

Letter from the Director

Looking back on the momentous year of 2020, one word springs to mind above all others: Community.

Charlotte Water endeavors to serve our entire community each day so they can safely enjoy one of life's most important resources: clean water. That is the core of who we are as an organization. The COVID-19 pandemic created enormous challenges at the federal, state, and local levels of government across our country. Yet Charlotte Water rose to meet these challenges repeatedly by keeping our focus on what mattered most: being a good neighbor.

Over the past year, Charlotte Water followed the City of Charlotte's guidance in adopting the Big Five Safety Measures to ensure the health of our staff and customers. We also created our own hand sanitizer for distribution, adapted our technology resources to fit an unprecedented work-from-home environment, aided in the work of the Mecklenburg County Emergency Operations Center, and dispensed 23,000 face coverings to essential water workers in our region. While millions were losing their jobs due to the economic downturn caused by the pandemic, we created partnerships with area nonprofits to help people pay their water bill. Our Customer Care Team members even visited customers in their homes in protective gear to assist them in filling out necessary paperwork.

In the summer of 2020, George Floyd's death sparked racial justice protests around the world. In response, Charlotte Water's leadership team participated in the United Way of Central Carolinas 21 Day Equity Challenge to better understand the roles race, power, and privilege play in our lives and to take steps toward dismantling systemic racism. We are exploring solutions such as recruiting more interns from historically black colleges and universities in the future as a direct response to the fruitful conversations this challenge inspired amongst employees.

Through it all, we have looked resolutely toward the future with strength and optimism. In 2020, we welcomed into our fold Charlotte-Mecklenburg Storm Water Services into our fold. This was a part of our quest to embrace the One Water concept, an integrated approach that joins water, wastewater, and storm water services together to manage finite water resources and meet community and ecosystem needs while also supporting economic growth, health and safety concerns, and environmental protection. Moreover, we completed our five-year strategic plan, Charlotte Water's Foundation for the Future, in 2020 despite operating in a landscape of constant change.

For these reasons, I am incredibly proud to invite you to explore what Charlotte Water accomplished during a year that history will always remember. I know the future is bright because our staff members are dedicated to upholding our strong values while constantly striving toward sustainability, inclusivity, and ingenuity no matter what we encounter.

Angela Charles, Director

FY 2021 At A Glance Content

Historic Snapshot:

1899 – The City of Charlotte bought The Charlotte Water Works Company for \$226,400. It had 76 hydrants and a pumping capacity of 1 million gallons per day.

1903 – The first wastewater septic treatment plants were built.

1911 – The original Catawba River Pump Station was opened to provide drinking water and fire protection.

1922 – Vest Drinking Water Treatment Plant was built.

1927 – Charlotte begins construction on two new wastewater plants, Sugar Creek and Irwin.

1948 – A new industrial waste ordinance is created in order to keep pollution out of our creeks.

1989 – The system has now reached more than 4,000 miles of water and sewer pipes.

2015 – Name is changed to Charlotte Water.

2021 – Charlotte Water employs a staff of 1, 019 who serve over 1 million residents and has 304,029 active water service connections.

Award-Winning Utility

NACWA Platinum Peak Performance Awards for Sugar Creek Wastewater Treatment Plant, Mallard Creek Wastewater Treatment Plant, McDowell Creek Wastewater Treatment Plant, and McAlpine Creek Wastewater Treatment Plant

Utility of the Future Today Award for McAlpine Creek Wastewater Management Facility in Partnering & Engagement

Water Environment Federation's Arthur Sidney Bedell Award

American Water Works Association's George Warren Fuller Award

We Maintain:

313,177 Water Meters

3 Water Treatment Plants

2 Water Supply Intakes

7 Wastewater Treatment Plants

2 Raw Water Reservoirs

4 Field Operation Centers

113,957 Manholes

78 Wastewater Lift Stations

5 Administrative and Laboratory Buildings

13 Water Towers

17,925 Hydrants

17 Treated Water Storage and Booster Pumping Stations

87,190 Valves

314 Water Quality Sampling Stations

Rates and Fees

Water Rates:

Tier 1: 1-4 Ccf

\$1.77/Ccf

Tier 2: 5-8 Ccf

\$2.29/Ccf

Tier 3: 9-16 Ccf

\$5.29/Ccf

Tier 4: Over 16 Ccf

\$10.03/Ccf

What is a Ccf?

Ccf is an abbreviation that represents 100 cubic feet which equals 748 gallons.

Fixed Fees:

Covers the cost of servicing customer accounts

Water - \$4.22 per month

Sewer - \$4.22 per month

Sewer Rates - \$5.43 per Ccf of water used

Availability Fees:

Covers the maintenance of infrastructure to provide 24/7 water & sewer service

Water 5/8-inch Connection Size: \$1.29/month

Water 1-inch Connection Size: \$3.22/month

Sewer 5/8-inch Connection Size: \$8.70/month

Sewer 1-inch Connection Size: \$21.76/month

Average Customer Bill*:

\$68.06 for a 7Ccf customer per month

*doesn't include storm water fees

Charlotte Water maintained a rating from Fitch, Moody's and Standard and Poor's AAA

The Value of a Gallon:

How much water can you get for \$1?

29.4 gallons

Drinking Water

The average amount of water pumped each day

109.7 million gallons

0 Drinking Water Quality Violations = A Healthy Charlotte

How many NACWA compliance tests did Charlotte Water's trained staff conduct? 8,035

4,482 miles of water pipes maintained by Charlotte Water

Wastewater

87.2 million gallons

The average amount of wastewater treated each day

3,512 food service inspections completed to protect the system from sanitary sewer overflows

59 industries regulated to protect the harmful pollutants

854 miles of wastewater pipes cleaned to remove blockages before spills happen
= A Healthy Environment

4,475 miles of wastewater pipes maintained by Charlotte Water

Conservation:

5.8 million kWh of energy is created with CHP (Combined Heat and Power System)

Maintenance:

8.9 miles of water pipes replaced or rehabbed last year

184,415 LF of new water pipes installed last year (includes donated)

11.3 miles of wastewater pipes replaced or rehabbed last year

279,178 LF of new wastewater pipes installed last year (includes donated)

160 manholes replaced or rehabilitated last year

572 leaks repaired last year (includes mains)

441 high bill investigations performed by staff per month on average

Charlotte Water maintains more than 8,957 miles of pipe. That's enough to go to Alaska and back!

