



FLORIDA RURAL WATER ASSOCIATION

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New Water System Start-Up Checklist

Technical, Managerial & Financial Capacity

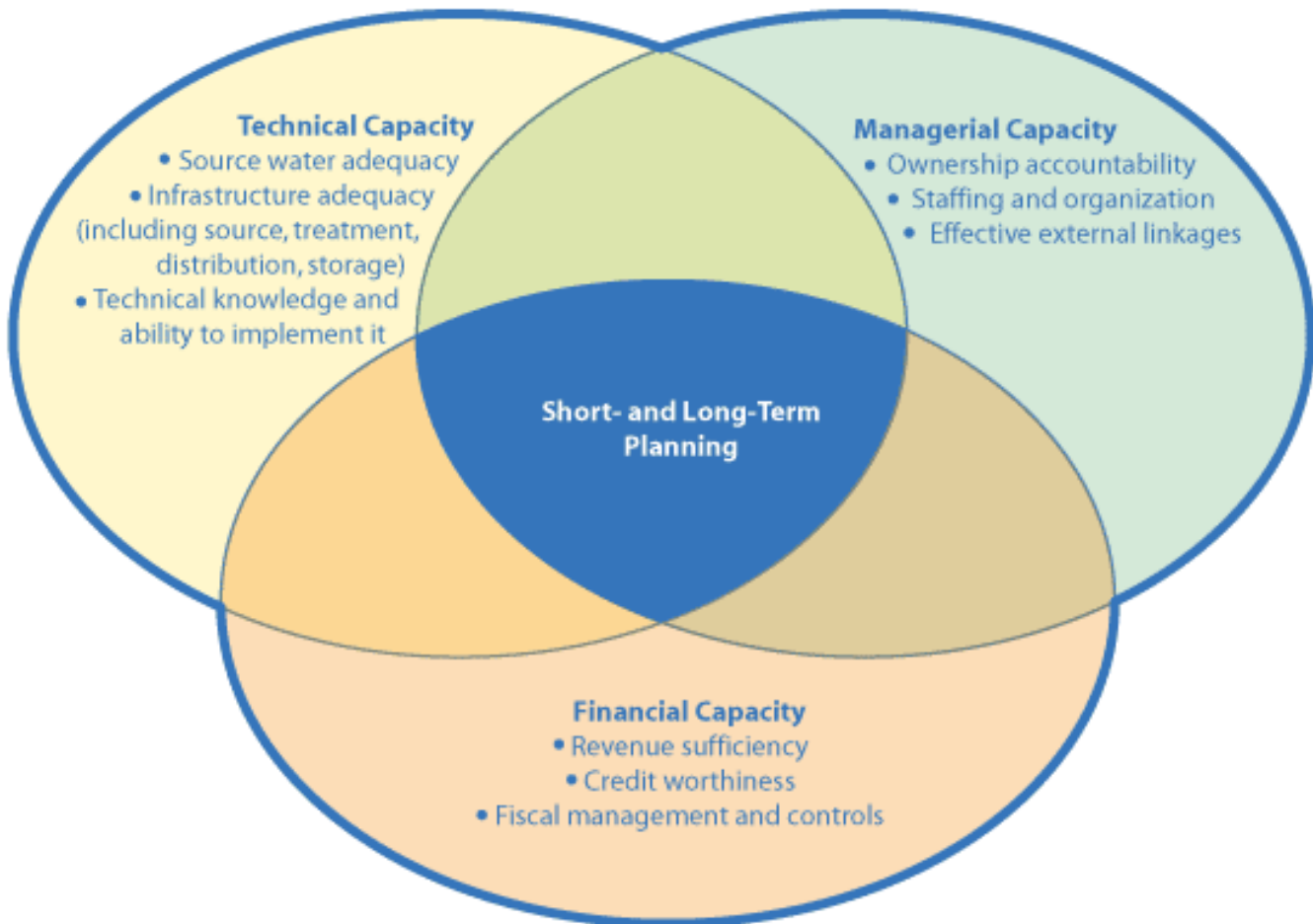


Figure ~ Elements of Small Water System Capacity Development

Source: USEPA <http://water.epa.gov/type/drink/pws/smallsystems/basicinformation.cfm>

System Operation Discussion:

- Mandatory Issues – elements required by FDEP or controlling authority
- Necessary Activities – elements vital and critical to utility survival
- Prudent Utility Operation – elements important to long-term sustainable utility operation

TECHNICAL CAPACITY

Technical Capacity includes the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy, and technical knowledge. In other words, does your treatment system work the way it is supposed to? Are you providing the safest and cleanest water possible and required by law to your customers right now, and will you be able to in the future?

