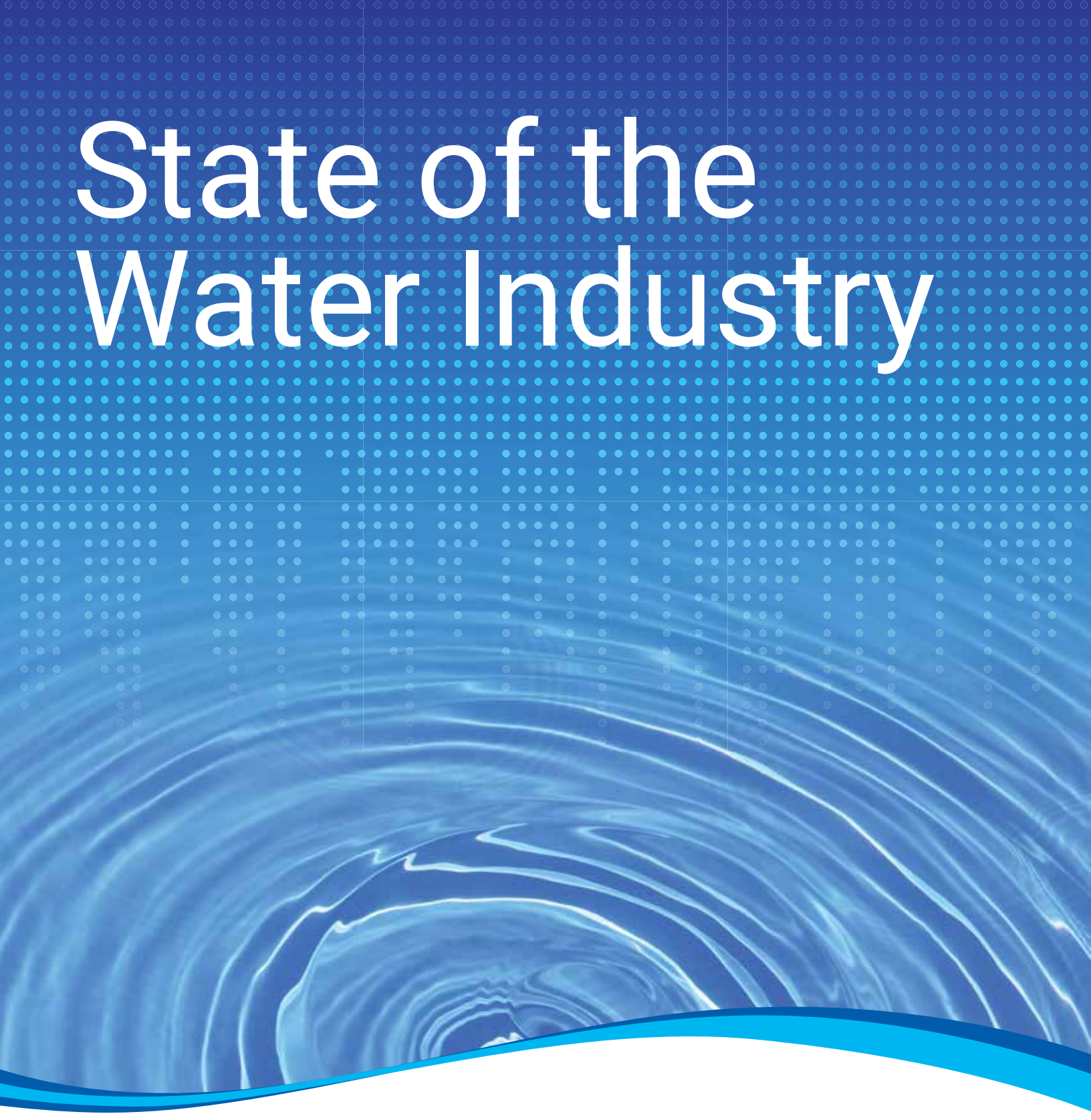
State of the Water Industry



American Water Works Association

Dedicated to the World's Most Important Resource®

2020

EXECUTIVE SUMMARY

"I strongly believe in the truth of this data, even though optimism may seem questionable now as the water sector wrestles with the COVID-19 pandemic. Let's remember this survey reflects our feelings in 2019. More importantly, let's remember that even in the face of this year's broad health concerns with COVID-19, utilities continue providing the vital service of keeping safe water flowing 24/7. So, yes, we should be optimistic. Our place in society is essential to the health and prosperity of each community, and we have the expertise, professional collaborations, knowledge, and access to technical resources to solve water's challenges – today and tomorrow. I suspect next year's results will again prove this is the case."

