

**Annual Report to the USEPA  
Kentucky Drinking Water  
Capacity Development Program**

**Federal Fiscal Year 2024  
October 2023 – September 2024**



**Department for Environmental Protection  
Division of Water  
300 Sower Boulevard  
Frankfort, Kentucky 40601**

# Federal Fiscal Year 2024 Report to the USEPA

## Kentucky Capacity Development Program

Kentucky's Drinking Water Capacity Development Program Implementation Report intends to provide the U.S. Environmental Protection Agency (USEPA), Region 4, with pertinent updates covering drinking water capacity development program activities in the Commonwealth of Kentucky for Federal Fiscal Year (FFY) 2024.

### A. New Systems Program Overview

1. *Has the State's legal authority (statutes/regulations) to implement the New Systems Program changed within the previous reporting year?*

Kentucky's legal authority, Kentucky Revised Statutes (KRS) 151.630, to implement the New Systems Program has not changed.

2. *Have there been any modifications to the State's control points?*

Kentucky uses the control points in the 1999 Capacity Development Report to the USEPA which have not changed since that time.

3. *List new systems (PWSID & Name) in the State within the past three years, and indicate whether those systems have been on any of the annual Significant Non-Compliers (SNC) lists.*

As of September 30, 2024, Kentucky's universe of Public Water Systems included 425 systems, 374 of which are Community Water Systems and 51 are Non-Community Water Systems. Within the last three (3) years, only three (3) new water systems have been activated, as shown in Table 1. None of the new systems have demonstrated significant noncompliance. The Kentucky Division of Water (the Division) does not maintain a "Significant Non-Compliers" list independent of the Enforcement Targeting Tool (ETT) that is used to track violations that result in referral to the Department for Environmental Protection's Division of Enforcement. See further discussion about ETT in Section B, below.

Kentucky continues to experience success through careful planning, regionalization and consolidation of both Public Water Systems and Semi-Public Water Systems (not regulated by the Safe Drinking Water Act). Within the same three (3) year period, Kentucky inactivated three (3) Community Water Systems, two (2) Non-Community Water Systems, and one (1) Bottled Water System, along with 56 Semi-Public Water Systems. Approximately 97% of Kentucky's population is now served by Public Water Systems.

TABLE 1				
ACTIVATED PUBLIC WATER SYSTEMS ACCORDING TO FEDERAL FISCAL YEAR				
PWSID	Name	Source	Type	Date
Activated				
KY0043547	DOLLAR GENERAL LOVELACEVILLE	GW	NC	4/20/2022
KY0183548	KENTUCKY LAKE GLAMPING	GW	NC	2/18/2022
KY0183550	DOLLAR GENERAL KIRKSEY	GW	NC	4/22/2022
GW - Groundwater		NC - Non-community		

## B. Existing System Strategy

1. *In referencing the State's approved existing systems strategy, which programs, tools, and/or activities were used, and how did each assist existing PWS in acquiring and maintaining Technical, Managerial, and Financial capacity? Discuss the target audience these activities have been directed towards.*

Kentucky's approved existing systems strategy is outlined below, followed by a discussion of how each strategy assisted existing systems in acquiring and maintaining technical (T), managerial (M), and financial (F) capacity, TMF:

- Prioritize systems most in need of improved capacity.
- Identify the factors that encourage or impair the capacity of water systems.
- Use the authority and resources of the Safe Drinking Water Act (SDWA) to enhance TMF capacity of systems.
- Establish a baseline and measure the capacity improvements of systems in the state.
- Involve stakeholders in state efforts to improve water system capacity.

### Prioritize systems most in need of improving capacity

The Division retains federal primacy to regulate a total of 425 community and non-community PWS in Kentucky. The majority of PWS in Kentucky (78%) serve communities with populations of less than 10,000 (Table 2). Although these PWS serve a smaller portion of Kentucky's overall population, historically they have the greatest need for assistance.

TABLE 2			
PUBLIC WATER SYSTEMS BY POPULATION SERVED			
System Served	Size by Population	Number of Water Systems	Percentage (%) of Total Water Systems
≤ 10,000		330	78
> 10,000		95	22

The Division, which is in the Energy and Environment Cabinet, implements Kentucky's Drinking Water Capacity Development Program in conformance with Section 1420(a), (c), and Section 1452(a)(3) of the federal SDWA. The Division's Drinking Water Capacity Development program helps all public drinking water systems improve infrastructure, management, operations, and finances so they can consistently, and affordably, provide safe and reliable drinking water. This assistance is primarily done through the Sanitary Survey that the Capacity Development program conducts.

During the Drinking Water Sanitary Survey, TMF capacity is assessed. Pursuant to the Safe Drinking Water Act, 374 community public drinking water systems are assessed every three (3) years, and 53 non-community public drinking water systems are assessed every five (5) years. The majority of the managerial and financial criteria used to determine public drinking water system capacity are not regulated by the SDWA. The benefits of the Drinking Water Sanitary Survey are:

- It provides an in-depth evaluation of public drinking water system source water, treatment, distribution, finished water storage, pumps and controls, data verification, management, and operation.
- It assists public drinking water systems in understanding areas in need of improvement for compliance with state and federal regulations. However, the majority of the TMF criteria used to determine public drinking water system capacity is not regulated under the SDWA or by the state.
- It helps public drinking water systems understand their capacity development needs.

In 2023, the Division moved away from static survey forms and began utilizing ArcGIS Survey 123 to conduct Drinking Water Sanitary Surveys and to analyze historic data. While ArcGIS Survey123 does enhance the Division's ability to manage, extract, and analyze data, it is a temporary solution while the Division develops a tool that can be better integrated with the Cabinet's data management systems. The process of extracting and analyzing data from static forms was time-consuming and labor intensive. The Division has manually entered historic Drinking Water Sanitary Survey data gathered since 2017 into the new ArcGIS-based system. This allows the Division to compare survey data for two (2) Sanitary Survey cycles for Community Water Systems surveys, from FFY 2021 to 2023, and FFY 2018 to 2020. At the conclusion of FFY 2024, the Division is now starting the second year of a new three-year cycle.

