(s)? ☐ Yes ☐ No
12. Has OTT conducted the financial viability review of the applicant? ☐ Yes ☐ No
If yes, was it found to be acceptable? ☐ Yes ☐ No

State of Connecticut, Department of Public Health
Drinking Water Section, Drinking Water State Revolving Fund (DWSRF)
Technical Managerial Financial Capacity Review Checklist

Does this PWS need assistance with Technical capacity? ☐ Yes ☐ No
Does this PWS need assistance with Managerial capacity? ☐ Yes ☐ No
Does this PWS need assistance with Financial capacity? ☐ Yes ☐ No

Assistance provided/Actions taken:

--

Summary of Capacity Review

Item	Reviewed Y/N or N/A	Technical Managerial & Financial Capacity Items	Acceptable Y/N or N/A
1		Compliance Assessment Tool Scorecard	
2		DPH Formal enforcement action	
3		ETT list (Enforcement Targeting Tool)	
4		Certified Operator Requirements	
5		Deficiencies from most recent sanitary survey	
6		Sanitary Survey Capacity Questionnaire	
7		Water Supply Plan / Capital Improvement Plan (if applicable)	
8		Asset Management Plan (if PWS has one)	
9		Fiscal Management Plan (if PWS has one)	
10		Fiscal and Asset Management Plan (small <1,000 pop only)	
11		Met with TRFA/Survey Staff	
12		OTT Financial Viability Review	

Does this PWS have sufficient Technical Capacity for a DWSRF loan? ☐ Yes ☐ No
Does this PWS have sufficient Managerial Capacity for a DWSRF loan? ☐ Yes ☐ No
Does this PWS have sufficient Financial Capacity for a DWSRF loan? ☐ Yes ☐ No

All applicable items MUST be determined to be Acceptable for applicant to be eligible for DWSRF funding.

Attached: Capacity Assessment Tool CAD report

Comments:

--

(Signature of DWS Staff) (print name) (Date)

Date Technical, Managerial & Financial Capacity Review Completed:

APPENDIX E

CT DPH FISCAL & ASSET MANAGEMENT PLAN TEMPLATE

DRAFT

Connecticut Department of Public Health Drinking Water Section

Fiscal and Asset Management Plan for Community Public Water Systems (PWS) Serving less than 1,000 Residents

This plan was created as a tool for use by Small Community PWS to assist PWS in meeting the new statutory requirement of Connecticut General Statutes (CGS) §19a-37e; and help provide safe and adequate drinking water to its customers now and into the future. Small community water systems serving less than 1,000 people are often run by volunteer home or condominium association boards, property management companies or by a sole owner of a complex. These groups may not have a background in the water industry and/or be familiar with all regulations pertaining to the ownership and operation of Community PWS. Owning and maintaining a PWS is a large responsibility and all customers of Community PWS deserve access to safe and adequate water regardless of the type of PWS ownership.

Fiscal and Asset Management is a **fundamental component of PWS ownership and a comprehensive Fiscal and Asset Management Plan (F&AM) is essential for the long-term success of any PWS**. Hopefully, PWS will find this template useful as a tool to assist PWS in organizing and assessing their water system finances and assets. It is anticipated that Small Community PWS can populate this template themselves based on their records and in working with their certified operator. The physical condition of the water system and financial decisions the system makes can have a direct impact on your customers' health as well as impact other factors such as property values. In addition to providing safe and reliable water, PWS that maintain a comprehensive F&AM Plan can boost PWS efficiency, save PWS staff time, improve customer service, tackle increasing costs of infrastructure and support budget discussions with facts to make informed decisions. Fiscal and Asset Management Plans will be required for all small Community PWS by **January 1, 2021**. While this template was designed for small Community PWS, this template may also be used by larger Community PWS and/or Non-Community PWS at their discretion. Further, if PWS wish to expand upon this template, there are many asset [management](#) services available to continue their asset management journey.