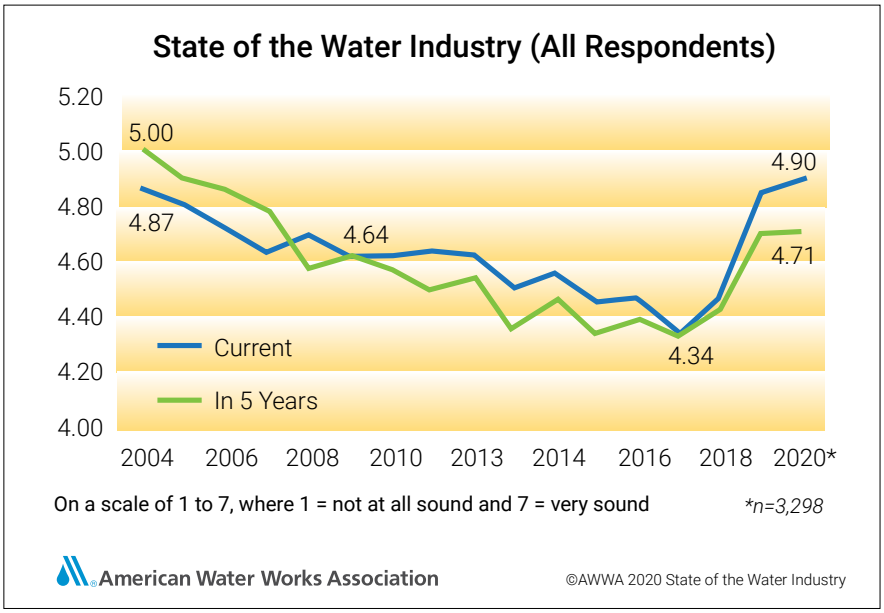
● ***David LaFrance, AWWA Chief Executive Officer***

Optimism buoys water sector

Pre-coronavirus survey shows three-year positive trend

In the months before the coronavirus pandemic hit, the water sector was enjoying a three-year wave of optimism, according to the 2020 State of the Water Industry report, published by the American Water Works Association.

More than 3,300 water professionals responded to the survey by November 2019, just before COVID-19 upended the public health and economic landscapes. AWWA has produced this annual report since 2004, compiling survey responses from utility and non-utility professionals in the United States and Canada.



MEASURING OPTIMISM

Each year participants are asked to rate the current overall health of the water industry on a scale of 1 (not sound) to 7 (very sound). As shown in the graph above:

- The most recent survey responses averaged 4.90, a record high and the third consecutive increase since the low of 4.34 in 2017.

Participants also are asked annually to rate the soundness of the water industry in five years.

- Based on the same scale, the latest survey responses also increased for the third consecutive year to an average of 4.71.

PREPARATION IS KEY

AWWA publishes the yearly State of the Water Industry Report to help water utilities, service providers, regulators and researchers identify and prepare for challenges, opportunities and trends impacting the water community.

The 2020 report provides insight into issues such as infrastructure renewal and replacement, financing capital improvements, water supply sustainability and regulatory compliance.

It's noteworthy that "emergency preparedness" was ranked as the eighth biggest challenge before the pandemic. For insights on how the water sector responded, see the series of COVID-19 surveys at awwa.org/coronavirus.