As required, the Division uses the Enforcement Targeting Tool (ETT) to track violations and to determine which systems need assistance and/or enforcement actions. Updated monthly, systems with more than eleven (11) ETT points are evaluated and referred to the Division of Enforcement. Division of Water and Division of Enforcement personnel meet with USPEA Region 4 for updates as needed. In FFY 2024, six (6) PWS were referred to the Division of Enforcement with eleven (11) or more points accrued, as shown in Table 3.

Apart from the Sanitary Survey and the ETT tracker, turbidity, and disinfection by-products (DBP) data are gathered through the Area-Wide Optimization Program (AWOP) for systems that voluntarily participate in the program. This data is used in conjunction with the ETT and the Sanitary Survey to prioritize technical assistance, training, and Comprehensive Performance Evaluations in those PWS that require assistance or a return to compliance.

TABLE 3 ENFORCEMENT TARGETING TOOL REFERRALS		
PWSID	PUBLIC WATER SYSTEM NAME	CAUSE(S)
KY0130208	JACKSON MUNICIPAL WATER WORKS	DBP MCL
KY0980575	MOUNTAIN WATER DIST	DBP MCL
KY1180093	CUMBERLAND FALLS HIGHWAY WATER DISTRICT	DBP MCL
KY1130434	UNIONTOWN WATER & SEWER DEPT	DBP MCL
KY0310114	EDMONSON CO WATER DISTRICT	LT2 ESWTR
KY1130422	STURGIS WATER WORKS	DBP MCL
DBP MCL - Disinfection By-Product Maximum Contaminant Level		ESWTR – Enhanced Surface Water Treatment Rule

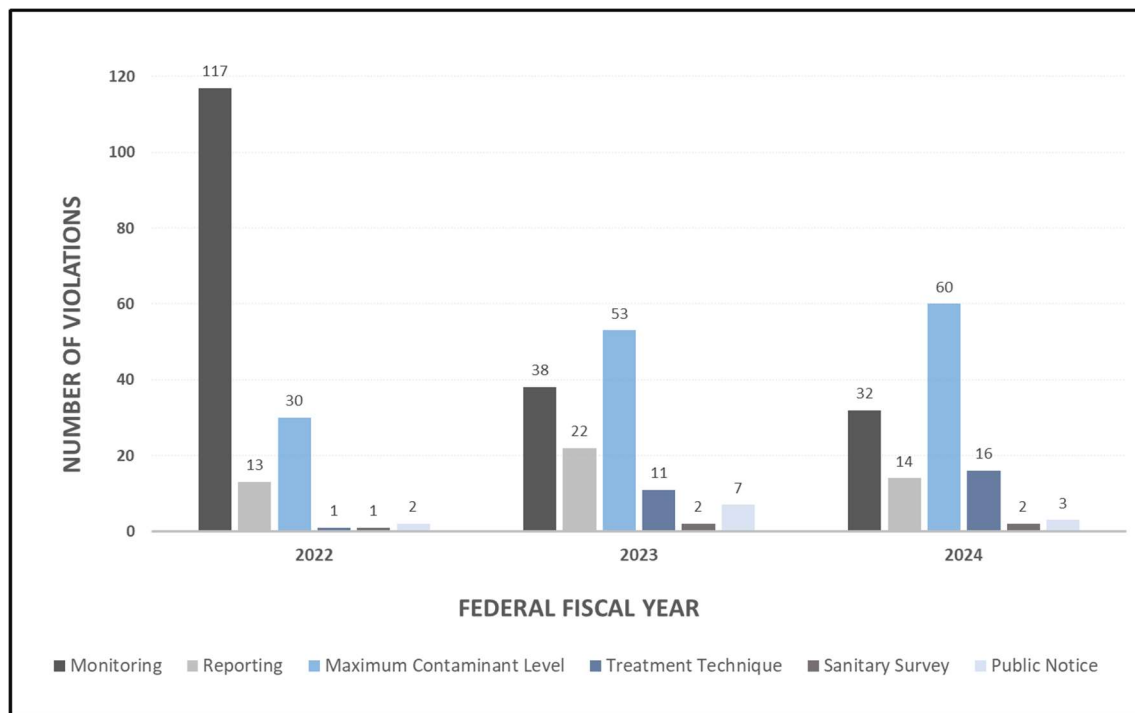
### **Identify the factors that encourage or impair the capacity of water systems**

The Division and the Kentucky Infrastructure Authority (KIA) jointly administer the Drinking Water State Revolving Fund (DWSRF) program via a Memorandum of Agreement. During this fiscal year, 22 communities received over \$40 million to improve drinking water infrastructure. Projects that received funding represent investments in regionalization, rehabilitation or construction of a water plant to address emerging contaminants, addressing lead and copper regulations, replacing inadequate and aging water lines and tanks, and extending service to residents. Such projects improve the quality and availability of drinking water and strengthen local economies.

The Division continued to provide funding to the Kentucky Rural Water Association (KRWA) to support a small system assistance program that focuses on geographic information system-based asset management, lead service line detection, compliance, rate studies, and water loss management. This past year, 72 small PWS were targeted for assistance. Through this program:

- Five (5) new GIS-based asset management projects were deployed;
- 27 GIS-based asset management systems were updated to the latest version;
- Nine (9) rate studies were conducted resulting in an estimated \$820,000 revenue recovery for six (6) different systems;
- 35 systems were assisted in the preparation and reporting of compliance data, public notifications, Consumer Confidence Reports (CCR), Operational Level Evaluation Reports, Level 1 Assessments and progress reports for Enforcement actions; and
- KRWA conducted on-site technical assistance visits totaling 140 hours to address compliance issues, service line inventory and emergency response.

The SDWA requires PWS to monitor treated water for contaminants and report results to the Division at regular intervals during the year. The Division issues a Notice of Violation (NOV) when contaminant levels exceed maximum contaminant limits or running annual averages as specified by the SDWA or when monitoring or reporting are conducted improperly. Water systems with populations less than 10,000 accounted for the majority of monitoring and reporting violations, and health-based violations. The types of monitoring and reporting violations are varied but mostly associated with the Consumer Confidence Rule, while the majority of health-based violations are a result of exceedances of the Stage 2 Disinfection By-Product (DBP) Rule. This past year the Division had 60 DBP violations compared to 50 violations in FFY 2023. The Division has worked to reduce DBP violations by providing additional training and technical assistance. To reduce monitoring and reporting violations, the Division is providing compliance assistance including sending email reminders for required paperwork and notifications to remind systems of sampling requirements.



