

2019 Analysis of State Drinking Water Programs' Resources and Needs

Addressing Emerging Issues and State Specificity in Program Implementation

Prepared by The Cadmus Group LLC and GEC



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TABLE OF CONTENTS

Acknowledgements..... i

Table of Contents ii

List of Figures..... iii

Acronyms iv

Executive Summary 1

Introduction 5

Methods and Approach 10

“The Money” 22

“The Staff” 24

“The Barriers” 25

“The Reality of State Workload” 28

“The Reality of Emerging Issues” 38

“The Gap” 44

Appendix A 47

Appendix B 49

Appendix C 58

LIST OF FIGURES

Figure 1: Drinking Water Program Workload Components.....	8
Figure 2: Summary of Approach for Resource Needs Analysis.	11
Figure 3: List of 2019 Workload Model Line Items by Category.....	15
Figure 4: Summary of Changes to Workload Model Inputs from 2011 to 2019 Model	18
Figure 5: 2019 Drinking Water Program Budgets for 36 States	23
Figure 6: Range of Drinking Water Program Funding Sources Reported by 36 States	23
Figure 7: Breakdown of FTEs in Drinking Water Programs Reported by 36 States	24
Figure 8: Barriers to Accessing FTEs and Funding Experienced by Drinking Water Programs	25
Figure 9: Total Number of FTEs and Total Cost by Year for 55 State and Territorial Drinking Water Programs	28
Figure 10: Comparison of Resource Needs Projected in 2011 and 2019 Models for 55 State and Territorial Drinking Water Programs (represented in FTEs).....	29
Figure 11: Comparison of Resource Needs Projected in 2011 and 2019 Models for 55 State and Territorial Drinking Water Programs (represented in millions of 2019 dollars)	29
Figure 12: Comparison of LCR FTEs from 2011 Model and 2019 Model	33
Figure 13: Comparison of Annual Sanitary Survey FTEs from 2011 Model and 2019 Model	35
Figure 14: Comparison of Annual Capacity Development FTEs from 2011 Model and 2019 Model.....	37
Figure 15: Percentage of States that Reported FTEs for Emerging Issues.....	39
Figure 16: Projected Funding and Staffing Needs Compared to Current 2019 Funding and Staffing for 55 State and Territorial Drinking Water Programs.....	44
Figure 17: Total FTE and Funding Deficit by Year for 55 State and Territorial Drinking Water Programs.....	45

ACRONYMS

ALE	Action Level Exceedance
ASDWA	Association of State Drinking Water Administrators
AWIA	America's Water Infrastructure Act of 2018
CCR	Consumer Confidence Report
COVID-19	Coronavirus Disease of 2019
DWSRF	Drinking Water State Revolving Fund
EPA	U.S. Environmental Protection Agency
ETT	Enforcement Targeting Tool
FTE	Full-time Employee
FY	Fiscal Year
GWR	Ground Water Rule
IESWTR	Interim Enhanced Surface Water Treatment Rule
LCR	Lead and Copper Rule
LCRR	Lead and Copper Rule Revisions
MCL	Maximum Contaminant Level
PFAS	Per- and Polyfluoroalkyl Substances
PWSS	Public Water System Supervision
RTC	Return to Compliance
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
TA	Technical Assistance
TMF	Technical, Managerial, and Financial
UCMR	Unregulated Contaminant Monitoring Rule
WIIN Act	Water Infrastructure Improvements for the Nation Act of 2016

EXECUTIVE SUMMARY

Safe Drinking Water Act and State Drinking Water Programs

The Safe Drinking Water Act (SDWA) was passed in 1974 and subsequently amended in 1986 and 1996 to ensure that drinking water systems across the United States deliver safe water to their customers and ultimately ensure an ever-increasing level of public health protection. Forty-nine states (excluding Wyoming) and five territories plus the Navajo Nation, for a total of 55 programs, have enforcement authority for the SDWA and have established drinking water programs to provide oversight of the approximately 146,000 drinking water systems currently operating. Drinking water programs are responsible for ensuring that drinking water systems maintain compliance with the regulations. The core of states' work is upholding the principles of the SDWA, which includes important preventive work to protect public health. This preventive work ensures that drinking water systems comply with the regulations and are delivering safe drinking water to customers. The preventive measures for maintaining compliance include ensuring the systems have the appropriate technical, financial, and management skills and knowledge for the long-term, as well as being prepared for, and recovering from, emergencies.



Past and Present Resource Needs Analyses

The Association of State Drinking Water Administrators (ASDWA) has conducted state resource needs analyses in the past in partnership with the U.S. Environmental Protection Agency (EPA). Past analyses conducted in 1989, 1993, 1999, 2001, and 2011 have demonstrated that state drinking water programs are chronically underfunded. ASDWA conducted an additional analysis in 2018 ([Beyond Tight Budgets](#)) that sought to capture the extent of additional resource demands on state drinking water programs related to quasi-regulatory activities (or emerging issues), such as post-Flint Lead and Copper Rule oversight, per- and polyfluoroalkyl substances (PFAS), algal toxins, and *Legionella*. This analysis showed the growing demand for state drinking water programs and highlighted the need for additional funding or reallocation of resources.

ASDWA sought to conduct a new resource needs analysis in 2019 that built off of the 2011 resource needs analysis and the 2018 *Beyond Tight Budgets* analysis. ASDWA determined that this new analysis was needed for several reasons.

- Since the [2011 analysis](#), the EPA has promulgated new regulations, and new or revised regulations are either underway or are being considered.
- State workload has changed from the workload analysis conducted in 2011. Workload associated with some existing regulations (e.g., the Lead and Copper Rule [LCR]) that was thought to be relatively low and static in the 2011 analysis has since increased due to increased post-Flint analysis and oversight of LCR implementation.

- State drinking water programs vary widely, in terms of budget, size, structure, and how they implement the SDWA, among other aspects. They face different challenges and have unique approaches in addressing these challenges. States may implement unique practices in order to support drinking water systems in achieving and maintaining compliance with the SDWA. The 2011 resource needs analyses did not capture this state specificity.
- Finally, emerging issues (e.g., PFAS) have been redirecting state resources away from work directly related to the SDWA. States have been forced to take action (without federal regulations and little guidance from the EPA) on these quasi-regulatory issues in order to protect public health in their states. These issues can be unpredictable and difficult to anticipate, as the country has seen with the coronavirus (COVID-19) pandemic.

This new analysis includes an expanded scope to go beyond the federal mandates and to incorporate state specificity and emerging issues into an updated analysis to accurately reflect the resources needed by states to implement drinking water regulations and protect public health.

In order to capture the different activities contributing to state drinking water program workload in this analysis, ASDWA developed broad categories to explain these activities. These categories include required primacy activities, primacy support activities, additional primacy activities, and additional public health protection activities. Required primacy activities and primacy support activities are considered federal activities, or activities that are directly related to SDWA requirements. Additional primacy activities can be federal or state-specific, as they are related to federal requirements. But these activities reflect the different ways in which states may implement federal requirements. Additional public health protection activities are solely state-specific activities. They are often related to issues that have not yet been regulated by the EPA, forcing states to take action on their own in order to protect public health within their states.

Estimating Resource Needs and Available Resources

The purpose of the 2019 analysis was two-fold: 1) estimate realistic drinking water program workload for 55 state and territorial drinking water programs and 2) determine the severity of the gap in drinking water program resources. Unlike previous analyses, this effort was led by ASDWA and not conducted in partnership with EPA. ASDWA organized a panel of state representatives who provided input and guidance throughout the process. The primary task of the panel was to review and revise drinking water program workload estimates. These estimates serve as inputs for the workload model (model), which was built to calculate annual staffing needs for 55 state and territorial drinking water programs across a 10 year period (2020-2029). This model was originally developed in 2011 to estimate resource needs associated with program activities specifically mandated by the SDWA (i.e., required primacy activities) or an associated the EPA primacy requirement (i.e., primacy support activities). Additional primacy activities were included in the 2019 update to the model.

The panel was also tasked with collecting current drinking water program staffing and financial data. This was done by distributing a financial survey to state drinking water administrators in 2019. States were asked to provide staffing and budget/funding numbers that represented the entirety of their drinking water program. The data collected via the financial survey and the outputs from the workload model are central to the state resource needs analysis. The financial survey data represent what funding and staffing levels states currently have available to them, and the workload model outputs represent the actual funding and staffing needed for state and territorial drinking water programs to effectively implement their programs and ensure safe drinking water is delivered to the public. Available resources are compared to the needed resources to determine the gap in resources.

Taking the approach outlined above, ASDWA estimates that 55 state and territorial drinking water programs currently have approximately 4,121 full-time employees (FTEs) and \$574 million from all funding sources available to implement their programs. In contrast, ASDWA estimates that 55 state and territorial drinking water programs need 7,518 FTEs and \$949 million in 2020 to effectively implement their programs. In other words, drinking water programs need approximately 82 percent more FTEs and 65 percent more funding than they currently have to effectively implement their programs and ensure safe drinking water for the public in 2020. The resources needed is the highest in 2029 when states and territories are projected to need 8,268 FTEs and \$1.04 billion. The tables below summarize states' funding and staffing gap in fiscal year (FY) 2020 and FY 2029.



Year	Available Staffing (from all sources)	Needed Staffing (from all sources)	Gap
FY 2020	4,121 FTEs	7,518 FTEs	3,397 FTEs
FY 2029	4,121 FTEs	8,268 FTEs	4,147 FTEs



Year	Available Funding (from all sources)	Needed Funding (from all sources)	Gap
FY 2020	\$574 million	\$949 million	\$375 million
FY 2029	\$574 million	\$1.043 billion	\$469 million

In the financial survey, states were also asked to identify barriers to accessing needed resources. Barriers were identified in the 2011 analysis, and the same issues continue to present challenges in 2019. The states identified their chief concerns as limits on FTEs, unreliability of funding sources, resistance to fee programs, limitations on use of funds, and competing priorities with limited resources. Many drinking water programs struggle with making a case for their program to receive more resources as they are competing with other issues within state governments' budgets. Flat federal funding from 2004 to 2019 compounded the funding problems.

In ASDWA's 2018 [Beyond Tight Budgets](#) report, ASDWA found that increased workload from the emerging issues ranged from 1.1 to 12.5 percent across the states, with an average workload increase of 4.3 percent. However, workload for emerging issues and other additional public health protection activities was not incorporated into the 2019 model itself, so it is likely that state workload is still underestimated by the 2019 workload model. The dynamic nature of emerging issues makes it difficult to incorporate the states' workload into the model directly. Emerging issues can vary greatly among states, and they can also be unpredictable in nature and difficult to anticipate. The panel incorporated a more qualitative analysis about additional public health protection activities in the 2019 analysis. ASDWA staff collected information regarding emerging issues in the financial survey and also collected narratives from states regarding PFAS, lead in schools, and risk communication, which were considered to be relevant emerging issues among many states. ASDWA staff also collected information on the COVID-19 response, which demonstrates the unpredictability and variability of emerging issues, since this issue was unknown at the time of the 2019 financial survey. State drinking water programs have been redirecting resources to support state response initiatives.

The Growing Deficit and Need for Additional Resources

The results of the 2019 resource needs analysis echo the past needs analyses in that significant investment is needed to enable state drinking water programs to fulfill their role in implementing SDWA and protecting

public health. State workload continues to evolve and grow without adequate resources to address the growth, and state workload continues to reach far beyond the requirements of the SDWA. States are continually asked to be proactive and manage an increasing amount of both new regulatory and quasi-regulatory activities, spreading their already dwindling resources even thinner. Furthermore, states are put in a difficult situation to take action on contaminants and issues that have not yet been regulated by the EPA or with little guidance from the EPA on the appropriate actions to protect public health. Without additional resources, states are forced to take efforts away from existing regulatory programs to manage the quasi-regulatory tasks that are being added to their workload.

State drinking water programs continue to adapt to stagnant resources and increasing demands by prioritizing threats to public health and implementing efficiency measures, but their ability to meet all demands and requirements is greatly compromised. If states are compromised in their ability to carry out their work, then safe drinking water and public health are also compromised. More attention must be paid to state drinking water programs, their dynamic and ever-growing workload, and the importance of the core preventive work. Moreover, additional funding or a reallocation of resources is required so that state drinking water programs can continue to carry out this preventive work to ensure safe drinking water, protect public health, and avoid public health crises.



INTRODUCTION

What Authorities Do State Drinking Water Program Have?

The Safe Drinking Water Act (SDWA) requires the U.S. Environmental Protection Agency (EPA) to establish and enforce standards that public drinking water systems must follow. The EPA then delegates the primary enforcement responsibility to state or territorial governments. This primary enforcement responsibility is also known as primacy. States and territories establish programs that meet the standards set by the EPA, along with other programs that support drinking water systems, to ensure that drinking water systems consistently provide a safe and adequate supply of water to consumers. Currently, all states except Wyoming have applied for and obtained primacy for the SDWA from the EPA. The Navajo Nation and five U.S. territories (i.e., Puerto Rico, the U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of Northern Mariana Islands) also have obtained enforcement authority for the SDWA. These 55 entities, collectively referred to as “states” in this report, have the responsibility to implement and enforce drinking water requirements that are at least as stringent as the federal requirements.

What is primacy?

“Primacy” is the primary enforcement responsibility to implement SDWA's Public Water System Supervision (PWSS) Program. The EPA delegates primacy for public water systems to states, territories, and Indian Tribes if they meet special requirements. All states (except for Wyoming) have primacy, as well as the Navajo Nation, Puerto Rico, the U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of Northern Mariana Islands. States, territories, Indian Tribes, are referred to as primacy agencies.

Why are State Drinking Water Programs Important?

State drinking water programs serve a vital role in ensuring that consumers served by public water systems receive drinking water that meets or exceeds the health standards put in place by state and federal regulations. States are challenged to effectively protect public health – through monitoring, treatment, training, technical assistance, and infrastructure investment. State staff must be diligent and skilled to provide the necessary oversight to drinking water system staff. These efforts are time- and resource-intensive undertakings for state drinking water programs, but in the absence of state oversight, drinking water systems may experience preventable operational or managerial failures, which pose potentially severe public health consequences for consumers and even greater workloads for state staff in response.

State drinking water programs are responsible for:

- Ensuring that drinking water systems comply with all state and federal regulations,
- Informing and educating drinking water systems about regulations,
- Providing critical hands-on technical assistance to drinking water systems,
- Managing and interpreting vast quantities of compliance data,
- Ensuring that laboratories and drinking water system operators are properly certified,
- Responding to natural disasters and other emergencies that threaten the safety of drinking water systems,
- Conducting inspections and other site visits,
- Taking enforcement action when needed, and
- Reviewing/approving construction plans and permits.
- Ensuring the technical, financial, and managerial skills of water system staff.
- Managing source water protection programs.
- Managing cross-connection control programs.

The core of state drinking water program work and of the SDWA is preventive: protecting public health and attempting to avert public health crises. As a result, state drinking water programs are necessary to support drinking water systems, ensure SDWA requirements are met, and ultimately protect public health.

Past Resource Needs Analyses

The Association of State Drinking Water Administrators (ASDWA), in collaboration with the EPA, has conducted several national analyses of state drinking water program resource needs in recent decades. Analyses were conducted in 1989, 1993, 1999, 2001, and 2011. Taken together, the analyses demonstrate that state workload has increased substantially over the years with the promulgation of each new drinking water regulation and statutory requirement, even as state drinking water program resources remained stagnant. Understanding the resources needed to run a state drinking water program and what resources are currently available is important as states work to address a variety of issues.

In 2018, ASDWA published a report ([*Beyond Tight Budgets*](#)) that presented how state drinking water programs are chronically underfunded, which constrains the ability for state drinking water programs to protect public health.¹ The report found that, in addition to federal funding remaining flat for the past decade and inflation increasing costs by 20 percent, state drinking water programs are facing new and increasing resource demands, such as: post-Flint, Michigan additional oversight of the Lead and Copper Rule, harmful algal blooms (e.g., cyanobacteria), per- and polyfluoroalkyl substances (PFAS), *Legionella*, and supporting the Safe Drinking Water Information System (SDWIS) application. ASDWA found that these emerging issues increased state workload ranging from 1.1 to 12.5 percent, with an average workload increase of 4.3 percent.

Why is a New Resource Needs Analysis Necessary?

The resource needs analysis in 2011 was based on a model that estimated state workload to implement the federal activities of the Public Water System Supervision (PWSS) program.² State drinking water programs vary widely, in terms of budget, size, structure, and how they implement the SDWA, among other aspects. They face different challenges and have unique approaches in addressing these challenges. States may implement unique practices that help state drinking water programs develop and implement regulations and programs that work best for their state structure.

¹ ASDWA. 2018. *Beyond Tight Budgets: 2018 Resource Demands Analysis for State Drinking Water Programs*. <https://www.asdwa.org/wp-content/uploads/2018/12/Beyond-Tight-Budgets-2018.pdf>.

² ASDWA. 2013. *Insufficient Resources for State Drinking Water Programs Threaten Public Health: An Analysis of State Drinking Water Programs' Resources and Needs*. <https://www.asdwa.org/wp-content/uploads/2017/03/SRNAP-Analysis.pdf>.



These practices may support drinking water systems in achieving and maintaining compliance with the SDWA, but they may not be specifically prescribed in federal regulations or required for primacy. The 2011 analysis focused on the workload associated with federal requirements and did not address this state specificity.

Since the 2011 analysis, one significant regulation has been promulgated by the EPA, and the EPA is in the process of developing a small number of future regulations. In addition to new regulations, new and quasi-regulatory issues have arisen, such as PFAS, and states have redirected their resources to address these issues to protect public

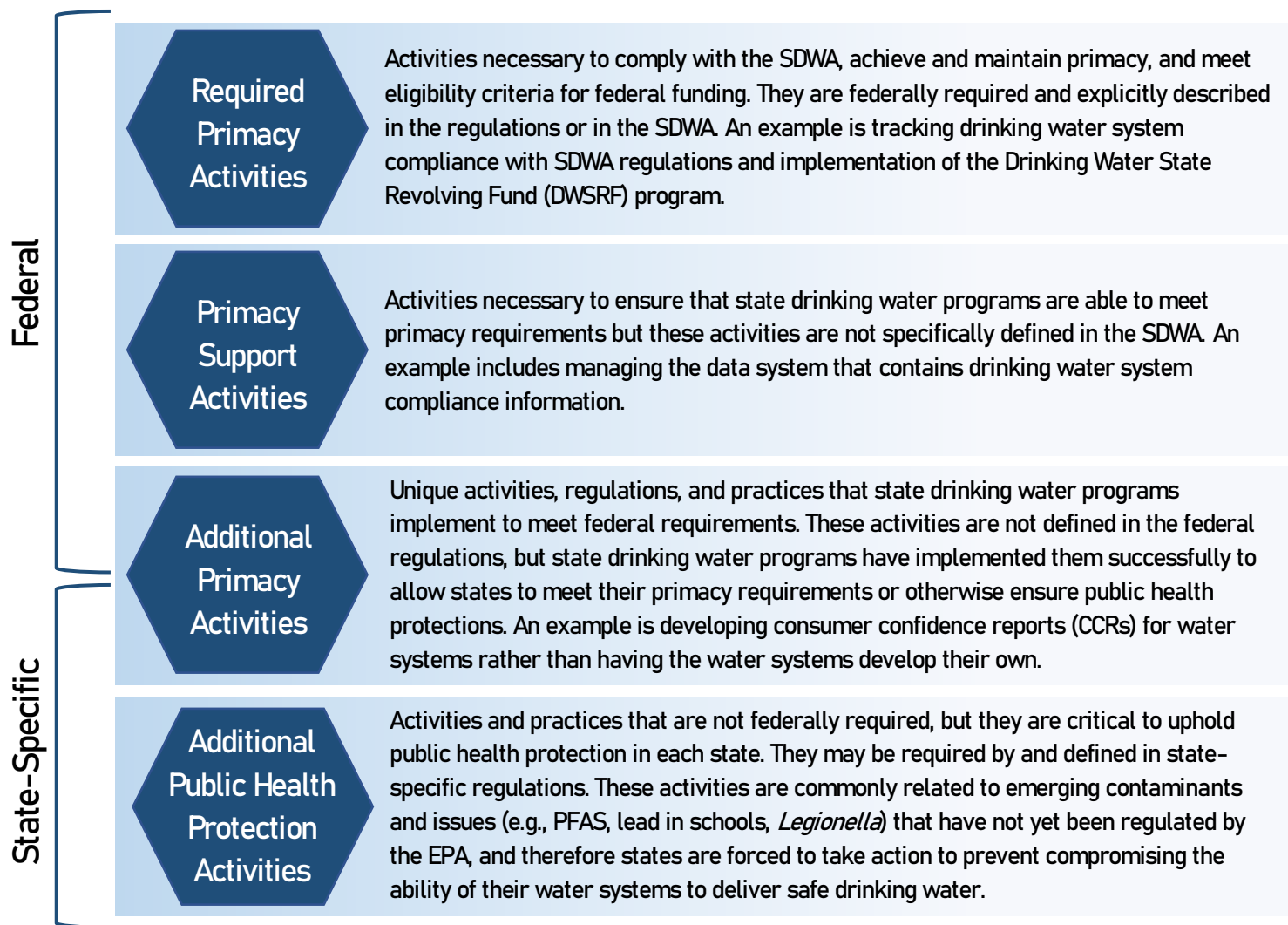
health. States are forced to act on their own due to slow or no response from the EPA. Because of these factors, ASDWA's leadership recognized, in 2019, the need to go beyond the federal mandates and to incorporate state specificity and emerging issues into an updated analysis to accurately reflect the resources needed by states to implement drinking water regulations and protect public health. The 2019 analysis sought to include both federally-mandated activities and differences in state implementation of SDWA in order to show a more accurate picture of the funding and staffing needs for state drinking water programs.