- **Well / Source Water Adequacy** - Is the condition and capacity of the source water production facilities adequate to meet all flow demands and all pressure requirements?
 - Quantity of well water and well pump
 - Quality of well water
 - **Wellhead Protection Plan** - Does the system maintain a Source Water Protection Plan? Have all potential contaminant sources in the source water area been identified and delineated on a map?
 - Monitoring and Analysis of well water
 - Consumptive Use Permit and Renewal with NFWMD
- **Water Treatment and Distribution Infrastructure Adequacy** – Is the condition and capacity of the treatment facilities, storage, and distribution facilities adequate to meet water demands?
 - **FDEP and Safe Drinking Water Act Compliance**
 - Condition of water treatment plant, tanks, and distribution system
 - **Sampling for Contaminants** – Public water systems are required to deliver safe and reliable drinking water to their customers 24 hours a day, 365 days a year. If the water supply becomes contaminated, consumers can become seriously ill. Fortunately, public water systems take many steps to ensure that the public has safe, reliable drinking water. One of the most important steps is to regularly test the water for potential contaminants.
 - Evaluating Sampling Results
 - Maximum Contaminant Levels (MCLs)
 - Resampling triggers
 - Public Notification triggers
 - FDEP Notification triggers
 - Precautionary Boil Water Notices
 - Sampling Plan from FDEP NW District Office
 - Annual Consumer Confidence Reports
 - Standby / Emergency Power Equipment
 - **Tools and Equipment** – Does the operations staff have all the equipment they need to safely perform their job duties?
- **Technical Knowledge & Implementation**
 - **Certified Operator** – Is there an adequate number of additional properly certified operator(s) to properly operate the production and distribution systems?
 - **Contract Operations** – FRWA Checklist
 - **Experienced & Knowledgeable Operator**
 - **Operator Training** – Are all the operator(s) on track in their training programs to maintain their certifications?
 - Equipment needed for Operation (including safety) to perform job duties
 - Monthly Operation Reports
 - Technical Assistance Provider Support – FRWA Membership & Circuit Riders
 - Copies of FDEP Drinking Water Rules
- **Maintain an updated distribution map** – make several copies and safeguard master copies.

- o Does the system maintain an updated set of maps of its distribution system?
- o Are the distribution maps available to field and department staff?
- o Do field personnel update those maps and transmit changes to the office regularly?
- **Effective Operations & Maintenance (O&M) Program** - Does the system have a written operation and maintenance plan?
 - Does the chief operator know of and follow the written operation and maintenance plan?
 - If there is no written operation and maintenance plan, does the chief operator understand how to properly operate and maintain the system?
- o **List / Inventory of Assets** – all equipment, wells, pumps, tanks, buildings, meters, valves, hydrants, etc.
- o **Asset Management & Capital Improvement Plan**
- o **Record Keeping** – MORs, Monitoring Plans, Sample Results, manuals, logs, etc.
 - Does the system maintain copies on file and make available water use data including present water consumption, water losses, projected demands, fire flow demand, present and future source yields, etc.?
- o **O&M MANUAL** – includes technical documents for each piece of equipment, operation and maintenance manuals, plans and specifications, who to call for service or parts. Required for ALL water systems regardless of size in your water plant office per FDEP Rule 62-555.350(13), FAC. FRWA recommends that you make at least 2 copies of the O&M Manual and store one in a safe place in case the plant copy gets lost or damaged by normal use. Your O&M Manual and Preventive Maintenance Logs can be stored together in a 3-ring binder.
 - Annual individual valve exercising program?
- o **PREVENTATIVE MAINTENANCE LOGS** – required for ALL water systems regardless of size per FDEP Rule 62-555.350(12), FAC. Keep a copy in your water plant office. Preventive Maintenance Logs on electrical and mechanical equipment; cleaning and inspection logs of treatment facilities and storage tanks; records of coatings and linings rehabilitation or repair; licensed engineer inspection report (once every 5-years) for finished-drinking-water storage tanks and hydropneumatic tanks; written flushing program and logs showing that dead-end water mains are being flushed at least quarterly; and isolation valves exercise logs.
 - Meter and valve change out program? Meters at 7-years and valves at 25 to 30-years
 - Main break and leak repair program?
 - Leak detection and water loss reduction program?
 - Is there adequate backup equipment on-site for use in emergency situations?
- o **CROSS-CONNECTION CONTROL**, backflow detection, and elimination program – required for ALL water systems regardless of size per FDEP Rule 62-555.360, FAC.
- o **Flushing Dead-End Water Mains** at least quarterly or more often based on legitimate water quality complaints per FDEP Rule 62-555.350 (2), FAC. Include water-flushing plan in Preventative Maintenance Logs.
- o **Tank Maintenance / Contract**
- o **Annual Tank Inspection by Operators** – including hydropneumatic tanks with an access manhole to ensure that hatches are closed and screens are in place per FDEP Rule 62-555.350 (2), FAC.
- o **Every 5-year Tank Cleaning by Operators** – including hydropneumatic tanks with an access manhole to remove biogrowths, calcium or iron/manganese deposits, and sludge from inside the tanks per FDEP Rule 62-555.350 (2), FAC.
- o **Every 5-year Tank Inspection by personnel under the responsible charge of a Professional Engineer Licensed in Florida** – per FDEP Rule 62-555.350 (2), FAC.
- o **Capital Improvements Program** – for repair, rehabilitation, and replacement of existing infrastructure, and new facilities