**Figure 1:** Safe Drinking Water Act violation trends for Federal Fiscal Years 2022 through 2024.

During FFY 2024, the Division completed 146 Sanitary Surveys and 222 instances of on-site assistance. Division personnel also provided the following trainings with a focus on small water systems (Table 4).

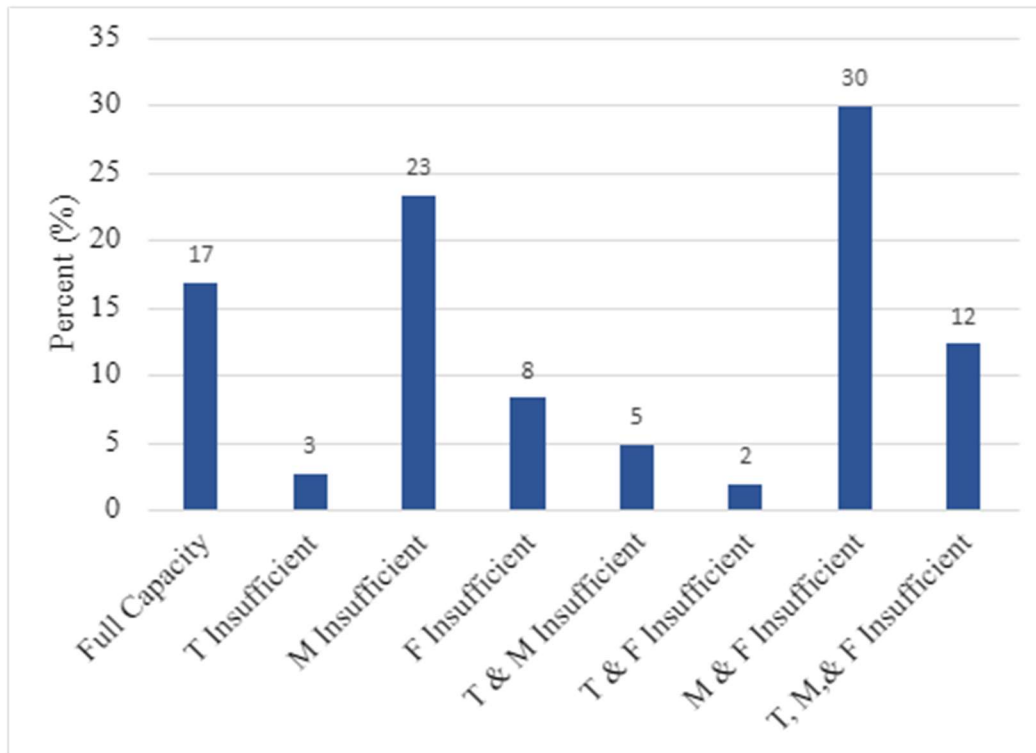
TABLE 4 TRAINING EVENTS FFY 2024	
KRWA, Updates on Lead & Copper Rule Revisions, Virtual	Oct-23
RCAP/AWWA, Drinking Water Regulatory Overview Leitchfield, KY	Oct-23
Eastern Chapter KWWOA, Lead & Copper Rule Revisions, Service Line Inventory Somerset, KY	Oct-23
Eastern Chapter KWWOA, Kentucky Area-Wide Optimization Program	Oct-23
Western Chapter KWWOA, PFAS Rule & Treatment Options	Oct-23
KRWA, Updates on Lead & Copper Rule Revisions, Virtual	Oct-23
RCAP/AWWA, Drinking Water Regulatory Overview Leitchfield, KY	Oct-23
Eastern Chapter KWWOA, Lead & Copper Rule Revisions, Service Line Inventory Somerset, KY	Oct-23
Eastern Chapter KWWOA, Kentucky Area-Wide Optimization Program	Oct-23
Western Chapter KWWOA, PFAS Rule & Treatment Options	Oct-23
Kentucky Assoc. of Counties, SRF & Lead and Copper Rule Revisions updates, Frankfort, KY	Nov-23
Big Sandy Area Development District, Lead and Copper Rule Revisions updates, Prestonsburg, KY	Nov-23
Lincoln Trail ADD, PFAS Rule & potential impacts, Lincoln Trail ADD	Nov-23
AWWA KY/TN, Communicating Lead Service Line Inventory, Hardin Co Water District #2 Hosted	Nov-23

AWWA KY/TN, Communicating Lead testing in Schools/Childcares, Hardin Co WD #2 Hosted	Nov-23
RCAP, Training for Technical Assistance with Service Line Inventories, Virtual	Dec-23
KRWA, Training for Technical Assistance with Service Line Inventories, Virtual	Dec-23
KIPDA, LCRR / LCRI Service Line Inventories, KIPDA office, Louisville	Jan-24
KRWA, Service Line Inventories and the Statistical Method, CEU training event	Jan-24
KRWA, Service Line Inventories and the Statistical Method, CEU training event	Jan-24
KRWA, Service Line Inventories and the Statistical Method, KRWA Annual Management Conference	Feb-24
KRWA, Service line inventory Q & A for operators, KRWA Annual Management Conference	Feb-24
RCAP, PFAS Updates, Operator training session for CEUs	Mar-24
Gary Russ, Inc., Proposed PFAS Rule, Powderly, KY	Mar-24
Green River ADD, Statistical Method Overview for Service Line Inventories, Owensboro, KY	Mar-24
KRWA, Statistical Method Overview for Service Line Inventories, Barren River SRP	Jan-24
KRWA, Statistical Method Overview for Service Line Inventories, KRWA management conference, BG	Feb-24
AWMA, PFAS DW updates, EKU	Apr-24
KWOWA, Kentucky Area-Wide Optimization Program, Annual Conference Owensboro, KY	May-24
KWOWA, LCRR overview and DOW outreach, Annual Conference Owensboro, KY	May-24
KY League of Cities, Utilities training – LCRR, Owensboro, KY	Jul-24
West KWOWA, PFAS Rule, KY Dam Village	Aug-24
Honaker Law/Rowan Co Water, DW Regulatory Compliance updates, at Rowan Co Water	Aug-24
KRWA Annual Conference, DOW Corrosion Control Treatment Program, Lexington, KY	Aug-24
KRWA Annual Conference, DW Regulatory Compliance updates, Lexington, KY	Aug-24
KRWA Annual Conference, PFAS Rule Updates, Lexington, KY	Aug-24
Water Professionals Conference, Check Your Pipes KY, Louisville, KY	Sep-24
Water Professionals Conference, KY Implementation of LCR Requirements, Louisville, KY	Sep-24