Charting a Path Toward One Water

Since 2018, Director Angela Charles has been discussing the idea of One Water and how it will be instrumental in creating a sustainable future for Charlotte Water. As the region moves beyond COVID-19, her dreams can finally start to materialize.

One Water is an integrated planning and implementation approach that joins water, wastewater, and storm water services together to manage finite water resources for long-term resilience and reliability. It seeks to meet both community and ecosystem needs while supporting economic growth, health and public safety concerns, equity, prosperity, and environmental protection.

In 2017, The Water Research Foundation (WRF) created a Blueprint for One Water for utilities across multiple water resource sectors to advance the adoption of this approach.

“WRF developed the road map,” Charles said. “Charlotte Water has taken some of their ideas as our own framework.”

For Charles, One Water can be defined as how Charlotte Water best manages and leverages all water resources within the community. One of her largest goals during the last few years was moving City of Charlotte Storm Water Services under the umbrella of Charlotte Water. Previously it had been a part of the City’s Department of General Services since its inception in the early 1990s.

In November 2020, that vision became a reality. However, the additional pressures of maintaining safe operations during a pandemic placed long-term goals like One Water on the backburner.

“Adding in Storm Water has had a minimal impact so far because of COVID-19,” Charles said. “We really haven’t had the same opportunity for staff to meet the way we want to. It’s been more about philosophy and vision so far.”

Yet philosophy is likely to turn into practical reality in the next several years. There are already many existing projects in Charlotte where storm water, wastewater, and water services are needed at the same location. Thus, Charles envisions a day in the near future when planning for project infrastructure requirements can be done jointly.

“We want everybody marching toward the same goal because when we manage water in silos, I don’t think we see the same benefits,” she said. “By adding in Storm Water to Charlotte Water, we have the same leadership, vision, and direction as to how water resources are managed.”

The importance of managing water well has been magnified over the last decade in the media. For example, in the West where droughts have ravaged the land recently, the importance of conserving water has been keenly felt.

“Water is the most important resource we have as a community,” Charles said. “There are constantly news articles about the droughts in Nevada, California, and Colorado. The further west you go, the One Water idea gets stronger because they understand the interconnectedness between different types of water as they tackle climate change and other environmental issues.”

Charles hopes to raise awareness about the benefits Storm Water can bring to Charlotte Water’s larger framework by learning from the good examples of other states.

“In some smart cities, storm water is captured and used to flush toilets,” Charles said. “So, I’m asking, what are the ways we can use water more efficiently as a community? You can’t start thinking that way while you’re still working in a silo. The goal is for the community to see a tangible difference by these three services being aligned.”

Public Affairs Manager Jennifer Frost pointed to another example.

“In some other places, water is scarce and they are constantly dealing with drought,” she said. “In North Carolina, there has been a different perspective in the past because we are seen as having an abundance of water. So, as we make these changes and join the three groups, we’re thinking about how to sustainably plan for the future.”

Charles eagerly anticipates hearing countless green initiative ideas from her staff once they understand the limitless possibilities offered by Storm Water joining the fold.

Charlotte Water Embraces Diversity, Equity and Inclusion Initiatives

The death of George Floyd and the nationwide protests for racial equality that followed during the summer of 2020 sparked a desire in countless American companies and organizations to focus attention on equity and social justice. Charlotte Water's leadership team participated in the United Way of Central Carolinas 21 Day Equity Challenge, which launched on January 18, 2021, in honor of Dr. Martin Luther King Jr. Day. The length of time for the challenge was selected because it takes 21 days to build a habit.

The purpose of the program was to reach a deeper understanding of the roles that race, power, privilege, and leadership play in our lives and community and begin dismantling systemic racism. About 40 staff members in Charlotte Water's leadership team received access to a collection of articles, videos, and podcasts that discussed diversity, equity, and inclusion (DE&I) initiatives. Daily topics included understanding bias, affordable housing, homelessness, legal system inequalities, privilege, and allyship. The group followed a set curriculum provided by United Way and met biweekly to explore specific discussion questions and share their perspectives virtually. At the end of the challenge, the team also had the opportunity to meet with the program's creator, Dr. Eddie Moore, Jr., director of the Privilege Institute in Green Bay, Wisconsin. While the regular discussions only included the leadership team, the final meeting was open to all employees.

"It was difficult in the beginning to share around this topic, to have a conversation about race and what it means," Administrative Services Manager Carolyn Ross said. "It was eye-opening to hear from people who'd never experienced racism in their lives."

She added that the program was an excellent way to understand different viewpoints. Chief Financial Officer Chad Howell shared that due to the program, Charlotte Water was able to take a deeper look at its day-to-day operations, how it interacts with citizens, and how race and socioeconomic class factor into the larger picture of providing quality service for everyone.

"We want equity within water," Howell said. "Some things are legally structured by state statute, but we are exploring innovative ways to develop a rate structure that's equitable for all customers across the spectrum."

Charlotte Water remains committed to ensuring affordable rates for every customer, despite income level. To that end, the leadership team discussed the potential for creating a foundation in the future to assist people in paying their water bills.

The COVID-19 pandemic likewise shed light on areas of income inequality across Charlotte.

"From a budget and capital perspective, we want to ensure we're addressing the needs of our entire service area as we come out of COVID," Howell said. "It's about getting people back on their feet after this economic disruption."