- Upcoming Regulations – Focus On Change (each February)
 - o Ground Water Rule
 - o Disinfectants/Disinfection By-Products Rule
 - o Radon Rule
- Water Loss and Audits (Unaccounted for Water) – Recover production capacity lost due to leaks and unauthorized use, lost revenue due to faulty meters, extend the life of pumps due to a reduction in demand, and reduce system liability due to the possibility of contamination through cross connections.
- Preparing for FDEP Sanitary Surveys and Inspections

MANAGERIAL CAPACITY

Managerial Capacity involves the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages. In simpler terms, do you have an effective management structure? Do you have a capable and trained staff?

- Ownership Accountability -- a permanent organization exists as the continuing operating authority for the management, operation, maintenance, replacement, and modernization of the facility
 - o Clearly identified owners & accountable
 - o Authority to lay all necessary water lines, install services, and so forth
 - o Adopted resolutions and policies for utility operation and new connections
 - o Ability to set rates and fees, levee fines, and so forth -- Bylaws of the association provide for the proper operation, maintenance, and modernization of the facility to include at minimum: the power to regulate the use of the facility, the power to levy assessments on members and enforce them on each owner
 - o Written Rate Structure and Service Fees published
 - o Water Board Meetings – agendas, public notification, and scheduling
 - o Florida Sunshine Laws apply to Water Board Meetings
 - o Public Meetings required for any changes in rate structure or service fees with advanced notice to customers
 - o
- Staffing & Organization
 - o Clear roles and responsibilities – organizational chart and duties
 - o Clear lines of authority
 - o Appropriate and adequate expertise – TRAINING
 - o Standard Operating Procedures for reliable water system operation, consistent with type of treatment and degree of automatic control, including the process to be used to identify and implement changes to current procedures and ensure that changes in responsible personnel are reported and implemented.
 - Is there a clear plan of organization and control among the people responsible for management and operation of the system?
 - Does your utility have a governing board?
 - Is your utility board knowledgeable about the basic information included in the “Getting Started” section of this assessment?
 - Is there a process that ensures that the utility board approves of any significant changes to the basic plans and operating procedures?
 - Are the limits of the operator’s authority clearly known?
 - Are all the specific functional areas of operations and management assigned?