Date Plan Created	
Signature of PWS Owner/Legal Contact	
Printed Name PWS Owner/Legal Contact	

SECTION 1: PWS GENERAL INFORMATION

Public Water System Name: _____ **PWSID:** _____ **Town Served:** _____

Type of Ownership: (check appropriate box)

☐ Private Owner
☐ Homeowners Association / Condominium Association
☐ Other (specify): _____

☐ Municipality / Water Authority
☐ Incorporated, Investor-Owned

Public Water System Description

Source Type: (Check all that apply)

☐ Ground Water
 ☐ Surface Water
 ☐ Surface Water (Purchased)
 ☐ Ground Water (Purchased)

Number of Service Connections:		Total Population Served:	
Number of Metered Service Connections:		Interconnections (list, if applicable):	
Number of Lead Service Lines:			

Contact Information

Contact Type	Name	Phone	Email	Current Address
Owner				
Manager				
Financial Contact				
Chief Certified Operator				
Sampler				
Head Maintenance Personnel				

Fiscal and Asset Management Team

Name	Responsibility

Water System Schematic & Distribution System Map

Use this space to draw a detailed schematic of the water system including as many of the system assets as possible; an existing copy may be attached in lieu of a drawing. Additionally, an up-to-date distribution system map should be attached to the plan to show all distribution system assets.

SECTION 2. ASSET MANAGEMENT INFORMATION

Asset Inventory Worksheet

Asset Component	Asset ID	Size, Length, Diameter and / or Capacity, and Location (Where necessary, list each individual component separately)	Year Constructed or Installed	Estimated Life Expectancy (Yrs)	Condition (1-5) ¹	Estimated Remaining / Adjusted Service Life ² (Yrs)	Probability of Failure (1-5) ³	System Impact (1-5) ⁴	Risk Score (1-25) ⁵
Well									
Well Pump									
Source Meter									
Well/Pump House									
Atmospheric Tank									
Booster Pumps									
Bladder Tank									
Hydropneumatic Tank ⁶									
Distribution Pipe and all in-line valves and boxes									
Treatment System									

Asset Component	Asset ID	Size, Length, Diameter and / or Capacity, and Location (Where necessary, list each individual component separately)	Year Constructed or Installed	Estimated Life Expectancy (Yrs)	Condition (1-5) ¹	Estimated Remaining / Adjusted Service Life ² (Yrs)	Probability of Failure (1-5) ³	System Impact (1-5) ⁴	Risk Score (1-25) ⁵
Hydrants and Blow-offs									
Back-up Generator									
Customer Meters									
Electrical Service									
Telemetry/SCADA or other Remote Monitoring System									
Other									

1	Score	Condition	Description	3	Score	Probability of Failure	4	Score	System Impact	Description
	1	Excellent	New or relatively new condition. Asset has required little to no preventative or corrective maintenance.		1	Highly Unlikely		1	Insignificant	Can continue normal operations of the water system without this asset.
	2	Good	Acceptable condition. It still functions and requires minor preventative or corrective maintenance.		2	Unlikely		2	Minor	Redundant systems in place; loss of the asset has a minor impact on the ability of the system to operate.
	3	Fair	Deterioration of the asset can be seen. It needs preventative or corrective maintenance frequently to be able to function.		3	Likely		3	Moderate	Some redundancy in place; loss of the asset has a moderate impact on the ability of the system to operate.
	4	Poor	Failure of the asset is likely and will need to be replaced in the next few years.		4	Very Likely		4	Major	Greatly reduced capacity (major impact) to operate water system without this asset.
	5	Very Poor	Failure has occurred or is going to occur. Major maintenance is required, or replacement needs to occur.		5	Imminent		5	Catastrophic	Cannot operate water system without this asset.

² **Remaining / Adjusted Service Life:** Remaining or adjusted service life will be the difference between the current year and the year an asset was installed /constructed. This value may change depending on specific asset maintenance practices and current asset condition rating.

³ **Risk Score** is a number which is the result of Probability of Failure Score multiplied by System Impact Score.

⁶ Attach the Hydropneumatic Tank Fiscal and Asset Assessment Form that was completed for each active hydropneumatic tank, if applicable.

Water System Operation and Maintenance (O&M) Plan

A Water System Operation and Maintenance Plan is a written procedure explaining how a public water system is to be operated on a day-to-day basis to ensure public health, safety and compliance with applicable regulations. It also describes maintenance practices and frequency to assure that the physical components of the water system are maintained in such a way to maximize the useful life of the assets.

