

Commonwealth of Kentucky

2023 TRIENNIAL REPORT TO THE GOVERNOR

Federal Fiscal Years 2021 – 2023

Drinking Water Capacity Development Program for Kentucky Public Drinking Water Systems



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Executive Summary

The 2023 Triennial Report to the Governor on Kentucky's Drinking Water System Capacity Development Program for public drinking water systems summarizes activities conducted by the Division of Water (the Division) during federal fiscal years 2021 through 2023. Capacity Development is a state effort to evaluate water system technical, managerial, and financial capacity and to help public drinking water systems meet Safe Drinking Water Act objectives. Technical, managerial, and financial capacity refers to the expertise and capability of public drinking water systems to deliver safe and reliable drinking water, not to be misinterpreted as the permitted design capacity of water treatment or distribution infrastructure. This report fulfills Kentucky's obligation mandated under section 1420(c)(3) of the Safe Drinking Water Act to report the status of the program to the Governor every three years by September 30th.

The Public Service Commission has jurisdiction over the technical, managerial, and financial expertise of water districts, water associations, and investor-owned water utilities. However, these water systems do not encompass all public drinking water systems in Kentucky. The Division of Water maintains primacy with the environmental protection agency to enforce federal drinking water regulations over all public drinking water systems in the state. Kentucky has 429 public drinking water systems categorized as either community, non-transient non-community, or transient non-community water systems. The Division conducts the Drinking Water Sanitary Survey (Sanitary Survey) to evaluate every public drinking water system's technical, managerial, and financial capacity, or capability, to meet Safe Drinking Water Act objectives. The Sanitary Survey evaluates a public drinking water system's source water, treatment, distribution, finished water storage, pumps and controls, data verification, management, and operation at all community public drinking water systems and non-community public drinking water systems. The majority of the managerial and financial criteria used to determine public drinking water system capacity is not regulated under the Safe Drinking Water Act, however, the Sanitary Survey provides vital information to determine public drinking water system short- and long-term resiliency and sustainability needs to meet Safe Drinking Water Act objectives.

As of the date of this report, approximately 20.5% of the Commonwealth's community public drinking water systems demonstrate sufficient technical, managerial, and financial capacity to meet Safe Drinking Water Act objectives. The remaining community public drinking water systems lacked capacity from one or more criteria identified in [Kentucky's Drinking Water Capacity Development Strategy](#). Of those community public drinking water systems with insufficient capacity, asset management was the main lacking criteria, with approximately 71% of all community public drinking water systems reporting no asset management program. The majority of small and medium community public drinking water systems (public drinking water systems serving less than 100,000) have insufficient technical, managerial, and financial capacity; 87% and 64%, respectively.

The primary obstacles community public drinking water systems faced during this reporting period were aging infrastructure and limited capacity to make upgrades or improvements; difficulty accessing training during the pandemic; and natural disasters including drought, floods, and tornadoes. The Division relied on and improved several tools to provide support to community public drinking water systems to help overcome these obstacles, which are described in the body of this report.

Annually, there are hundreds of on-site technical assistance visits to community public drinking water systems by Division staff. There are 247 community public drinking water systems regularly assisted through the Division's partnership with Kentucky Rural Water Association, and over 263 community public drinking water systems enrolled in the Area Wide Optimization Program, which help improve finished water quality with minimal infrastructure upgrades. The Division has also developed 43 source water and wellhead protection plans to safeguard, maintain, or improve the quality of drinking water sources over the past three years.

The 2023 Triennial Report to the Governor on Kentucky’s Drinking Water Capacity Development Program can be accessed on the Division of Water’s [Drinking Water Capacity Development webpage](#).

I. Drinking Water Capacity Development Program Overview

The Kentucky Division of Water 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 Safe Drinking Water Act. 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. Implementation of the program also ensures that Kentucky receives the full monetary benefit of the Drinking Water State Revolving Fund. The Drinking Water State Revolving Fund is a financial assistance program to help local public drinking water systems and states achieve the health protection objectives of the Safe Drinking Water Act through investments in drinking water capital infrastructure, primarily in disadvantaged communities.

Kentucky’s Drinking Water Capacity Development Strategy describes the methodology for identifying and prioritizing the public drinking water systems most in need of improving technical, managerial, and financial capacity. Technical, managerial, and financial capacity refers to the expertise and capability of public drinking water systems to deliver safe and reliable drinking water, not to be misinterpreted as the permitted design capacity of water treatment or distribution infrastructure. It draws attention to factors that encourage, and impede, capacity development and how the Division will assist public drinking water systems in complying with the Safe Drinking Water Act. The strategy identifies partners and stakeholders available to help public drinking water systems develop and enhance capacity, or capability, and encourages development of implementation of asset management planning.

Technical, managerial, and financial capacity are assessed using the Drinking Water Sanitary Survey at all 375 community public drinking water systems every three years and at all 54 non-community public drinking water systems every five years, pursuant to the Safe Drinking Water Act. 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, according to the Safe Drinking Water Act.
- 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 technical, managerial, and financial criteria used to determine public drinking water system capacity is not regulated under the Safe Drinking Water Act or by the state.
- It helps public drinking water systems understand their capacity development needs and access to federal funding.

II. Drinking Water Capacity Development Program Implementation

The assessment of public drinking water system technical, managerial, and financial capacity is completed simultaneously with the Drinking Water Sanitary Survey. Technical capacity is demonstrated through adequate source water, treatment, distribution, and technical knowledge. Managerial capacity is demonstrated through adequate planning, communication mechanisms, and business practices. Financial capacity is demonstrated by annual and capital budgets, proper revenue, debt coverage, and audits.

In 2023, the Division moved away from static survey forms and began utilizing ArcGIS Survey 123 to conduct Drinking Water Sanitary Surveys and analyzing historic data. ArcGIS Survey 123 enhances the

Division’s ability to manage, extract, and analyze data. Previous data extraction and analysis methods from PDF documents were time-consuming and labor intensive. At the time of this report, the Division has transferred historic Drinking Water Sanitary Survey data as far back as 2017. This allows a comparison between the current three-year cycle of community public drinking water system surveys (from Federal Fiscal Years 2021 to current) to the previous three-year cycle of surveys (Federal Fiscal Years 2018 – 2020). Since non-community public drinking water systems are set on a five-year survey cycle, only one set of data is currently available to assess.