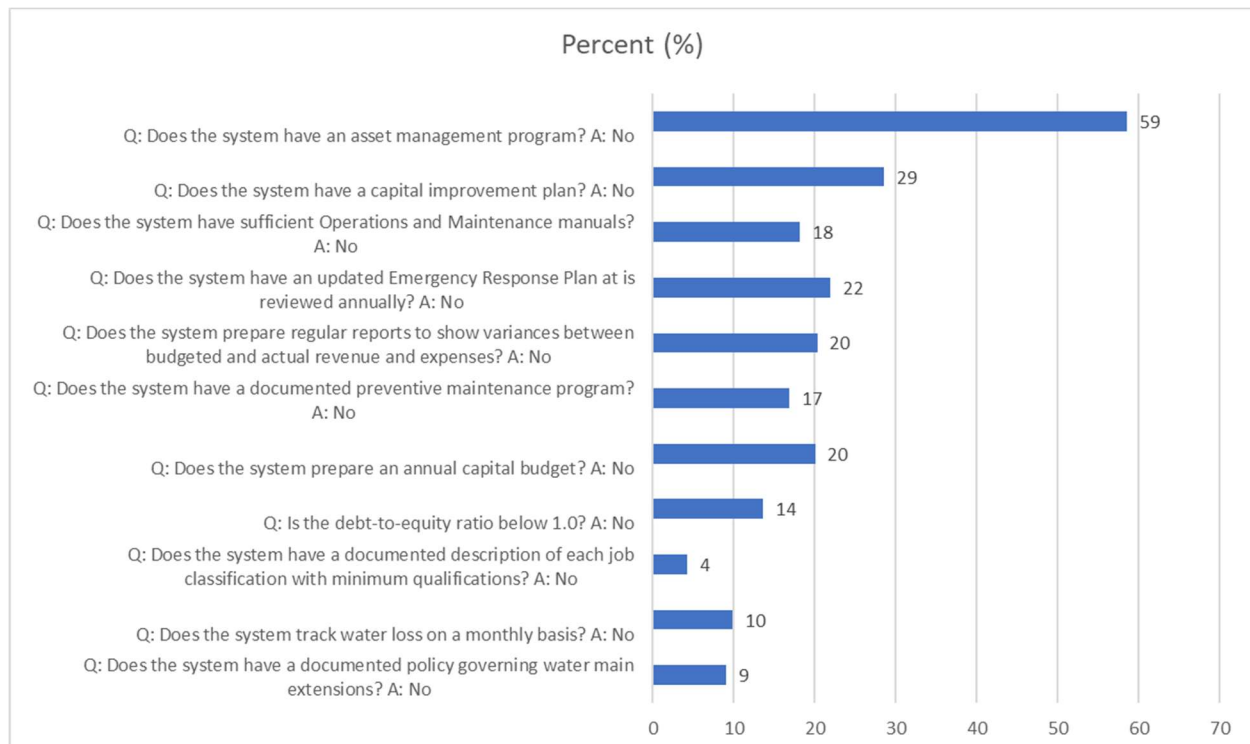
### **Establish a baseline and measure the capacity improvements of systems in the State**

The Division utilizes two methods to determine PWS TMF capacity. The first method evaluates TMF capacity improvements based on the number of annual violations. However, neither the Division nor the SDWA regulate many of the managerial or financial criteria used to determine capacity. Therefore, judging a water system's TMF resiliency and sustainability cannot be determined solely using compliance data. The second, and more comprehensive method used by the Division to indicate PWS TMF capacity is the Sanitary Survey.

Since FFY 2021, 17% of community public drinking water systems have demonstrated sufficient TMF capacity, while the majority exhibit insufficient TMF capacity in one or more areas of criteria in Kentucky's Drinking Water Capacity Development Strategy (Figure 2). An overall analysis of CWS responses from the previous cycle, indicates that insufficient managerial and financial capacity is related to a lack of asset management planning, financial planning, emergency response planning, operational documentation (such documentation required by 401 KAR 8:020), and tracking water loss (Figure 3).



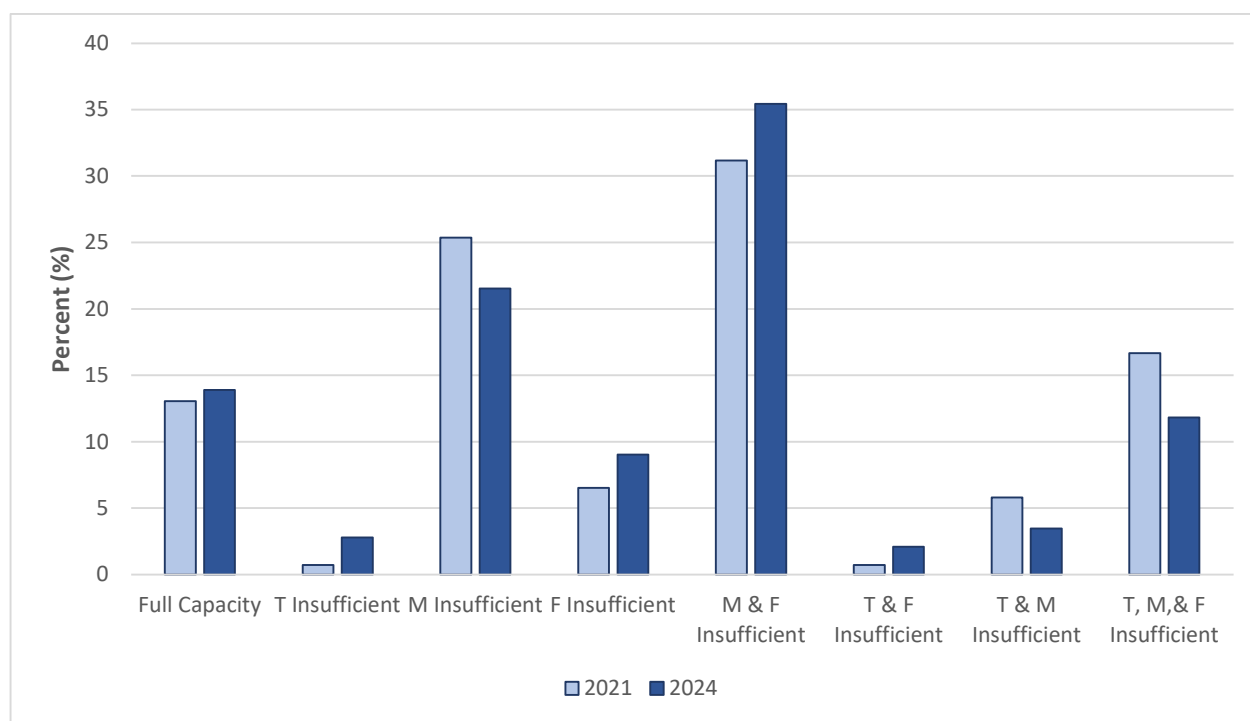
**Figure 2:** CWS 3-year Sanitary Survey cycle TMF Capacity.