In order to capture the different activities contributing to state drinking water program workload in this analysis, ASDWA developed broad categories to explain these activities. These categories include:

- Required primacy activities,
- Primacy support activities,
- Additional primacy activities, and
- Additional public health protection activities.

Figure 1 defines each type of activity category. In short, **required primacy activities** and **primacy support activities** are considered federal activities, or activities that are directly related to SDWA requirements. **Additional primacy activities** can be federal or state-specific: they are related to federal requirements, but these activities reflect the different ways in which states may implement federal requirements. **Additional public health protection activities** are solely state-specific activities. They may be dictated by state-specific regulations, but these are often related to issues that have not been regulated by the EPA, forcing states to take action on their own in order to protect public health within their states.

Figure 1: Drinking Water Program Workload Components. Includes the four types of activities that comprise state drinking water program workloads. These four types of activities cover federal or state-specific activities and were included in variety of ways in this analysis.



The purpose of the 2019 analysis, which was guided by ASDWA and a panel of states, is two-fold:

- 1) Estimate the realistic drinking water program workload for 55 state and territorial drinking water programs and
- 2) Determine the severity of the gap in drinking water program resources.

The approach for this analysis was to collect current financial and staffing data from state drinking water programs via a financial survey and compare that to actual workload projected by the workload model. The workload model was built to calculate annual staffing needs for 55 state and territorial drinking water programs across a 10 year period. The workload model was developed in 2011 and updated for the 2019 analysis.

The 2019 analysis is different from past analyses in that it attempts to capture state specificity in drinking water program implementation and emerging issues in order to reflect a more realistic picture of state workload. New estimates for additional primacy activities were added to the workload model and are intended to capture state specificity in the projected workload estimates. Additional public health

protection activities, which include emerging issues, are not directly included in the projected workload estimates but are included as a qualitative part of this analysis via state narratives.

As in past analyses, the comparison of current financial and staffing data and projected workload estimates shows the severity of the deficit in drinking water program resources. The results of the 2019 resource needs analysis echo the past needs analyses in that significant investment is needed to enable state drinking water programs to fulfill their role in implementing SDWA and protecting public health.

Report Organization

Methods and Approach

Discusses the approach taken to address the expanded scope of the 2019 workload model and needs analysis, including requesting updated financial information from states, working with the State Resource Needs Advisory Panel to update workload model inputs, and requesting state narratives about emerging issues.

Results (“The Money”, “The Staff”, “The Barriers”, and “The Reality”)

Presents results from the updated 2019 analysis and includes state narratives regarding emerging issues.

- “The Money”, “The Staff”, and “The Barriers” include data collected from states and reflect current funding, staffing, and barriers to resources.
- “The Reality of State Workload” presents the results from the 2019 workload model, which projects the estimated workload required for state drinking water programs.
- “The Reality of Emerging Issues” presents state narratives regarding prominent emerging issues, including PFAS, lead in schools, the COVID-19 pandemic, and risk communication.

Conclusion (“The Gap”)

Discusses findings from the 2019 workload model and needs analysis and presents the gap between the current state drinking water program resources available and the resources states and territories need to adequately implement drinking water programs.

METHODS AND APPROACH

The 2019 resource needs analysis effort was led by ASDWA, but, unlike previous analyses, it was not conducted in partnership with the EPA. ASDWA organized a panel of state representatives, the State Resource Needs Advisory Panel, that provided input and guidance throughout the process. The State Resource Needs Advisory Panel included ASDWA staff and nine states: Colorado, Connecticut, Idaho, Montana, New York, Oklahoma, Pennsylvania, South Dakota, and Texas. Cadmus and GEC facilitated panel discussions and incorporated all agreed upon panel recommendations into the analysis. The panel first met in early 2019 and continued to meet throughout the course of 2019. The panel guided the effort to carry out the primary purpose of the resource needs analysis, which is two-fold: 1) estimate realistic drinking water program workload for 55 state and territorial drinking water programs and 2) determine the severity of the gap in drinking water program resources.

State Resource Needs Advisory Panel Charge

The primary task of the panel was to review and revise drinking water program workload estimates. These estimates serve as inputs for the workload model (model), which was built to calculate annual staffing needs for 55 state and territorial drinking water programs across a 10 year period. This model was developed in 2011, and the panel updated the model in 2019 with revised inputs to reflect unit burden that is more representative of today's drinking water program workload. The workload model is discussed in more detail below (see [2019 Workload Model](#)).

Another primary task of the panel was to collect current drinking water program financial data. Information was collected via a survey that was distributed to state drinking water administrators in 2019 (see [2019 Financial Survey](#) for more information on the survey and how the data was used in this analysis). States were asked to provide staffing and budget/funding numbers that represented the entirety of their drinking water programs, including resources used to implement required primacy activities, primacy support activities, additional primacy activities, and additional public health protection activities (refer to **Figure 1** for definitions of these activities).

The financial data collected via the financial survey and the outputs from the workload model are central to the state resource needs analysis. The financial survey data represent what funding and staffing states currently have available to them, and the workload model outputs represent the actual funding and staffing needed for state drinking water programs to effectively implement their programs and ensure safe drinking water is delivered to the public. The data representing the current situation in state programs are compared to the workload model outputs to determine if drinking water programs are equipped with sufficient resources to ensure that water systems deliver safe drinking water and protect public health. For optimal public health protection, the available staffing and funding resources reported in the financial survey would be adequate to meet the workload needs projected in the model. However, this is not the case, and the comparison shows the severity of the deficit in drinking water program resources (see [“The Reality of State Workload”](#) and [“The Gap”](#) for more information on the current deficit).

In an effort to address all aspects of a state's drinking water program workload, the panel incorporated a more qualitative analysis about additional public health protection activities (or emerging issues). Workload for emerging issues was not incorporated into the model itself due to the diversity in issues and approaches among states. However, the panel collected information regarding emerging issues in the financial survey. In addition, ASDWA staff collected narratives from states regarding PFAS, lead in schools, and risk communication, which were relevant emerging issues among many states. These state narratives, along with

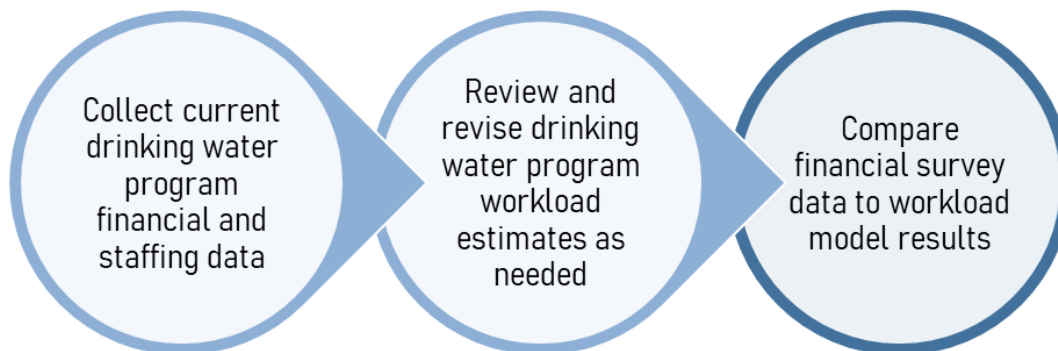
Purpose of Analysis

- ① Estimate realistic drinking water program workload
- ② Determine severity of gap in drinking water program resources

information on the impact of the COVID-19 pandemic on state drinking water programs are presented in “The Reality of Emerging Issues”. **Figure 2** summarizes the approach for both the main analysis and the emerging issues analysis, which both comprise the 2019 resource needs analysis.

Figure 2: Summary of Approach for Resource Needs Analysis. Includes the approach for the main analysis (top row), which compares current drinking water program financial and staffing data to projected financial and staffing needs, and the approach for an additional analysis on emerging issues (bottom row), which discusses additional drinking water program workload related to various emerging issues presented in “The Reality of Emerging Issues”.

Approach for Main Analysis



Approach for Emerging Issues Analysis



Departure from 2011 Analysis

The 2019 analysis departs from the approach used in 2011 in several important aspects. The 2011 model was built to estimate workload and resource needs for “minimum base” requirements, which included program activities specifically mandated by the SDWA (i.e., required primacy activities) or an associated EPA primacy requirement (i.e., primacy support activities). In 2011, a second estimate was also produced for a “comprehensive” drinking water program, which includes minimum base activities plus some additional activities undertaken by drinking water programs to achieve the public health protection vision and goals established by the SDWA. The estimate for comprehensive drinking water program needs was calculated outside of the 2011 model by applying an adjustment factor to the minimum base estimate. This is discussed in more detail in Adjustments to Workload Model Projections.

Since the reality of state drinking water program workload is that states are taking on increasingly more responsibilities related to the goals of the SDWA but not specifically mandated in the SDWA, the 2019 analysis focuses on the types of activities that comprise drinking water programs: required primacy activities, primacy support activities, additional primacy activities, and additional public health protection activities (as defined in **Figure 1**).

2019 Financial Survey

The purpose of the financial survey was to collect financial and staffing information from drinking water programs across the country. In 2011, states were asked to report only full-time employees (FTEs) and budget related to required primacy activities and primacy support activities. The 2019 survey asked states to provide numbers that represented the entirety of their drinking water program workload, including resources used to implement federal regulations (required primacy activities, primacy support activities, and additional primacy activities) and state-specific regulations and practices (additional primacy activities and additional public health protection activities). The 2019 survey also included a separate section for states to list barriers to program implementation. A copy of the financial survey is included in [Appendix A](#).

The Financial Survey collects data from states to reflect current available funding and FTEs.

Thirty-six states and territories responded to the 2019 survey. For the 19 states and territories that did not respond to the survey, the comprehensive program budgets and number of FTEs from the 2011 analysis were used in this analysis and adjusted to 2019 dollars.

Budgets reported from the 36 respondents in 2019 indicated a varying range of change from the 2011 budgets. Some budgets decreased substantially while others increased. As a result, accurately estimating the change in budget for the states that did not respond to the survey would be challenging. The same is true for number of FTEs reported. Therefore, the adjustments from 2011 to 2019 complete the analysis from a national perspective.

Information regarding budgets, FTEs, barriers, and emerging issues are included in this report in these sections:

- The total amount of funding available in 2019 for all 55 states and territories is included in [“The Money”](#).
- The total number of FTEs available in 2019 for all 55 states and territories is included in [“The Staff”](#).
- Prominent barriers to drinking water program implementation and accessing adequate resources as reported by states that responded to the financial survey are included in [“The Barriers”](#).
- Emerging issues reported by states that responded to the financial survey are included in [“The Reality of Emerging Issues”](#).

2019 Workload Model

The workload model (model) refers to the Microsoft Access database built to calculate projected staffing needs for 55 state and territorial drinking water programs. This model was built in 2011 and updated as part of the 2019 analysis. The model estimates the projected number of hours for 55 states and territories to implement their drinking water programs. The workload model includes the following categories:

The Workload Model projects the actual funding and FTEs needed for states to implement their drinking water programs.

- **Program Administration:** components of a drinking water program that are necessary for it to function (e.g., laboratory certification, data management, engineering reviews).
- **Enforcement Response Policy:** policy that encompasses what drinking water programs must do to address drinking water systems that are not in compliance with the drinking water regulations.
- **Capacity Development:** strategy to assist drinking water systems in acquiring and maintaining technical, managerial, and financial capacity.
- **Operator Certification:** minimum professional standards for the operation and maintenance of drinking water systems that are implemented through certification programs.
- **Initial, Interim, and Long-Term Enhanced Surface Water Treatment Rules:** regulations that improves public health protection through the control of microbial contaminants, including viruses, *Giardia lamblia*, and *Cryptosporidium*, in surface water sources; and prevents significant increases from microbial risk that might occur when surface drinking water systems implement Disinfectants and Disinfection Byproducts Rules.
- **Ground Water Rule:** regulation that reduces risk of illness caused by microbial contamination in ground water systems.
- **Revised Total Coliform Rule:** regulation that improves public health protection by reducing fecal pathogens through the control of total coliform and *E. coli*.
- **Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2):** regulations that improve public health protection by reducing exposure to disinfectants and disinfection byproducts.
- **Lead and Copper Rule:** regulation that protects public health by minimizing lead and copper levels in drinking water, this includes the Lead and Copper Rule Revisions.
- **Chemical Contaminant Rules:** regulation that enhances public health protection by setting limits on several chemical contaminants, including nitrate, arsenic, and others.
- **Radionuclides Rule:** regulation that reduces exposure to radionuclides.
- **Consumer Confidence Report Rule:** regulation that improves public health protection by providing educational materials to allow consumers to make educated decisions regarding any potential health risks pertaining to the quality, treatment, and management of their drinking water system.
- **Public Notification Rule:** regulation that requires water systems to notify the public of drinking water violations or other situations that may pose a risk to health.
- **Future Regulations:** revised versions of current regulations or new regulations to address new contaminants or issues.

Each of these categories include individual line items that represent drinking water program activities. The line items include workload estimates represented as unit burden (e.g., burden per system or burden per

state). These unit burden estimates are the workload model inputs, and the panel was tasked with reviewing and updating these workload model inputs.

The panel reviewed current and projected state workload activities by rule/program, determined which workload estimates or multipliers needed to be revised, and determined any needed revisions to the model itself. For the most part, the overall structure of the model remained unchanged. However, some workload activities were removed because the workload was no longer relevant (e.g., activities associated with obtaining primacy for the Revised Total Coliform Rule and activities related to the first and second rounds of source water monitoring under the Long Term 2 Enhanced Surface Water Treatment Rule), and some workload activities were added (e.g., additional estimated burden related to the Lead and Copper Rule Revisions). In addition, the panel decided that South Dakota's workload was more similar to a very small state, rather than a small state as it was categorized in the 2011 model.



The 2011 model was built to estimate workload associated with the minimum base program (as defined above). In the 2019 revision of the model, the panel sought to include all the activities that comprise drinking water program workloads. The panel evaluated workload inputs to ensure that they reflected realistic workloads of drinking water programs and did not only reflect what was needed to meet required primacy activities and primacy support activities.

Additional primacy activities were taken into consideration when the panel knew that drinking water programs implement a primacy requirement differently. One example of additional primacy activities incorporated into the 2019 model is consumer confidence reports (CCRs). The 2011 model included workload related to CCRs that only addressed required primacy activities to review CCRs and issue violations as needed. However, states implement the CCR Rule in a variety of ways. Some states develop CCRs with system-specific information that drinking water systems then can use to develop their final CCR. Using this method, states are able to ensure consumers are receiving the required information, not receiving conflicting information if a CCR has to be revised, and reducing the number of violations the state has to issue and follow-up on. The 2019 model included a new line item to encompass this method utilized by approximately half of states: **Preparing the CCR, Providing Assistance, and Compliance Tracking** (see **Figure 4** below). This activity is not explicitly required, but it is an activity states have assumed to increase compliance with the CCR Rule.

Figure 3 explains the type(s) of activities (required primacy, primacy support, and additional primacy) included under each line item of the 2019 workload model. Many of the line items include more than one type of activity (demonstrated by the half circle), and some line items only include one type of activity (demonstrated by the full circle). The panel discussed adding specific line items to the workload model for additional public health protection activities (e.g., emerging issues) but ultimately decided against it. The varying nature of additional public health protection activities made it difficult to develop estimates that would be representative for all drinking water programs. The panel agreed that it would be more useful and

informative to collect qualitative data and represent emerging issues as state narratives (see “The Reality of Emerging Issues”).

Figure 3: List of 2019 Workload Model Line Items by Category. The 2019 model line items and the type(s) of activities (required primacy activities, primacy support activities, and additional primacy activities) that the line items include. Workload for additional public health protection activities was not incorporated into the model because it is too difficult to identify the additional activities that each state is taking to provide additional public health protection and then accurately estimate a national workload.

Key

● = Line item workload included in one type of activities

◐ = Line item workload included in more than one type of activities

2019 Model Line Items	Required primacy activities	Primacy support activities	Additional primacy activities
Program Administration			
Engineering Plan Review	◐	◐	◐
Lab Certification and Review Lab Capacity		●	
Miscellaneous Training and Complaints		◐	◐
DWSRF Management	●		
Update Legacy System		◐	◐
Transition from Legacy State Data System or SDWIS/State to New Data System		◐	◐
Maintain Current Systems and Updates for LCRR		◐	◐
Data Maintenance and Misc. Data Entry/Requests		◐	◐
Enforcement Response Policy			
Formal Enforcement Process	◐		◐
Reporting	◐		◐
Capacity Development			
Ongoing Oversight of Program	●		
Technical Assistance and Reporting	◐	◐	◐
Operator Certification			
Ongoing Oversight of Program	●		
Surface Water Treatment Rules			
Track Compliance	◐		◐
Microbial Toolbox	●		
Sanitary Surveys	◐		◐

2019 Model Line Items	Required primacy activities	Primacy support activities	Additional primacy activities
Oversight of Corrective Actions for Significant Deficiencies	○		○
Ground Water Rule			
Track Compliance	○		○
Sanitary Surveys	○		○
Oversight of Corrective Actions	○		○
Revised Total Coliform Rule			
Track Compliance	○		○
Level 1 and 2 Assessments	○		○
Oversight of Corrective Actions	○		○
Site Inspections	○		○
Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2)			
Track Compliance	○		○
Review Operational Evaluation Report	●		
Lead and Copper Rule			
Track Compliance	○		○
Oversight of Systems with ALEs	○		○
Re-Evaluate Program Based on the EPA's Guidance and Implement Changes	○		○
Additional Burden for LCRR Implementation	●		
Chemical Contaminant Rules			
Track Compliance (Phase II/V)	○		○
Track Compliance (Nitrate)	○		○
Systems with Detects	○		○
MCL Violations	○		○
Waiver Program (New Waivers)	○		○
Waiver Program (Renewals)	○		○
Radionuclides Rule			
Track Compliance	○		○
Consumer Confidence Report Rule			
Track Compliance	○		○

2019 Model Line Items	Required primacy activities	Primacy support activities	Additional primacy activities
Prepare the CCR, Provide Assistance, and Track Compliance			●
Public Notification Rule			
Track Compliance for Tier 1, 2, and 3 Notices	◐		◐
Future Regulations			
Read and Understand Rule		●	
Regulation Adoption, Development of State Program and Primacy Package		●	
Initial Lab Certification	●		
System Training and Technical Assistance		●	
Staff Training		●	

Acronyms: ALE = Action Level Exceedance; CCR = Consumer Confidence Report; DWSRF = Drinking Water State Revolving Fund; LCRR = Lead and Copper Rule Revisions; MCL = Maximum Contaminant Level; SDWIS/State = Safe Drinking Water Information System (for primacy agency reporting)

In addition to the financial survey, the panel also distributed a questionnaire for states to provide input on workload estimates for some line items in the model. For these line items, the panel believed there was too much variety in state workload for the panel to accurately determine an appropriate workload estimate. The panel asked the states to provide information for: sanitary surveys, enforcement, laboratory certification, miscellaneous training and complaints, data system maintenance, and level 1 and level 2 assessments. This questionnaire is included in [Appendix B](#). Results from this questionnaire were reviewed by the panel, then national estimates were developed, and those estimates were incorporated into the workload model. Changes made to the workload model inputs are summarized by category in **Figure 4**. The line items in 2011 and 2019 are listed under each category. All major changes made to the 2019 model were discussed and approved by the panel to reflect state workload more accurately.