Full report available at awwa.org/SOTWI

"After decades of deferred maintenance, the water sector has a lot of catching up to do regarding renewing and replacing deteriorating and aging infrastructure. Because of the substantial costs involved, long-term financing is needed to manage these investments. AWWA and its volunteers have been instrumental in bringing attention to the challenges of aging infrastructure, limited funding, and impacts of agriculture on drinking water sources. This has supported growth in loan programs through the Water Infrastructure Finance and Innovation Act (WIFIA) and Drinking Water and Clean Water State Revolving Funds (DWSRF and CWSRF). The 2018 Agriculture Improvement Act, known as the Farm Bill, also offers excellent opportunities for drinking water systems to use conservation title funds to protect their source water."

● ***Chi Ho Sham, AWWA Incoming President-Elect***

Infrastructure, financing top issues

Focus on recurring concerns paying off

Listed below are the top 20 issues impacting the water sector, as ranked by participants in the 2019 survey prior to the coronavirus outbreak. All utility survey respondents, regardless of the size of their organization, agreed on the top three issues:

1. Renewal and replacement of aging water and wastewater infrastructure
2. Financing for capital improvements
3. Long-term water supply availability

Because of their complexity, the top two issues – renewal and replacement of aging water and wastewater infrastructure and financing for capital improvements – have been ranked highest for eight years running.

The continued focus on these complex issues has led to expanded funding options.

Issues Facing the Water Industry in 2020

2020 RANKING	CHALLENGE
1	Renewal and replacement of aging water and wastewater infrastructure
2	Financing for capital improvements
3	Long-term water supply availability
4	Public understanding of the value of water systems and services
5	Watershed/source water protection
6	Public understanding of the value of water resources
7	Aging workforce/anticipated retirements
8	Emergency preparedness
9	Compliance with current regulations
10	Groundwater management and overuse
11	Compliance with future regulations
12	Cost recovery (pricing water to accurately reflect the cost of service)
13	Governing board acceptance of future W/WW rate increase
14	Public acceptance of future water and wastewater rate increases
15	Talent attraction and retention
16	Cybersecurity issues
17	Water conservation/water use efficiency
18	Asset management
19	Improving customer, constituent, and community relationships
19	Data management
20	Drought or periodic water shortages

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- **WIFIA**—The Water Infrastructure Finance and Innovation Act, which the U.S. Congress passed in 2014 with significant AWWA support, has had ongoing success. Through 2019, WIFIA had closed 14 loans totaling $3.5 billion in financing, saving borrowers $1.2 billion.
- **AWIA**—Passage of America's Water Infrastructure Act of 2018 reauthorized WIFIA for two years. It also reauthorized the Drinking Water and Clean Water State Revolving Funds.
- **Farm Bill**—AWWA and its members supported passage of the Agriculture Improvement Act of 2018, which prioritized source water protection and expanded funding to protect drinking water sources through agricultural conservation programs.
- **State Revolving Funds**—In 2020, the U.S. Environmental Protection Agency (EPA) allocated about $1.07 billion in new federal grant funding for the Drinking Water State Revolving Fund and $1.6 billion for the Clean Water State Revolving Fund.

Learn more:

- *AWWA Source Water Protection Justification Toolkit*
- *U.S. Dept. of Agriculture Tools to Support Source Water Protection*
- *M21 Groundwater*
- *AWWA Water Infrastructure Conference proceedings*

"During my years as AWWA Treasurer and a Water Utility Council member, I have often heard, and continue to hear, that replacement of aging infrastructure and financing of capital improvements are the biggest challenges our members face. In response, AWWA focused on these concerns two decades ago and has made great strides. The development of Asset Management Planning coupled with AWWA's leadership in creating WIFIA, advocating for increased SRF funding, and other longstanding practices have provided a robust set of effective tools to manage water infrastructure needs. While the challenges continue, clearly these tools provide a larger and stronger arsenal to handle our aging infrastructure and financing needs more effectively, now and in the future."

- ***Aurel Arndt, AWWA Treasurer, retired chief executive officer at Lehigh County Authority***

Piecing together infrastructure financing

Options include rate increases, loans

The pandemic has delayed many capital projects and spawned calls for federal stimulus relief, but prior to the outbreak, ongoing efforts to increase financing for water infrastructure seemed to be paying off.