Charlotte Water is currently tackling this through a partnership with three nonprofits – DreamKey Partners (formerly Charlotte Mecklenburg Housing Partnership), Crisis Assistance Ministry and Common Wealth Charlotte – to help people pay their water bills. The leadership team has been exploring ways that this partnership can continue. Potentially assisting customers who require help with initial expenses when setting up new water connections and creating access to a list of plumbers who support low-income customers is being discussed.

On another front, the future of recruitment at Charlotte Water will look different in a post-2020 world. Ross said the challenge raised awareness of the desire to hire people from the communities the organization serves.

“We want to make people aware of the great employment opportunities at Charlotte Water,” she said. “There are more opportunities to recruit from all schools instead of a few.”

Ross added that the challenge acknowledged Charlotte Water’s history of low to no diversity in most leadership roles. Now, there is an opportunity for things to move forward in a new direction as people begin to be open about their differences and biases and how those affect the organization and its employees.

“It’s a good thing especially for employees across the organization to see leadership participating in DE&I initiatives that allow them to see us back up the talk with actions,” she said. “They’ll see that leadership is invested in a culture that embraces everyone. Employees feel valued when they are accepted for who they are.”

After the leadership team completed the challenge, Charlotte Water employees also had the option to participate in the challenge individually. Since its launch, nearly 17,000 people across the Charlotte region have taken the 21 Day Equity Challenge, including 241 organizations and businesses.

Centered on Safety: Charlotte Water Works through the Pandemic

When the country slowed to a standstill in March 2020 in response to the COVID-19 pandemic, Charlotte Water quickly sprang into action. As the largest public water and wastewater utility in the Carolinas serving more than a million customers, it knew its services would be needed now more than ever as many people remained at home.

Ensuring employee safety was paramount, especially when considering many types of work required staff to be present on site. In response, Charlotte Water aligned itself with the Big Five Safety Measures initially developed by the City to accommodate working safely through the pandemic. These measures included washing hands frequently, covering coughs, maintaining social distancing, avoiding touching eyes, nose and mouth, and encouraging employees to stay home if they felt sick. Beyond these policies, Charlotte Water also staggered shifts, implemented personal safety kits, allocated laboratory resources toward making hand sanitizer, added temperature screening kiosks to buildings, and allowed staff to work from home when possible.

“This year we had the realization of productivity in remote work situations,” said Deputy Director Shawn Coffman. “We had not really gone that route prior to COVID, and we had great productivity from remote working staff. From a customer service perspective, I don’t think we missed a beat. We continued to protect the environment and provide exceptional service. I don’t think our customers saw any change or reduction in service.”

For the slightly more than 1,200 employees working for Charlotte Water and Charlotte-Mecklenburg Storm Water Services, the changes unfolded rapidly last spring. About 30 percent of the total workforce began working from home.

According to Technology Manager Doug Groce, work from home efforts began on March 16, 2020, and have continued through summer 2021.

“The City of Charlotte is now rethinking its approach to remote work,” he said. “Beginning in July 2021, staff began to return to the office while many continued to partially work remotely.”

This reshaping of the future of work is likewise being faced by hundreds of thousands of organizations across the country. Groce pointed toward conversations Charlotte Water continues to have around how to best meet the needs of customers while also evolving to provide flexibility for employees who are working parents or have health concerns.

“We took the pandemic very seriously and mirrored the City’s plans,” he said. “We didn’t want people to come back into the office prematurely and didn’t want people to get sick. One thing we really learned from a business standpoint is we can be productive and support our customers overall remotely. We realized as well many employees had kids at home they needed to care for now.”

One of the greatest tools used to help accomplish the transition to at-home work was changing to a Virtual Private Network with more capacity almost immediately. There was also a shift away from employees using their personal computers at home and using work computers instead to reduce risk and improve productivity. Due to the steep increase in video meetings, 200 employees received new laptops with upgraded camera technology to support their ability to meet virtually.

“The City expanded the use of remote meeting technology significantly,” Groce said. “We learned that even something like the Republican National Convention could be supported remotely. Charlotte Water Technology also created training videos to help staff learn to use all these new tools, and we expanded the capabilities of our board meetings by embracing the existing remote meeting technology we had in the City.”

Meanwhile, water and wastewater treatment facilities operators, those working in fuel operations and laboratories, and even a subset of customer service representatives rose to the challenge of heading out to the job each day during the height of COVID-19.

One of the first major differences they found when they arrived at work were biometric screening devices to check their temperature upon entry into Charlotte Water facilities.

“For the majority of facilities, we used one central access point to enter the site, and everyone went through a temperature scanning kiosk to scan for COVID,” Coffman said. “It’s an infrared scanning kiosk that was configured to require wearing face masks too or you couldn’t be scanned.”

Charlotte Water’s Safety & Risk Team worked continuously to develop, coordinate, and implement COVID-19 health and safety messages, hygiene practices and CDC-guided protocols for managing cases of viral exposure, positive-confirmed cases and contact tracing as well as quarantine while respecting employee privacy and HIPPA requirements.

“We needed to ensure that health guidelines were followed for interaction with the public,” Interim Safety Manager Shawn Haraden said. “We had face shields before the mask mandate to provide a hygienic way for staff to interact with customers to keep everyone comfortable.”

Haraden’s team also focused on providing appropriate barriers for work spaces to slow the spread of the virus, maintaining protocols for cleaning shared vehicles and overseeing traffic plans for staff movement through buildings.

“You have a favorite door to enter work – everyone does,” Haraden said. “But now you didn’t anymore; there was one way in and one way out. And we had to communicate with workers about that. We couldn’t have just anyone walking in and out of whatever door they wanted both for health reasons and also for security reasons.”

Staggered shifts became the norm and differed depending on operating division. They involved adding more shifts but having fewer workers in the same spaces during a shift. The goals were to reduce interaction between operators and crews, encourage social distancing, and reduce the potential for disease transmission. Safety kits likewise became a mainstay in the organization's vehicles and common spaces.

"One thing of note is the in-house production of hand sanitizer that goes in the safety kits," Coffman said. "We converted some lab space to make hand sanitizer using a World Health Organization recipe. We provided this to internal personnel and some to Charlotte Mecklenburg Emergency Management and other essential City and County partners."