Figure 4: Summary of Changes to Workload Model Inputs from 2011 to 2019 Model. Line items used in the 2011 analysis and what steps were taken to update the model in 2019, shown by the various categories used in the model. The panel reviewed all the line items from the 2011 model and provided recommendations on changes to include in the 2019 model. Most changes include revising a workload estimate, deleting line items from 2011 that are no longer relevant, and adding line items to address new workload activities since the 2011 model (e.g., Lead and Copper Rule Revisions).

2011 Model Line Items	2019 Model Line Items	Major Changes from 2011 to 2019
Program Administration		
<ul style="list-style-type: none"> • Engineering Plan Review • Lab Certification and Review Lab Capacity • Training • DWSRF Management • Transition from Legacy State Data System or SDWIS/State to New Data System • Data System Maintenance and Misc. Data Entry/Requests 	<ul style="list-style-type: none"> • Engineering Plan Review • Lab Certification and Review Lab Capacity • Miscellaneous Training and Complaints • DWSRF Management • Update Legacy System • Transition from Legacy State Data System or SDWIS/State to New Data System • Maintain Current Data Systems and Updates for LCRR • Data Maintenance and Misc. Data Entry/Requests 	<ul style="list-style-type: none"> • Changed Lab Certification to per primacy agency estimates from per lab estimates. • Renamed Training to Miscellaneous Training and Complaints and modified burden estimates and description to exclude rule- or capacity-related training, which are now covered under Capacity Development. • Substantially increased burden estimates for DWSRF Management. • Added Update Legacy System, which covers primacy agencies that do not plan to switch to the EPA’s new data system but plan to update their own legacy systems. • Modified Transition to New Data System to address the EPA’s changes in the development of a new national data system. Generically refer to a new data system. Increased burden estimates. • Added Maintain Data Current Systems and Updates for LCRR, which covers additional burden primacy agencies are expected to incur to continue maintenance of current data systems and incorporate updates to comply with LCRR.
Enforcement Response Policy		
<ul style="list-style-type: none"> • RTC Clean-Up • Enforcement Actions (for systems with ETT scores ≥ 11)¹: <ul style="list-style-type: none"> ○ Data Management ○ Tracking ○ Addressing Action ○ Coordinate with Attorneys • Reporting 	<ul style="list-style-type: none"> • Formal Enforcement Process (for systems with ETT scores ≥ 11)¹ • Reporting 	<ul style="list-style-type: none"> • Removed RTC Clean-Up since this activity has ended. • Combined Enforcement Action activities from 2011 into one line-item: Formal Enforcement Process. • Substantially increased burden estimates for Reporting to accommodate expanded definition, which includes quarterly requests from the EPA to update ETT, quarterly meetings with the EPA, and reviews by the EPA’s OECA under the National Compliance Initiative.

2011 Model Line Items	2019 Model Line Items	Major Changes from 2011 to 2019
Capacity Development		
<ul style="list-style-type: none"> Ongoing Oversight of Program 	<ul style="list-style-type: none"> Ongoing Oversight of Program Technical Assistance and Reporting 	<ul style="list-style-type: none"> Substantially increased burden estimates for Ongoing Oversight of Program for states categorized as a large state. Added Technical Assistance and Reporting which covers training, outreach, and technical assistance to drinking water systems to ensure technical, managerial, and financial capacity. Workload increased to account for training moved to this category from the 2011's Program Administration Training.
Operator Certification		
<ul style="list-style-type: none"> Ongoing Oversight of Program Expense Reimbursement Grants Program 	<ul style="list-style-type: none"> Ongoing Oversight of Program 	<ul style="list-style-type: none"> Removed Expense Reimbursement Grants Program since the program ended in 2012.
Surface Water Treatment Rules		
<ul style="list-style-type: none"> Track Compliance Source Water Monitoring Microbial Toolbox Sanitary Surveys Oversight of Corrective Actions for Significant Deficiencies 	<ul style="list-style-type: none"> Track Compliance Microbial Toolbox Sanitary Surveys Oversight of Corrective Actions for Significant Deficiencies 	<ul style="list-style-type: none"> Removed First and Second Rounds of Source Water Monitoring. First round has been completed, and second round is almost completed but not expected to incur much additional workload. Substantially increased hours for Oversight of Corrective Actions for Significant Deficiencies to accurately reflect primacy agency workload. Utilized SDWIS/Fed data to determine the number of drinking water systems with significant deficiencies.
Ground Water Rule		
<ul style="list-style-type: none"> Track Compliance Sanitary Surveys Oversight of Corrective Actions 	<ul style="list-style-type: none"> Same as 2011 activities 	<ul style="list-style-type: none"> Substantially increased burden for Oversight of Corrective Action for systems serving 3,300 people or fewer. Slightly decreased estimates for systems serving more than 3,300 people. Utilized SDWIS/Fed data to determine the number of drinking water systems with significant deficiencies.
Revised Total Coliform Rule		
<ul style="list-style-type: none"> Start-up Activities Track Compliance Sampling Plan Level 1 and 2 Assessments Oversight of Corrective Actions Site Inspections 	<ul style="list-style-type: none"> Track Compliance Level 1 and 2 Assessments Oversight of Corrective Actions Site Inspections 	<ul style="list-style-type: none"> Removed Start-up Activities and Sampling Plan since these have been completed. Ongoing review of sampling plans is included in Track Compliance. Substantially increased burden for Level 1 and 2 Assessments to accurately reflect primacy agency workload.

2011 Model Line Items	2019 Model Line Items	Major Changes from 2011 to 2019
Disinfectants and Disinfection Byproducts Rules (Stage 1 and Stage 2)		
<ul style="list-style-type: none"> Track Compliance Review Monitoring Plans Review Operational Evaluation Report 	<ul style="list-style-type: none"> Track Compliance Review Operational Evaluation Report 	<ul style="list-style-type: none"> Increased burden for Track Compliance. Removed Review Monitoring Plans since development of monitoring plans to comply with Stage 2 should be completed and review of plans is part of Track Compliance.
Lead and Copper Rule		
<ul style="list-style-type: none"> Track Compliance Oversight of Systems with ALEs 	<ul style="list-style-type: none"> Track Compliance Oversight of Systems with ALEs Re-evaluate Program Based on the EPA's Guidance and Implement Changes Additional Burden for LCRR Implementation 	<ul style="list-style-type: none"> Increased burden for Track Compliance of small systems. Added Re-evaluate Program Based on the EPA's Guidance and Implement Changes and Additional Burden for LCRR Implementation to reflect current implementation and proposed revisions.
Chemical Contaminant Rules		
<ul style="list-style-type: none"> Track Compliance (Phase II/V) Track Compliance (Nitrate) Systems with Detects MCL Violations Waiver Program (New Waivers) Waiver Program (Renewals) 	<ul style="list-style-type: none"> Same as 2011 activities 	<ul style="list-style-type: none"> Reduced hours for Waiver Program (New Waivers) to more accurately reflect primacy agency workload to review new waiver applications.
Radionuclides Rule		
<ul style="list-style-type: none"> Track Compliance 	<ul style="list-style-type: none"> Same as 2011 Activities 	<ul style="list-style-type: none"> No changes were made to workload estimates by the panel.
Consumer Confidence Report Rule		
<ul style="list-style-type: none"> Track Compliance 	<ul style="list-style-type: none"> Track Compliance Prepare the CCR, Provide Assistance, and Track Compliance 	<ul style="list-style-type: none"> Added Prepare the CCR, Provide Assistance, and Track Compliance to capture workload for primacy agencies that develop CCRs for their drinking water systems. It was estimated that 50 percent of states incur this additional workload.
Public Notification Rule		
<ul style="list-style-type: none"> Track Compliance for Tier 1, 2, and 3 Notices 	<ul style="list-style-type: none"> Same as 2011 activities 	<ul style="list-style-type: none"> No changes were made to workload estimates by the panel.

2011 Model Line Items	2019 Model Line Items	Major Changes from 2011 to 2019
Future Regulations		
<ul style="list-style-type: none"> • Read and Understand Rule • Regulation Adoption, Development of State Program and Primacy Package • Initial Lab Certification • System Training and Technical Assistance • Staff Training 	<ul style="list-style-type: none"> • Same as 2011 activities 	<ul style="list-style-type: none"> • No changes were made to workload estimates by the panel.

1. Drinking water systems with an ETT score of 11 or higher are not compliant with the drinking water regulations and are considered a priority for enforcement response. These are drinking water systems that have one or two recent health-based violations (e.g., MCL exceedance) and/or several recent non-health-based violations (e.g., failure to monitor for a contaminant).

Acronyms: ALE = Action Level Exceedance; CCR = Consumer Confidence Report; DWSRF = Drinking Water State Revolving Fund; ETT = Enforcement Targeting Tool; LCRR = Lead and Copper Rule Revisions; MCL = Maximum Contaminant Level; OECA = EPA Office of Enforcement and Compliance Assurance; RTC = Return to Compliance; SDWIS/Fed = Safe Drinking Water Information System (for Federal reporting); SDWIS/State = Safe Drinking Water Information System (for primacy agency reporting)

Adjustments to Workload Model Projections

In the 2011 analysis, the minimum base program estimates were used to calculate the comprehensive program estimates by applying an adjustment factor. This adjustment factor, based on detailed state-specific workload activities reported by states in the 2001 analysis, was the proportion of expenses and FTEs dedicated to relevant activities in the 2001 model but excluded from the 2011 model. At the time of the 2001 and 2011 analyses, these activities were mostly considered to be additional public health protection activities. Due to new regulations, most of these activities are now considered required primacy, primacy support, and additional primacy activities. The 2019 model was revised to incorporate many of these activities, but there are some additional primacy activities that were not included and are still relevant to state drinking water programs (e.g., source water assessments, special projects, administration of fee programs, backflow prevention/cross-connection control, and others). Revised adjustment factors (one to apply to FTEs and one to apply to costs) were developed using the 2001 workload data. The 2001 line items for state-specific activities were reviewed carefully to determine which were included in the 2019 model and which were still relevant and should be included in the adjustment factors. The revised adjustment factors were applied to the FTE and cost estimates projected by the 2019 workload model.

“THE MONEY”

Current State Drinking Water Program Funding

The total amount of funding currently available to drinking water programs in 55 states and territories in 2019 was estimated at \$574 million. This number was calculated from budget data collected from 36 states in 2019 and the 2011 comprehensive program budgets adjusted to 2019 dollars for the remaining states and territories. For the 36 states that responded to the financial survey, the reported budgets represent funds used to carry out required primacy activities, primacy support activities, additional primacy activities, and additional public health protection activities. For the 19 states that did not respond, additional primacy activities and additional public health protection activities are underreported in their comprehensive budgets from 2011.

\$574 million is the total amount of funding available to 55 state and territorial drinking water programs in 2019.

Additional public health protection activities were included in the budgets reported by 36 states in the financial survey. However, as discussed in the [2019 Workload Model](#), additional public health protection activities are not included in the projected workload estimates. Furthermore, the 2011 comprehensive budgets for the remaining 19 states and territories did not include many of the additional primacy activities nor additional public health protection activities. Since some budgets may overestimate funding and others underestimate funding, as it relates to the comparison with the projected workload estimates, the assumption is that the national funding amount for drinking water programs presented here at \$574 million is close to the actual national funding available as it relates to activities represented in the projected workload estimates (see [2019 Financial Survey](#) and [“The Reality of State Workload”](#) for more information).

Funding Sources

State drinking water programs are funded by federal funding sources, non-federal funding sources, or, more commonly, a combination of both federal and non-federal funding sources. Federal funding sources include the:

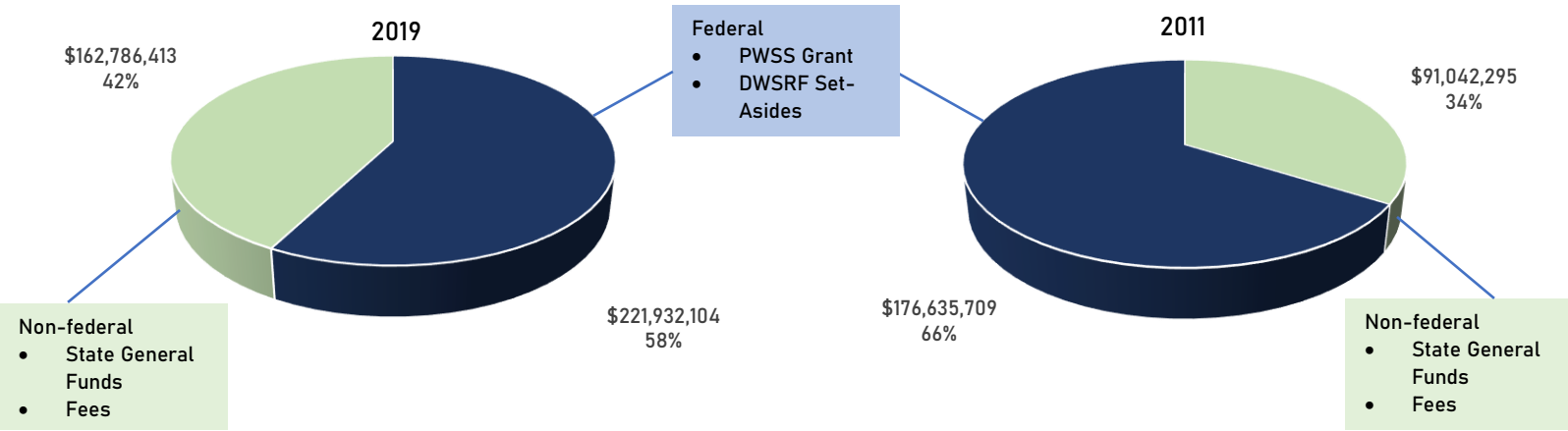
- Public Water System Supervision (PWSS) Grant and
- Drinking Water State Revolving Fund (DWSRF) set-asides.

Non-federal sources include the state’s general fund and/or a fee program. Because of the pressing need for more revenue beyond existing federal and state sources of funding, numerous state drinking water programs have instituted fee programs. These fee programs include fees for state services, such as issuing drinking water system permits or drinking water system user fees based on the volume of water produced or on the number of service connections. Many states have had fee programs in place for many years, but the funds raised are insufficient to make up the shortfalls elsewhere in their budgets (see [“The Barriers”](#) for information on resistance to state fee programs).

Figure 5 shows the available funding sources that comprise drinking water program budgets reported by the states that responded to the financial survey. The total amount reported by the 36 states was \$385 million. Fifty-eight percent of total state budgets (or \$222 million) originated from federal funding sources, and 42 percent (or \$163 million) originated from non-federal funding sources. The 19 states that did not respond to the survey were not included in this figure because this information was not available from the 2011 data. A similar comparison can be made looking at the same 36 states from the previous 2011 State Resource Needs Report. The pie chart on the left in **Figure 5** is from 2019 and the pie chart on the right in is from 2011 and shows the decreasing share of federal funding in that timeframe. A reduction of 8% in the federal share of the total program funding is shown, with the caveat that two states had their funding averaged and another

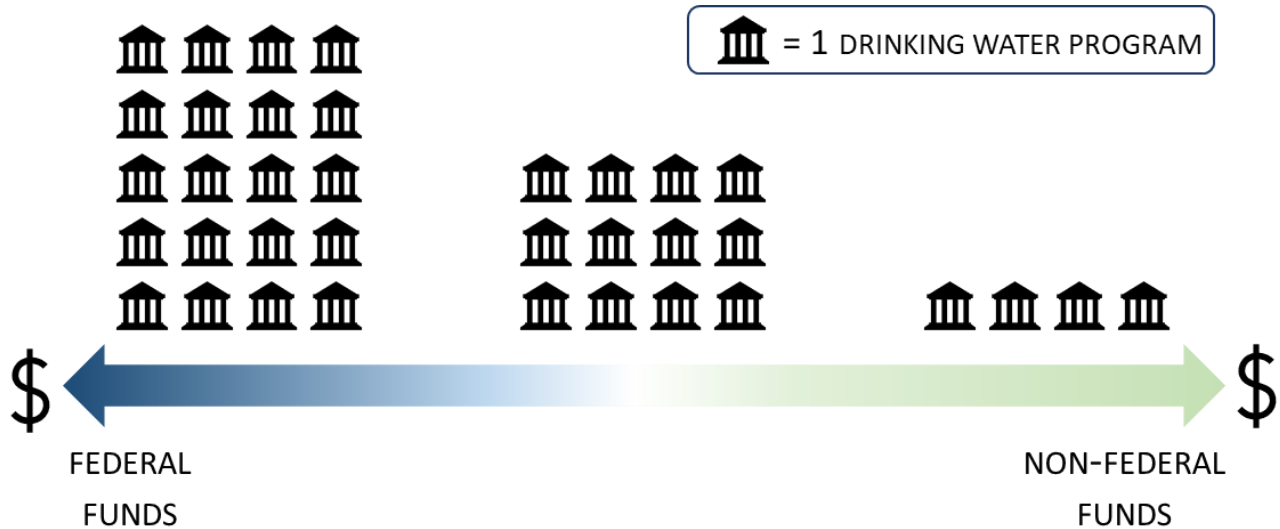
state was excluded from this comparison. This is a significant reduction given the increase in programmatic expectations.

Figure 5: 2019 and 2011 Drinking Water Program Budgets for 36 States. Includes both federal and non-federal funding reported by 36 states in the financial survey.



The results from the financial survey showed a wide range in budget composition for 2019. Some states depend more on federal funds, and other states depend more on non-federal funds to implement their state drinking water programs. For example, one state reported that 94 percent of their state drinking water program budget is derived from non-federal sources, whereas another state reported 100 percent of their budget being funded by federal sources. Twenty out of 36 state drinking water programs that responded to the financial survey (56 percent) depend more heavily on federal funding (i.e., derive more than 60 percent of their annual budget from federal sources) to run their drinking water programs. Four states (11 percent) depend more heavily on non-federal funding (i.e., derive more than 60 percent of their annual budget from non-federal sources). Finally, 12 states (33 percent) depend similarly on federal and non-federal sources (i.e., derive approximately half of their annual budget from federal sources and the other half from non-federal sources). **Figure 6** depicts this below. The large range in state budget composition indicates that states face unique challenges related to funding sources and accessibility of funding. These challenges are discussed more in “The Barriers” section.

Figure 6: Range of Drinking Water Program Funding Sources Reported by 36 States. Includes the number of states that depend more on Federal funds, non-Federal funds, and a comparable mix of both for drinking water program funding.



“THE STAFF”

Current State Drinking Water Program Staffing

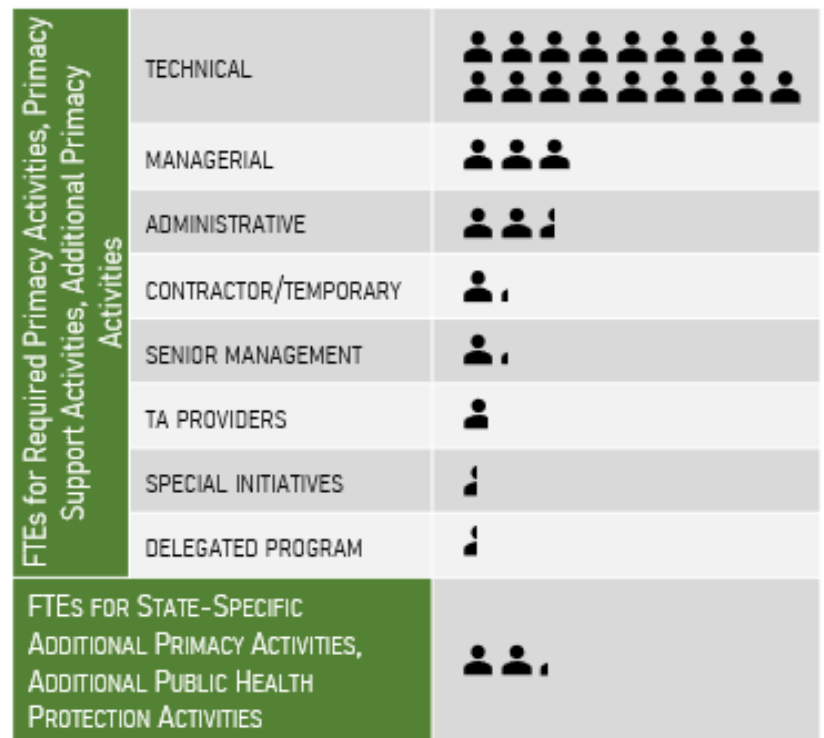
The total number of FTEs currently available to drinking water programs in 55 states and territories in 2019 was 4,121 FTEs. This number was calculated from FTE data collected from 36 states that responded to the financial survey in 2019 and from the 2011 comprehensive program data for the remaining 19 states and territories. Similar to the budgets above, this number includes staffing for required primacy activities, primacy support activities, additional primacy activities, and additional public health protection activities for the 36 states that responded to the financial survey. For the states that did not respond to the financial survey, the total comprehensive program FTEs reported in 2011 were used, and it is likely that additional public health protection activities are underreported in those numbers. See [2019 Financial Survey](#) for more information. Similar to the discussion in “The Money” section, the assumption is that the national sum of FTEs presented here at 4,121 FTEs using these two sources are similar to the actual number of FTEs available in 2019, when comparing the total number of current FTEs to the projected workload estimate.