Since FFY 2021, 20.5% of community public drinking water systems have demonstrated sufficient technical, managerial, and financial capacity to meet Safe Drinking Water Act objectives, a subtle increase from the 19.1% during the previous sanitary survey cycle (Federal Fiscal Years 2018 - 2020). The majority of community public drinking water systems exhibit insufficient technical, managerial, and financial capacity in one or more areas of criteria in Kentucky’s Drinking Water Capacity Development Strategy (Figure 1). An analysis of community public drinking water system responses indicates that insufficient managerial and financial capacity is related to a lack of asset management planning, financial planning, emergency response planning, operational documentation, and tracking water loss (Figure 2). Figure 3 provides an overall view of state-wide technical, managerial, and financial capacity of all community public drinking water systems.

Figure 1: Comparison of community public drinking water system current and previous 3-year sanitary survey cycle Technical (T), Managerial (M), and Financial (F) Capacity.

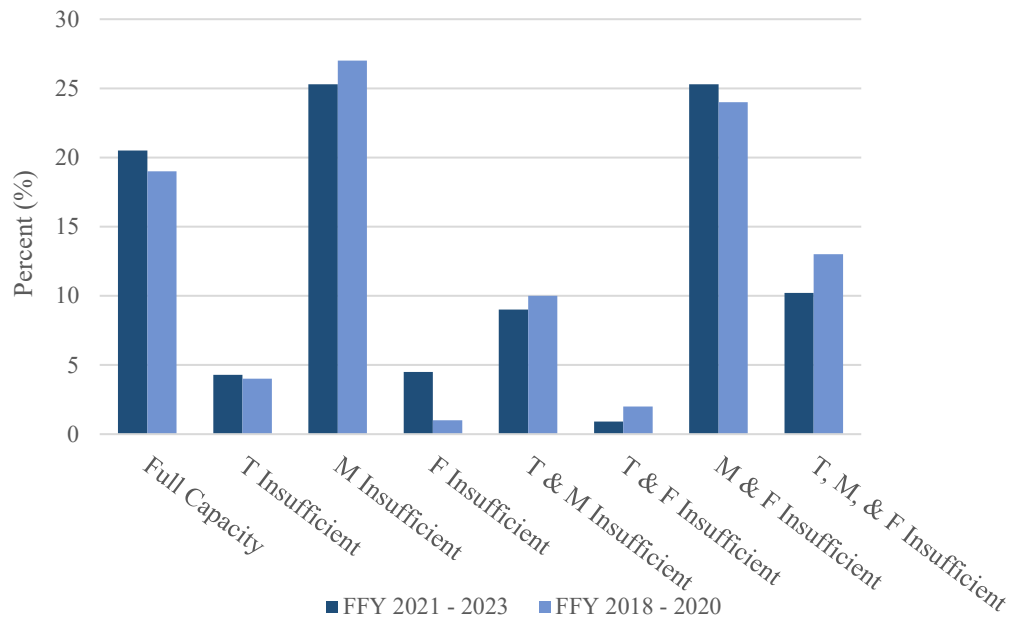


Figure 2. Analysis of negative community public drinking water system responses to criteria used to determine technical, managerial, and financial capacity.