- Does everyone involved in operations know who is responsible for each area?
- Is someone responsible for scheduling work?
- Do you have explicit rules and standards for system modifications?
- Do you have rules governing new hook-ups?
- Do you have a water main extension policy?
- Do you have standard construction specifications to be followed?
- Do you have measures to assure cross-connection control and backflow prevention?
- Do you have policies or rules describing customer rights and responsibilities?
- Do you have a planned maintenance management system -- a system for scheduling routine preventive maintenance?
- Do you have a system for assuring adequate inventory of essential spare parts and back-up equipment?
- Do you have relationships with contractors and equipment vendors to assure prompt priority service?
- Do you have records and data management systems for system operating and maintenance data, for regulatory compliance data, and for system management and administration?
- Workers Compensation per Florida requirements
- Occupational Safety and Health Act - assure safe and healthful working conditions for workers
 - o Place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees
 - Do you have a safety program defining measures to be taken if someone is injured?
 - Do you have written operating procedures for both routine and emergency system operations?
 - o Hazard Communication– Material Safety Data Sheets (MSDS) any known hazards associated with handling the chemical and generally applicable safety precautions.
 - Does everyone understand the risks and safety measures involved in handling water treatment chemicals?
 - o Confined Space Safety – tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry that has the potential to: contain a hazardous atmosphere; contain a material that has the potential for engulfing a worker in the space; pose a risk for trapping and asphyxiating a person in the space; or contain any other recognized safety hazard.
 - Are you fully aware of Occupational Safety and Health Administration (OSHA) confined space (such as trenches/manholes) regulations?
- Effective External Linkages
 - o Effective customer relations – handling of customer complaints / requests - written customer complaint procedures
 - o Effective regulator relations - designated compliance contact person with FDEP
 - Do you fully understand monitoring requirements and have a scheduling mechanism to assure compliance?
 - Do you have a mechanism to obtain the most recent information on regulatory requirements?
 - Do you know how to obtain clarification or explanation of requirements?
 - Do you maintain adequate records to document compliance? 7 to 10-yrs
 - Do you know what to do in the event of a violation?
 - o Who to call for help?
 - o Emergency Response Plan and Vulnerability Assessment

- Is there an updated Emergency Operation Plan available for department staff?
- Is there a contingency for making emergency interconnections to neighboring systems, and do you know they will work if needed?
- Is there a contingency for trucking potable water in for emergency uses?
- Does everyone involved in operations know what they are to do in the event of contamination from a toxic hazardous waste spill in your source water or a main break or a tank failure?
- Do you have a clear chain-of-command protocol for emergency action?
- Is someone responsible for emergency operations, for communications with state regulators, for customer relations, for media relations?
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- o FlaWARN Membership and Mutual Aid Agreements (www.flawarn.org)
 - FlaWARN is the formalized system of "utilities helping utilities" address Mutual Aid during emergency situations. These incidents may be man-made or natural disasters. The project's infrastructure consists of a secure web-based data bank of available resources and a practical mutual aid agreement.
 - The goal of FlaWARN is to provide immediate relief for member utilities during emergencies. FlaWARN works by matching personnel with the necessary tools and equipment to both assess and assist the impacted water and wastewater system as quickly as possible until a permanent solution to the devastation may be implemented. This method of assistance is analogous to triage at a hospital.
- Consulting Expertise / Outside Assistance – Are you getting the outside services and technical assistance you need?
 - Contracting agreements with neighboring utilities or construction firms for major system repairs
 - Engineering Services (managing engineering firms) and FRWA Engineering
 - Technical / Operations Assistance
 - Legal Counsel / Services (managing attorneys)
 - Rate Case Preparation and other financial advice – FRWA Assistance
 - Permitting (minor permitting by FRWA Engineering)
 - Licensing

FINANCIAL CAPACITY

Financial Capacity encompasses the financial resources of the water system, including but not limited to the fiscal controls, revenue sufficiency, and ability to access funds when needed. Basically, does your system have a budget and enough revenue coming in to cover costs, repairs, and replacements?

- Fiscal Management & Controls
 - o Accounting System – use Standard Accounting Principles and Practices in accordance with Generally Accepted Accounting Principals & Practices or the NARUC Uniform Systems of Accounts
 - o Cash Management – controls, checks and balances – two people to verify cash handling
 - o Meter Reading, Billing and Collections System including measures to obtain payment for non-payment (i.e., disconnect service, late fee charge, etc.);
 - o Annual Budget of revenues and expenditures with an annual comparison of planned budget to actual budget
 - Do you have an annual budget?