4,121 FTEs is the total number of FTEs available to 55 state and territorial drinking water programs in 2019.

Figure 7 below breaks down the number of FTEs provided by the 36 states that responded to the financial survey. Similar information was not collected in 2011, so the 19 states that did not respond to the financial survey cannot be included in this figure. In total, these states reported 2,854 current FTEs, including:

- **Technical FTEs** (1,704 FTEs or 60 percent of all reported FTEs),
- **Managerial FTEs** (297 FTEs or 10 percent of all reported FTEs),
- **Administrative FTEs** (253 FTEs or 9 percent of all FTEs),
- **Contractor and temporary FTEs** (110 FTEs or 4 percent of all reported FTEs),
- **Senior management FTEs** (107 FTEs or 4 percent of all reported FTEs),
- **Technical assistance (TA) providers funded by the state drinking water program** (76 FTEs or 3 percent of all reported FTEs),
- **Special initiatives** (51 FTEs or 2 percent of all reported FTEs),
- **Delegated programs** (46 FTEs or 2 percent of all reported FTEs), and
- **State-specific/non-federal activities** (210 FTEs or 7 percent of all reported FTEs).

Figure 7: Breakdown of FTEs in Drinking Water Programs Reported by 36 States. Includes the number of FTEs by type dedicated to required primacy, primacy support, and additional primacy activities and dedicated to state-specific additional primacy and additional public health protection activities.



 = 100 FTEs

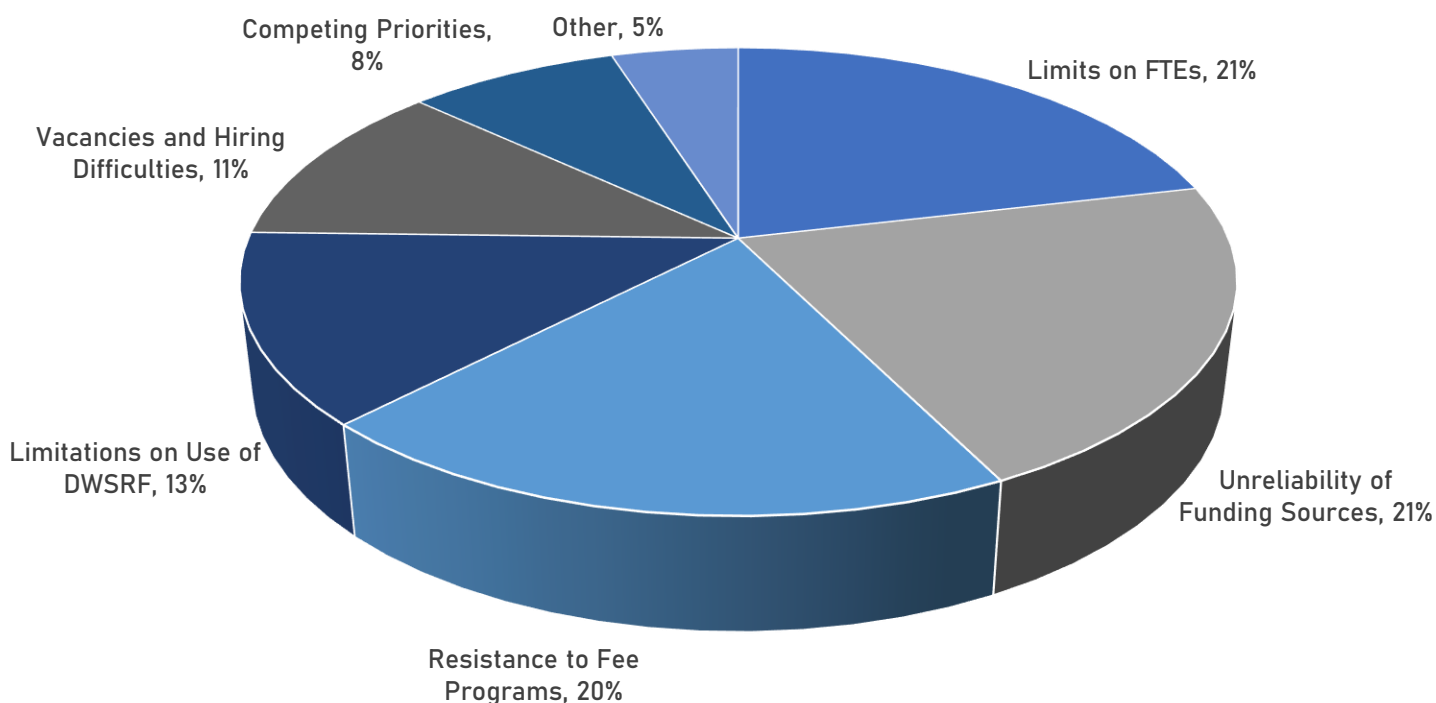
“THE BARRIERS”

Barriers to Accessing Needed Resources

Barriers that states face to hiring FTEs and increasing funding available to support their drinking water programs were identified during the 2011 analysis and the same issues continue to present challenges. Twenty-eight states provided information in the 2019 financial survey on barriers. The prevalence of hiring, funding, and other barriers among 28 states is depicted in **Figure 8**. The states’ chief concerns include:

- Limits on FTEs.
- Unreliability of funding sources.
- Resistance to fee programs, including resistance to fee increases.
- Limitations on the use of DWSRF set-aside funds.
- Competing priorities with limited resources.

Figure 8: Barriers to Accessing FTEs and Funding Experienced by Drinking Water Programs. State programs face a variety of barriers to successfully run a drinking water program. Twenty-eight states provided information on the barriers that they face. The 28 states reported that the top three barriers they face are limits on the number of FTEs in the program, unreliability of funding sources for the program, and resistance to and limits on fees that can be charged to the water systems in order to provide adequate funding for the state drinking water program.



Limits on FTEs

States cited limits to hiring staff as the greatest problem they face in running their programs. Eleven of the 28 states reported this problem as a top barrier to accessing needed program resources. This barrier comprised 21 percent of all barriers reported. The limitations on hiring staff range from restricted authorization to hire FTEs to competition both internally and externally to hire qualified candidates and retain them. State legislatures can impose FTE caps or hiring freezes at the state, agency, or department levels, forcing the drinking water programs to compete against other departmental vacancies for staff.

Because of staff turnover, programs are in a constant mode of trying to fill funded vacancies or taking on additional work as a result of being short-staffed. Critical expertise is often lost when staff leave and they are not replaced, as that expertise cannot easily be replaced. Even states that have the funds needed for the positions often cannot fill vacancies or add FTEs because of competing priorities with other programs within their department or agency.

States consistently report that their department administrations and state legislatures resist expanding the workforce and instruct programs to "Do more with less."

Other barriers affect the program's ability to hire, such as furlough days, salary freezes, low wages, and reductions in employee benefits that do not attract qualified replacements or compete with the private sector. States report that funds are redirected for statewide services, such as forced payments to centralized IT services that provide slow response and provide little subject matter expertise. States may also have lengthy contract procurement processes the state drinking water program must go through in order to hire external expert help.

Unreliability of Funding Sources

Uncertainty over available funding sources, mainly caused by reduced state funding contributions, were another top barrier at 21 percent of all barriers. Seven of the 28 states listed this as their top barrier. Many states noted the expected loss of general revenue funding and uncertainty of fee revenue as reasons for this barrier. Other explanations provided for this concern were the susceptibility of general fund revenue to changing economic conditions and the requirement in many states to have a balanced budget, which is now compounded by the COVID-19 pandemic. Fee revenue cannot always replace these funds (see [Resistance to Fee Programs](#)). Some state legislatures have reallocated drinking water program fee revenue to other budgets, which further reduces fee revenue.

"Additional funding either through general revenue or fee revenue is very hard to achieve. State budgets seem to do nothing but shrink."

Timeliness of the EPA grant disbursements is another issue. Late payments or partial payments cause states to delay projects or avoid expenditures while they wait for the disbursements. If the delay occurs at the end of the federal fiscal year, states may not be able to complete the planned activities as the funds come too late to initiate work or purchase an item.

Resistance to Fee Programs

Fee-based revenue paid by drinking water systems is a critical funding source for many state drinking water programs. However, states noted that they have been unable to enact fees or increase them. This barrier represents 20 percent of all barriers reported. Three of the 28 states reported this as their top barrier. State legislatures often consider fees as taxes, which they are reluctant to approve. Also, some state legislatures reallocate drinking water program fee revenue to other program budgets. In these cases, since there is already a fee in place, the optics make voters and legislators less supportive of new fee initiatives, believing the program should already have access to the funds from the existing fees. Many state fee regulations limit annual fee increases, which makes it difficult for fees to replace the loss of other state

revenue or address increases in salary costs or program needs. In some states, fees are never allowed to increase. Four respondents noted their fees have been flat for over 20 years.

Limitations on Use of DWSRF Set-Aside Funds

States increasingly rely on DWSRF set-asides to fund their programs, but limitations on how these funds can be used represent 13 percent of all barriers reported. One state reported this as their top barrier. If a state chooses to use DWSRF set-asides, these funds are removed from the pool for infrastructure improvements that revolves and is repaid. States also can have caps on spending authority - even for federal funds - and some noted they may be challenged to find the matching funds required for the DWSRF total capitalization grant, which could affect the DWSRF set-aside disbursements.

Competing Priorities with Limited Resources

Without erasing barriers to obtain additional funding or FTEs, state drinking water program administrators are concerned that important public health initiatives and oversight will be curtailed or not completed due to competing priorities within the state. This barrier represents 8 percent of all barriers reported, and two states noted this as their top barrier. New EPA and state initiatives, new or revised rules, new reporting requirements, and the need to issue public advisories force states to spread decreasing resources across more efforts and pull staff from other mandated duties. The result is reduced public health protection.

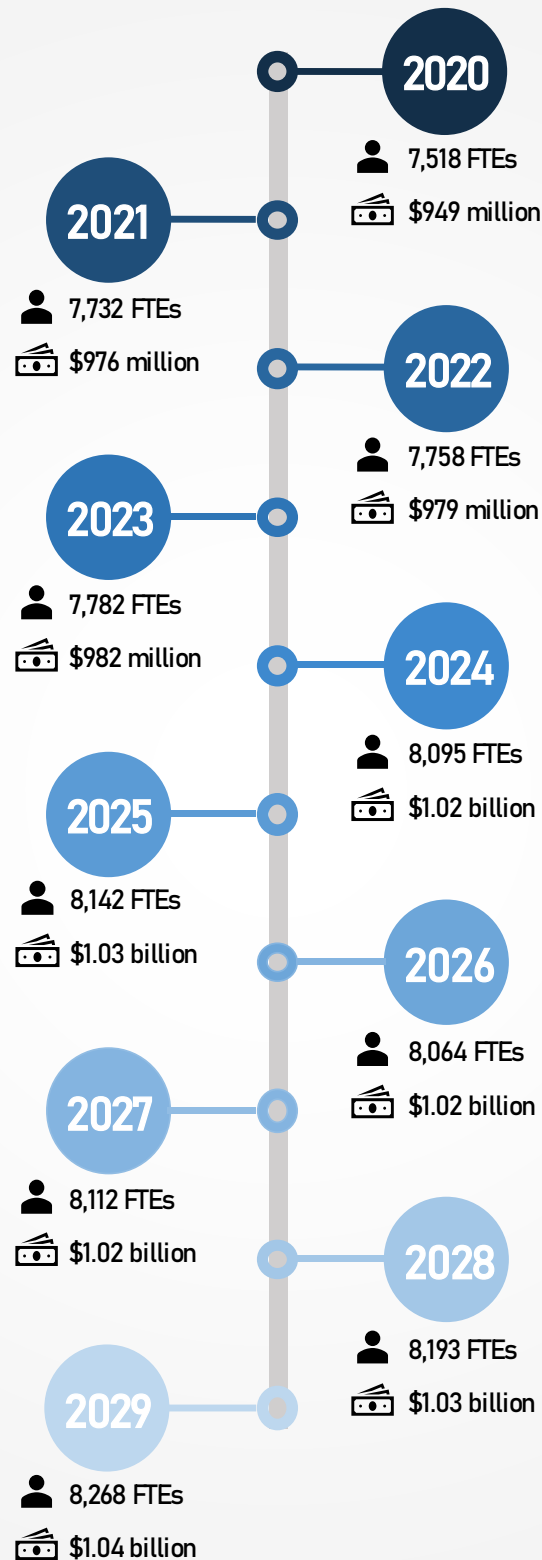
Drinking Water State Revolving Fund

Under the 1996 Amendments, Congress established the DWSRF to provide affordable financing to water systems to help fund necessary drinking water infrastructure improvement projects and to support the state drinking water programs and key activities.

High profile and urgent infrastructure needs across the country create pressure on state drinking water programs to fund infrastructure projects in lieu of using DWSRF set-aside funds for state drinking water program activities.





Figure 9: Total Number of FTEs and Total Cost by Year for 55 State and Territorial Drinking Water Programs.



“THE REALITY OF STATE WORKLOAD”

Projected Need for State Drinking Water Programs

The 2019 workload model projects FTEs and funds needed to implement state drinking water programs that far exceed available resources. **Figure 9** includes outputs from the model for 55 states and territories to implement drinking water programs from 2020 to 2029, including:

-  Projected total number of FTEs and
-  Projected cost

In 2020, state drinking water programs collectively require 7,518 FTEs and \$949 million to effectively implement their drinking water programs. In 2024, the need surpasses the \$1 billion mark. The resources needed is the highest in 2029 when state drinking water programs are projected to need 8,268 FTEs and \$1.04 billion.

The annual FTEs and costs projected by the 2019 model present an increased FTE and cost need compared to the 2011 analysis. The 2011 analysis likely underrepresented workload for state drinking water programs by underestimating the amount of time spent on **additional primacy activities**. The 2019 analysis sought to more accurately capture these additional primacy activities in addition to realistic workload associated with **required primacy activities** and **primacy support activities** (see **Figure 1**) for the definition of these activity types).

Figure 10 and **Figure 11** include a comparison of results from the 2011 and 2019 models and show a dramatic increase in projected workload estimates. The height of need in the 2011 model was in 2013 (6,528 FTEs and \$882 million) when states were beginning the primacy process for the Revised Total Coliform Rule. The height of need in the 2019 model is in 2029 (8,268 FTEs and \$1.04 billion) when it is estimated that state drinking water programs will be fully implementing the Lead and Copper Rule Revisions.

Figure 10 includes projected FTEs from the 2011 model for 2012 through 2021 and from the 2019 model for 2020 through 2029. The 2011 model projected 5,923 FTEs in 2012. The 2019 model projects 7,518 FTEs in 2020. From 2012 in the 2011 model to 2020 in the 2019 model, FTEs needed by states increased by 27 percent. **Figure 11** includes total projected program costs in 2019 dollars. The 2011 model projected that in 2012 state drinking water programs would have \$805 million in program costs. The 2019 model projected \$949 million in program costs for 2020. That is an 18 percent increase in projected costs in eight years.

Figure 10: Comparison of Resource Needs Projected in 2011 and 2019 Models for 55 State and Territorial Drinking Water Programs (represented in FTEs). This graph shows the number of FTEs projected by the 2011 workload model from 2012-2021 (shown in dark blue) and the number of FTEs projected by the 2019 workload model from 2020-2029 (shown in light green). The number of FTEs shown are the estimated total amount needed for 55 state and territorial drinking water programs.

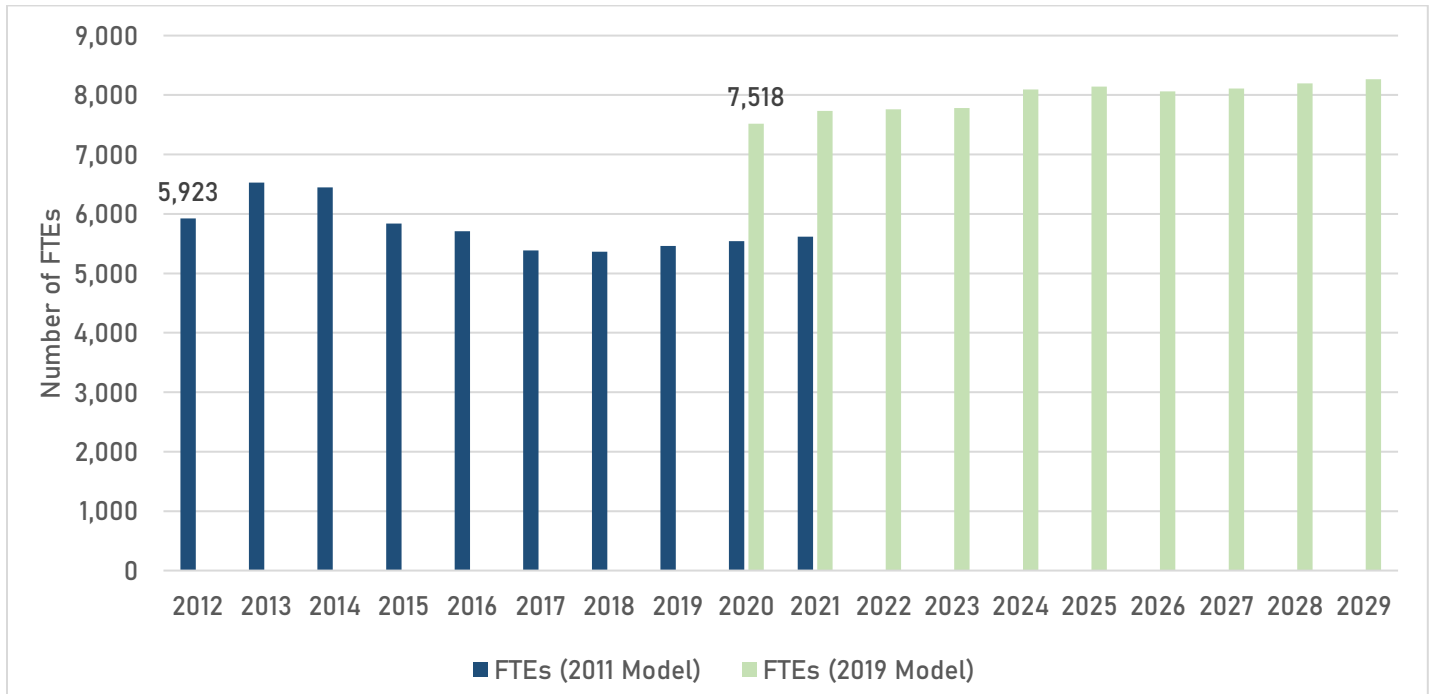


Figure 11: Comparison of Resource Needs Projected in 2011 and 2019 Models for 55 State and Territorial Drinking Water Programs (represented in millions of 2019 dollars). This graph shows the dollar amount projected by the 2011 workload model from 2012-2021 (shown in dark blue) and the dollar amount projected by the 2019 workload model from 2020-2029 (shown in light green). The dollar amounts shown are the estimated total costs needed for 55 state and territorial drinking water programs.