According to the survey, 54 percent of participants who indicated they played a role in financial management decisions said their utility's access to capital was as good as or better than any time in the past five years. This is up from 46 percent in 2019 and slightly better than the running average of 53 percent.

In addition, 54 percent said their top anticipated capital expenditures for 2020 would address infrastructure needs.

The same group of utility survey participants who played a role in financial management decisions were asked about their sources and strategies for utility capital funding. The table above ranks their funding source choices.

Utility Funding Sources Ranked by % Mentions	
1	Rate increases (25%)
2	Bonds (18%)
3	Grants (14%)
4	Operational savings (13%)
4	Reserves (13%)
4	State Revolving Funds (SRFs) (13%)
5	Water Infrastructure Finance and Innovation Act (WIFIA) (4%)

Responses are from individuals who identified as utility executives/management and financial officers (n = 652)

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IMPLEMENT ASSET MANAGEMENT FOR RELIABILITY

The infrastructure concern ranked highest by survey respondents is reliability.

AWWA encourages utilities to adopt a proactive, sustainable, solution-oriented approach to manage assets. This allows them to maximize the value of service delivery without compromising future efforts to meet customer needs.

Twenty-nine percent of utility survey participants said they have fully implemented an asset management plan. Another 53 percent are in the process of implementing a plan.

Learn more:

- *2019 Water and Wastewater Rates Survey*
- *M28 Rehabilitation of Water Mains*
- *M77 Condition Assessment of Water Mains*
- *M1 Principles of Water Rates, Fees and Charges*
- *M54 Developing Rates for Small Systems*
- *AWWA Buried No Longer Tool*

"We had to find a way to bring surface water into the city because our demands were quickly reaching the amount of physical availability of groundwater in our area. We capitalized on our unused shares of the Colorado River by partnering with the Salt River Project in central Arizona to transport the water across the valley, building a five-mile pipeline, pump station and treatment facility. The surface water project is part of a much larger master plan that calls for aggressive water conservation and reclamation."

- ***Barbara Chappell, Deputy Public Works Director, City of Goodyear, Ariz.***

Meeting current and future water needs

Planning for growth, climate changes, alternative supplies

Another critical water issue is the ability to meet water supply needs. Survey results reflect growing challenges such as drought, climate variability, reduced snowpack, sea level rise and extreme weather events.

Three of the top water sector issues that were identified by survey participants relate to supply:

- Long-term water supply availability, ranked third
- Watershed/source water protection, ranked fifth
- Groundwater management and overuse, ranked 10th

As shown in the graph below, the survey showed a slight increase in utilities that are very or fully prepared to meet long-term water supplies—57 percent in 2020 compared to 55 percent in 2019.

Twelve percent of survey participants said their utility is not at all or slightly prepared to meet anticipated long-term water supply needs, the same as in 2019 and higher than 6 percent in 2018.

LONGER-TERM SUSTAINABILITY

Although water restrictions can help manage short-term needs, most utility-sponsored water conservation programs emphasize longer-term improvements in water use efficiency.

The 2020 survey asked participants whether their utilities have water conservation or water shortage planning programs. Thirty-eight percent said they have a fully-developed drought management or water shortage contingency plans and 37 percent have fully implemented water conservation programs.

An additional step in water shortage preparedness is regional water supply sustainability. Utilities and the communities they serve can determine policies and practices for water conservation and alternative water supplies, including desalination of brackish groundwater or seawater, nonpotable and potable reuse, and stormwater capture and reuse.

Seven percent of the utility survey participants reported having or developing some type of desalination project.