Copies of these procedures should be kept with this Fiscal and Asset Management form for reference purposes. If your utility already has a written water system operation and maintenance plan that is routinely updated, please attach the latest version of this plan to this document. If not, please outline the current operation and maintenance practices for each category in the spaces provided below:

Day-to-Day Operations		
Task	Frequency	Description
Record instantaneous and totalizing meter readings for all sources of supply		
Check and record water levels in storage tanks		
Inspect pumps, motors and controls		
Check chemical solution tanks and record amounts used; replenish tanks		
Conduct field operating tests for treatment parameters (pH, Cl ₂ and PO ₄ residual)		
Check instrumentation for proper signal input/output		
Complete security check of pumphouse		
Inspect heater/dehumidifier operation		
Read customer meters		

Routine Maintenance		
Task	Frequency	Description
Exercise Valves		
Implement flushing program		
Insect tank hatches, vents, pipes		
Inspect and lubricate pumps		
Calibrate chemical feed pumps and/or treatment instrumentation		
Inspect and conduct repairs to water system facilities – wellheads, pump house, etc., as needed		
Inspect and clean chemical feed lines and solution tanks		

Water Quality Monitoring	
Sampling Schedule	Attach copy of DWS Water Quality Monitoring & Compliance Schedule
Sample Locations	Attach copy of DWS- Approved Sampling Site Plan with sampling point map
Certified Laboratory:	
Name and Contact Information	
WQ Sampler:	
Name and Contact Information	

Capital Improvements

Input the assets with the top ten highest Risk Scores from the Asset Inventory Worksheet on pages 5 and 6, starting with the highest score first. Fill out the columns in the table in accordance with the instructions in order to develop a Capital Improvement Project List and Budget.

Risk Score	Asset ID	Asset	Description of Action Required to Improve Asset	Years Until Action Required	Approx. Total Cost of Required Action: Replacement, Rehabilitation, Repair	Reserves Required Each Year (Total Cost ÷ # of Years)
Totals:						

Capital Improvement Funding:

For the actions you've listed on the table above, where is the funding for these projects included in your budget? Is the money included in the capital reserve? Is it included in your Operation & Maintenance budget? Please explain.

Explain how the system is or will be developing/managing a reserve fund for water system capital improvements. Be sure to include how the reserve fund will be generated and used and how often funds are/will be added to the account.

SECTION 3. FISCAL MANAGEMENT INFORMATION

Fiscal Information – Answer the questions and complete the tables below. If a line item is not applicable you can leave it blank.

Water Rates: (complete all rows that apply)

Flat Fee	Y / N	Current Rate		Frequency of Billing:	Monthly		Quarterly		Other (Specify):	
Metered Usage	Y / N	Current Rate	_____ Base Rate _____ Volume Charge	Frequency of Billing:	Monthly		Quarterly		Other (Specify):	
Other	Y / N	Current Rate		Frequency of Billing:	Monthly		Quarterly		Other (Specify):	

Average Residential Annual Water Bill _____ Average Commercial Annual Water Bill _____ Are water rates combined with any other rates/fees? (If yes, list) _____

When was the last time the water rates were reviewed? _____

When was the last time the water rates were changed? If so, how were they changed? _____

Types of Accounts Maintained by the Water System (check all that apply):

Operating Account _____ Reserve Account _____ Emergency Account _____ Other (list) _____

PWS Revenue (complete or attach PWS budget)		Actual Last Year	Budget Current Year	Projected Next Year	Comments
Total Water Usage Revenue:					
Other Fees and Service Charges (late fees, new connection fee, etc.):					
Special Assessments:					
Secured Funding (e.g. loan):					
Interest:					
Amount transferred from Reserve Fund:					
Amount transferred from Emergency Fund:					
Other:					
TOTAL REVENUE:		\$	\$	\$	