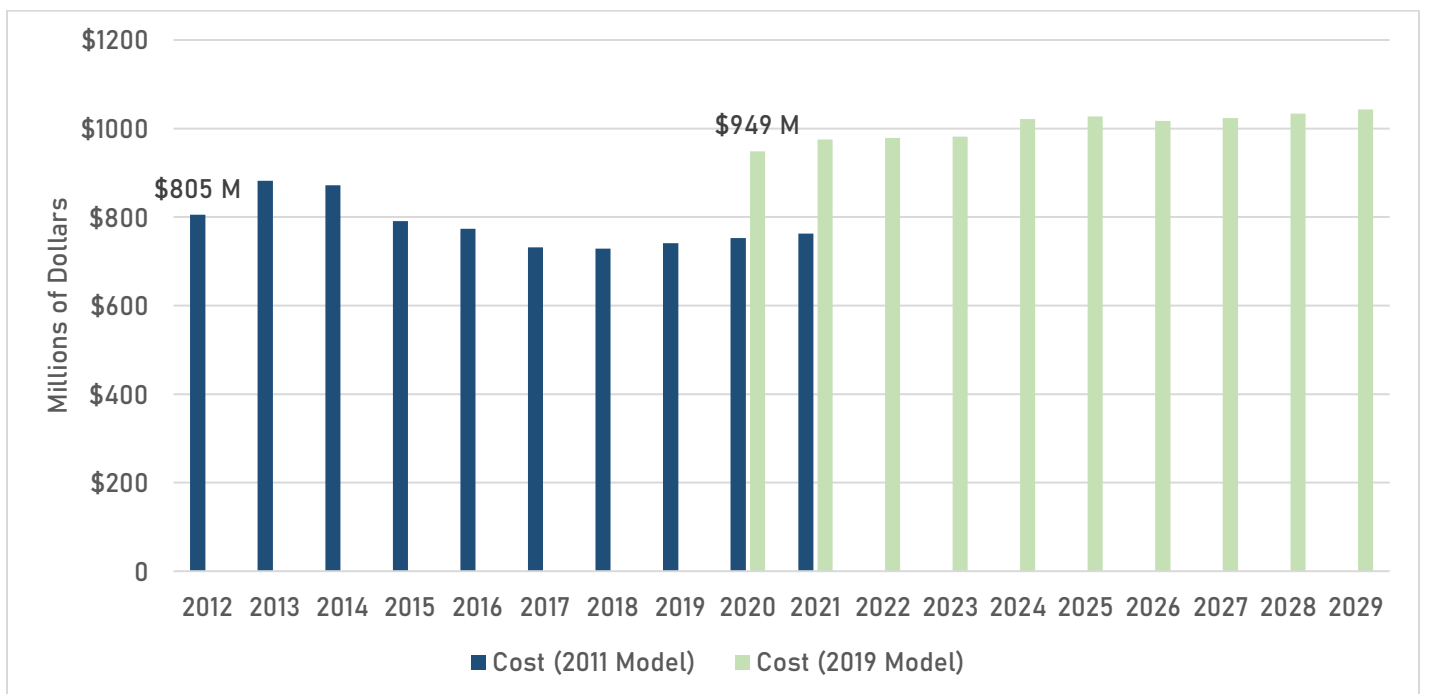


Figure 10 and **Figure 11** also highlight the differences between the 2011 and 2019 models. The 2011 model projected that in 2020 state drinking water programs would need 5,540 FTEs and \$752 million. In the 2019 model, it is projected that state drinking water programs require 7,518 FTEs and \$949 million in 2020, a difference of 1,978 FTEs and \$197 million from the 2011 estimate. This pressure on resources is especially concerning when state drinking water programs are dealing with flat funding and inflationary pressures on their programs' budgets. This difference can partly be accounted for in the increased completeness of the 2019 model, which includes better workload estimates for activities such as the Capacity Development and sanitary survey programs and includes all required primacy activities, all primacy support activities, and some additional primacy activities. However, despite the expanded scope of the 2019 analysis, the projected workload still does not include every aspect of a state drinking water program. All state drinking water programs are organized and operated in a way that best suits the state and their residents. Therefore, it is not possible to incorporate all additional primacy activities as separate line items in the 2019 model. To help account for this, an adjustment factor for additional primacy activities not included in the 2019 model was added to the workload estimates (see Adjustments to Workload Model Projections).

The effects of shortfalls in funding and state personnel vary from state to state. But when state drinking water programs are faced with inadequate staffing level and constrained resources, they may be forced to:

- Limit on-site field assistance to water systems, including sampling assistances for contaminants;
- Curtail water system operator training courses that increase their skills and knowledge;
- Decrease support for source water protection programs; and
- A myriad of other programmatic reductions that could jeopardize public health protection.

As stated before, workload for additional public health protection activities (particularly emerging issues) was not included in the workload model (and therefore is not represented in the projected workload estimates) as it would be difficult to develop an accurate national estimate for activities that are not dictated by federal regulations and vary greatly state-to-state. Instead, resource information and narratives were collected and reported separately (see “The Reality of Emerging Issues”). In addition, workload for state drinking water programs is never static. It is always changing given emerging and quasi-regulatory issues, implementation challenges with existing regulations, and new regulations. For example, the 2019 analysis does not include workload associated with:

- The Water Infrastructure Improvements for the Nation (WIIN) Act of 2016, which established three new grants programs for:
 - Lead testing in schools and child care facilities,
 - Assistance to small and disadvantaged communities, and
 - Reduction of lead in drinking water (e.g., lead remediation in schools and lead service line replacements).³
- The America's Water Infrastructure Act (AWIA) of 2018, which impacts federal mandates for CCRs, Capacity



³ Summary: S.612 – 114th Congress (2015-2016): <https://www.congress.gov/bill/114th-congress/senate-bill/612>.

Development programs, and emergency response planning, among others.⁴

- The response by state drinking water programs to address the world pandemic related to COVID-19. During this pandemic, state drinking water programs are dealing with consumer concerns, availability of licensed and certified operators, some limited supply chain issues, revising sanitary survey procedures, reductions in some drinking water system revenues as consumers are unable to pay for water, and changing water demands in suburban communities with more people are working from home.

Project Workload Estimates Substantially Changed

As discussed in State Resource Needs Advisory Panel Charge, the primary task of the panel was to review and revise drinking water program workload estimates. The panel felt the workload estimates from 2011 for three categories/line items were substantially undercounted and required updates in the 2019 model. The following section will address the major changes made to:

- Lead and Copper Rule implementation and oversight,
- Implementation of the sanitary survey program, and
- Oversight of the Capacity Development program (including all training activities).



The sections below refer to line items in the 2019 workload model. Workload model line items are *bolded and italicized* when referred to in the text.

Refer back to Figure 3 and Figure 4 for more information about categories and line items. Figure 3 indicates which types of activities (required primacy, primacy support, and additional primacy) are included under each line item. Figure 4 includes a summary of changes to categories and line items from the 2011 model to the 2019 model.

Lead and Copper Rule

The Lead and Copper Rule (LCR) was published in 1991 to protect public health by reducing exposure to lead and copper in drinking water. In 2000, the Minor Revisions were published to address implementation issues. In 2007, the Short-Term Revisions were published to improve implementation for monitoring, treatment, public education, and lead service line replacement requirements.⁵ Due to the complexity of the LCR, states continue to be strained by the workload required to properly implement the rule and to address new and ongoing implementation challenges. The LCR is an example of an existing regulation that involves an increase in state oversight of drinking water systems in the past couple of years.

The State Resource Needs Advisory Panel determined that full enforcement of the LCR required a higher workload than what was presented in the 2011 model, which included the line items: ***Track Compliance*** and ***Oversight of Systems with Action Level Exceedances (ALEs)***. When the 2011 workload estimates were developed, the current LCR had been in place for 20 years, and the workload associated with the rule was thought to be static. However, the Flint crisis resulted in increased scrutiny from the EPA and the public. The EPA Assistant Administrator for Water issued letters and memorandums that urged state drinking water

⁴ Summary: S.2800 – 115th Congress (2017-2018). <https://www.congress.gov/bill/115th-congress/senate-bill/2800>.

⁵ EPA. 2019. Lead and Copper Rule. <https://www.epa.gov/dwreginfo/lead-and-copper-rule>

programs to increase their attention on LCR and re-evaluate how the rule was implemented in their states. As a result, state drinking water programs increased drinking water system oversight as part of LCR implementation. To address this, the panel recommended raising the workload estimates for oversight of small drinking water systems serving 50,000 and fewer from two hours each in 2011 to three hours per system in 2019 (line item: **Track Compliance**). In addition, the panel added a new line item for states to re-evaluate their LCR programs based on recent guidance/memorandums from the EPA and implement any changes that were needed (**Re-evaluate Program Based on the EPA's Guidance and Implement Changes**). This includes reading, understanding, and implementing the EPA's *Optimal Corrosion Control Treatment Evaluation Technical Recommendations* document, which was released in 2016 and updated in 2019, and other relevant guidance and memorandums.⁶ The panel agreed that this would be an ongoing activity as the science of corrosion control treatment continues to evolve.

The panel also recommended adding a line item for additional workload related to the proposed Lead and Copper Rule Revisions (LCRR) (**Additional Burden for LCRR Implementation**). The proposed rule was signed by the EPA Administrator on October 10, 2019 and was published in the *Federal Register* on November 13, 2019. The intent of the revised rule is to strengthen public health protection by continuing to reduce exposure to lead and copper and to improve rule implementation. ASDWA developed the *Costs of States' Transactions Study (CoSTS)* as part of the public comment process for the proposed rule.⁷ CoSTS includes estimates for:

- Regulatory start-up activities,
- Lead service line inventories and replacement,
- Tap sampling,
- Trigger level determinations,
- Corrosion control treatment,
- Sample site assessments,
- Public notification and education, and
- Lead testing in schools and child care facilities.



ASDWA estimates that the LCRR will require for 49 states an average of 735,297 hours per year in the first five years of the LCRR, or approximately 3.7 million hours nationwide for the first five years. This estimate is in addition to current LCR implementation workload. ASDWA developed their cost estimates for the EPA's proposed revisions and for ASDWA's recommendations for the proposed revisions. ASDWA's recommendations were used to develop estimates for the **Additional Burden for LCRR Implementation** line item in the 2019 model. It is assumed that the LCRR will not be promulgated until late 2020 (Year 1 of the model), so the process to obtain primacy and other start-up activities will begin in 2021 (Year 2 of the model). The LCRR will be fully implemented by 2024 (Year 5 of the model), with the increased workload carrying through to 2029 (Year 10 of the model). **Figure 12** includes these assumptions for the LCRR and reflects the differences in workload projected in the 2011 model to that of the 2019 model.

The annual workload projected for 55 states and territories in the 2011 model was approximately 37 FTEs. This projection is the same for all 10 years in the 2011 model (2012-2021) since LCR workload was

⁶ EPA. 2016 (Updated). *Optimal Corrosion Control Treatment Evaluation Technical Recommendations*. <https://www.epa.gov/sites/production/files/2016-03/documents/occtmarch2016.pdf>

⁷ ASDWA's CoSTS Model and ASDWA's comments on the proposed LCRR are included in [Appendix C](#).

considered static at the time. In Year 1 of the 2019 model (or 2020), the workload projected for 55 states and territories is approximately 83 FTEs, which is 124 percent more than what was projected by the 2011 model. This increase is due to revised workload estimates and the additional line item for states to re-evaluate LCR programs based on recent guidance and memorandums issued by the EPA. Workload increases to approximately 211 FTEs in 2021 (a 470 percent increase from 2011 model estimates) when the process to obtain primacy for the LCRR and other start-up activities are assumed to begin. In 2024, when the LCRR is assumed to be fully implemented, the projected workload increases to approximately 403 FTEs for 55 states and territories (a 989 percent increase from 2011 model estimates). This substantial increase in workload projected by the 2019 model reflects the reality of intensified LCR implementation burden since the Flint crisis and the additional increase in burden anticipated from the LCRR.

Figure 12: Comparison of LCR FTEs from 2011 Model and 2019 Model. Includes the total amount of FTEs for 55 state and territorial drinking water programs estimated to carry out LCR implementation. The 2011 model provides estimates (represented by the light blue bars) from 2012 (Year 1) to 2021 (Year 10), and the 2019 model provides estimates (represented by the green solid line) from 2020 (Year 1) to 2029 (Year 10).



Sanitary Surveys

Sanitary surveys are required under the Interim Enhanced Surface Water Treatment Rule (IESWTR) and the Ground Water Rule (GWR). The IESWTR is part of the Surface Water Rules (SWTRs) and was promulgated in 1998. It requires states to conduct sanitary surveys at drinking water systems that use surface water or ground water under the direct influence of surface water as their primary source. The GWR was promulgated in 2006 and requires states to conduct sanitary surveys at drinking water systems that use ground water as their primary source. Sanitary surveys are critical for appropriate oversight of drinking water systems, and these inspections provide a visual check of the systems' facilities and compliance records. The State Resource Needs Advisory Panel determined that the workload estimate for sanitary surveys was underestimated in the 2011 model. States are investing more time in the sanitary survey process, and more thorough and/or more frequent inspections will likely uncover more potential compliance problems, and fix those potential problems before a violation occurs, thereby improving public health protection. Some states have additional or more stringent requirements related to sanitary surveys. For example, some states conduct sanitary surveys on an increased frequency. Sanitary surveys are federally required to be conducted based on the type of drinking water system; every three years for community water systems and every five years for non-community water systems. One state conducts sanitary surveys of surface water systems every two years and of ground water systems every three years regardless of the type of drinking water system. This increased frequency would be considered an additional primacy activity. The panel discussed including a line item for these other activities related to sanitary surveys but decided that it would be difficult to capture and estimate workload for all the different state activities related to sanitary survey. This other sanitary survey activities include, but are not limited to:

- Checking the minimum chlorine residual in the distribution system,
- Reviewing financial information and asset management plans, and
- Documenting the location and operating status of non-public wastewater systems near drinking water sources.

States are also investing more time in follow-up activities to sanitary surveys, including oversight of corrective action plans to address significant deficiencies. Significant deficiencies are typically identified during sanitary surveys and may make a system susceptible to

microbial contamination. If not addressed, significant deficiencies pose an imminent threat to public health. The panel agreed to substantially increase estimates for ***Oversight of Corrective Actions for Significant Deficiencies***, line items under the SWTRs and the GWR categories in the workload model, to accurately

What is a sanitary survey?
A sanitary survey is defined as “*an onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.*” [40 CFR 141.2]

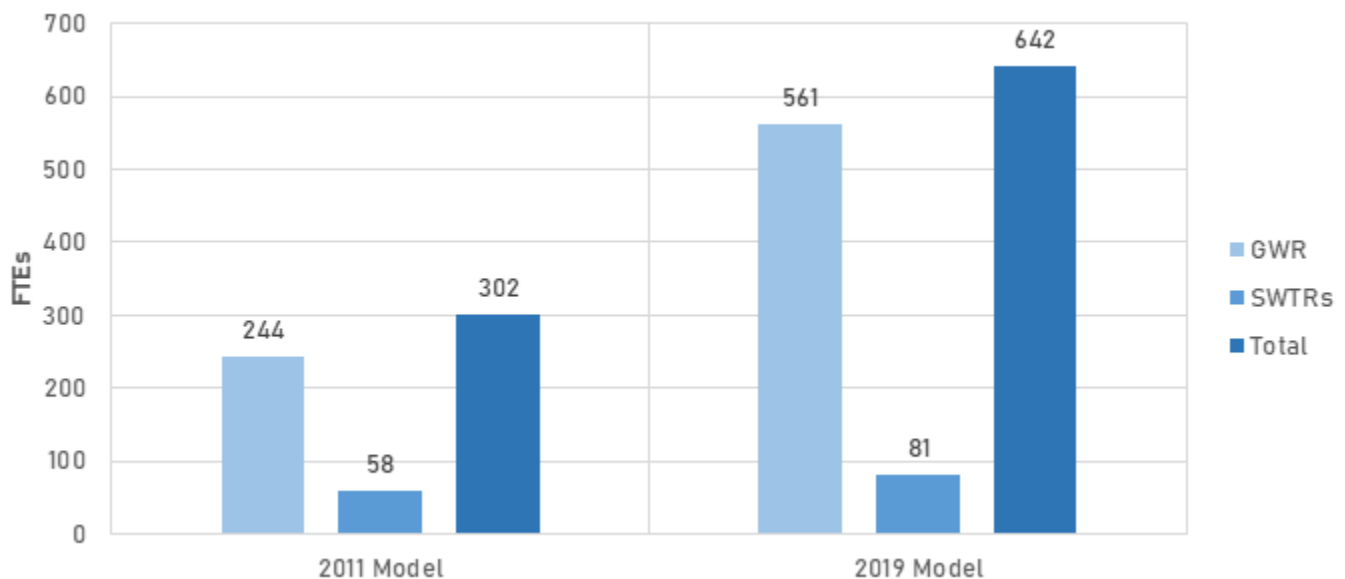


capture state increased efforts in ensuring significant deficiencies are addressed and fixed within a timely manner. In addition, updated significant deficiency data from SDWIS/Fed were used to estimate the number of drinking water systems with a significant deficiency.

This increased attention to the sanitary survey process and follow-up activities is intended to identify potential problems at drinking water systems before they result in SDWA violations. This approach can cause problems for state drinking water programs seeking funding as it can be challenging to justify the need for additional funding when state efforts have been successful in preventing non-compliance. If systems are in compliance and not incurring violations, states may not have “proof” of a prominent issue to demonstrate immediate need (even though the need is present). This is similar to buying insurance - sometimes one thinks the insurance premiums are an unnecessary expense until a problem arises.

Figure 13 shows the increase in workload from 2011 to 2019. The first year of each model (2012 and 2020) are shown in the figure because the annual estimates remain the same throughout the course of each model run. The figure breaks down sanitary survey workload (in FTEs) in workload under the GWR and SWTRs. Sanitary survey workload under the GWR increased from 244 FTEs for 55 states and territories in the 2011 model to 561 FTEs in the 2019 model (an increase of 130 percent). Sanitary survey workload under the SWTRs increased from 58 FTEs in the 2011 model to 81 FTEs in the 2019 model (an increase of 40 percent). The GWR burden is much greater than the SWTRs burden for sanitary surveys because there are many more drinking water systems in the United States served by ground water sources than by surface water sources. In addition, the ground water systems are often small water systems where the operators require additional support and guidance to address issues identified during a sanitary survey. **Figure 13** also shows the total sanitary survey workload for these regulations. In total, sanitary survey workload increased by 113 percent from the 2011 model projection of 302 annual FTEs to the 2019 model projection of 642 annual FTEs.

Figure 13: Comparison of Annual Sanitary Survey FTEs from 2011 Model and 2019 Model. Includes the total amount of FTEs for 55 state and territorial drinking water programs estimated to carry out implementation for sanitary survey requirements included in the GWR and SWTRs. The darker blue represents the total number of FTEs dedicated to sanitary surveys under both the GWR and SWTRs. The medium blue represents the number of FTEs dedicated to sanitary surveys under the SWTRs only, and the lighter blue represents the number of FTEs dedicated to sanitary surveys under the GWR only. The first year of each model (2012 and 2020) are shown in the figure because the estimates do not change significantly throughout the course of each model run.



Capacity Development



All states are required by the 1996 SDWA amendments to have a Capacity Development program to assist drinking water systems to build and maintain technical, managerial, and financial (TMF) capacity. Capacity Development also helps drinking water systems avoid non-compliance issues, obtain DWSRF funding, and ultimately protect public health. Capacity Development is a

crucial part of state drinking water programs with many different aspects, from providing training, tools, and technical assistance for drinking water systems to developing annual reports for the EPA.

The State Resource Needs Advisory Panel aimed to accurately capture workload associated with Capacity Development. The 2011 model included a single line item under the Capacity Development Category for ***Ongoing Oversight of Program***, which is defined as:

- The approval of new systems;
- Coordination of existing system strategy;
- Submittal of a report to the Governor on the progress and success of strategy; and
- Documentation of program performance to the EPA.

The 2011 model also included a line item for ***Training***, but it was under the Program Administration Category.