Learn more:

- ***M52 Water Conservation Programs: A Planning Manual***
- ***G485-18 Direct Potable Reuse Program Operation and Management***
- ***Potable Reuse 101 report***
- ***M60 Drought Preparedness and Response***

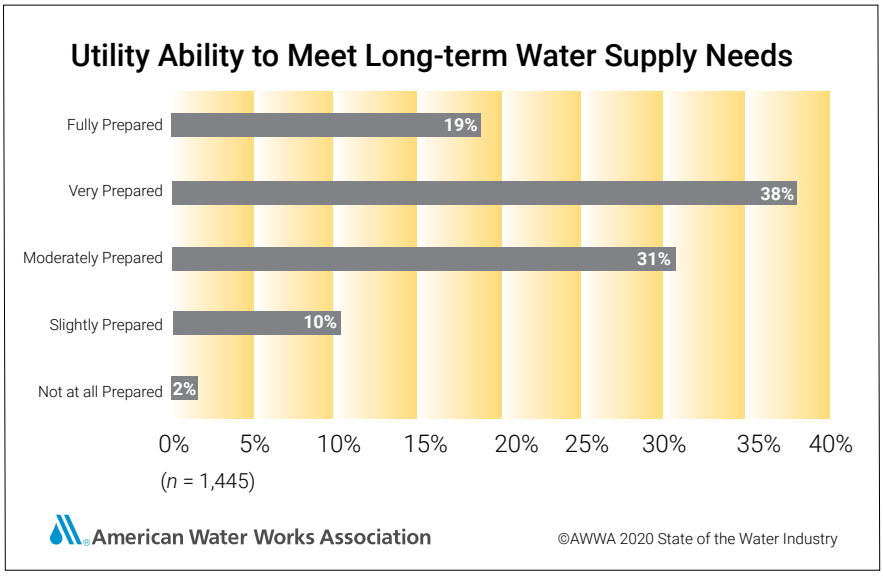


Photo credit, Tahoe Water Suppliers Association

"We know customers are much more satisfied with their utility's service when the utility proactively communicates with them, so survey results showing that just over a quarter of utilities have a plan to do this are concerning. Communicating to our customers and our stakeholders requires strategy and planning to ensure that those who rely on you for service, and those who rely on you to be a community partner, get the information they need consistently and in a way that resonates with them. Absent a strong, proactive communications effort, utilities put themselves at risk of a reputational challenge and loss of support for critical infrastructure and funding needs."

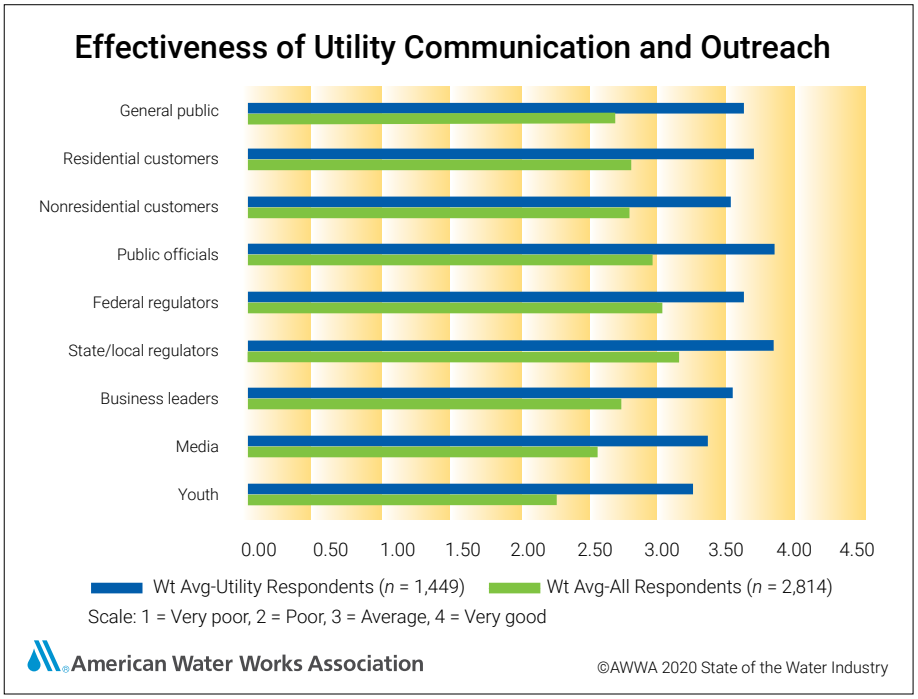
● ***Melissa Elliott, AWWA President-Elect***

Community support crucial for utilities

Education key to building understanding of water's value

A key factor in a water utility's success in attaining needed system investments is how well its stakeholders – including customers, decision makers and the general public – understand the value of their water system and resources. Ultimately, a utility's customers pay for these investments.