Charlotte Water also loaned the Charlotte-Mecklenburg County Emergency Operations Center (EOC) an even bigger and more valuable resource, the professional expertise of Security and Emergency Preparedness Manager Vic Simpson, for more than a year. Coffman said this was very rare as the organization ordinarily offers loans on a case-by-case basis. Of course, the ramifications of COVID-19 have been anything but ordinary.

While continuing to manage the SEP team and support the utility COVID 'home front' response, Simpson took on the role of EOC Critical Infrastructure Branch Manager at the EOC beginning in mid-March 2020. The position involved a wide variety of tasks. In addition to sharing continuous situation reports and other updates between EOC partners and Charlotte Water's leadership, critical infrastructure resource requests from the EOC included delivering dozens of gallons of Charlotte Water-made hand sanitizer to essential public service agencies during supply shortages, determining whether potential field hospital sites had a sufficient water supply if area hospitals ran out of beds, sharing traffic cones and barricades, and organizing the removal of debris from roadways during the George Floyd summer protests to deter the use of improvised weapons.

As the summer drew to a close, another massive event approached. The Republican National Convention (RNC) required an extraordinary level of federal, state, and local planning in the EOC and elsewhere. The succession of security incidents and weather events before, during, and after this national security event required continuous information-gathering and sharing to support appropriate utility decisions and actions for the safety of people, protection of public assets and continuity of essential services.

"Fence projects, lighting improvements and other security plans for the RNC were completed at Charlotte Water sites, while gate and doorway access control settings required frequent adjustments across the system due to pandemic closures and changes," Simpson said. "It was a tremendous team effort. Security and Emergency Preparedness (SEP) worked with Safety, HR, Facilities, Maintenance, other utility operations and Charlotte IT to ensure safe, sanitary buildings and completed a major, top-priority security camera management system conversion project."

During an unprecedented year, the SEP and Safety & Risk Teams moreover fulfilled prior commitments to overhaul two key emergency plans, the Continuity of Operations Plan and Emergency Operations Plan. They supported Charlotte Water's executive leadership with the development of several pandemic response plans and the activation of a COVID-19 Incident Command Team, which operated between March and September 2020. SEP likewise led the regional NCWaterWARN distribution of more than 23,000 FEMA-supplied face coverings for essential water workers in Charlotte and its surrounding counties.

Sixteen months into the pandemic, the water treatment facilities are still maintaining the Big Five protocols, while staggered shifts for those in the laboratories remains common. Many workers also continue to perform their tasks from home. Coffman said he is incredibly proud of all employees for their flexibility and resiliency.

"Not only did we face the pandemic, but we worked through the 2020 Republican National Convention, multiple weather-related incidents and civil unrest," he said. "We have had an incredible last year, and our staff continues to serve the public in ways that astound me."

Pandemic Customer Assistance Team Supports Community During Economic Downturn

In July 2020, thousands of Charlotte Water customers were struggling to pay their water bills due to the economic downturn and related hardships caused by the pandemic. In response, Charlotte Water strengthened its existing partnership with Crisis Assistance Ministry and built new partnerships with Charlotte Mecklenburg Housing Partnership (recently renamed DreamKey Partners), Common Wealth Charlotte and others to provide water bill assistance for Mecklenburg County residents.

A Pandemic Customer Assistance Team came to life rapidly at Charlotte Water. Five staff members were repurposed from previous roles and tasked with calling customers with past-due accounts to connect them with aid opportunities.

“Myself, Jennifer Frost, Chad Howell, Jackie Jarrell, and several others had been planning a Care Team during weekly meetings for several months leading up to the launch in July,” Chief of Customer Service Steve Miller said. “We wanted to offer a personal touch by talking to people and visiting them at their homes. If a customer was elderly or not computer literate enough to fill out an application, we had supervisors go to their home wearing protective equipment for safety to fill out the paperwork.”

During the holiday season, 142 city staff members from Charlotte Water, Housing and Neighborhood Services, Charlotte-Mecklenburg Storm Water Services, and General Services acted as ambassadors for the program, calling 9,000 customers who were behind on their bills. The team placed 19,000 calls between November 2020 and June 2021. At the peak of the pandemic’s spike in cases around Christmas and New Year’s, Miller said there were as many as 1,000 made calls to customers by team members per day.

While Charlotte Water does not know how many phone calls resulted in successful applications at partner agencies due to privacy laws, Miller plans to keep the Care Team in place indefinitely.

“There is always a need to help customers find resources to help them through financial difficulties,” he said.

Charlotte Water Helps Customers Keep Water Flowing Through Pandemic

As a result of the unprecedented COVID-19 pandemic and its immediate effect on the economy, on March 12, 2020, Charlotte Water chose to suspend account disconnections for nonpayment and reconnect those who had been disconnected. Eleven days later, on March 23, a new assessment of late fees associated with delinquent accounts was also suspended.

The organization acted prior to Gov. Roy Cooper's issuance of Executive Order 124 on March 31. That directive stated utilities across the state were required to discontinue customer disconnections for nonpayment to reduce hardships caused by the pandemic. The Executive Order also called for the discontinuation of late fee charges on past due balances. On May 30, Executive Order 142 extended the original order's mandates through July 29 as COVID-19 continued to spread around the state.

In July 2020, Charlotte Water tapped into a partnership the City of Charlotte maintained with Crisis Assistance Ministry for years to forge a water bill assistance program for Mecklenburg County residents. Soon, Charlotte's Housing and Neighborhood Services department connected Charlotte Water to the federally funded Charlotte Mecklenburg Housing Partnership (recently renamed DreamKey Partners), where struggling customers could also apply for water bill assistance. The affordable housing organization received some of its funding from money the City received as a result of the Coronavirus Aid, Relief and Economic Security (CARES) Act. A water bill assistance plan was also created with Common Wealth Charlotte. CWC offers a loan program for Charlotte's working class to help them achieve financial independence.