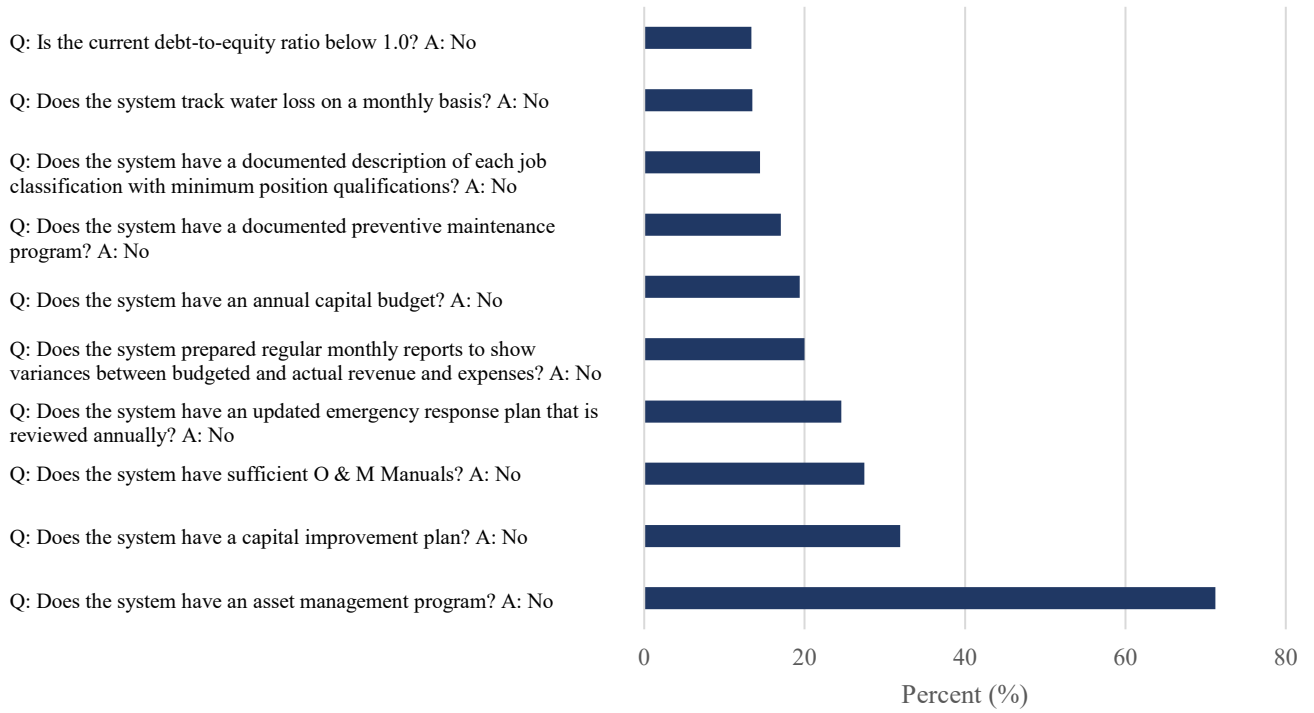
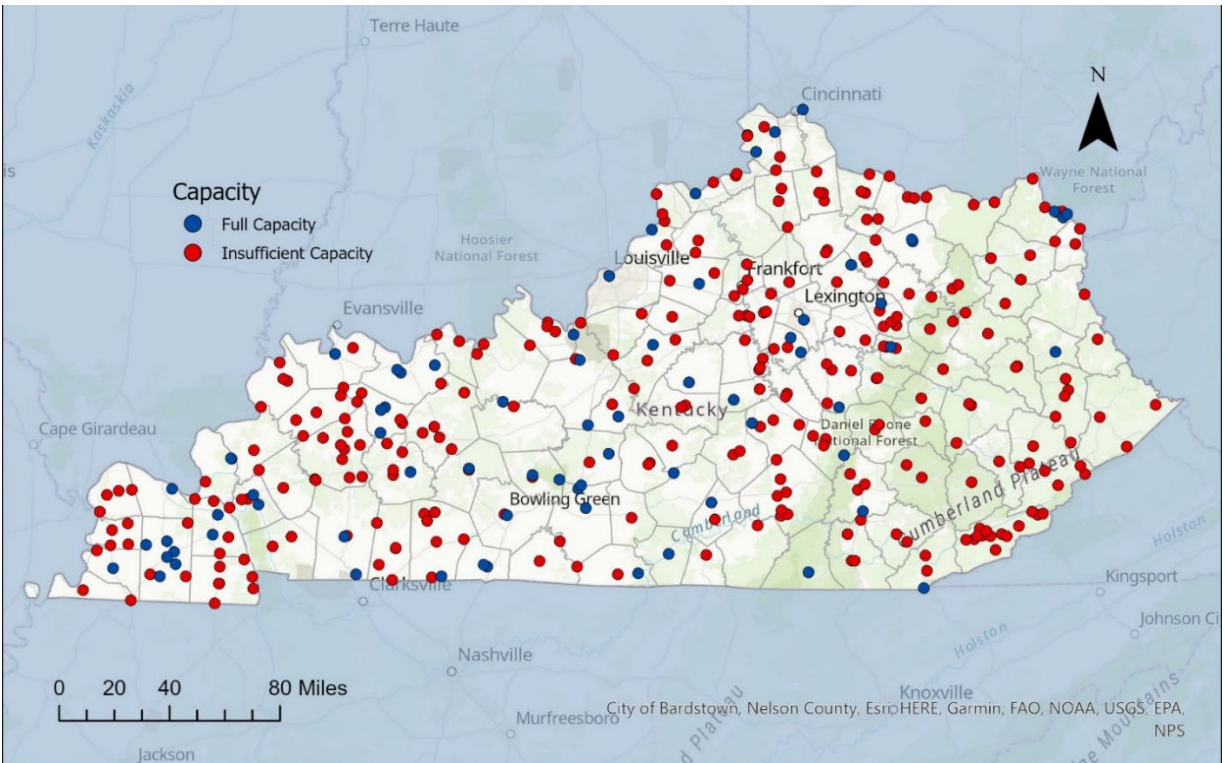
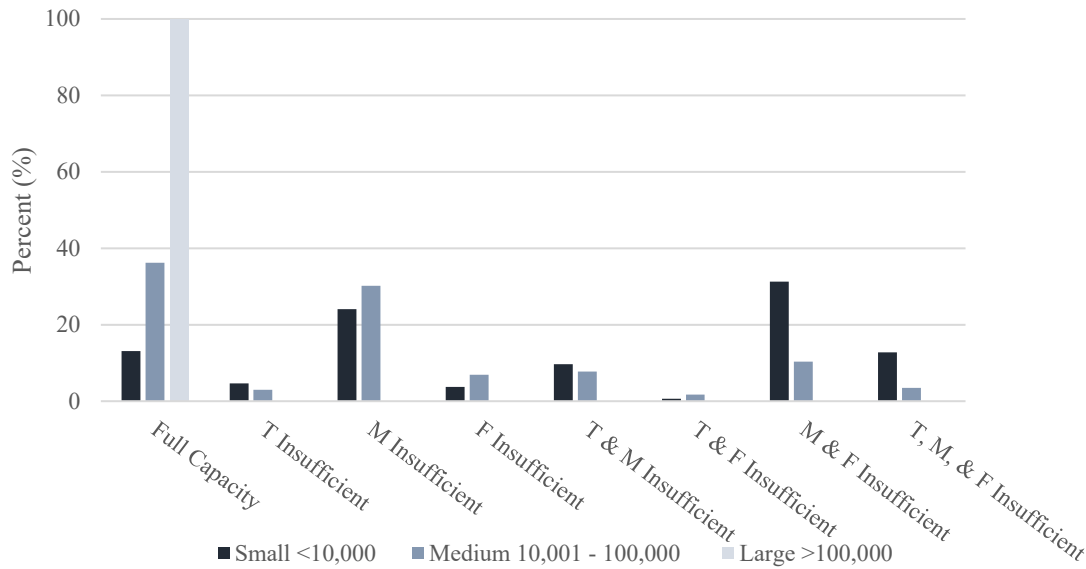


Figure 3. Community Public drinking water systems with full and insufficient technical, managerial, and financial capacity.



Breaking down community public drinking water system technical, managerial, and financial capacity by population size, 100% of large systems demonstrated sufficient technical, managerial, and financial capacity as opposed to only 36% of medium and 13% of small systems (Figure 4).

Figure 4. Community public drinking water system Technical (T), Managerial (M), and Financial (F) Capacity by population.



Sixty-one percent of non-community public drinking water systems demonstrated sufficient technical, managerial, and financial capacity while 39% were insufficient (Figure 5). 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 6).