While many water utilities routinely inform their communities about the role their agencies play in safeguarding public health, ensuring customer satisfaction and protecting the environment, the public frequently does not understand the need for increased funding to support safe and reliable water service.



The challenge of educating a community about what it takes to safely and reliably deliver and treat water is reflected in three of the top 20 issues listed in the 2020 survey results:

- Public understanding of the value of water systems and services, ranked fourth
- Public understanding of the value of water resources, ranked sixth
- Public acceptance of future water and wastewater rate increases, ranked 14th

Traditionally, water utilities may have carried out their responsibilities with little attention from their communities. In today's decentralized media environment, many utilities are finding they must engage regularly and proactively with their communities to maintain trust, work harder to be more transparent in their operations, and educate their stakeholders about water quality and environmental concerns. This can be difficult to prioritize among many other business needs.

According to the 2020 survey report, 27 percent of utility participants said they had a fully implemented customer communications plan.

The graph above shows the ratings of utility and non-utility survey participants regarding utility communications with various audiences.

Learn more:

- ***Drinktap.org***
- ***Lead Communications***
- ***Trending in an Instant report***
- ***G420-17 Communication and Customer Relations***

"Because our most pressing regulatory issues, such as PFAS and lead, are pervasive across the water sector and each utility's circumstances are different, there is a significant need for diverse knowledge and resources to facilitate compliance. AWWA is uniquely able to fill this need, drawing on its volunteer corps of 5,500 experienced and committed professionals. Through a wide array of focused committees, they generate the trusted and reliable content that AWWA is widely known for, including manuals of practice, books, standards, articles, educational materials, webinars, and conferences, available in both traditional and digital formats."

● ***Brent Alspach, Director of Applied Research, Arcadis***

Regulatory compliance a growing issue

PFAS climbs to top concern

In today's era of mounting concern about water quality issues such as per- and polyfluoroalkyl substances (PFAS) and source water pollution, the water sector faces substantial challenges to comply with current and evolving regulations.

Survey participants reflected this concern in two of the top 20 issues identified in the 2020 report:

- Compliance with current regulations, ranked ninth
- Compliance with future regulations, ranked 11th

These regulatory compliance issues placed higher this year than in the 2019 survey report, in which they placed 12th and 13th, respectively. In fact, 2020 was the first year that regulatory compliance was mentioned in the top 10 issues.

PFAS rose to the top 2020 regulatory concern after placing second in 2019 and 9th in 2018. The U.S. EPA has proposed setting national drinking water standards for two of the most common and studied types of PFAS chemicals and is seeking comment on potential monitoring requirements and regulatory approaches for the chemicals. In the meantime, numerous states have established or are considering PFAS regulations.

The table below shows how survey participants ranked their top regulatory concerns.

Regulatory Concerns Ranked by All Survey Respondents

RANKING	REGULATORY CONCERNS	WEIGHTED AVERAGE	% CONCERNED
1	Per- and polyfluoroalkyl substances	3.49	22%
2	Non-point source pollution	3.29	15%
3	Point source pollution	3.23	15%
4	Chemical spills	3.18	15%
5	Cyanotoxins	3.12	13%
6	Combined sewer overflows	3.12	14%
7	Lead and copper	3.09	15%
8	Nutrient removals	3.08	12%
9	Pathogens	3.05	15%
10	Perchlorates	2.91	9%
11	Arsenic	2.85	10%
12	Radionuclides	2.83	10%

Scores are on a scale of 1 to 5, where 1 = not at all concerned and 5 = extremely concerned.