Public Affairs Manager Jennifer Frost said a Customer Care Team sprung up nearly overnight in the summer of 2020 to explain to customers that past-due balances legally still had to be paid and to help them do so through the assistance programs. Five existing staff members were reallocated from their previous positions to join the team.

"Our Customer Care Team speaks with those with accruing balances and asks if they need help to get connected with an assistance organization," Frost said.

By the end of September, those with past-due balances were automatically placed on a 12-month, no interest payment arrangement. Charlotte Water remained committed to not disconnecting customers or charging late fees. Director Angela Charles organized a big effort to call about 9,000 customers who were past due on their bills and offer them information about the assistance programs. More than 140 city employees used any spare moment they had to make these phone calls, with the largest push occurring between Thanksgiving and Christmas.

Frost assisted with a communication campaign during the holiday season to spread the word. It featured billboards, radio ads, interviews with Spanish-speaking media outlets, paid social media, and outreach to housing-based neighborhood groups such as Urban Ministry Center's Room in the Inn and the Latin American Coalition.

It was a well-timed effort as the greatest number of past due accounts, 34,502, came in December. Frost said this represented about 10 percent of all accounts. A map showing those regions with the largest issues followed Charlotte's "crescent and wedge" dynamic. Those most likely to be impacted lived more often in communities of color and those of lesser means in the northern, crescent-shaped region that surrounds a wedge-shaped area of whiter affluence in south Charlotte.

Due to all the extra support provided by the three partner organizations, the number of customers eligible for disconnection fell from 18,094 in April 2020 to 9,049 a year later. Frost anticipates one more large campaign in the summer of 2021 to help people stay permanently connected to their water supply before the year-long payment arrangement plan ends.

The pandemic has demonstrated one thing quite clearly: water's value is literally priceless for the thousands of customers who need it every day.

Capital Investment Plan Sets High Goals for Next 5 Years

The Capital Investment Plan (CIP) is a process through which Charlotte Water identifies and prioritizes the numerous projects that need to be completed within a five-year time span. Charlotte Water oversees hundreds of water and sewer improvement projects annually, which total more than \$300 million. Each year, the plan is revisited to address any new community or regulatory needs, changing priorities or any potential considerations of projects done in coordination with other City departments, towns or partnering agencies. Every other year, a 10-year plan is also completed. Projects are prioritized by which ones need to be completed to meet regulatory requirements, rehabilitate or replace infrastructure, prepare for regional growth, and fulfill commitments made for public projects and utility operations.

According to Chief Engineer Dr. Keri Cantrell, the entire CIP is supported through a combination of PAYGO – cash – and debt service, meaning bond anticipation notes, revenue bonds, and State Revolving Fund Loans issuances. The total budget for the CIP between 2021-2025 was \$1.94 billion. Capacity for growth accounted for \$1.03 billion of that figure, while facilities and technology made up \$148.5 million, commitment to public projects equaled \$103.2 million, regulatory requirements accounted for \$154.7 million, and rehabilitation and replacement project investments made up the remaining \$506.7 million.

Between late August and late November 2020, Charlotte Water staff discussed project needs, priorities and cost estimates to craft the plan. Although the meetings took place at the height of COVID-19, Chief Engineer Carl Wilson noted the pandemic did not put a damper on plans.

“In some respects, the pandemic didn’t slow down economic growth and development,” he said. “Homes were being built, and installation of water meters didn’t slow down for us. We still had an increased demand on water and wastewater services, while projects didn’t have many supply chain issues. Some projects were a little slower than desired, but overall, we did all right.”

Wilson recalled that clarifiers and blowers used in treatment plants that were manufactured in Europe took more time to arrive than normal. Staff also shifted to examining some supplies for projects by video call as opposed to visiting the plants abroad due to travel restrictions.

Nevertheless, the vision laid out in the Capital Investment Plan is well under way in 2021. What follows is a small collection of Charlotte Water’s most noteworthy projects that progressed during the pandemic.

Central Business District Valve Replacement Project

Location: Central Business District within the I-277/I-77 Loop

Project Cost: \$1.3 Million

Timeframe: January 2019 – May 2020

Water valves within the Central Business District date back earlier than the 1940s. This valve replacement effort identified valves that may not have been operating as they should and areas

where additional valves could help minimize the number of customers impacted by an outage. This project addressed these deficiencies by either replacing or installing a total of fifty 4-inch to 20-inch valves. As part of one installation, a new insertion valve on a 20-inch line was installed—a first for Charlotte Water. These new technologies and approaches were used to minimize water quality and quantity impacts for such a dense, critical area of the water system.

McAlpine Creek Wastewater Rehabilitation Project

Location: Green Rea Road to Poppy Hills Lane

Project Cost: \$3.6 Million

Timeframe: Fall 2019 – Fall 2020

Aging sanitary sewer infrastructure requires maintenance and improvements to maintain pipe integrity and its ability to convey wastewater. This project added a new interior liner to nearly 1.5 miles (approximately 7,500 feet) of a 54-inch pipe along a major sewer trunkline in the McAlpine Basin. Adding this liner to the existing pipe will extend the useful life of the pipe without the needed replacements and disruptions associated with construction.

South End Water Main (SWM) Project from Worthington Avenue to Scaleybark Road

Location: South Boulevard from Worthington Avenue to Scaleybark Road

Project Cost:

Phase 1 - \$1.6 Million

Phase 2 - \$17 Million

Timeframe:

Construction Phase 1 - Sewer Rehabilitation Work: Ongoing

This phase is ongoing and includes the lining and repairing of existing sewer lines within the same corridor of the new water line work.

Construction Phase 2 - Water Line Installation: Fall 2020 – Spring 2022

This phase includes the installation of a new water line between Scaleybark Road and Clanton Road. The area serviced by this water system was experiencing a high rate of infill development, and the existing water system could not accommodate projected growth. A new and larger pipe, which will be double the diameter of the existing pipe, is required to serve customers. To address the needs of an aging system in the growing South End area and to ensure ongoing, reliable service for our customers, Charlotte Water has begun construction to replace the water main in South Boulevard between Scaleybark Road and Worthington Avenue.