Figure 5. Non-community public drinking water system 5-year sanitary survey cycle Technical (T), Managerial (M), and Financial (F) Capacity.

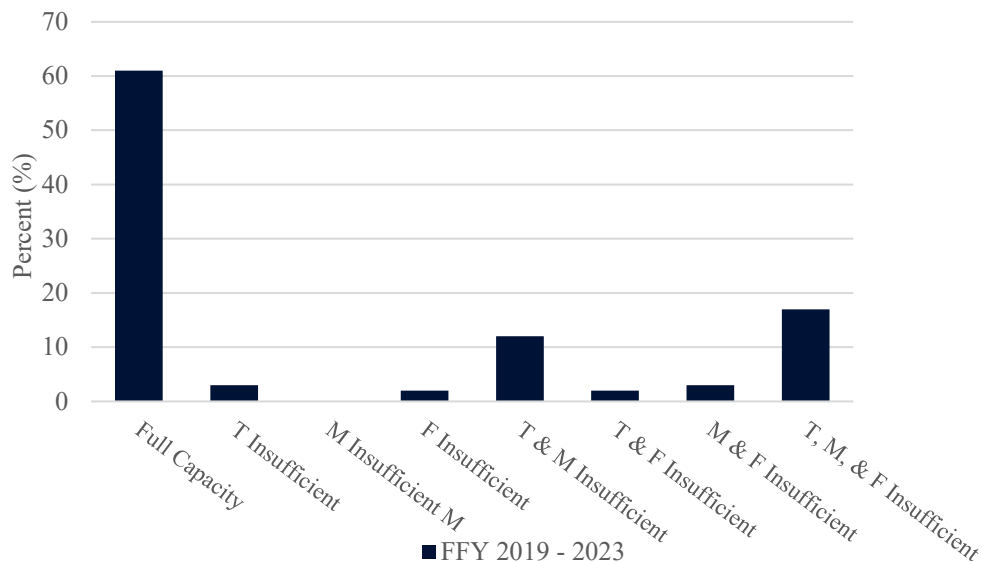
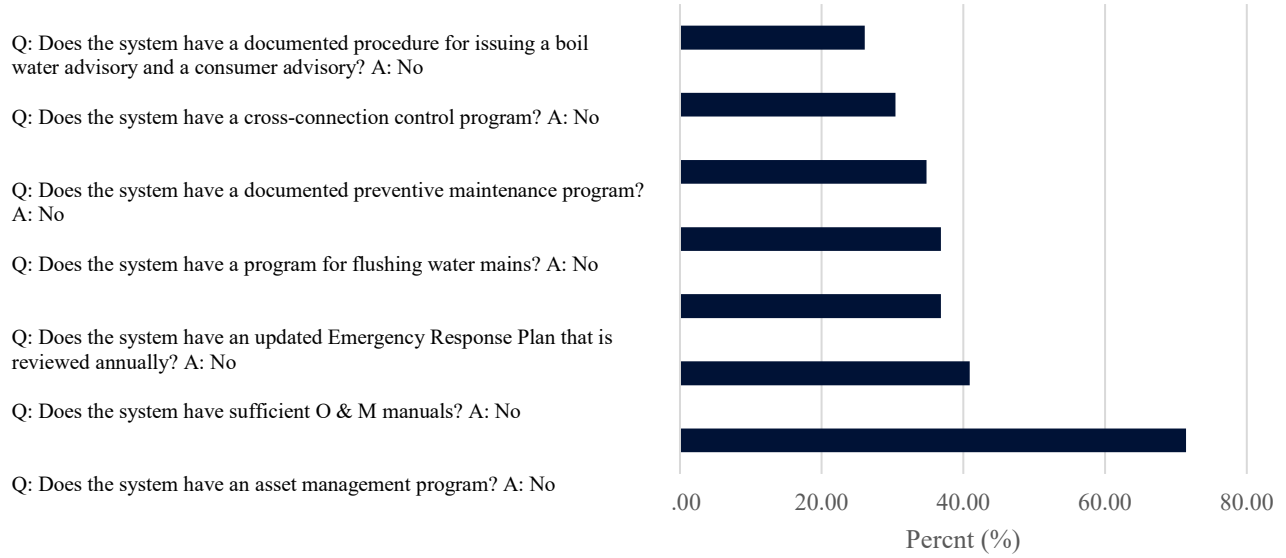


Figure 6. Analysis of adverse non-community public drinking water system responses to criteria used to determine technical, managerial, and financial capacity.



III. Improving Public drinking water system Technical, Managerial, and Financial Capacity

Congress appropriates funding to the Drinking Water State Revolving Fund which is then awarded by the Environmental Protection Agency to each state based upon results of the most recent Drinking Water Needs Survey and Assessment. States are required to provide a 20% match and have the option of taking a variety of set-asides to advance objectives of the Safe Drinking Water Act. Kentucky continues to dedicate these funds to support capacity development through investments in capital infrastructure, technical assistance, and source water protection, drinking water contaminant testing, and building stakeholder partnerships to support small and disadvantaged public drinking water systems. Program Administration funds the Division personnel who track Drinking water State Revolving Fun loan projects from initiation to completion. The Public Public drinking water system Supervision grant funds Division personnel, drinking water laboratory certification auditors, and source water testing for contaminants such as harmful algal blooms. State and Local Assistance funds support public drinking water system technical assistance provided by Division personnel and contractually through the Kentucky Rural Water Association (Figure 7).

Figure 7. Administration of the Drinking Water State Revolving Fund Federal Fiscal Years 2021 – 2023.