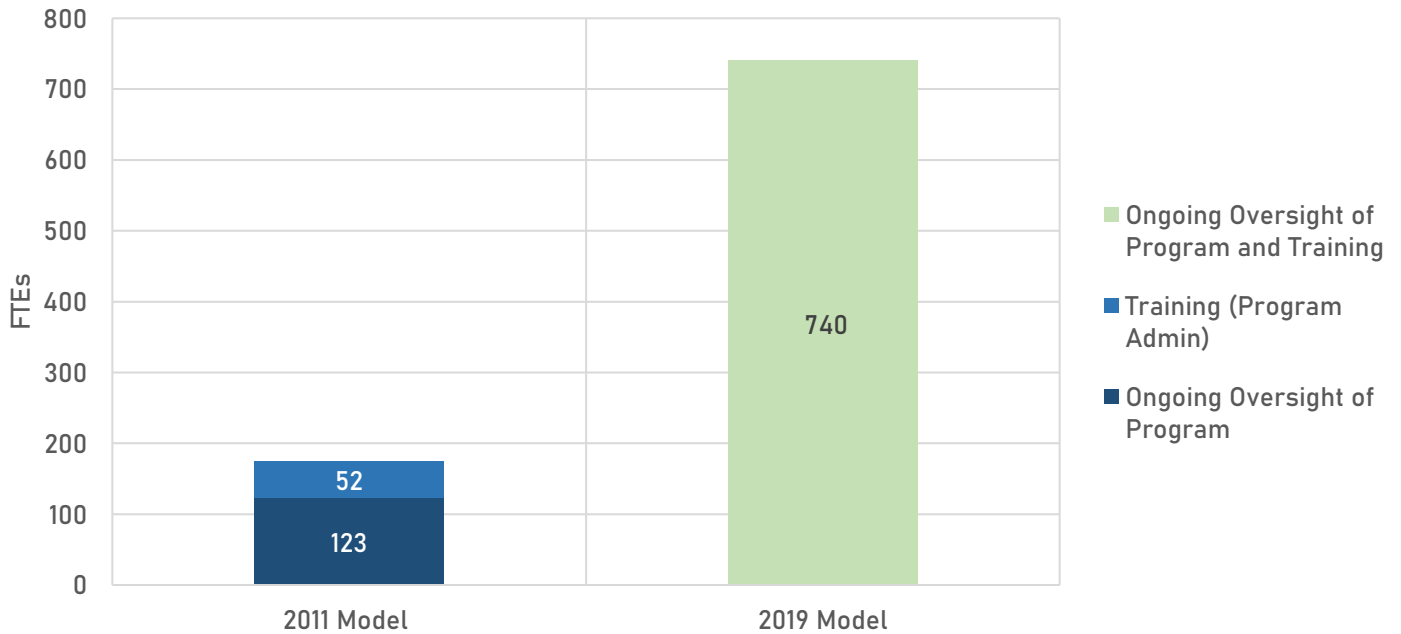
In the 2019 revision, the panel decided to include the ***Ongoing Oversight of Program*** from 2011 and to reassign some of this training workload to the Capacity Development Category to the new line item called ***Technical Assistance and Reporting***. This new line item includes:

- All TMF efforts to improve system operations;
- Technical assistance provided by state staff or third party contracted by the state; and
- Training for systems on existing rules, asset management, rates or fees, and other topics.

The panel also renamed the training line item under the Program Administration Category to ***Miscellaneous Training and Complaints*** and reduced the workload estimate since the majority of rule- and system-related training is now covered under the new line item in the Capacity Development Category.

Workload for Capacity Development increased from the 2011 to the 2019 model by more than 300 percent. **Figure 14** shows this increase by comparing the annual workload projected by the 2011 model to the annual workload projected by the 2019 model. The annual workload for Capacity Development was consistent throughout the 10 years of the 2011 model, and it is also consistent throughout the 10 years of the 2019 model. **Figure 14** includes from the 2011 model the ***Ongoing Oversight of Program*** under the Capacity Development Category and the training and technical assistance related to Capacity Development under the Program Administration Category, totaling 175 FTEs. It compares these 2011 number to the workload estimates from the 2019 model which includes ***Ongoing Oversight of Program*** and ***Technical Assistance and Reporting*** under the Capacity Development Category, totaling 740 FTEs. The nature of Capacity Development programs has changed over time, with many states investing more time and resources into developing and maintaining a robust Capacity Development program that goes above and beyond federal requirements in order to support the drinking water systems in achieving higher compliance with the SDWA regulations. The increase in workload from the 2011 model to the 2019 model is mostly due to reassigning some workload to the Capacity Development Category from the Program Administration Category of the model and due to including additional primacy activities.

Figure 14: Comparison of Annual Capacity Development FTEs from 2011 Model and 2019 Model. Includes the total amount of FTEs for 55 state and territorial drinking water programs estimated to carry out implementation for Capacity Development requirements. The darker blue represents the total number of FTEs dedicated to Capacity Development in the 2011 model. The lighter blue represents the total number of FTEs dedicated to training technical assistance related to Capacity Development (covered in Program Administration) in the 2011 model. The light green represents the number of FTEs dedicated to Capacity Development in the 2019 model. The first year of each model (2012 and 2020) are shown in the figure because the estimates do not change significantly throughout the course of each model run.



“THE REALITY OF EMERGING ISSUES”

What States Are Doing to Address Emerging Issues and Additional Public Health Protection Activities

Over the last decade, state drinking water programs have seen a tremendous growth in programmatic demands without adequate resources to address those demands. State drinking water programs have responded accordingly and have dedicated staff time and resources to address growing demands, especially in the realm of emerging issues, which are included in the category of additional public health protection activities (see **Figure 1** for the definition of this activity type). In the 2018 report *Beyond Tight Budgets*, ASDWA looked into resource demands from quasi-regulatory activities such as post-Flint Lead and Copper Rule oversight, harmful algal blooms (HABs), PFAS, *Legionella*, and the SDWIS Modernization effort. As part of this analysis, ASDWA asked states to estimate the hours expended on additional demands related to quasi-regulatory activities. Of the 25 respondents, states reported workload increases ranging from 1.1 to 12.5 percent, with an average workload increase of 4.3 percent, beyond their current level of activity.

In 2018, ASDWA surveyed states regarding resource needs for quasi-regulatory activities. Of the 25 respondents, states reported workload increases ranging from 1.1 to 12.5 percent, with an average workload increase of 4.3 percent, beyond their current level of activity.

It is important to note that, in many cases, state actions to address emerging issues and protect public health have been necessitated by a slow federal response. The regulatory process is slow and sometimes inconclusive, especially when health advisories are published as opposed to a national regulation, forcing states to act without federal requirements or guidance. The 1996 SDWA amendments established a process to evaluate unregulated drinking water contaminants that pose a threat to public health. The EPA is required to publish a list of contaminants every five years and determine whether an unregulated contaminant needs to be regulated. Only one contaminant (perchlorate) in the past 24 years has received a positive determination, and a new rule has been proposed, however recent indications are that the EPA will not regulate the chemical in drinking water. In addition, the EPA is required to review existing regulations every six years to determine whether they need to be revised to improve public health protection. These regulatory processes are slow and challenging in order to make progress on issues that require a quicker response.

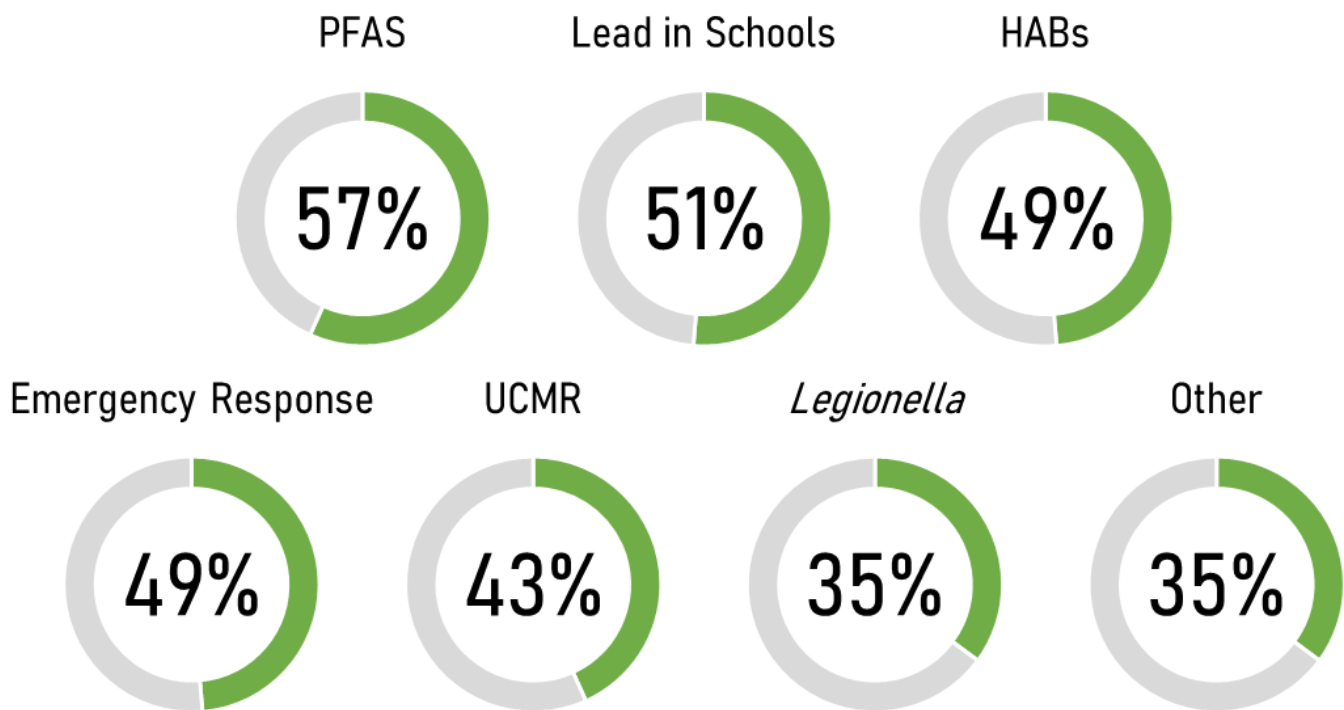
The State Resource Needs Advisory Panel determined that collecting data from states regarding emerging issues was necessary to accurately represent workload related to drinking water program implementation in the 2019 analysis. However, these data were not included in the workload model discussed above as the panel determined that developing an accurate national estimate for emerging issues would be difficult. The dynamic nature of emerging issues makes it difficult to incorporate the workload into the model directly. Emerging issues can vary greatly among states, and they can also be unpredictable in nature and difficult to anticipate. For example, the COVID-19 pandemic arose during the development of this analysis, and state resources have been re-directed to response efforts to assist drinking water systems during the precarious time. There is no predicting what the next emerging issue will be and how it will impact state drinking water programs and their resources.

Emerging issues are intended to be a stand-alone piece in this analysis to represent sources of additional workload. The approach was two-fold. First, states were asked to itemize FTEs dedicated to additional public health protection activities in the financial survey. States identified PFAS, lead in schools, harmful

algal blooms (HABs), emergency response planning, the Unregulated Contaminant Monitoring Rule (UCMR)⁸, *Legionella*, manganese, water reuse, water use and conservation, and other quasi-regulatory activities as emerging issues not directly required by the SDWA, but necessary to ensure the delivery of safe drinking water and protect public health. **Figure 15** shows the major issues identified by the states as emerging issues. PFAS and lead in schools were the most prevalent issues, with 57 percent of states reporting FTEs for PFAS and 51 percent of states reporting FTEs for lead in schools.

Figure 15: Percentage of States that Reported FTEs for Emerging Issues. Includes results from the 36 states that responded to the financial survey. Data are categorized by common emerging issues.

Percentage of states that reported using FTEs for:



As the second part of the approach to address emerging issues, the State Resource Needs Advisory Panel determined that including narratives on PFAS, lead in schools, the recent COVID-19 pandemic, and risk communication in this analysis would serve as examples of the impacts from these issues. These issues are only a few of the many emerging issues facing state drinking water programs and drinking water systems and creating programmatic challenges for state drinking water programs. With these issues demanding time and resources, states need to make difficult financial and programmatic decisions regarding these issues.

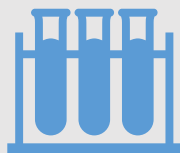
⁸ Even though the UCMR is a federal regulation, state participation in the UCMR is voluntary. The EPA implements this rule and collects data from public water systems throughout the country. However, states may be compelled to become involved in UCMR efforts. If an unregulated contaminant is detected at a drinking water system, then the state may have to assist the drinking water system in communicating the results to the public and by answering direct questions from the public. Since the questions relate to unregulated contaminants the drinking water systems and the state drinking water programs are often do not have the answers needed to address consumer concerns, which in turn can lead to additional workload.

Twenty-one out of 36 states (58%) that responded to the financial survey reported the use of FTEs and additional resources for PFAS. Collectively, these states had dedicated an estimated 33.5 FTEs and an additional \$2.3 million to PFAS efforts in 2019.

Per- and polyfluoroalkyl substances

Per- and polyfluoroalkyl substances (PFAS) have been a growing concern for the drinking water community for more than a decade. The solubility, mobility, and bio-accumulative properties of PFAS continue to heighten concerns about potential adverse health effects. Absent a clear federal direction and consistent health risk numbers, increased public concern has driven some state drinking water programs to establish their own PFAS actions, either regulatory or quasi-regulatory, noting that either takes time and resources. The EPA established health advisories for PFOA and PFOS in 2016 (which were the most commonly used at one point), but health advisories are not a regulation and, therefore, are non-enforceable. In addition, these are just two of the thousands of PFAS compounds in the United States.⁹

Redirecting Substantial Resources to Address PFAS Public Health Concerns in Rhode Island



The Rhode Island Department of Health, through rounds of monitoring in 2017 and 2019, tested 100 percent of all large drinking water systems serving more than 10,000 people, 100 percent of all schools, and nearly half (49 percent) of all community water systems in the state. This testing included a total of 87 drinking water systems that produce water for 87 percent of the state's population. In addition, Rhode Island met with a wide variety of stakeholders and experts to discuss the issues related to PFAS and the potential for regulating these compounds.

The Rhode Island Department of Health Center for Drinking Water Quality is presently staffed at 64 percent of the FTEs estimated by the 2011 workload analysis. Of that, approximately 10 percent of the state's staff time has been redirected to address PFAS issues. Staff are accumulating significant amounts of comp-time and overtime, but there is increased stress due to their efforts to address PFAS over time. At this time, no major errors or omissions have occurred in other parts of the program, but there is concern that it will inevitably happen. Increasing pressure is being placed on state staff to balance PFAS activities along with the ongoing state drinking water programmatic activities. There is concern that attempting to implement a PFAS maximum contaminant level (MCL) regulation at 20 ppt or lower is not sustainable without additional funding and staff.

⁹ National Institute of Environmental Health Sciences. 2019. Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) <https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm>

Nineteen out of 36 states (53%) that responded to the financial survey reported the use of FTEs and additional resources for lead in schools. Collectively, these states had dedicated an estimated 22.3 FTEs and an additional \$430,000 to lead in schools work in 2019.

Lead in Schools

Lead is a neurotoxin, and children are particularly susceptible as their growing bodies absorb more lead, which can cause anemia, kidney and brain damage, learning disabilities, and decreased growth. Out of an abundance of caution and to proactively protect children, many states have voluntarily implemented a lead testing program for schools and child care facilities. States have developed their own action levels due to the removal of the prior action level in the latest update of EPA's 3Ts for Reducing Lead in Drinking Water Toolkit. These state action levels often vary state to state, which presents challenges as states must develop resources to communicate the risk of the lead action level their state uses for school and child care facility testing.

Two new grant programs have recently been established to help fund lead testing in schools and child care facilities - the WIIN Act grants and AWIA grants. Although more funding is needed to support programs for testing in schools and child care facilities, applying for and administering the grants that have been funded created additional workload for states. This workload was not considered in this analysis.

Ohio Assumes Partial Responsibility for Testing Lead in Drinking Water at Schools Despite Lack of State Regulatory Requirements



In 2016, Ohio Environmental Protection Agency (Ohio EPA), the Ohio Water Development Authority, and the Ohio Facilities Construction Commission collaborated to form a voluntary Lead Plumbing Fixture Replacement Assistance Grants Program. State law created an appropriation of \$12 million in state funds for the program. The grants were used to reimburse public and chartered non-public schools to sample and assess their drinking water and replace drinking fountains, water coolers, plumbing fixtures, and limited connected piping found to be a cause of lead above the federal action level of 15 parts per billion (ppb). Two rounds of grants were offered to Ohio's eligible schools. As of December 31, 2018, 658 schools (serving 343,000 students) participated, and \$574,446 was reimbursed to the participating schools. This involved a significant amount of staff time from all three participating agencies to address and assume the responsibility for lead testing in schools that is currently not required by legislation or regulation.

COVID-19 Pandemic

On top of regulatory requirements and proactive voluntary efforts taken to protect public health, state drinking water programs are now spending additional time and resources addressing the COVID-19 pandemic. Some examples of how additional time and resources are being spent include:

- Monitoring drinking water systems and providing technical assistance,
- Collaborating with other water sector partners and federal agencies to anticipate future needs,
- Developing new forms for tracking closed facilities and revising reopening procedures,
- Developing and implementing remote work and oversight tools,
- Providing information to the EPA on drinking water systems that may be impacted,
- Conducting virtual meetings with drinking water systems,
- Assisting with the development of continuity of operations plans, including coordination with state-level Water and Wastewater Response Networks (WARNs) on potential operator coverage and chemical supply issues,
- Developing COVID-19 drinking water risk communication for the public, and
- Responding to media inquiries.



On top of the added activities listed above, the ongoing impact of the COVID-19 pandemic on states' revenues will likely domino into reductions to state program funding. The percentage of program funding provided by state revenue varies across the states as previously discussed, so it is challenging to predict reductions in specific states at this time.

Future financial impacts are also difficult to predict in the current economic environment. The National Conference of State Legislatures (NCSL) is tracking the budgetary and economic consequences of the COVID-19 pandemic. As of July 7, 2020, NCSL reported that every state is forecasting reductions in state revenues ranging from 2%-18% for fiscal year (FY) 2020.¹⁰ Beyond 2020, the impacts to states' revenues are predicted to continue. The NCSL compilation for FY 2021 shows state projections for the reductions in state revenues from 4%-30%. The decreases in state revenue will likely continue past 2021.

A short survey of ASDWA's members conducted in mid-July 2020 found several states have been told of budget reductions ranging from 5%-30%. Some state staff are currently facing furloughs ranging from 10 days/year (3.8% salary reduction) to 1 day/week (20% salary reduction). Most states are under a hiring freeze. At this time, it is not clear how significant the broader economic impact will be to funding for state drinking water programs, but many states are being asked to prepare for a range of potential budget reductions in the future.

¹⁰ National Conference of State Legislatures (NCSL). Coronavirus (COVID-19): Revised State Revenue Projections. <https://www.ncsl.org/research/fiscal-policy/coronavirus-covid-19-state-budget-updates-and-revenue-projections637208306.aspx>

Risk Communication

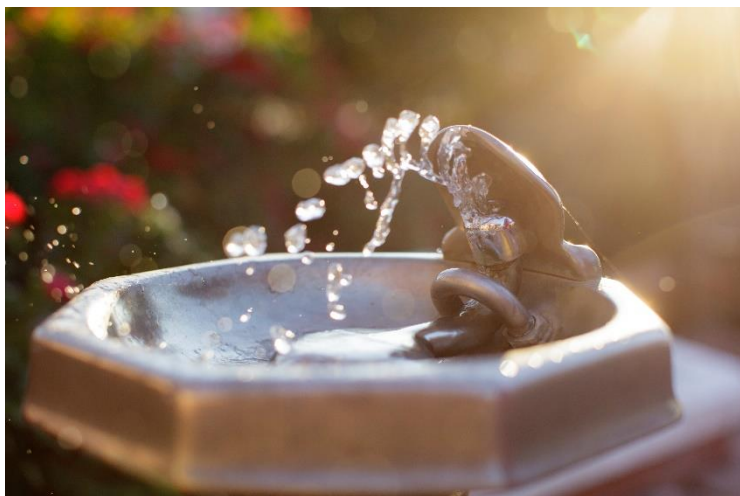
Risk communication has become an increasingly difficult and time-consuming responsibility for state drinking water programs. Risk communication is a pervasive challenge for many emerging or quasi-regulatory issues (e.g., UCMR contaminants, HABs, PFAS, and lead in schools). Once the public becomes aware of exposure risk and/or occurrence within a community, information must be provided in a timely manner. Many states are choosing to be proactive and develop risk communication plans for currently unregulated contaminants.

For example, manganese is currently being monitored under the Fourth Unregulated Contaminant Monitoring Rule (UCMR4) and has a federal health advisory of 0.3 mg/L and a secondary MCL of 0.05 mg/L for drinking water aesthetics. Manganese is one of the many contaminants that

has initiated proactive state approaches to risk management. Risk communication for manganese is further complicated by recommendations from the EPA not to consume water with levels above 1 mg/L for more than 10 days a year and infants not to ingest water above 0.3 mg/L for more than 10 days a year. The recommendation for infants is in a footnote to the health advisory, and these varying quasi-regulatory thresholds convolute risk communication for drinking water systems and state drinking water programs.

Manganese Risk Communication Plan Developed by North Dakota through State Collaboration

North Dakota is one of the many states that have developed risk communication plans for manganese. They accomplished this with an extensive collaborative strategy involving neighboring states. After a neighboring state placed a Do Not Use Public Notice Advisory in its state capital, North Dakota began reviewing historical monitoring data and contacting drinking water systems above the health advisory level. Through continued and proactive partnership with another state, North Dakota issued its own manganese Do Not Consume Advisory for drinking water systems with levels above 1.0 mg/L. North Dakota used six staff that devoted approximately 30 percent of their time to address an unregulated contaminant, which involved substantial forward-thinking and planning.