Davidson Water Transmission Main Phase III – Extension to N.C. 115

Location: N.C. Highway 115, beginning from the intersection of Main and Walnut streets and ending near the Davidson Town Limits, along N.C. 115

Cost: \$15 Million

Timeframe: October 2020 – March 2022

The goal of this project was to provide a new larger-diameter water main in the area that will improve system pressures and hydraulics, as well as enhance fire protection. The route for the new water main will generally run just west of N.C. Highway 115, beginning from the

intersection of South Main Street and Walnut Street and ending near the Iredell County line along Shearer Street.

Dairy Branch Tributary Sewer Improvements

Location: Dairy Branch Creek from Freedom Park to McDonald Avenue

Cost: \$16.9 Million

Timeframe: Summer 2020 – Fall 2021

The Dairy Branch gravity sewer follows the creek from Freedom Park to South Boulevard. The area serviced by this gravity wastewater was experiencing a high rate of infill development, and the existing gravity wastewater could not accommodate the projected growth. A new pipe was required to serve customers. The project will provide increased wastewater capacity for current and future needs and protect the water quality in area creeks.

Irwin Creek Tributary Phase 2 Yeoman Road to Dewitt Lane Wastewater Pipe Replacement Project

Location: Irwin Creek from Barringer Drive to Old Pineville Road

Cost: \$29.3 Million

Timeframe: Construction beginning May 2020 with completed pipe installation in the immediate area in January 2021

This wastewater pipe replacement project along Irwin Creek Tributaries in the Clanton Park, Roseland and York Road neighborhoods will expand the future capacity of the wastewater system in the area. The project will also reduce the risk of wastewater overflows and protect water quality in Irwin Creek.

Upper Taggart Creek Wastewater Pipe Project

Location: Upper Taggart Creek from Morris Field Drive to Carlyle Drive

Cost: \$16.7 million

Timeframe: Spring 2020 - Spring 2022

The wastewater pipe was 40 years old and required upsizing due to the ongoing and predicted future growth of the area. The anticipated length of the replacement line was approximately 6,400 feet. The new wastewater pipe will provide for future wastewater needs in this area.

McAlpine Creek WWTP Potable and Non-Potable Water System Improvements

Location: McAlpine Creek Wastewater Treatment Plant

Cost: \$6.9 million

Timeframe: March 2017 – July 2020

This project included the installation of a new potable water main, non-potable pumping station, hydropneumatic tank, miscellaneous potable and non-potable piping and valves, intermediate lift-station pumps, and the cleaning of biosolid transfer lines.

Environmental Services Facility Power Improvements

Location: Environmental Services Facility

Cost: \$170,240.75

Timeframe: January 2019 – December 2020

An overhead power line from Irwin Creek Wastewater Treatment Plant was installed at the Environmental Services Facility to provide it with primary and backup power.

Charlotte Water Makes Plans for the Future

In July 2019, Charlotte Water initiated a strategic planning process to update its organizational vision and develop a framework for guiding its future. The work culminated in a five-year strategic plan, Charlotte Water's Foundation for the Future, which was officially adopted in April 2020.

To create the plan, input was obtained from Charlotte Water's leadership team, employees, and external stakeholders such as developer's groups, citizen groups, and local town governments. Primary research methods included a combination of interviews, four community listening sessions, an online employee survey, three stakeholder focus groups, and 10 employee focus groups. Although everyone received a copy of the plan last year, its implementation was delayed due to the ongoing COVID-19 response. Charlotte Water shifted into implementing the plan in January 2021.

"This was created because we'd never really had a dedicated five-year plan," Chief Financial Officer Chad Howell said. "We'd done pieces of the plan before but never laid out all of our priorities. This allowed the department an opportunity to redevelop its vision and mission and restate who we are as an organization."

New Vision Statement:

To be a leading water utility, recognized for excellence and dedicated to our people, community, region and environment.

New Mission Statement:

Charlotte Water provides reliable, high-quality services to our community through valued employees, financial stability and environmental stewardship.

The organization is committed to exemplifying these statements by embracing its values of integrity, expertise, collaboration, and innovation. Charlotte Water's priorities going forward are maintaining a high-performing workforce, responsive customer service, community engagement, a reliable infrastructure, financial viability, and environmental stewardship.

Social equity is woven into the fabric of the plan to ensure it aligns with the City of Charlotte's equity goals. Charlotte Water desires to promote service affordability for all citizens and is exploring options to financially assist new customers with the initial expenses of setting up water connections, build a network of resources such as plumbers for low-income customers, and partner with organizations like Charlotte Area Transit System to make better use of rights-of-way for public transportation infrastructure.

The plan also addresses larger trends affecting the sociological, economic and environmental landscape of the greater Charlotte region, and how Charlotte Water can respond to them in the future. For instance, the population of Mecklenburg County continues to expand, yet the

region's source water remains finite. Therefore, Charlotte Water places a larger emphasis on conservation efforts and customer education over the next five years.

Importantly, the Catawba-Wateree River Basin is the sole water source for the region, and Charlotte Water is a member of the Catawba-Wateree Water Management Group that develops projects to reserve, extend, and enhance the basin. Thus, building programming and messaging platforms for customers around conservation efforts, supporting residential green infrastructure and implementing integrated watershed planning are all keys to a sustainable future. Additionally, Charlotte Water is in the process of updating its risk assessments and emergency response plans to comply with America's Water Infrastructure Act requirements.

"We actively promote water conservation," Howell said. "We're one of only a few organizations who work to put ourselves out of business by encouraging customers to use less and less of our product."