		2020 Federal Funds	2020 State Funds	2021 Federal Funds	2021 State Funds	2022 Federal Funds (Base)	2022 Federal Funds (BIL)	2022 State Funds	Estimated 2023 Funds (Base)*	Estimated 2023 Funds (BIL)*
Program Administration (DSR00)	Federal Allocation	\$544,320		\$548,820		\$346,410	\$2,664,480		\$180,360	\$1,907,520
	Personnel spending	\$544,320	\$311,584	\$548,820	\$259,940	\$346,410	\$ -	\$188,147	\$ -	\$ -
Public Water System Supervision (DSR01)	Federal Allocation	\$1,814,400		\$1,829,400		\$1,154,700	\$8,881,600		\$601,200	\$6,358,400
	Personnel spending	\$1,814,400	\$1,120,388	\$1,829,400	\$1,603,272	\$1,134,700	\$36,050	\$2,279,166	\$ -	\$ -
	Contractual spending	\$ -	\$ -	\$ -			\$ -		\$ -	\$ -
State & Local Assistance (DSR03, DSR04, DSR07, DSR07)	Federal Allocation	\$2,721,600		\$2,744,100		\$1,732,050	\$13,322,400		\$901,800	\$9,537,600
	Personnel spending	\$2,273,099	\$3,783	\$2,246,807	\$75,570	\$938,315	\$ -	\$612,637	\$ -	\$ -
	Travel spending	\$ -	\$ -	\$5,636	\$1,050	\$6,029	\$428	\$630	\$ -	\$ -
	Contractual spending	\$448,501	\$ -	\$491,657	\$ -	\$470,207	\$ -	\$ -	\$ -	\$ -
Small System Technical Assistance (DSR05)	Federal Allocation	\$362,880		\$365,880		\$230,940	\$1,776,320		\$120,240	\$1,271,680
	Personnel spending	\$362,880	\$69,298	\$365,880	\$345,807	\$230,940	\$ -	\$383,069	\$ -	\$ -

*Funds have not been awarded yet

DWSRF Infrastructure Investments

According to the Water Resource Information System which is Kentucky’s repository for water infrastructure data, the average age of water treatment plants is 44 years old, and the average age of water tanks is 32 years old. Nearly 27% of water lines are over 50 years old. This capital infrastructure is nearing the end of its useful life. The Division and Kentucky Infrastructure Authority co-administer the Drinking Water State Revolving Fund, which provides low interest loans to communities for infrastructure projects. Since State Fiscal Year 2021, 37 communities received nearly \$94 million dollars to improve drinking water infrastructure. Projects that received funding represent investments in regionalization, rehabilitation, and construction of new water treatment facilities, replacement of inadequate and aging water lines, lead service lines, and tanks, and extending service to residents. Such projects improve the quality and availability of drinking water and strengthen local economies (Figure 8).

Figure 8. Drinking Water State Revolving Fund Infrastructure Investments since State Fiscal Year 2021.

Approved Projects	SFY	Project No.	Total Project Amount	KIA Loan Amount
Whitesburg, City of	2021	WX21133100	\$1,100,000	\$600,000
Whitesburg, City of	2021	WX21133061	\$2,200,000	\$2,200,000
McCreary County WD	2021	WX21147013	\$270,000	\$270,000
Hazard, City of	2021	WX21193049	\$2,437,500	\$1,637,500
Albany, City of	2021	WX21053015	\$5,900,000	\$2,500,000
Harlan, City of	2021	WX21095014	\$1,463,000	\$1,463,000
Harlan, City of	2021	WX21095013	\$2,549,645	\$2,549,645
McKinney Water District	2021	WX21137052; WX21137017	\$2,991,916	\$2,491,916
Scottsville, City of	2021	WX21003023	\$696,500	\$696,500
Fleming Nron, City of	2021	WX21133034	\$1,191,114	\$1,191,114
Letcher Co Wtr and Sewer District	2021	WX21133054	\$3,696,034	\$2,487,495
Letcher Co Wtr and Sewer District	2021	WX21133057	\$7,836,000	\$4,000,000
Louisville Water Company	2021	WX21029166	\$1,075,700	\$537,850
Augusta, City of	2021	WX21023039	\$80,000	\$80,000
Morgan Co Water District	2021	WX21175041	\$3,262,000	\$3,262,000
Warren Co Water District	2021	WX21227083	\$2,100,000	\$2,100,000
Wilmore, City of	2021	WX21113037	\$1,004,898	\$1,004,898
Albany, City of	2021	WX21053010	\$2,948,000	\$2,948,000
TOTALS			\$42,802,307	\$32,019,918
Grayson County Water District	2022	WX21085037	\$7,231,000	\$7,231,000
Whitesburg, City of	2022	WX21133065	\$1,660,000	\$1,660,000
London, City of	2022	WX21125024	\$2,904,000	\$2,904,000
Knox County Utility Commission	2022	WX21121012	\$2,336,832	\$1,193,000
Hazard, City of	2022	WX21193058	\$4,752,600	\$1,000,000
Monticello, City of	2022	WX21231018	\$3,087,000	\$2,340,250
Hazard, City of	2022	WX21193046	\$1,950,000	\$1,950,000
Cynthiana, City of	2022	WX21097028	\$4,640,000	\$3,370,713
TOTALS			\$28,561,432	\$21,648,963
Nicholasville, City of	2023	WX21113040	\$5,572,942	\$4,165,910
Paris, City of	2023	WX21017022	\$3,275,000	\$3,275,000
Cannonsburg Water District	2023	WX21019057	\$2,809,600	\$1,685,083
Adair County Water District	2023	WX21001032	\$4,377,650	\$4,377,650
Hyden-Leslie County Water District	2023	WX21131013	\$3,891,690	\$2,001,013
Lebanon, City of	2023	WX21155060	\$3,850,060	\$3,850,060
Scottsville, City of	2023	WX21003028	\$100,000	\$100,000
Harrodsburg, City of	2023	WX21167034	\$4,666,424	\$4,280,000
Northern Kentucky Water District	2023	WX21037311	\$8,855,000	\$4,000,000
TOTALS			\$37,398,366	\$27,734,716
Barkley Lake Water District	2024	WX21221017	\$4,055,104	\$3,678,453
South Shore, City of	2024	WX21089119	\$10,382,805	\$8,590,500
TOTALS			\$14,437,909	\$12,268,953
GRAND TOTALS - COMMITMENTS			\$123,200,014	\$93,672,550

State and Local Assistance

The Division of Enforcement and Compliance Assistance implements Kentucky’s Operator Certification program which is pivotal in building technical, managerial, and financial capacity. The program issues certification and provides training to ensure that individuals who operate public drinking water systems are qualified and capable of performing their duties. Training focuses primarily on the technical knowledge required to treat water and maintain compliance with the Safe Drinking Water Act. The following is a synopsis of drinking water operator certification activities for State Fiscal Years 2018 to 2023 (Figure 9).