- Do you have within the annual budget a provision for deposits to separate reserve accounts for equipment replacement and/or capital improvement?
 - Do you have a capital budget or capital improvement plan that projects future capital investment needs some distance (at least five years) into the future?
 - Does your capital improvement plan include expected funding sources for each project?
 - Do you have a process for scheduling and committing to capital projects?
 - Does your planning process take account of all the potential capital needs suggested by your answers to the technical questions in these worksheets?
 - Does your long-term planning incorporate analysis of alternative strategies that might offer cost saving to customers, such as consolidation with other nearby systems or sharing of operations and management expenses with other nearby systems?
- o Written Rate Structure and Service Fees – only the Board has authority to make changes
- o Financial Planning Mechanisms
 - Do you have audited financial statements?
 - Does your water system presently operate on a break-even basis?
 - Does the water system keep all the water revenues (i.e., water revenue does not support other municipal departments or unrelated activities)?
 - Do you employ standardized accounting and tracking systems?
 - Do you track budget performance?
 - Do you keep records to substantiate depreciation of fixed assets and accounting for reserve funds?
 - Are financial management recordkeeping systems organized?
 - Are controls exercised over expenditures?
 - Are controls exercised to keep from exceeding your budget?
 - Are there formal and/or written purchasing procedures?
- Insurance
- Workers Compensation per Florida requirements
- Revenue Sufficiency
 - o Annual revenues cover public water system costs
 - o Full Life-Cycle Cost Recovery
 - o Role of Subsidies
 - o Affordability & Customer Diversity
 - o 5-year Budget and Capital Improvement Plan -- to be updated annually, including at a minimum, annual revenue income, annual estimated cost of operation including salary of operator, Operating Reserve, Emergency Equipment Replacement Reserve, Debt Service Reserve, and proposed methods to finance both capital charges and operating expenses.
 - Revenues: Water Rates; Fees and Service Charges; Hookup Charges; Other Revenues as Drinking Water Revenues; etc.,
 - Other Funds/Resources Available: Depreciation Reserves; Capital Contribution from Owner/Stockholder (own source); Contribution/Advance from Customer/Others; Grants; USDA RD / DWSRF Loan; Business loans; Withdrawal from Capital or Other Reserves
 - Operating & Maintenance Expenses includes Operating Expenses and General & Administrative Expenses:
 - Operating Expenses: Salaries and Benefits; Power and Other Utility; Chemicals and Treatment; Monitoring; Materials, Supplies, and Parts; Transportation; etc.
 - General & Administrative Expenses: Salaries and Benefits; Office Supplies and Postage; Insurance-vehicles, liability, workers compensation; Legal and Accounting; Contractor/ Professional Services; Fees; Other Deductions, Income Taxes, Other Taxes,

- etc., Reserve Expenses: Operating Reserve; Emergency Equipment Replacement Reserve; and Debt Service Reserve,
 - Capital Improvement Plan Expenses: New Capital Facilities; Renewal and Replacement Facilities; Safe Drinking Water Act Facilities; Non-facility Costs; Other Use of Funds; etc.,
 - Debt Obligation Expenses [principal and interest expenses]: Repayment to Customers/others; Repayment of Business Loans; Repayment of SRF Loan; Other Use of Funds; etc., and
 - Funded Depreciation Expenses in excess of all other P&I payments;
 - Reserves
 - Debt Service Reserve will equal or exceed the required in bonding agreement
 - Establishing an Operating Reserve (must = 1/10 of annual operations and maintenance expenses and established over a ten year period in at least equal payments).
 - Emergency Equipment Replacement Reserve equal to or greater than the most expensive mechanical equipment item and established in at least equal annual payments over ten (10) years (i.e., if most expensive equipment is \$10,000, the minimum yearly reserve must be \$1,000/year + inflation);
- o Rates and Fee Sufficiency
 - Do you regularly review your rates? How often? Yearly
 - Do you have a plan in place for periodic increases in rates? Consumer Price Index?
 - Is the rate structure based on metered watered use?
 - Do users pay the same or higher rate per 1000 gallons as they use more water?
 - Does the rate structure assure proportionality among users?
 - Do you have procedures for billing and collection?
 - Is your billing collection rate greater than 95%?
 - Do you have collection procedures specifically for delinquent accounts?
 -
- Credit Worthiness
- Financial health
- Ability to service debt
- Planning and consideration for the financial capacity impacts of future regulations. The upcoming regulations are the same as listed under the Technical Capacity Section