Seeking innovative solutions for infrastructure growth while reviewing the zoning changes that shaped the density of development and redistribution of population centers, especially along the light rail corridor, is likewise a top priority. Charlotte Water adds 792 new water and sewer service connections to residential and commercial customers each month. Often, new development involves extra costs and obstacles to navigate when new land being developed does not meet the requirements of current policies. Yet one benefit of being a growing utility provider is that new customers provide additional revenue through their bill payments, thus mitigating potential future rate increases and permitting Charlotte Water to continue providing affordable, high-quality service to all customers.

"From a capital budget perspective, we have a five-year budget of approximately \$2.3 billion," Howell said. "So, we can repair the infrastructure we have when needed and ensure continued capacity for new lines and additions to the system. We're focused on having the right amount of staff and creating jobs."

Recruiting a workforce that is diverse and reflects the community it serves through expanding apprenticeship and pipeline programs will remain a goal in the years ahead. Demand for self-service technology options, easily accessible data, and user-friendly applications is also increasing across all sectors. For Charlotte Water to address these demands, it will seek out those with robust technology skills to expand its workforce well into the unfolding new decade.

The future always brings new challenges, but because Charlotte Water continues to invest in its resources – natural, human, financial, and operational – the opportunities will also flow abundantly.

Blitz Repair Days Help Crews Play Catch-Up

The pandemic meant the speed of life slowed down for many people. Yet for Charlotte Water crews, work orders started to increase rapidly between March and June of 2020.

For health and safety reasons, Chief of Operations Scott Clark's team of 375 people began working in staggered shifts of one week on, one week off during the first 10 weeks of the COVID-19 outbreak. Instead of doing leak repairs each day, the crews focused on high-priority and emergency jobs. That quickly created a backlog of jobs across Mecklenburg County.

"Normally we have between 90 and 100 leaks across our service area at a given time," Clark said. "But with the A/B staff rotation, leaks surged and we had a backlog of 475 leaks, so we've been playing catch-up."

Crews began conducting a "leak blitz" during one weekend each month to reduce the workload and developed a list of priority leaks to complete throughout a weekend. Approximately 24 crews of four workers each have been assigned to work on the leaks, while other crews handled emergencies as they arise. This process began in June 2020 and will most likely continue throughout 2021.

"I'm proud of how many leaks we've been able to fix in a two-day timeframe," Clark said. "On one occasion, it was 60 in a weekend."

Thanks to the crews' dedication and hard work, the backlog has been significantly decreased. Their "all hands on deck" mentality aided Charlotte Water in never missing a beat when it mattered most.

National Drinking Water Week brings mindfulness to resource use

When the COVID-19 lockdowns began in March 2020, everyone found themselves spending more time at home, and numerous aspects of daily life shifted. But one thing that didn't change was the demand for water for a wide variety of activities such as washing dishes, bathing, meal preparation, and laundry. On television, medical experts used news interviews to emphasize the importance of hand washing to stay healthy. Meanwhile, the world watched fish return to natural spaces like the Venetian canals in the absence of humans. Water – and its conservation – had become a hot topic in the media.

During the week of May 3-9, 2020, Charlotte Water celebrated National Drinking Water Week to draw attention to the importance of water in our everyday lives, as well as help the community understand where it comes from and the need to protect it. The United States has one of the safest drinking water supplies in the world, according to the Centers for Disease Control and Prevention. It's kept that way through water treatment methods which reduce the presence of germs and chemicals that cause illness and through government regulations that reduce the pollution of large bodies of water which supply our drinking water.

To underscore the national campaign theme of "There When You Need It," Charlotte Water honored its staff who worked hard behind the scenes daily to keep water flowing safely to more than a million customers during a challenging time. The week also featured the chance for kids and adults alike to participate in activities at home. They colored a "Water in the Window" page and showed off their artwork in a window for neighbors to enjoy. Charlotte Water also created a Water Appreciation Log where people tracked how frequently they used water throughout the day and then shared their results on social media.

"You don't really think about having water," said Senior Public Information Specialist Erin McNeely. "You expect to turn on the tap and have it there. You don't notice how much water you use in a day until you do a water audit. It's great to teach the public about ways to conserve water and how much they use."

A water-themed scavenger hunt offered families the opportunity to get out into nature and search their neighborhoods for the items that are essential for bringing water into the city like hydrants, water meter boxes, and manholes. The week rounded out with a list of movie ideas that emphasized the importance of conservation efforts such as "A Plastic Ocean," "Chasing Coral," and "Seasons of the Sea."

"Everyone was really stuck at home during that time," said McNeely. "So, we wanted to promote water awareness safely at home and create some fun activities for kids during a time when home schooling was prevalent. People were also going on a lot of walks around the neighborhood for exercise, so the scavenger hunt tied into what people needed at that time."

McNeely appreciated that the week-long celebrations raised everyone's awareness about water's status as a limited resource.

While COVID-19 and its wide-ranging effects have been unprecedented, the week-long water holiday has deep roots in America's past. In 1988, President Ronald Reagan signed a resolution to name the first week of May as National Drinking Water Week. The decision came about after the American Water Works Association brought the vital role water plays in our daily lives to the attention of the U.S. Congress.

By pivoting to more digital and virtual experiences, Charlotte Water successfully shared the important messages behind National Drinking Water Week with the community during the pandemic.

Charlotte Water Embraces New Bill Design

Charlotte Water proudly unveiled a new bill design in November 2020 to enhance the customer experience. Recent billing system upgrades provided the opportunity to make the shift.

The new layout includes:

- **Clear breakdown** of the charges for three services: drinking water, stormwater and sewer
- **Historical water use bar chart** for an at-a-glance view of past and current water usage, so customers can make informed water use decisions in the future
- **Customers' names and account information**, as well as the bill's due date, bill date and amount due featured prominently at the top of the bill for quick reference
- **Message center** for space to share important announcements
- **Convenient payment methods**, so customers can quickly pay their bill and move on with their day

"It wasn't always easy with the old format to tabulate your costs and see where they came from," Management Analyst Katie Liebman said. "We wanted to demystify the process and use a ledger format as if you were keeping the books, so nothing appeared ambiguous for customers."