Figure 9: Drinking water operator certification activities State Fiscal Years 202 – 2023.

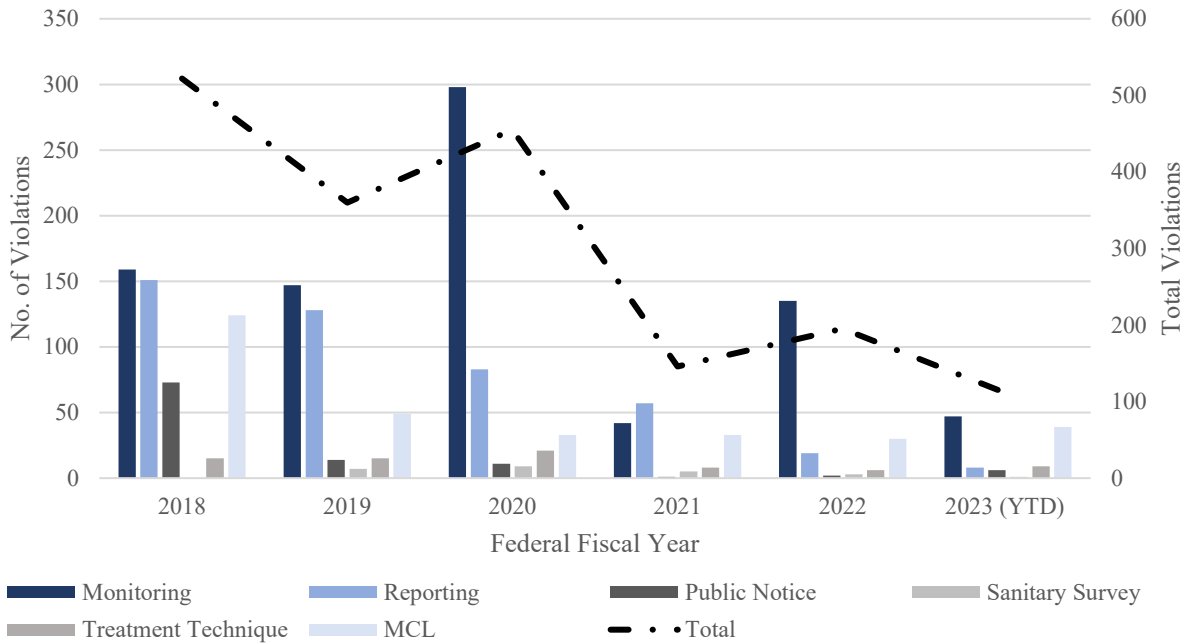
	2021	2022	2023
Active Certifications	2,727	2,806	2,273
Training Hours Conducted	54	18	90
Individuals Trained	n/a	38	226
Online Training Views	6,148	6,390	5,823
Exams Administered	384	422	701

Coming out of the pandemic, the program focused on providing exams to operators versus in-person training which accounts for why the number of training hours and individuals trained are so low. However, the program did create 125 online training videos that were provided to operators at no cost which can be viewed as many times as the operator wants for studying purposes.

The Division dedicates set-aside funds for personnel to provide on-site technical assistance to small public drinking water systems in need of improving technical capacity. A successful component of technical assistance is the Area-Wide Optimization Program which the Environmental Protection Agency developed to provide tools and approaches for public drinking water systems to meet water quality goals that are more stringent than Safe Drinking Water Act regulations on a long-term basis. Kentucky participates in and incorporates the Area-Wide Optimization Program into its technical assistance activities by teaching operators problem-solving skills to improve operations. In calendar year 2023, 68 public drinking water systems serving over 1.74 million Kentuckians achieved microbial Area-Wide Optimization Program goals and 263 public drinking water systems serving more than 3.16 million Kentuckians achieved Area-Wide Optimization Program Disinfection By-Product goals. Public drinking water systems that actively participate in and meet Area-Wide Optimization Program goals are recognized with certificates of achievement and awards.

Since Federal Fiscal Year 2021, Division personnel have conducted 436 on-site visits to provide comprehensive technical assistance focused on health-based compliance and to address technical capacity deficiencies identified in the Sanitary Survey. Fifty training sessions have been conducted for public drinking water systems and labs with over 1,400 attendees representing nearly all public drinking water systems. The topics presented included Corrosion Control, Safe Drinking Water Act Compliance with an emphasis on new rules and rule revisions [Lead and Copper Rule Revision and Per- and Polyfluoroalkyl Substances Rule (PFAS)], Disinfect By-Product Mitigation, Asset Management, Public drinking water system Project Funding, and Electronic Reporting of Drinking Water Compliance. Investments in technical assistance continue to have a positive impact on the reduction of Safe Drinking Water Act violations (Figure 10).

Figure 10. Public drinking water system Violations of the Safe Drinking Water Act since Federal Fiscal Year 2018.



The Division continued to provide funding to the Kentucky Rural Water Association to support a small system assistance program that focuses on geo-graphic information system-based asset management, lead service line detection, compliance, rate studies, and water loss management. Fifty-two small public drinking water systems have been targeted for assistance through the program with asset management, financial capacity, and compliance. An additional 195 systems were provided with technical assistance through compliance reporting and assessments. Nine trainings have been conducted covering topics on electronic reporting, chloramines, lead service line inventory, Geo-graphic information system-based asset management, risk and resiliency assessments, and per-and polyfluoroalkyl substances (PFAS and PFOA) in water and wastewater.

Water Supply

The Division is charged with administering sections of KRS Chapter 151, and state regulations 401 KAR 4:010 and 4:220 which pertain to water resource management, including local and regional water supply planning, water withdrawal permitting and reporting, source water and wellhead protection, and drought monitoring and response. These programs serve to manage the beneficial use of Kentucky’s waters and assist and support water resource management and development.