“THE GAP”

The Continuing and Growing Need for Resources

Drinking water programs continue to be financially stressed, and emerging issues and other activities intensify workload without any additional resource relief. The figures below depict the gap in resources needed. **Figure 16** shows the projected number of FTEs and funding generated from the workload model against the current FTEs and funding for 55 states and territories. This figure compares data presented in previous sections: “The Money”, “The Staff”, and “The Reality of State Workload”. It was estimated that 55 state and territorial drinking water programs currently have staff resources of 4,121 FTEs and funding resources of \$574 million. The 2019 model estimates that the 55 state and territorial drinking water programs need a total of 7,518 FTEs and \$949 million in 2020. In other words, drinking water programs need approximately 82 percent more FTEs and 65 percent more funding than they currently must effectively implement their programs and ensure safe drinking water for the public in 2020. Workload increases from 2020 and is projected to be highest in 2029 when drinking water programs will need 8,268 FTEs (i.e., approximately 101 percent more than current FTEs) and \$1.04 billion (i.e., approximately 82 percent more than current funding).

In 2020, drinking water programs need approximately **82% more FTEs** and **65% more funding** than they had in 2019. By 2029, drinking water programs will collectively need **101% more FTEs** and **82% more funding**.

Figure 16: Projected Funding and Staffing Needs Compared to Current 2019 Funding and Staffing for 55 State and Territorial Drinking Water Programs. This figure compares the results of the 2019 workload model, which calculates the number of FTEs and cost required to effectively run 55 state and territorial drinking water programs (green bars and line), to current staffing and funding levels (dark blue bar and lines), in order to show the shortage of funding and staffing.

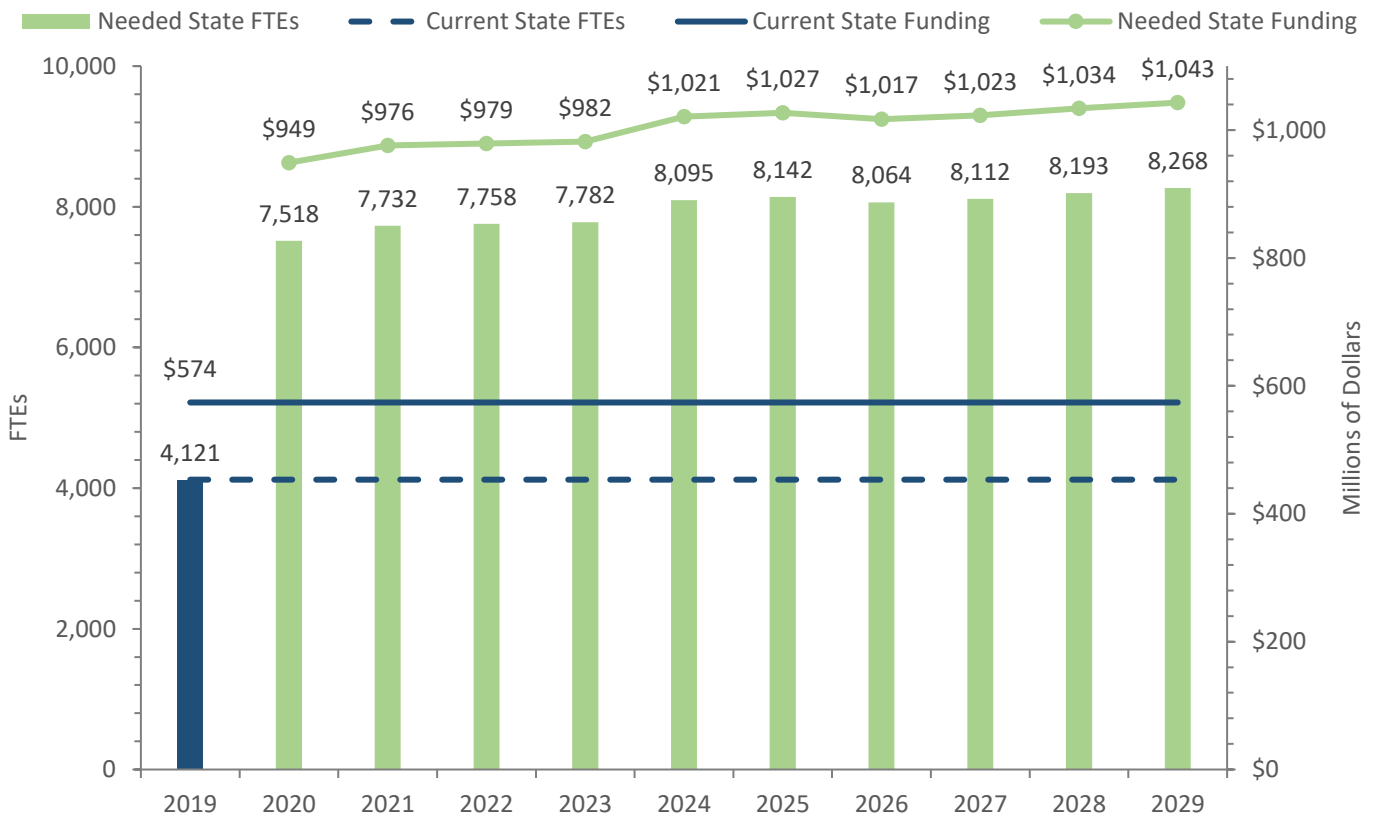
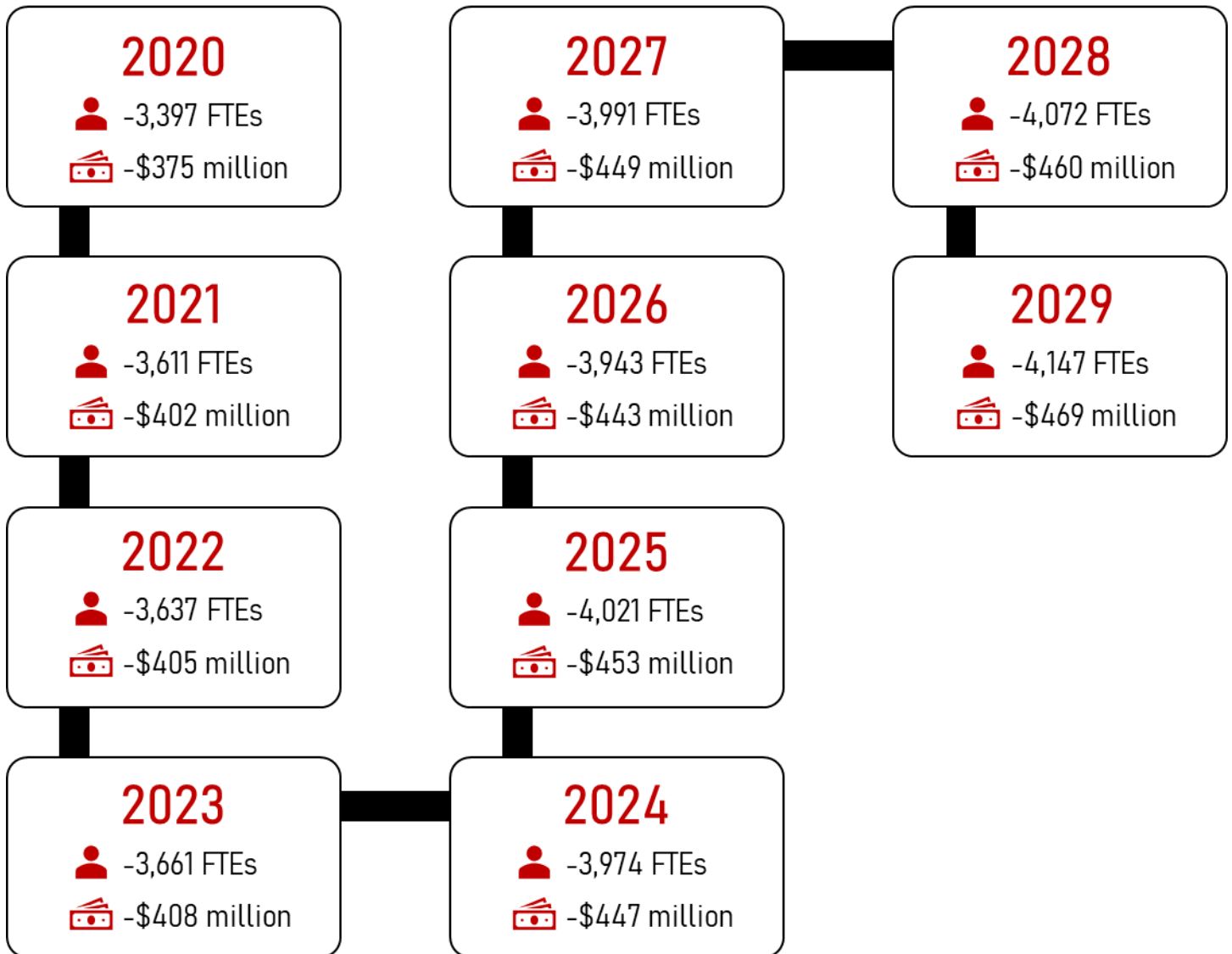


Figure 17 lists the resource deficits projected through 2029, using the current 2019 actual FTEs and funding as the available resources. The numbers in this figure represent the staffing and funding states needed in addition to current resources. In 2020, there is a gap of 3,397 FTEs and \$375 million. The largest gap is observed in 2029 when there is a gap of 4,147 FTEs and \$469 million.

Figure 17: Total FTE and Funding Deficit by Year for 55 State and Territorial Drinking Water Programs. Includes the difference between projected resources from 2020 to 2029 and current resources. The numbers shown represent resource deficits, or the FTEs and funding needed beyond what drinking water programs currently have available.



Conclusion

The core of the state drinking water programs' work is upholding the principles of the SDWA, which includes important regulatory oversight activities and preventive work to protect public health. This preventive work ensures that drinking water systems are in compliance with the regulations and are delivering safe drinking water to customers. It also attempts to avert public health crises like the dangerously high lead levels in Flint, Michigan. However, state workloads reach far beyond the requirements of the SDWA. This report echoes the findings of previous resource needs analyses in that additional funding or a reallocation of resources is required so that state drinking water programs can continue to carry out preventive work to ensure safe drinking water, protect public health, and avoid public health crises.

While this analysis updates of the 2011 analysis and the 2018 *Beyond Tight Budgets* report to incorporate an expanded approach and represent a holistic view of drinking water program, workload is likely still underestimated as some of the unique aspects of state drinking water programs cannot be modeled nationally. ASDWA concludes in their 2018 *Beyond Tight Budgets* report that states are experiencing increases in workload due to quasi-regulatory drivers. According to 25 states surveyed for the 2018 report, the average increase in workload from quasi-regulatory issues was 4.3 percent. This is supported by the information presented in ["The Reality of Emerging Issues"](#), in which 21 state drinking water programs reported they had dedicated an estimated 33.5 FTEs and an additional \$2.3 million to PFAS efforts and 19 states reported they had dedicated an estimated 22.3 FTEs and an additional \$430,000 to lead in schools work. State drinking water programs continue to adapt to stagnant resources and increasing demands by prioritizing threats to public health and implementing efficiency measures, but their ability to meet all demands and requirements is greatly compromised. More attention must be paid to state drinking water programs, their dynamic and ever-growing workload, and the importance of the core preventive work they were created to do.

APPENDIX A

2019 Financial Survey

Fill in the blue shaded sections. Contact Kevin Letterly <kletterly@asdwa.org> if you have specific questions.

State Resources for a Given Federal Fiscal Year

State:

Year:

This survey seeks information on the current funding and staffing provided to support the State Drinking Water Program. Current resources will be evaluated against the resource needs to calculate the funding and staffing gap. To define what should be included in your estimate, a list of the activities measured in the 2011 Resource Needs Model is provided in a separate tab on this form. An ASDWA workgroup is currently reviewing this list to update it for the 2019 effort. The workgroup will account for workload for activities that were not included in 2011, such as efforts to address PFAS, Lead in Schools, emergency response, etc. The workgroup also broadened the workload estimates to include state-specific efforts that are not federally required, such as site visits to investigate complaints or for state staff to perform Level 1 assessments. **Please fill out the following information based on the most representative year in the past 5 years (this does not have to be the most recent year if that year is anomalous in any way).**

Section 1: Drinking Water Program Funding Information

Please provide your current state Drinking Water Budget Funding in the rows below.

- Include contributions to drinking water program activities from other organizations or other departments, e.g., local health offices, DWSRF program (which may be in a separate agency or office), State Laboratory, IT department (if the services of this department are not part of your state overhead cost).
- Do not include funding for activities that are not covered by the list of activities, such as a safe swimming pool program or a cooling tower program to minimize Legionella issues.
- Include information on state-specific programs (see Section 3 for more information).

1.a. Total Budget and Expenditures

Budget	Total Expenditures
\$ -	\$ -
Non-Federal Funds	Federal Funds

1.b. Percentage of Overall Budget

0.00%	0.00%
-------	-------

Please describe what percentage of your state's overall budget came from non-federal versus federal funding sources. Federal funding sources include DWSRF set-asides and PWSS Grants. Non-federal funding sources include state funds in the form of general funds and state fees.

Section 2: Drinking Water Program Expenditures Information

To explain how your state Drinking Water Budget/Funding is spent, indicate costs and FTEs associated with the budget/funding information included in Section 1.

2.a. Full-Time Equivalents

Provide the total number of FTEs in the state's program by type of staff. Include all the FTEs in the program that were included in the budget/funding in Section 1. Exclude portion of staff time dedicated to activities that are not covered by the resource needs model.

	Number of FTEs	Total number of hours (Contractor Support only)
Technical FTEs	-	
Managerial FTEs: Include program managers and portion of Department-level management time charged to the program, e.g., when the labor cost is charged to the drinking water program as part of an indirect overhead charge or directly against the program's budget.	-	
Administrative FTEs	-	
Special Initiatives FTE: Special initiatives are projects that are in addition to federal or state regulatory requirements and are completed to provide additional insight or data. For example, a special monitoring project may determine levels of contaminant proposed to be regulated, or a study may determine how many lead service lines are in the state's inventory.		
Senior Management FTEs: Include staff when the labor cost is charged to the drinking water program as part of an indirect overhead charge or directly against the program's budget.	-	
Delegated Program: Local health offices, local governments, etc. that charge to the drinking water program.		

APPENDIX A

2019 Financial Survey Continued

Contractor/Temporary FTE Support: Provide either number of FTEs in Column E or approximate hours spent/ billed in Column F.

	-	-
TA Providers	-	

Section 3. State-Specific Activities

3.a. Total FTEs for State-Specific Activities

How many FTEs from Section 2.b. are dedicated to state-specific activities?

Total per Year	-
-----------------------	---

This section covers activities that are in addition to SDWA requirements, but not different approaches to implementation. If you implement the SDWA requirements differently than prescribed by Federal regulations (e.g., require more monitoring or more frequent site visits), these FTEs should be included in Section 2 for this model. To help us describe the workload for the state-specific activities in the report, please list the activities in the boxes in Section 3.b., below. And, if you are uncertain whether or not something should be classified as a state-specific activity, please list it below and we will add it to Section 2 if necessary.

3.b. Additional State Activities

(Optional - Complete this section if you have this information)

	Cost not related to FTEs	# of FTEs
PFAS	\$ -	0
Legionella (directly related to drinking water)	\$ -	0
Lead in Schools	\$ -	0
HABs	\$ -	0
Emergency Response Planning	\$ -	0
UCMR4	\$ -	0
Other	\$ -	0
Other	\$ -	0
Other	\$ -	0
Other	\$ -	0
Other	\$ -	0
Other	\$ -	0

Section 4: Barriers

Describe barriers that may affect the program's ability to access funds or FTEs (e.g., spending cap, FTE cap, expected loss of fee revenue or General Funds, limitation on use of DWSRF set asides, drinking water is a low priority for Department's budget.)

1	
2	
3	
4	
5	

2019 ASDWA State Resource Needs Analysis (SRNA) - Request for State Input on Select Workload Estimates

INTRODUCTION

The panel of states helping to revise the State Resource Needs model has updated most activities with current workload estimates. However, state input is needed for the following topics that are new for the model and where the panel wanted to ensure adequate representation from all state size categories. Administrators are requested to coordinate with their staff. Please use the comment section under each section to provide detailed feedback.

Each workload estimate is based on a defined activity; water system size category; system type; source; and primary drinking water rule or administrative category. Workload estimates are further broken down by year. A multiplier (e.g., number of systems) is used to determine the total workload for each activity. Finally, assumptions and data sources are provided for each estimate. Data sources are necessary to gather all of the aforementioned information for each activity, including multipliers. Assumptions are cataloged for posterity so that an outside audience can better understand how the workload estimates were calculated.

The document is organized by activity and is arranged in the following order:

- Sanitary Survey: State-specific Requirements and Site-travel Estimates
- Enforcement Response Policy (ERP): Enforcement for Problems with Operations, Design, and Construction
- Program Administration (PA)-2: Lab Certification/Review Lab Capacity
- Miscellaneous Training and Complaints
- Data System Maintenance and Miscellaneous Data Entry/Requests
- Revised Total Coliform Rule (RTCR)-12 - RTCR-15: Level 1 Assessments

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

Questionnaire

Sanitary Survey: State-specific Requirements and Site-travel Estimates

The new model will capture state-specific requirements that were not included in the last resource needs report. These are items that go beyond conducting an 8-element survey. The table below includes sanitary survey activities that are already accounted for in the model. Please consider these activities when providing input on additional sanitary survey activities. In addition, the panel would like feedback as to whether or not an average estimate of 1.8 hours to travel to and from the water system is an accurate number so that it can be used in the sanitary survey estimate and the RTCR assessment activities.

Sanitary Survey Estimates in the Current Model

- **Definition:** Conduct an 8-element sanitary survey.
- **Multiplier:** Number of systems in SDWIS divided by 3 or 5 (depending on system type) to allocate workload across the compliance period.

Activity ID	Sys Size Category	Source Type	Estimate 2019	Assumption/Data Source
GWR-10	≤ 3,300	CWS	Every year, depending on system type and size: Review/Inspect Wells: 45 min/well + 5 minutes to get to first well Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source Review/Inspect Treatment: 2.91 hr/TP Review/Inspect Distribution: 6.2-8.3 hr/system Review Documentation/File Review: 1.5 hr/system Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 3.17 hr/TP Travel: 1.8 hrs	2012 Assumption - Estimate: Assumes by 2015 all systems will have had two sanitary surveys completed and, therefore, will have detailed reports and schematics. Also assumes that ground water system surveys take more time than surface water systems because the review and reporting of numerous wells that are often separated by distance will take longer than reviewing a single surface water intake and plant. 2012 Data Source - Estimate: Due to the variety of estimates from the SRNAP the workload estimate was revised. Original estimate of 18 hrs reduced to 12 hrs was based on EPA's 2008 Program ICR (mid-point of ICR estimates). 2012 Data Source - Multiplier: SDWIS.
GWR-11	3,301 - 50,000	CWS	Every year, depending on system type and size: Review/Inspect Wells: 45 min/well + 5 minutes to get to first well Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source Review/Inspect Treatment: 3.16-3.50 hr/TP Review/Inspect Distribution: 11.8-12.7 hr/system Review Documentation/File Review: 1.5 hr/system Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 4.25-4.5 hr/TP Travel: 1.8 hrs	Same as above.

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

Activity ID	Sys Size Category	Source Type	Estimate 2019	Assumption/Data Source
GWR-12	> 50,000	CWS	Every year, depending on system type and size: Review/Inspect Wells: 45 min/well + 5 minutes to get to first well Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source Review/Inspect Treatment: 3.83-4.50 hr/TP Review/Inspect Distribution: 23-24.8 hr/system Review Documentation/File Review: 1.5 hr/system Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 5.75-6.25 hr/TP Travel: 1.8 hrs	Same as above.
GWR-13	ALL	NTNCWS	Every year, depending on system type and size: Review/Inspect Wells: 45 min/well + 5 minutes to get to first well Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source Review/Inspect Treatment: 2.41-4.00 hr/TP Review/Inspect Distribution: 1.3-10.0 hr/system Review Documentation/File Review: 3 hr/system Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 2.5-3.75 hr/TP Travel: 1.8 hrs	2012 Assumption - Estimate: Assumes by 2015 all systems will have had two sanitary surveys completed and, therefore, will have detailed reports and schematics. 2012 Data Source - Estimate: Due to the variety of estimates from the SRNAP the workload estimate was revised. Original estimate of 18 hrs reduced to 12 hrs was based on EPA's 2008 Program ICR (mid-point of ICR estimates). 2012 Data Source - Multiplier: SDWIS.
GWR-14	ALL	TNCWS	Every year, depending on system type and size: Review/Inspect Wells: 45 min/well + 5 minutes to get to first well Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source Review/Inspect Treatment: 1.41-3.00 hr/TP Review/Inspect Distribution: 0.8-10.0 hr/system Review Documentation/File Review: 2.5 hr/system Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 2.0-3.25 hr/TP Travel: 1.8 hrs	2012 Assumption - Estimate: Assumes no reduction in workload due to previously completed sanitary surveys. 2012 Data Source - Estimate: Due to the variety of estimates from the SRNAP the workload estimate was revised. Original estimate of 12 hrs was based on EPA's 2008 Program ICR (mid-point of ICR estimates). 2012 Data Source - Multiplier: SDWIS.
SWTR-5	>50,000	CWS	Every year, depending on system type and size: Review/Inspect Wells: 45 min/well + 5 minutes to get to first well Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source Review/Inspect Treatment: 2.41-3.08 hr/TP Review/Inspect Distribution: 24.2-58.7 hr/system Review Documentation/File Review: 4.5 hr/system Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 5.92-6.42 hr/TP Travel: 1.8 hrs	Assumption - Estimate: Assumes that a detailed report and schematics have been prepared for all systems because four sanitary surveys have been completed for CWSs. Assumes that all systems required will have an IESWTR sanitary survey and that none will be required under the TCR. These systems are assumed to have a large distribution system and, therefore, will need additional time. Data Source - Estimate: Due to the variety of estimates from the SRNAP the workload estimate was revised. Original estimate of 40 hrs was a new estimate for the 2011 resource needs model. Data Source - Multiplier: SDWIS.