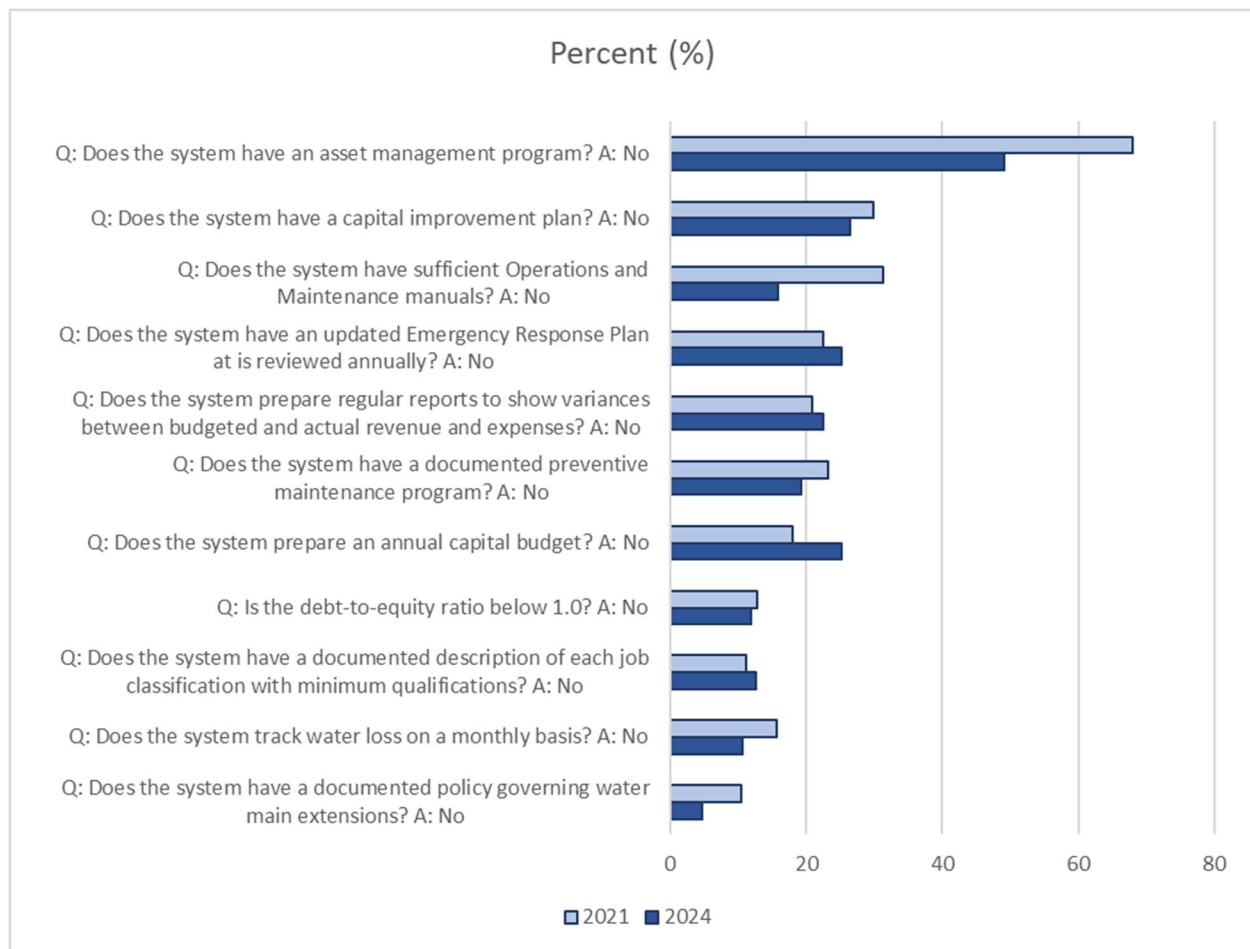
**Figure 3:** Analysis of negative community public drinking water system responses to criteria used to determine TMF capacity from current and 3-year Sanitary Survey cycle.<sup>1</sup>



FFY 2024 is the first year of a new three-year cycle. This year 14% of community systems were able to demonstrate full capacity as compared to FFY 2021 when 13% demonstrated capacity (Figure 4). Overall, the systems slightly improved from FFY 2021 with more systems possessing full capacity and more systems not lacking the combined T, M, and F. Looking closer at the capacity questions (Figure 5) we can see improvement on the number of systems that possess an asset management program, possess an Operations and Maintenance manual that meets regulatory requirements, and more systems are tracking water loss on a monthly basis. That being said, fewer systems were making sure their emergency response plan was properly updated and that their budget contained a proper capital improvement portion.