Water Supply Planning

Based on KRS Chapter 151 and Chapter 224A, the Division and Kentucky Infrastructure Authority developed regulations with the goal of providing water service to every Kentuckian by the year 2020, while encouraging regionalization, consolidation, and the merger of public drinking water systems. These initiatives also required the statewide Area Development Districts to coordinate 2020 water management planning councils and to employ water service coordinators to facilitate and implement the water supply planning process.

By 2001, each 2020 water management planning council had developed a long range water supply plan for each county consistent with the water supply planning requirements. The plans included a water needs forecast for each county in 5, 10, 15, and 20 year increments after the year 2000, a strategy for delivering potable water to unserved and underserved areas of the county, and encouraged merger and consolidation of public drinking water systems. These plans were last updated in 2003-2004. In 1999, nearly 3.3 million Kentuckians, almost 85% of the state's population, received water from 678 public drinking water systems (Water-Resource Development: A Strategic Plan, 1999). In the year 2020, more than 4 million Kentuckians, almost 95% of the state's population, received water from 494 public drinking water systems. There are 213 water treatment plants serving the Commonwealth through nearly 64,000 miles of water distribution lines.

To ensure continued growth of sustainable infrastructure throughout the Commonwealth, the Division needs to focus on the significant challenges and resource management decisions involved in ensuring safe, clean, and reliable public drinking water beyond 2020. Through strategic, sustained investment, bold leadership, thoughtful planning, and careful preparation for the needs of the future, we can promote sustainable planning and infrastructure funding for our communities. The Division is currently revising its related water planning regulation (401 KAR 4:220) to facilitate these goals.

Water Withdrawal

Since 1966, the Division has regulated water withdrawals through a permitting and reporting program. Permits or authorizations are required for water withdrawals of 10,000 gallons or more per day from public waters of the Commonwealth, with exemptions for:

- Use of water for agricultural and domestic purposes including irrigation
- Production of steam generating plants of companies whose retail rates are regulated by the Kentucky Public Service Commission
- Water injected underground in conjunction with operations oil and gas production

In accordance with KRS Chapter 151 and 401 KAR 4:010, permits are specific in terms of quantity, time, place, and rate of diversion, transfer, or withdrawal. The Division is actively developing programmatic integration, and streamlining and modernizing water withdrawal application, recording, and reporting requirements, as well as guidance for the regulated community. Standard Operating Procedures, compliance schedules, and process permits and authorizations are maintained in the Department's file system. In a continued effort to develop, manage, and maintain correct and accurate data and information, the Division has conducted numerous system inspections, and provided regular updates to ArcMap data layer files. Figure 11 summarizes active permitted withdrawals measured in millions of gallons per day.

Figure 11: Number of permitted water withdrawals and daily averages.

Use Category	Number of Permitted Withdrawals				Annual Average (MGD)			
	Year							
	2020 (Oct-Dec)	2021	2022	2023	2020 (Oct-Dec)	2021	2022	2023 (Jan-July)
Water Supplier	253	254	248	254	560.74	594.98	582.10	577.59
Industrial	126	130	125	123	217.76	252.64	230.97	213.81
Mining (Coal)	111	116	96	94	14.41	12.23	10.79	12.42
Mining (Non-coal)	58	54	59	64	16.61	15.29	14.66	15.27
Commercial	114	115	115	115	24.38	25.46	27.40	46.32
Aquaculture	6	6	6	6	29.67	30.80	30.08	29.95
Other	12	10	11	10	1.00	1.14	1.21	0.83
Totals	680	685	658	666	884.41	932.55	897.20	896.19

The Division works with the United States Geological Survey to collect water use information that is compiled into a national water-use data system and published every five years. Kentucky has one of the most comprehensive and long-term water withdrawal data programs in the eastern U.S.

Source Water Protection

Source water is raw, untreated water used for current or future public drinking water purposes. Source water protection is a proactive, front-line defense to safeguard, maintain, or improve the quality of drinking water sources, as well as a planning process conducted by local public drinking water systems, regional, state, and federal government agencies, to protect drinking water sources from overuse and contamination. Kentucky’s source water assessment and protection efforts have been very successful during this three-year reporting period. The Division has approved approximately 43 source water and wellhead protection plans over the last three years. Additionally, the Division collaborates with the Ohio River Sanitation Commission (ORSANCO) on source water protection initiatives for the Ohio River watershed.

Division personnel continued assisting public drinking water systems and other agencies with source water and wellhead protection plan development and implementation, education and outreach, and public meeting facilitation. Programmatic integration, modernizing plan guidance, forms, brochures, checklists, and databases is ongoing.

The Division continued to promote the use of the [Source Water Protection Viewer](#) to view assessments and plans, and an Environmental Systems Research Institute (ESRI) Story Map application that showcases Source Water Protection in Kentucky. In addition, the Division developed [six new ESRI Story Maps](#) to promote source water protection and support implementation of best management practices. Topics include source water basics, planning elements, strategies, planning tools, success stories and funding opportunities.

Division personnel continued to assist with sampling and analyses required for the Kentucky Groundwater Monitoring Network, the Division’s ongoing per-and polyfluoroalkyl substances study, and compliance reviews associated with Consumer Confidence Reports. In addition, Division personnel are developing education and outreach support tools for public drinking water systems to help them comply with upcoming Lead and Copper Rule Revisions requirements from the Environmental Protection Agency.

Division personnel continued to provide presentations at numerous trainings and meetings, including the Area Development District Water Management Councils, Wastewater & Drinking Water Advisory Workgroup, Source Water Protection Committees and Source Water and Wellhead Protection Plan Public Meetings, U.S. Department of Agriculture, National Resource Conservation State Technical Committee, Kentucky Interagency Groundwater Monitoring Network, Kentucky Water Resources Research Institute,

Kentucky Geological Survey, Kentucky Rural Water Association, U.S. Geological Survey Indiana-Kentucky Water Science Center, 319(h) program education and outreach events, Kentucky, U.S. Environmental Protection Agency Region 4, Groundwater Protection Council, and Kentucky Agriculture Science and Monitoring Council.