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

Activity ID	Sys Size Category	Source Type	Estimate 2019	Assumption/Data Source
SWTR-7	ALL	TNCWS	<p>Every year, depending on system type and size:</p> <p>Review/Inspect Wells: 45 min/well + 5 minutes to get to first well</p> <p>Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source</p> <p>Review/Inspect Treatment: 1.50-3.08 hr/TP</p> <p>Review/Inspect Distribution: 1.0-10.0 hr/system</p> <p>Review Documentation/File Review: 2.5 hr/system</p> <p>Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 2.17-3.42 hr/TP</p> <p>Travel: 1.8 hrs</p>	<p>Assumption - Estimate: Assumes that a detailed report and schematics have been prepared for all systems because four sanitary surveys have been completed for CWSs. Assumes that all systems required will have an IESWTR sanitary survey and that none will be required under the TCR. Data Source - Estimate: Due to the variety of estimates from the SRNAP the workload estimate was revised. Original estimate of 12 hrs was a new estimate for the 2011 resource needs model. Data Source - Multiplier: SDWIS.</p>
SWTR-8	≤ 50,000	CWS	<p>Every year, depending on system type and size:</p> <p>Review/Inspect Wells: 45 min/well + 5 minutes to get to first well</p> <p>Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source</p> <p>Review/Inspect Treatment: 1.50-2.08 hr/TP</p> <p>Review/Inspect Distribution: 6.4-13.5 hr/system</p> <p>Review Documentation/File Review: 4.5 hr/system</p> <p>Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 3.17-4.67 hr/TP</p> <p>Travel: 1.8 hrs</p>	<p>Assumption - Estimate: Assumes that a detailed report and schematics have been prepared for all systems because four sanitary surveys have been completed for CWSs. Assumes that all systems required will have an IESWTR sanitary survey and that none will be required under the TCR. Data Source - Estimate: New estimate for 2011 resource needs model. Data Source - Multiplier: SDWIS.</p>
SWTR-9	All	NTNCWS	<p>Every year, depending on system type and size:</p> <p>Review/Inspect Wells: 45 min/well + 5 minutes to get to first well</p> <p>Review/Inspect Surface Sources: 55 min/source + 15 minutes to get to first source</p> <p>Review/Inspect Treatment: 2.50-4.08 hr/TP</p> <p>Review/Inspect Distribution: 1.5-18.3 hr/system</p> <p>Review Documentation/File Review: 3 hr/system</p> <p>Report Development: 1 hr/system + 20 min/well + 20 min/SW source + 2.67-3.92 hr/TP</p> <p>Travel: 1.8 hrs</p>	<p>Assumption - Estimate: Assumes that a detailed report and schematics have been prepared for all systems because four sanitary surveys have been completed for CWSs. Assumes that all systems required will have an IESWTR sanitary survey and that none will be required under the TCR. Data Source - Estimate: New estimate for 2011 resource needs model. Data Source - Multiplier: SDWIS.</p>

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

Follow-up Item

Keeping in mind the above workload estimates for sanitary survey activities, please provide information about state-specific activities associated with sanitary surveys.

1. Provide the **workload estimate** associated with state-specific requirements for conducting a sanitary survey, exclude any time that would be covered by the estimates report above. Please use the table below and add rows as necessary.

System Size Category	Source Type	System Type	Estimate 2019	Notes

2. Provide a **definition and examples** of state-specific activities beyond conducting an 8-element review.

The travel workload associated with sanitary surveys represents the average amount of time it takes state employees to travel to sites per sanitary survey. It is currently 1.8 hours per site visit. It was decided that this travel time may vary widely between states depending on state size and if it has centralized or regional offices. Note: these travel estimates will also be incorporated to the workload for RTCR assessments conducted by the states.

3. Is the average estimate of 1.8 hours reasonable for state staff to travel to and from the water system to conduct a sanitary survey? **Yes** **No**
4. If no, what would a reasonable estimate for travel be in your state? _____
5. Does your state have a centralized office or regional offices? **Centralized Office** **Regional Offices**

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

ERP: Enforcement for Problems with Operations, Design, and Construction

The panel decided to create one workload estimate to cover states' formal enforcement process. This would include data management, tracking of enforcement compliance schedule activities, addressing action, and coordinating with attorneys. Note: Developing reports and meeting with upper management and EPA Regions to discuss status is included in the model in a separate line item estimate and is based on state size categories.

- **Applicable Rules:** All
- **Source:** All
- **Multiplier:** Number of systems with ETT scores ≥ 11 (ETT priority systems).

Follow-up Item

1. Provide the **workload estimate** associated with the formal enforcement process for ETT priority systems in your state. Please use the table below and add rows as necessary.

Estimate 2019	Notes

2. Provide a **definition** of activities associated with the formal enforcement process.

An example definition is: Enter enforcement actions in the state data system. Oversee rule managers to ensure return to compliance (RTC) codes are entered correctly and track enforcement compliance schedule activities. Includes using other staff to conduct follow-up with systems, could include coordinating with third party TA providers. Assumes multiple infractions of multiple regulations and need to coordinate compliance response. Build a case; assemble all documents related to issue; coordinate with other key staff, such as the rule manager, field person, and management, regarding what action system needs to be taken to RTC; write administrative order or other addressing action (some will use boilerplate text, while others will not); and create compliance schedule. Development of legal documents. Includes times for all parties involved.

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

PA-2: Lab Certification/Review Lab Capacity

During the meeting, the panel discussed adding additional elements to the definition to this activity.

- **Rules:** All
- **Current Definition:** Certify private laboratories in the state; coordinate with the state lab; approve reciprocity applications from out-of-state labs; arrange purchase of lab equipment; run special samples; laboratory certification. Includes oversight and disciplinary activities.
- **Size Category:** All
- **Workload Estimate:** 64.8 hrs
- **Multiplier:** Number of in-state labs

Follow-up Item

Please consider the workload associated with each of the following proposed categories. Workload can be provided for each category individually or for all categories combined (add/delete rows as necessary).

Activity ID	Activity	Multiplier – revise if necessary	Estimate 2019	Notes
PA-2	Certification: Certify private laboratories in the state	Number of in-state labs		
PA-2	Maintain state-lab accreditation			
PA-2	Coordination with state labs (coordinate on emergency planning, monthly general update meetings with labs, coordinating response to man-made and natural disasters)			
PA-2	Method development			
PA-2	Buying new equipment			
PA-2	Training lab staff on new contaminants			
PA-2	Arrange purchase of lab equipment; run special samples			
PA-2	Oversight and disciplinary activities.			
PA-2	Approve reciprocity applications from out-of-state labs	Number of out-of-state-labs (see follow-up item below)		

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

Follow-up Item: Number of Labs

State laboratory certification through reciprocity data that was provided by EPA is in **Appendix A: Number of Labs per State**. Please indicate whether the number of in-state labs and out-of-state labs provided by EPA is accurate for your state and if not, please provide the correct number of labs.

1. Are the in-state and out-of-state labs data for your state accurate? **Yes** **No**
2. If not, please provide correct data for your state below.

Miscellaneous Training and Complaints

A new activity has been added called “Miscellaneous training and complaints”. This activity was suggested to include definitions such as **providing telephone assistance to the public who call in and response to complaints including mandated site visits following a complaint**.

- **Definition:** Includes field visits (not as part of sanitary surveys or RTCR assessments); complaint investigations; general outreach; and telephone assistance. Also includes ongoing training for existing rules for state and system staff. (Note that training for new rules is included on each contaminant-specific worksheet.) Does not include personnel training or data management training.
- **Size Category:** All
- **Workload Estimate:** VS/S State: 5 FTEs (10,400 hrs); M State: 10 FTEs (20,800 hrs); L/VL State: 20 FTEs (41,600 hrs)
- **Multiplier:** Number of States

Follow-up Item

Please consider what other definitions should be added to this new activity. Please include the examples mentioned above (i.e., responding to complaints via telephone and site visits following a complaint) if they are applicable to your state.

2019 Estimate	Definition

APPENDIX B

2019 ASDWA State Resource Needs Analysis - Request for State Input on Select Workload Estimates Continued

Data System Maintenance and Miscellaneous Data Entry/Requests

In light of EPA announcement about postponing SDWIS modernization, the panel is asking states to help estimate the workload for their expected strategy to be captured in the workload model.

Follow-up Item

Please indicate your likely strategy (select one of the following):

- My state will wait until further information from EPA but likely will use the products that EPA delivers. **Yes** **No**
- My state will modernize our legacy system (either SDWIS/State or another system). **Yes** **No**

If your state plans to modernize the legacy system, please estimate the workload in FTEs for internal IT and program staff, the cost for contractor assistance, and timeline for improvement.

Total Number of FTEs	Total Cost for Contractor Assistance	Timeline (number of years)

RTCR-12- RTCR-15: Level 1 Assessments

Level 1 assessments are conducted to address bacteriological problems. This RTCR activity includes conducting the assessment and compliance tracking. During the panel meeting, a question was raised as to how many states conduct Level 1 assessments versus contracting them out to third party consultants or having the water system complete the assessment themselves. It is important to know approximately what percentage of states conduct Level 1 assessments.

Follow-up Item

Please respond to the following questions:

1. Does your state conduct Level 1 assessments? **Yes** **No**

If yes, provide the percent of all Level 1 Assessments conducted by the state _____

2. Who else conduct Level 1 assessments in your state (please include a percent of all the assessments conducted in a year)?

Water systems **Percent of all Level 1 Assessments conducted by water systems** _____

Third Parties **Percent of all Level 1 Assessments conducted by a third party** _____

APPENDIX C

Comment Cover Letter by the Association of State Drinking Water Administrators (ASDWA) For the Proposed Lead and Copper Rule Revisions (LCRR) and the Updated 2018 Cost of States' Transactions Study (CoSTS)

For ASDWA's full comments and CoSTS model, [click here](#).

February 10, 2020

Mr. David Ross

Assistant Administrator for Water

U.S. Environmental Protection Agency

1200 Pennsylvania Ave., NW

Washington, DC 20460 Subject: National Primary Drinking Water Regulations - Proposed Lead and Copper Rule Revisions [Docket # EPA-HQ-OW-2017-0300]

Dear Assistant Administrator Ross:

The Association of State Drinking Water Administrators (ASDWA) appreciates the opportunity to provide comments on the proposed Lead and Copper Rule Revisions (LCRR). ASDWA is the professional association that serves the men and women (and their staff) who lead and implement the 57 state and territorial drinking water programs. Formed in 1984 to address a growing need for state administrators to have national representation, ASDWA has become a respected voice for states with Congress, the Environmental Protection Agency (EPA), and other Federal agencies.

ASDWA's members are coregulators with EPA for the National Primary Drinking Water Regulations (NPDWRs), and this partnership has been critical for the successful implementation of all the NPDWRs. ASDWA looks forward to continuing this productive partnership in the years following the publication of the final LCRR. As a partner, ASDWA commends EPA for getting the proposed LCRR published. ASDWA would also like to thank EPA for the 30-day extension to the comment period, as the extra 30 days was critical for analyzing the details of the proposal and the appropriate review and approval of these comments by ASDWA's leadership.

The summary recommendations in this cover letter and the enclosed detailed comments are based on many years of implementation experience. ASDWA's members have been implementing the current Lead and Copper Rule (LCR) since it was originally published in 1991, as well as the minor revisions in 2000 and 2004, and the short-term revisions in 2007. ASDWA's members have recently gained additional regulatory experience in the aftermath of Flint's lead crisis by taking actions such as reviewing distribution system materials evaluations, lead service line (LSL) inventories (where available), corrosion control treatment (CCT) and water quality parameter (WQP) monitoring that goes beyond the regulatory requirements of the 1991 LCR. As such, ASDWA's members have a breadth and depth of knowledge on the details of LCR implementation that EPA should thoughtfully consider for inclusion in the final LCRR.

ASDWA's state, territorial, and tribal members (hereinafter "states"), have considerable experience working through the many complexities of the LCR regulatory language and its implementation. ASDWA offers the following comments from the perspective of the state Safe Drinking Water Act (SDWA) administrators from across the nation that regulate public water systems, implement the current LCR, and will implement the final LCRR. As such, these comments are intended to broadly address the proposed LCRR published by EPA in November 2019. It should be noted, however, that these comments do not necessarily represent the specific comments and concerns of individual states. ASDWA's comments also do not represent consensus from all states, so we encourage EPA to consider individual state comments in addition to ASDWA's to gain further perspective while finalizing the LCRR.

APPENDIX C

Comment Cover Letter by the Association of State Drinking Water Administrators (ASDWA) For the Proposed Lead and Copper Rule Revisions (LCRR) and the Updated 2018 Cost of States' Transactions Study (CoSTS) Continued

ASDWA has provided EPA with attached detailed comments addressing the components of the LCRR and would like to highlight four main themes for EPA's consideration:

- 1. Get the Lead Out:** Getting the lead out of the distribution system by requiring lead service line (LSL) removal is the long-term solution for certainty in reducing exposure to lead in drinking water, and the first step towards removal is a complete inventory of all services lines. ASDWA supports regulatory requirements for water systems to develop an LSL inventory (both public and private sides) in its service area or demonstrate "absence of LSLs". ASDWA recognizes that the knowledge of service line materials will increase over time, and the final LCRR should incorporate this evolution. ASDWA recommends that any system with LSLs develop an LSL replacement (LSLR) plan. ASDWA recommends that EPA clarify its LSL definition for galvanized service lines and for goosenecks and pigtails, and to include unknown service lines as LSLs. Additionally, ASDWA recommends strengthening the LSLR regulatory requirements to include replacing a minimum of 10% over a three year rate for any system with LSLs and replacing a minimum of 20% every three years for systems with a 90th percentile greater than the lead action level (AL) of 15 µg/L
- 2. Continue to Reduce Exposure from Lead in Drinking Water:** To continue to reduce lead exposure during LSLR, ASDWA recommends Tier 1 sampling sites at locations with LSLs, appropriate corrosion control treatment (CCT), and water quality parameter (WQP) monitoring to ensure appropriate water quality is maintained throughout the distribution system, particularly when water sources or treatment processes are changed. ASDWA recommends that additional CCT testing options be included in the final LCRR. ASDWA recommends that sample site assessments (proposed as "Find-and-Fix") be included in the final LCRR to ensure that CCT is consistent throughout the distribution system. ASDWA recommends that systems have a "upon request", rather than a mandatory lead testing program for schools and child care facilities.
- 3. Work to Increase Transparency and Public Education and Clarify Public Notification:** Public education and communication are key to successful LCRR implementation. Public access to lead service line inventories will demonstrate water system transparency and is critical to help utilities establish their role as a trusted source of information. ASDWA recommends that the public have access to the LSL inventories, as public education will be critical to LSL replacement on both the public and private sides. Tier 1 Public Notification (PN) has historically applied to acute maximum contaminant level (MCL) violations where immediate action is necessary to protect public health. The proposed change in the LCRR for action level exceedances (ALEs) alters the foundation and the logic for Tier 1 PN for acute MCL violations. Tier 1 PN needs to remain for incidents where immediate actions need to be taken by the system and the consumers.

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- 4. Minimize the Implementation Burden and Increase Funding for States:** The proposed LCRR significantly increases the complexity of the rule and the burden on staff to implement the rule. The proposed LCRR will substantially increase the states' data management burden. As proposed, the rule contains several early implementation activities and new program requirements with significant tracking, reviews, and approvals. Currently, there is not a data system that exists at the state or federal level that can manage the data that is required for full implementation of the LCRR. This lack of a data system needs to be remedied as soon as possible and before the rule is effective.

Based on ASDWA's CoSTS model, the national total for states to implement the LCRR in its first five years is approximately 835,000 additional staff hours annually, over and above the ongoing implementation of the current LCR. The additional staff hours are a factor of 12 greater than the annual hours for ongoing LCR implementation.

ASDWA's comments provide several specific recommendations such as having LSL inventories submitted with the same interval as monitoring periods and the lead testing in school and child care facilities to be "upon request", and these recommendations reduce the annual burden to states by approximately 12%. Even with ASDWA's recommendations that reduce the annual burden to the states to 735,000 staff hours, this is a significant increase to implement a single rule. This increase is in addition to all the other SDWA implementation activities (besides the 91 regulated contaminants) such as programs for operator certification, capacity development, source water protection, and the drinking water state revolving fund (DWSRF); sanitary surveys; technical assistance to water systems; compliance and enforcement; plan review and approval; data management and reporting; and other programmatic activities.

The potential fiscal impacts to states drinking water programs can be shown by comparing the estimated staff hours from above to the current levels of Federal funding from the Public Water Supply Supervision (PWSS) program. Using the national average loaded hourly rate for state employees of \$58.67 (salary plus benefits and overhead), full implementation of the proposed LCRR would cost the states \$50 million annually, and \$43 million annually based on ASDWA's recommendations. In addition to the 91 contaminants regulated under the SDWA, states have struggled with meeting both the regulatory requirements and additional actions to address nonregulated contaminants such as cyanotoxins and per- and polyfluoroalkyl substances (PFAS) over the past decade due to flat PWSS funding at \$101.9 million. While the FY20 increase of 4.2% to PWSS funding (to \$106.25 million) was a small step to closing the funding gap, the proposed LCRR would take 47% of current PWSS funding to fully implement. States will have to make tough decisions about how to prioritize support to existing programs to implement the requirements of the final LCRR.

On behalf of the 57 states, territories and tribes we represent and the 150,000 drinking water systems they oversee, which serve 300 million Americans, we thank you for the opportunity to provide this input to the LCRR. ASWDA looks forward to continuing its dialogue with EPA on LCRR implementation. Please feel free to contact me (email aroberson@asdwa.org; Phone 703- 812-9507) if you would like to discuss these comments in more detail.

Sincerely,

J. Alan Roberson, P.E.
 Executive Director
 Association of State Drinking Water Administrators (ASDWA)

Costs of State Transactions Study (CoSTS) Summary:

**Costs of States Transactions Study (CoSTS) for EPA's Proposed LCRR
 Association of State Drinking Water Administrators (ASDWA)
 2/6/20 Version**

The summary below is based on the eight categories taken from EPA's Proposed LCRR
 The total hours are estimated for the first five years of the LCRR
 Five years is assumed to be an appropriate timeframe for the first cycle of states and systems adopting and complying with the LCRR
 All totals are being shown as whole numbers
 For the number of systems, this model uses data from SDWIS downloaded on 11/8/19

	Estimated staff hours from EPA proposal	Estimated staff hours ASDWA proposal	Estimated staff hours saved with revisions
Regulatory Start-Up	582,100	563,970	18,130
Lead Service Line Inventory and Replacment (LSLR)	1,174,898	990,708	184,190
Tap Sampling	1,232,103	1,232,103	-
Trigger Level (TL)	147,526	147,526	-
Corrosion Control Treatment (CCT)	476,961	481,977	(5,016)
Sample Site Assessment	154,449	96,581	57,868
Public Notification and Education	354,395	354,395	-
Lead Testing in Schools and Child Care Facilities	435,458	190,057	245,401
Totals	4,557,889	4,057,317	500,572
Current LCR Hours (2018)			
76,166 times 5 Years	380,830	380,830	
Increased Hours from LCRR (Total from first five years)	4,177,059	3,676,487	
Annual Increased Hours (Each year for the first five years)	835,412	735,297	