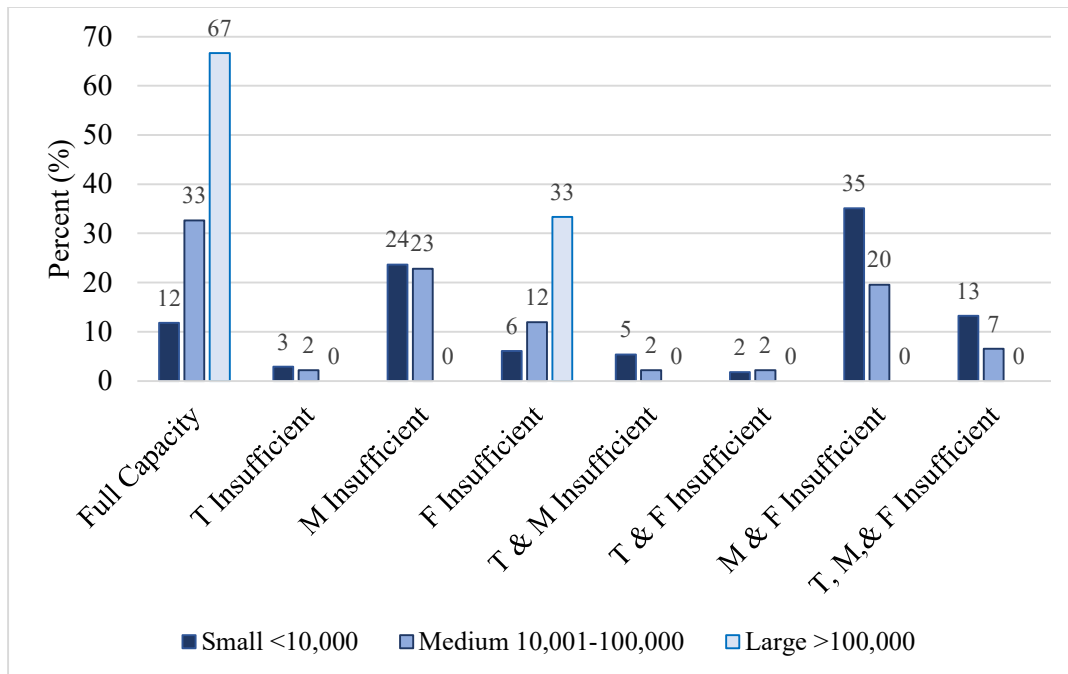


**Figure 4:** Percentage of community PWS exhibiting TMF capacity for FFY 2021 and FFY 2024. Systems lacking T, M, or F capacity, or a combination thereof, are separate.<sup>1</sup>

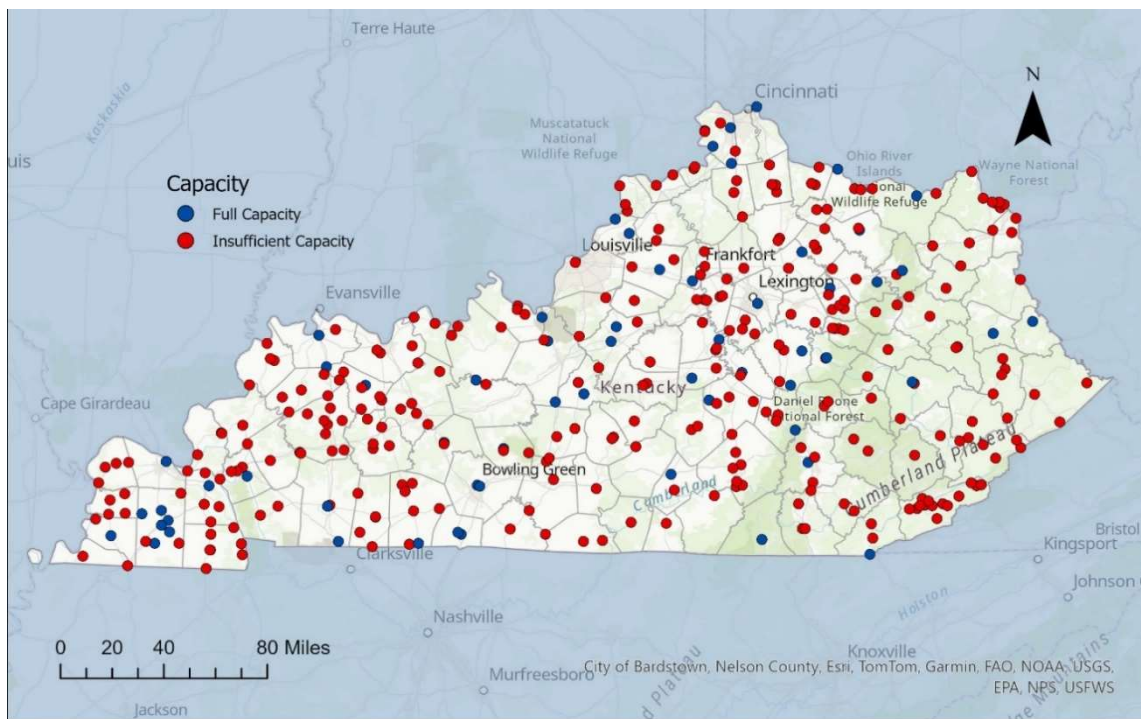


**Figure 5:** Analysis of negative community public drinking water system responses to criteria used to determine TMF capacity for system’s surveyed in FFY 2021 and FFY 2024.

An analysis of community public drinking water system TMF capacity based on population size shows that 67% of systems serving populations of 100,000 or greater demonstrated sufficient TMF capacity as opposed to only 33% of medium and 12% of small systems (Figure 6). Figure 6 provides an overall view of state-wide TMF capacity of all community public drinking water systems. This data takes into account community public drinking water systems that have corrected deficiencies identified during the Drinking Water Sanitary Survey through the end of FFY 2024.