Drought Monitoring

The Division continuously [monitors hydrologic and climatic conditions](#) to detect emerging drought conditions, identify the locations and severity of drought, and provide timely and appropriate information to the public. The Division also works with the Kentucky Drought Mitigation Team to issue drought and water shortage watches and warnings in compliance with the [Kentucky Drought Mitigation and Response Plan](#). These efforts are coordinated with the [U.S. Drought Monitor](#), [National Integrated Drought Information System](#), [Midwest Drought Early Warning System](#), and [Kentucky Climate Center](#).

[The Kentucky Drought Risk Assessment](#) is part of a 5-year risk assessment that helps inform the Commonwealth's Hazard Mitigation Plan. The Division assesses the risk to agriculture and drinking water supplies, as well as to other sectors such as state owned buildings, during a drought as required by DEM.

Division personnel regularly attends climate and drought conferences and submit recommendations for the North Central U.S. Climate and Drought Summary and Outlook and Kentucky Monthly Climate Perspective on Drought and Hydrologic Conditions webinars, and co-authored a chapter in the [National Soil Moisture Network](#) Implementation. The Division hosts an online [Drought Viewer](#) and a [Drought Impact Reporter](#), which are interactive tools, on its website to report declared droughts, drought-related conditions and impacts, and water shortage watches and warnings.

Water Shortage Response Planning

The Division is streamlining and modernizing Water Shortage Response planning to provide a framework that assists public drinking water systems in making key water supply management decisions and developing plans to minimize the impacts of water shortages. The plans typically include stages of response related to droughts or other supply shortages to conserve available water supplies, and reduce demand, and supply augmentation options. The planning objectives address the need to preserve essential public services while minimizing adverse effects on public health and safety, community and utility economic activity, environmental resources, and quality of life.

Bathymetry and Pool Level Monitoring

The Division continued to build upon its bathymetry (underwater depth and topography) data collection capabilities to produce robust models of water quantity and availability. Some of these efforts utilized manned watercraft and a drone to collect data and aerial imagery.

IV. Future Activities

Lead and Copper Rule Revisions

The Environmental Protection Agency published revisions to the Lead and Copper Rule in December 2021, with an initial compliance deadline of October 16, 2024. The Division has worked closely with the Lead in Drinking Water workgroup, which includes meeting regularly with the workgroup's eight subgroups (corrosion control, funding/financing, public education, regulatory and legislative reporting, schools and childcare centers, inventory and service line replacement, small systems, and procedures) to create guidance and templates, provide workshops, and develop other materials to assist public drinking water systems with rule revisions. This rule and its revisions are among the most complex that public drinking water systems have

dealt with and includes requirements such as increased sample collection, water treatment changes, service line identification and inventory, data and records management requirements, customer communication, communication with schools and childcare centers, and service line replacement. While preliminary service line inventories indicate that the majority of Kentucky's public drinking water systems do not have lead service lines, all public drinking water systems are required to comply with the rule.

Per-and Polyfluoroalkyl Substances and Emerging Contaminants

The Environmental Protection Agency announced a National Primary Drinking Water Regulation to establish legally enforceable levels, or maximum contaminant levels, for six per-and polyfluoroalkyl substances in drinking water on March 14, 2023. The proposed rule will require public drinking water systems to monitor for, and notify, the public of the levels of these per-and polyfluoroalkyl substances, and reduce the level of these substances in drinking water if they exceed the proposed standards. The Environmental Protection Agency anticipates finalizing the rule in late 2023 or early 2024. Compliance will be required three years after the regulation becomes effective.

Asset Management Planning

Asset management is a process that water utilities may use to ensure that planned maintenance and capital assets are repaired, replaced, or upgraded on time and that there is sufficient funding for the utility to do so. Asset management planning is one of the criteria the Division uses to determine managerial capacity of public drinking water systems. Approximately 71% of community and non-community public drinking water systems do not have an asset management program. To promote implementation of asset management planning at public drinking water systems, the Division has allocated greater priority to proposed Drinking Water State Revolving Fund infrastructure projects from public drinking water systems that have an asset management program. Technical assistance is provided to public drinking water systems by Division personnel and by the Kentucky Rural water Association to building asset management planning through a contract utilizing drinking water set-aside funding.

[Senate Bill 263](#) modified KRS Chapter 224A in relation to regionalization and asset management planning to further promote public drinking water system asset management planning. The Bill created a process and a fund to assist public drinking water systems with detecting water loss, developing and maintaining asset management plans, regionalization, and consolidation. The statutory changes authorize the Kentucky Infrastructure Authority to promulgate regulations and receive technical support from Energy and Environment Cabinet to implement the program.

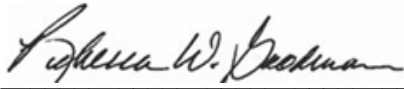
V. Recommendations

To continue supporting public drinking water system capacity development, resiliency, and sustainability, the following actions are recommended to be carried out by the Division:

- Develop asset management planning guidance and support as required by the 2018 America's Water Infrastructure Act;
- Encourage regular utility rate reviews and promote rate indexing;
- Utilize State Revolving Fund set-aside funds to support recruitment and training of new drinking water operators;
- Promote technology to support public drinking water system operational decision-making and operations;
- Update drinking water and capacity development data management, including an electronic data collection and submittal system for public drinking water system compliance

- Increase collaboration with Area Development Districts and the Kentucky Infrastructure Authority to update and enhance the Water Resource Information System;
- Revise applicable state regulations to improve technical, managerial, and financial capacity of public drinking water systems
- Continue collaborative relationships with stakeholders to:
 - Enhance regulatory programs and guidance;
 - Provide resources for best practices;
 - Promote workforce development, education, and process improvement;
 - Continue advocacy and funding for renewing aging water infrastructure through the State Revolving Fund loan program and other funding sources;
 - Support funding of applied research and development in water technology, sustainability, security, quality, reuse, and infrastructure resiliency; and,
 - Promote and protect water resources.

Recommended By:



Rebecca Goodman, Secretary
Energy and Environment Cabinet

9/26/2023
Date