PWS Operating Expenses		Actual Last Year	Budget Current Year	Projected Next Year	Comments
Expenses					
Maintenance:					
Certified Operator:					
Utilities (power, telephone, internet, etc.):					
Salaries and Benefits:					
Equipment Cost:					
Water Quality Sampling & Testing:					
Water Treatment (Chemicals, etc.):					
Capital Improvement Project:					
Rent or Mortgage:					
Insurance:					
Professional Services (property management, legal, accounting, engineering, etc.):					
Training Costs:					
Billing costs:					
Fees (state PWS fee, etc.):					
Security:					
Debt payments:					
Taxes:					
Amount transferred to Reserve Fund:					
Amount transferred to Emergency Fund:					
Other:					
TOTAL EXPENSES:		\$	\$	\$	
Net Income/Loss:					
Total Revenue:		\$	\$	\$	
Total Expenses:		\$	\$	\$	
Net Income/loss:		\$	\$	\$	

Overall Account Balances	Actual Last Year	Budget Current Year	Projected Next Year	Comments
Operating Account Balance (cash on hand, etc.)				
Opening balance:				
Annual income/loss:				
Ending balance:				
Approx. number of months of operating monies on-hand:				
Emergency Fund Account Balance				
Opening balance:				
Annual inflow/outflow:				
Ending balance:				
Reserve Fund Account Balance				
Opening balance:				
Annual inflow/outflow:				
Ending balance:				
Required Reserves				
Total Annual Required Reserves:				
Opening Reserve Fund Balance:				
Annual inflow/outflow:				
Required Reserves Ending Balance:				
Additional Reserves Needed:				
Debt Balance(s)				
Opening Balance:				
Annual Outflow (Payments):				
Ending Balance:				

Fiscal Management Review

How often are the water system revenues and expenses reviewed? By whom and how are they reviewed?

If the water system revenues were insufficient to meet expenses, what steps is the PWS using to rectify the situation including reserving funds for anticipated capital improvements and other reserve purposes such as emergencies and debt expenses?

What fiscal controls are in place to ensure that monies are collected and spent appropriately, and the financial needs of the system are met? Who is responsible for collecting water bill/fees from customers?

How many customer accounts were unpaid or delinquent during the year? How are these unpaid or delinquent accounts resolved?

SECTION 4. UNACCOUNTED FOR WATER LOSS INFORMATION

"Unaccounted for Water Loss" means water that the small community water system supplies to its distribution system, but never reaches its consumers. Types of unaccounted for water loss can be leaks, main breaks, flushing, tank cleaning, etc. The vast majority of water systems have unaccounted for water loss. It should be noted that unaccounted for water for the purpose of this exercise encompasses both Real Water Loss such as leaks, main breaks, etc. and PWS approved, but Unbilled Water Loss such as water main flushing, treatment backwashing or make up water, firefighting, etc.

Determination of PWS Unaccounted for Water Loss (UWL)

Do you have Unaccounted for Water Loss? YES _____ NO _____ (zero water loss is rare to non-existent)

If No, How do you know? _____

If yes, What is the total annual amount of unaccounted for water loss for your PWS? (use either Option A or Option B below to determine this amount)

Option A: PWS that meters both supply production and distribution consumption

Use the table below to organize your meter reading data and complete the calculation to determine the amount of unaccounted for water loss.

Month	Total Production (Gallons)	Total Distribution (Gallons)	Unaccounted for Water Loss (Real Water Loss & Unbilled Water Loss) (Gallons)
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Annual Totals			
Calculation	Total Production (minus) - Total Distribution (equals) =		Unaccounted For Water Loss

Option B: PWS that do not include distribution meters must estimate the total amount of unaccounted for water loss

Unaccounted for water loss can be estimated by calculating the total amount of water produced (and/or purchased) and examining water usage trends and applying established estimates on the amount of water used. This option is only for systems that do not utilize distribution meters. Per RCSA Section 19-13-B102(n) public water systems are required to conduct weekly meter readings for each source of supply. Weekly water produced should be tabulated from the meter readings and compiled in order to determine long-term trends. According to record retention requirements, PWS should maintain these records for ten years.

Populate the total amount of water produced (as calculated by adding up all of your source meters weekly readings) for each week of the year in the table below.