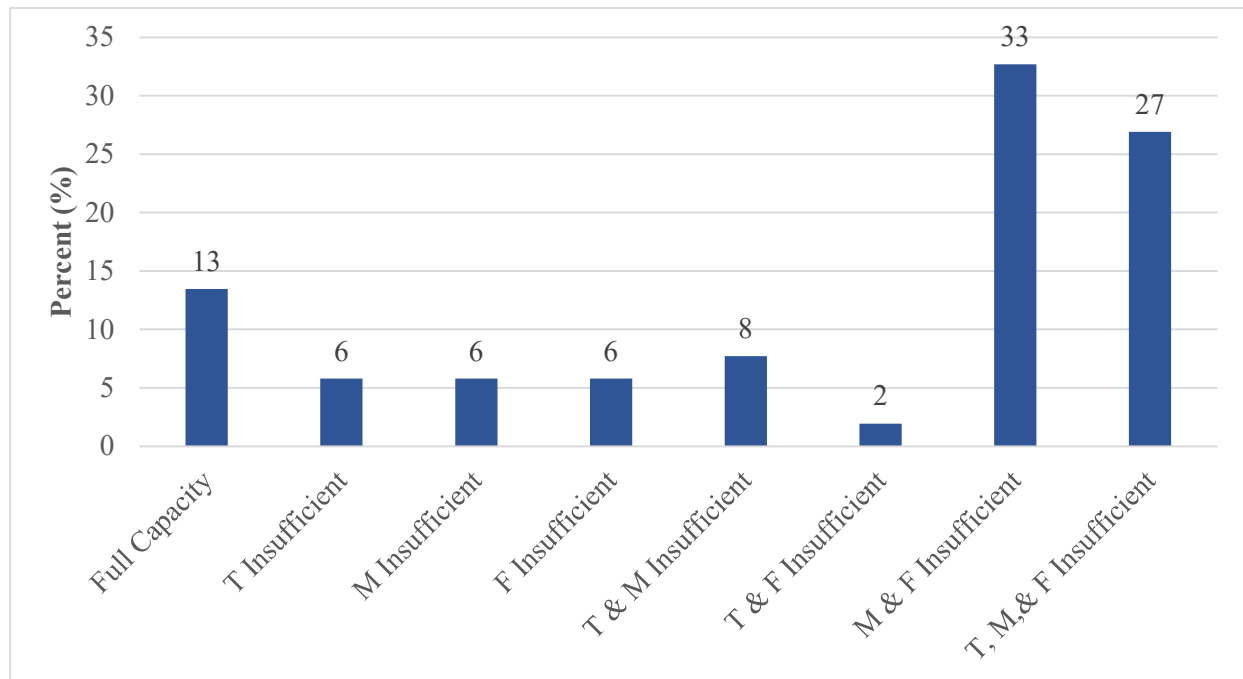


**Figure 6:** Community public drinking water system TMF Capacity by population.<sup>1</sup>

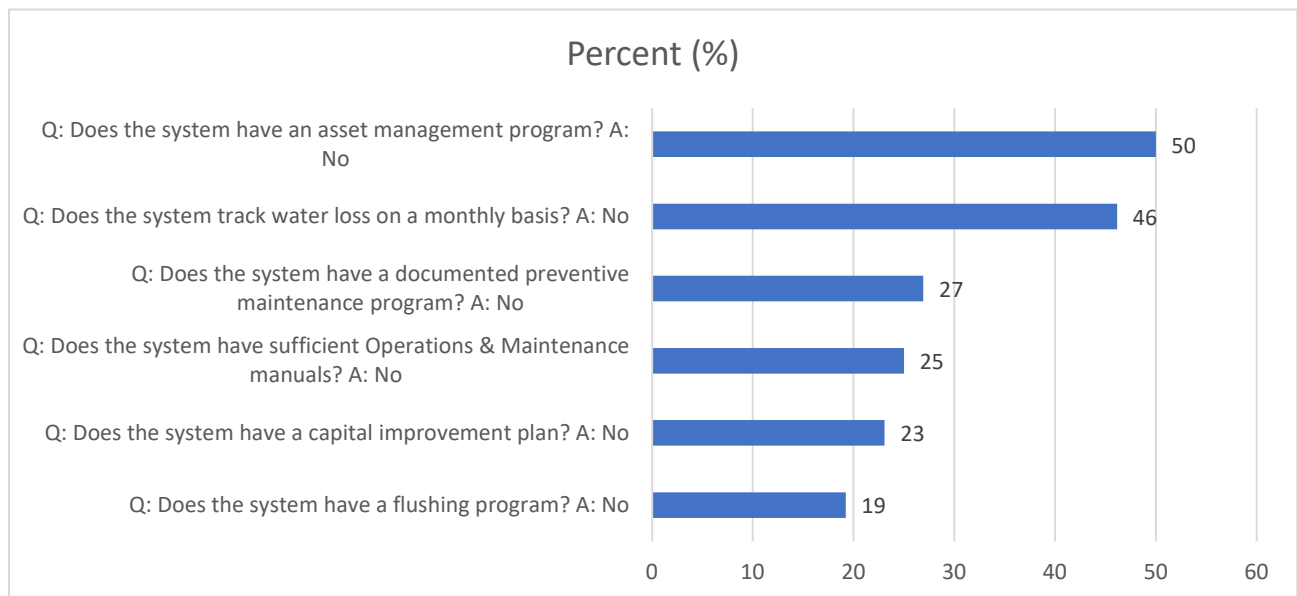


**Figure 7:** Community public drinking water systems with full and insufficient TMF capacity.<sup>1</sup>

Non-community public drinking water systems' TMF capacity are currently assessed using the same criteria as community public drinking water systems. An analysis of non-community public drinking water systems indicates that nearly all demonstrated insufficient TMF capacity (Figure 8). An analysis of adverse non-community public drinking water system responses indicates that insufficient managerial operation is related to a lack of asset management planning, emergency response, and preventive maintenance planning (Figure 9).



**Figure 8:** Non-community public drinking water system 5-year sanitary survey cycle TMF Capacity.<sup>1</sup>



**Figure 9:** Analysis of negative non-community public drinking water system responses to criteria used to determine TMF capacity.