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AWWA HELPING INFORM LEAD AND COPPER REGULATION

Although the EPA's proposed revisions to the Lead and Copper Rule had not been released at the time of this survey, the water sector was managing increased public attention on the issue and anticipating new requirements, such as documenting the location of lead service lines in their communities. Survey participants ranked lead and copper as the seventh-highest regulatory concern.

In addition, the survey asked utility participants whether their organization had considered and/or implemented a lead service line replacement program. Overall, 72 percent indicated their utility has implemented such a program or is in the process of doing so.

In February 2020, AWWA provided testimony before the U.S. House Subcommittee on Environment and Climate Change on the need for a revised Lead and Copper Rule that advances lead service line replacement while strengthening the protection of consumers through proper corrosion control. AWWA also provided comments on the EPA's draft rule.

Learn more:

- ***AWWA Policy and Advocacy***
- ***AWWA Briefing on PFAS***
- ***M58 Internal Corrosion Control in Distribution Systems***

"You've heard me before reference the water profession as a 'vocation of distinction.' In these difficult times, it is also a vocation of heroism. Rarely seen but always on the job, you are a quiet army protecting our communities in ways they do not fully understand. Whether you are a distribution operator repairing a broken water main in frigid temperatures, or a chemist assuring the community water supply is safe to drink, or a wastewater worker freeing a clogged sewer system, or a customer service representative helping a concerned citizen with a difficult question, or a technology provider developing solutions that make our magnificent water systems even better – you are all essential in keeping our communities safe and healthy."

● ***Jim Williams, AWWA President, message during COVID-19 pandemic***

Planning for resilience during emergencies

Meeting 2020 AWIA requirements

Utility Progress Assessing Risk and Resilience and Emergency Response Planning					
Plan and/or Program	Count (n =)	Fully Implemented	Implementation in Progress	Interested	% Fully implemented and in progress
Emergency response plan					
All utility respondents	1,388	715	540	133	90.4%
Small utilities	241	113	92	36	85.1%
Medium-sized utilities	231	114	90	27	88.3%
Large utilities	584	287	250	47	92.0%
Very large utilities	324	198	104	22	93.2%
Risk and resilience assessment					
All utility respondents	1,111	230	534	347	68.8%
Small utilities	182	25	67	90	40.5%
Medium utilities	191	35	74	82	57.1%
Large utilities	472	93	247	132	72.0%
Very large utilities	259	76	143	40	84.6%

Utility size is based on population served: Small utility (0–3,300); Medium-sized utility (3,301–10,000); Large utility (10,001–100,000); Very large (≥100,000)

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If the survey had been conducted in the spring of 2020, the coronavirus pandemic likely would have dominated concerns about risk and resilience.

However, in fall 2019, survey participants ranked extreme weather events as the most negative large-scale phenomena challenging utility risk and resilience. Recognizing this, they also rated emergency preparedness as the eighth-highest of the top 20 issues identified in the 2020 report.

As shown in the chart above, more than 90 percent of utility respondents said they had implemented or are in the process of developing an emergency response plan. In addition, 69 percent had implemented or are in the process of developing a community risk and resilience assessment.

This finding is consistent with AWWA's March 2020 survey on COVID-19 preparedness, which found that more than 80 percent of utilities either had or were in the process of developing a business continuity plan.

America's Water Infrastructure Act (AWIA) of 2018 requires community water systems serving populations of 3,300 or more to:

- Conduct a risk and resilience assessment
- Prepare or revise an emergency response plan on a prescribed schedule every five years, starting in 2020

AWIA describes resilience as the ability of a community water system or an asset to adapt to or withstand the effects of a malevolent act or natural hazard without interruption or the ability to rapidly return to normal operation condition.

Utility survey participants were asked what stage their organization was in regarding assessing risk and resilience and emergency preparedness. Responses are summarized in the table above.

Learn more:

- ***AWWA Utility Risk & Resilience Certificate Program***
- ***M19 Emergency Planning for Water and Wastewater Utilities***
- ***AWWA G440-17 Emergency Preparedness Practices***
- ***AWWA Coronavirus resources***