Weekly Readings	Year:		Year:		Year:	
	Meter Readings (Gallons)	Est. Daily Production (Gal Produced/Week ÷ # of Days = Gallons/Day)	Meter Readings (Gallons)	Est. Daily Production (Gal Produced/Week ÷ # of Days = Gallons/Day)	Meter Readings (Gallons)	Est. Daily Production (Gal Produced/Week ÷ # of Days = Gallons/Day)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
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31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
Annual Totals						

Use the tabulated production readings above to determine trends and/or look for anomalies such as exceedingly high water usage, etc. Also, by calculating the estimated daily and/or customer usage, you will be able to more easily see trends. To estimate daily usage, divide the total gallons produced each week by the number of days between readings. To estimate customer usage, take the total gallons produced each week and divide by the number of customers or by the number of service connections. Try to identify the cause for anomalies such as annual flushing programs, water main breaks or service line leaks, etc. Then estimate the amount of unaccounted for water by comparing the anomalies to the typical water production averages. Space is available for 3 years' worth of water production readings in order to compare trends which are more easily seen over a longer period of time.

Causes for Unaccounted for Water Loss

Check "Yes" or "No" for each category and provide an adequate description for each item checked "Yes"

Yes	No	Category	Description (Size and Number of Occurrences per Year)	Estimated/Actual Volume
		Water main breaks (Real)		
		Distribution system leaks (Real)		
		Water main flushing (Unbilled)		
		Treatment system backwash/process (Unbilled)		
		Fire Protection (Unbilled)		
		Distribution Bleeder (Unbilled)		
		Other:		
Total Estimated Unaccounted for Water Loss Volume (gallons):				
Volume Water Produced in Year (gallons):				
Estimated Percentage of UWL = UWL ÷ Total Volume Produced in Year:				

Measures Being Taken to Reduce the Amount of Unaccounted for Water Loss

Check "Yes" or "No" for each category and provide an adequate description for each item checked "Yes"

Yes	No	Category	How Often	Description
		Conduct Leak Detection Survey		
		Water Main Replacement Program		
		Conduct Routine Water Audits		
		Meter Replacement/ Calibration Program		
		Trend Meter Reading Data		
		Midnight - 4 am Meter Read		
		Other:		

SECTION 5. Annual Update Record Complete as necessary each year when plan is updated.

Date of update:		Signature of PWS Owner/Legal Contact	
Brief description of update (items considered, changes made, etc.):			
Date of update:		Signature of PWS Owner/Legal Contact	
Brief description of update (items considered, changes made, etc.):			
Date of update:		Signature of PWS Owner/Legal Contact	
Brief description of update (items considered, changes made, etc.):			
Date of update:		Signature of PWS Owner/Legal Contact	
Brief description of update (items considered, changes made, etc.):			
Date of update:		Signature of PWS Owner/Legal Contact	
Brief description of update (items considered, changes made, etc.):			



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APPENDIX F
ORGANIZATIONS TO ASSIST PWS WITH CAPACITY

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National Rural Water Association (NRWA) (<https://nrwa.org/about/>)

NRWA provides training and technical assistance to all eligible water and wastewater systems, regardless of membership. Membership supports State Associations magazines, legislative representation and internal costs.

NRWA programs generally focus on assisting small and rural communities that serve less than 10,000 people. However, State Associations work in different ways with all sized systems, with many large cities demonstrating their support for Rural Water as members.

The NRWA **Circuit Riders** provide hands-on training and technical assistance to small, rural water systems on an everyday basis, 24/7. Personal, professional assistance is at the heart of the Circuit Rider program. On-site help is delivered when and where a rural community needs it. Assistance to small communities and rural utility systems serving a population of 10,000 or less has included:

- Identifying & evaluating affordable solutions to water & wastewater problems in rural areas
- Assisting systems to rapidly respond & recover after natural & man-made emergencies such as hurricanes, earthquakes, tornadoes, floods, wildfires, ice storms and the health pandemic, COVID-19
- Protecting the environment & public health by improving treatment processes
- Improving financial sustainability through better management practices, more efficient operations & better maintained system components
- Enhancing compliance with federal regulations
- Assistance directed toward RD/RUS borrowers and potential borrowers
- Assistance provided for all aspects of water utility management, finance, operation and maintenance, regulatory compliance, energy efficiency and loan/grant applications

The NRWA **Source Water Protection Program** is built around small water utilities, local businesses, agriculture, government, and other groups working together to develop and implement strategies to protect their drinking water sources. It is a voluntary, grassroots planning effort that builds local responsibility and creates more sustainable communities.