## Involve Stakeholders in State Efforts to Improve Water System Capacity

The Kentucky Water Utilities Advisory Committee (KWUAC), formerly the Drinking Water Advisory Workgroup (DWAU), is a group of industry stakeholders which includes public and private utility representatives, consultants, regulatory agencies, and water-related organizations. The long-standing advisory group convenes on a quarterly basis to address issues that affect consumers and impact the regulated community. The KWUAC also provides a forum for stakeholders to make recommendations to the Division. The Division collaborates with the Kentucky Infrastructure Authority (KIA) to co-administrator of the DWSRF, make enhancements to the program, and establish priorities to address lead service line replacement, perfluoroalkyl and polyfluoroalkyl substances (PFAS), and other emerging contaminants. For FFY 2024, the Division and KIA made adjustments to criteria to prioritize funding to disadvantaged communities. The Division is also continuing to be engaged in the update of WRIS and are working with partners at KIA and engaging water utilities through KWUAC so that WRIS can be better utilized for capacity development and asset management.

The Division continues to utilize State and Local Assistance set-aside funds from the DWSRF to support a long-standing partnership with the Kentucky Rural Water Association (KRWA). This past year KRWA focused on asset management, service line inventory, compliance, and financial capacity, rate studies, and water loss management.

- 2. Based on the existing systems strategy, how has the State continued to identify systems in need of capacity development assistance?*

The Drinking Water Sanitary Survey and the ETT are the primary means for determining PWS TMF capacity. The Sanitary Survey evaluates PWS according to SDWA requirements and assesses managerial and financial criteria that are outside of the scope of federal and state regulations. Analysis of Sanitary Survey data in conjunction with compliance data and the ETT provides the clearest means for determining which systems exhibit insufficient TMF capacity and delineates water systems with greatest need. Kentucky's Drinking Water Capacity Development Strategy outlines the method and criteria used to determine PWS TMF capacity development along with a plan and partnerships necessary to ensure water systems receive the type of assistance needed to improve their capability to produce safe and reliable drinking water. Division personnel interact with PWS at training venues, during Sanitary Surveys, and through on-site outreach to improve PWS TMF capacity development.

- 3. During the reporting period, if statewide PWS capacity concerns or capacity development needs (TMF) have been identified, what was the State's approach in offering and/or providing assistance?*

The Division continues to provide on-site assistance and training to prioritized PWS identified by the ETT, compliance data, and Sanitary Survey. Additionally, the Division works with stakeholders to provide training and support through the Kentucky Division of Enforcement (which also houses the Environmental Compliance Assistance and Operator Certification Programs), the Kentucky Public Service Commission, Rural Community Assistance Partnership (RCAP), KRWA, and Kentucky Water & Wastewater Operators Association (KWWOA).

- 4. If the State performed a review of implementation of the existing systems strategy during the previous year, discuss the review and how findings have been or may be addressed?*

No review was conducted in FFY 2024.

- 5. Did the State make any modifications to the existing system strategy?*

No modifications to Kentucky's Drinking Water Capacity Development Strategy were made during FFY 2024.

### C. Looking ahead – Miscellaneous Notes/Challenges

The Division continues to ensure that it maintains primary regulatory responsibility over PWS pursuant to 40 C.F.R. 142, so that compliance can be tailored to Kentucky's unique needs and challenges. The Division regularly engages drinking water stakeholders through the KWUAC to facilitate discussions regarding future regulations, education, workforce development, new technology, and best practices to promote the value of, and enhance, water resources in the state. The KWUAC also helps promote and support funding of applied research and development in water technology, sustainability, security, water quality, and infrastructure resiliency. The Division and KIA jointly administer the DWSRF and continue to advocate funding to address aging infrastructure through the SRF loan program.

In February 2021, the Division began sending regular updates via email to all PWS in Kentucky. This correspondence has been well received by and generated interest from PWS operators, who have reached out to the Division with questions and information. The emails have facilitated inventory updates and enhanced data transfers, improved methods to assist PWS with compliance, and increased feedback between operators and the Division. The newsletter has also been critical for communication for LCRR and compliance with submittals of initial inventories. The Division shall continue to utilize these "Drinking Water Wednesday" emails and expects them to continue to be an important tool to for keeping PWS up to date.

This past year, House Bill 563 modified KRS Chapters 65 and 224A to promote regionalization and provide direct financial assistance to disadvantaged public drinking water systems. The bill creates a forbearance period of three years from associated fines and penalties if a well-operated utility is pursuing regionalization with a TMF capacity deficient utility with existing violations. This can result in either a physical or managerial consolidation. The bill also authorizes the KIA to prioritize funding in support of regionalization during this forbearance period. The bill further authorizes the creation of the Kentucky Water and Wastewater Assistance for Troubled or Economically Restrained Systems (KYWWATERS) revolving loan fund to be administered through the Kentucky Infrastructure Authority and the General Assembly. It will provide funding for capital and non-capital expenses to disadvantaged public water systems as grants, loans, no-interest loans, or forgivable loans in a manner similar to the DWSRF.

<https://apps.legislature.ky.gov/record/24rs/hb563.html>

#### NOTES

<sup>1</sup>Over time, inadequacies in the original Capacity Development strategy became apparent. In 2022, to address these issues, the Division revised the strategy. After two years the Division has found areas in need of improvement. Comparing the MF capacities from before the implementation of the 2022 Capacity Development Strategy and after shows a great deal of difference. The original strategy was insufficient in catching systems that lacked essential MF components while the new strategy has swung the pendulum in the other direction. In 2018, using the original strategy, 38% of systems that FFY possessed full capacity. Three years later, in 2021, the amount of systems with full capacity were up to 41%. Using the new strategy, the total systems at full capacity is now at 14%. While a drop in capacity was expected, the Division does not believe that this accurately reflects system conditions.

The change in the strategy that primarily caused the capacity disparities was the change to the capacity questions. While the questions are important, they do not accurately reflect whether essential MF elements are present. Another issue is inconsistency in the staff's interpretation of the questions. Before the change in strategy, staff were aware of some inconsistencies in the question interpretations, however, under the new strategy the depth of those issues has been brought to light. For instance, the question regarding whether a system has an asset management program. Because it is now a capacity question, and there are many elements to an asset management program, there were inconsistencies in how this question has been interpreted.

To address these issues, the Capacity Development staff are working to update the Sanitary Survey SOP to create consistency in the question interpretations. A careful examination of the questions accuracy in capturing capacity information is also being conducted. From there the strategy will be closely analyzed and either the way the strategy is implemented will be changed, or the strategy will be revised.