The NRWA Training Specialists provide technical assistance in compliance with the **Safe Drinking Water Act** to small public water system personnel by working directly with them on-site at their system. Training Specialists assist in diagnosing, troubleshooting, and identifying solutions to operational and compliance-related problems using NRWA's nationwide pool of expertise. Hands-on training is the most effective method to help staff and decision-makers become more successful operating their systems, and results in a better understanding of SDWA requirements.

The SDWA Compliance Assistance Program is designed to strengthen the technical capacity in small water systems, ultimately resulting in the reduction of the number of systems out of compliance with health-based standards.

NRWA is proud to assist local communities in safeguarding human health and making America's water systems sustainable and secure, while maintaining a strong partnership with the EPA.

USDA RURAL DEVELOPMENT (<https://www.rd.usda.gov/>)

The USDA loan and grant program helps very small, financially distressed rural communities extend and improve water and waste treatment facilities that serve local households and businesses. This assistance supports infrastructure improvements, business development, housing, community services such as schools, public safety and health care, and high-speed internet access in rural areas. It can be used to finance drinking water, stormwater drainage and waste disposal systems for rural communities with 10,000 or fewer residents.

USDA's Rural Utility Service has streamlined the application process through an electronic form, [RD Apply](#), for this funding, in the form of affordable low-interest loans and grants, to be specifically utilized by small communities and rural areas. Loan and grant funding has been pooled for reallocation back to [State Rural Development Offices](#).

ENVIRONMENTAL FINANCE CENTER NETWORK (<https://neefc.org/>)

The Environmental Finance Center Network (EFCN) deliver targeted technical assistance to, and partner with states, tribes, local governments, and the private sector in providing innovative solutions to help manage the costs of environmental financing and program management. The focus of EFC is enhancing the capacity of public and private utilities to pay for the growing costs of protecting the environment and to be prepared to manage both chronic and acute problems of environmental protection and finance. The EFCN provides the following:

- Community engagement, charrettes and meeting facilitation that engages all stakeholders and includes their voices in planning decisions.
- New England EFC works with subject matter experts and technical support specialists at the University of Maine system and in the private and public sectors to offer the highest caliber assistance to state and local entities.
- Awareness and capacity building of state and local decision makers and utility managers in innovative financing solutions.
- EFCN engages University students in all projects to help develop the new generation of environmental finance professionals.

RCAP SOLUTIONS (<http://www.rcapsolutions.org/community-resources/>)

RCAP Solutions is the Northeast affiliate of the Rural Community Assistance Partnership. RCAP is a national network of regional nonprofit organizations that provide comprehensive, on-site technical assistance and training to help small, rural communities address their drinking water, wastewater, and other community development needs. In order to best assess a community's needs,

RCAP Solutions performs comprehensive surveys, data collection and analysis on the water and/or wastewater equipment and infrastructure. The data collected is used to project funding needs and sources; information that is necessary and often times required, when applying for a grant or a loan.

Asset Management analysis includes:

- Comprehensive Inventory of the System
- Mapping and Site Studies
- Needs and Vulnerability Assessments
- Rate and Cost Estimating
- Capital Improvement Planning
- Funding Acquisition

Asset Management activities assist in minimizing the need for emergency shutdowns of a system due to equipment failure. RCAP Solutions can provide the tools and training a community/system needs to manage their facilities and avoid costly shutdowns and emergency repairs.

US EPA

USEPA Small Systems Assistance (<https://www.epa.gov/dwcapacity>)

EPA region 1 Small Drinking Water Initiative
(https://www3.epa.gov/region1/eco/drinkwater/small_dw_initiative.html)

APPENDIX G
STAKEHOLDER ENGAGEMENT MEETING MINUTES

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