Changes affected all of Charlotte Water's more than 1 million customers. Even those who pay their bill digitally see a PDF version of the paper bill when they log into their accounts.

Charlotte Water announced the change with a robust communication effort that included website updates, social media posts, a YouTube video, mail inserts, and advertising to prepare customers for the transition. The new bill is also translated into the top five languages spoken in Mecklenburg County with each version available on Charlotte Water's website.

"Many roles and departments had a say in the new bill design," Liebman said. "It was a true team effort."

With its bold new colors and crisp layout, the updated bill is as clear as the water the organization provides.

Charlotte Water's Awards & Recognitions in 2020

NACWA Peak Performance Awards

The National Association of Clean Water Agencies' (NACWA) *Peak Performance Awards* recognize member agency facilities for excellence in permit compliance. The *Platinum Award* recognizes 100 percent compliance with permits over a period of five consecutive years.

All seven of Charlotte Water's wastewater treatment plants were recognized for 100 percent compliance with permits in 2020. The last time this occurred was in 2017. In 2020, four of Charlotte Water's wastewater treatment plants received the *Platinum Peak Performance Award*.

- Sugar Creek Wastewater Treatment Plant earned the Platinum Award for the first time in 2020.
- Mallard Creek Wastewater Treatment Plant received the award for the first time since 2012.
- McDowell Creek Wastewater Treatment Plant received a *Platinum 4* for eight years of 100 percent compliance.
- McAlpine Creek Wastewater Treatment Plant received the *Platinum 9*, for 13 years of 100 percent compliance.

The number of samples collected and analyzed from all seven plants was 8,035 in 2020. Over the award's timeframe, a total of 279 billion gallons of water was treated and released from plants into receiving streams.

Utility of the Future Today

For the fourth year in a row, in 2020, Charlotte Water proudly received an award from the Utility of the Future Today Recognition Program. The recognitions focused largely on partnering and engagement.

The program celebrates water utilities that are recovering resources from wastewater, leading community engagement, forming strong partnerships, and building cultures of innovation. The program was launched in 2016 by the National Association of Clean Water Agencies, the Water Environment Federation, The Water Research Foundation, and the WaterReuse Association with input from the U.S. Environmental Protection Agency.

Charlotte Water was one of 65 utilities recognized in 2020 and one of three utilities recognized for the fourth year in a row.

Individual/Team Awards

- Sugar Creek Wastewater Treatment Plant Supervisor **Billy Allen** received the Arthur Sidney Bedell Award from the Water Environment Federation. It honors superior organizational leadership, administrative service, membership activity, and stimulation of technical functions.
- Charlotte Water Deputy Director **Ron Hargrove** received the George Warren Fuller Award. The award is presented annually by the American Water Works Association for distinguished service to the water supply field.
- The **Women of Wastewater** team represented by Dr. Muriel Steele and Trinh Nguyen won second place in Division 2 at the North Carolina American Water Works Association & Water Environment Association Conference Virtual Operations Challenge and set a new record score for Process Control.
- The **Weir#1** team represented by Will Rice and Matthew Carter won fifth place in Division 3 at the North Carolina American Water Works Association & Water Environment Association Conference Virtual Operations Challenge.

2020 Charlotte Water Financials

Total Revenues Overview

Fiscal Year 2020 Budget: \$449,863,211

Debt Services Total Revenue Fiscal Year 2020 Budget: \$152,114,281

Fiscal Year 2021 Adopted Budget: \$461,495,529

Total Expenditures Overview

Fiscal Year 2020 Budget: \$449,863,211

Debt Services Total Expenditures Fiscal Year 2020 Budget: \$152,114,281

Fiscal Year 2021 Adopted Budget: \$461,129,424

Operating Expenditures Fiscal Year 2021

Total Budget: \$461,495,529

Debt Service Total Revenue: \$149,482,730

Debt Service Total Expenditures: \$149,482,730

PAYGO: \$149,500,000

Total Capital (Debt Service + PAYGO): \$298,982,730

Personal Services: \$86,535,488

Operating Budget: \$89,247,742

Infrastructure Investments Fiscal Year 2021

Facilities & Technology: \$148,517,000

Commitment to Public Projects: \$103,150,000

Regulatory Requirements: \$154,650,000

Rehabilitation & Replacement: \$506,709,992

Capacity for Growth: \$1,026,257,147

CIP

Fiscal Year 2020 5-Year Capital Investment Plan: \$1.64B

Fiscal Year 2021 5-Year Capital Investment Plan: \$1.94B

Billing

Average Monthly Customer Bill in Fiscal Year 2021: \$68.06, an increase of \$1.24 per month over the previous year

Water Revenue Bonds, Sewer Revenue Bonds + Pay-As-You-Go

Fiscal Year 2021: \$332,296,584

A Look Ahead

As Charlotte Water moves beyond the historic year of 2020, many exciting prospects lay on the horizon. Yet in certain ways, the effects of the pandemic, such as more individuals working from home, will remain with us indefinitely. We will continue to offer flexible schedules for our staff members as we also welcome them back into their offices. Conversations about what the future of work will look like are ongoing as we consider issues such as work-life balance for parents and ensuring employee health in light of continuing COVID-19 concerns.

In September 2020, our customers with past-due balances due to economic hardship caused by the pandemic were automatically placed on a 12-month, no interest payment arrangement. Charlotte Water was committed to not disconnecting customers or charging late fees for water services. That commitment will continue as our staff works with customers who are behind on their payments to make sure they are caught up before disconnections resume.

Last year, Charlotte Water expanded despite unprecedented challenges. Storm Water Services joined with Water and Wastewater Services in November 2020 after previously being housed under the City's Department of General Services since the early 1990s. This restructuring was a part of Director Angela Charles' commitment to One Water, an integrated planning and implementation approach to manage finite water resources for long-term resilience and reliability. One Water will be a mainstay at Charlotte Water moving forward in order to optimize operational processes and resources, leverage investments in infrastructure and streamline customer response.

The future will not only be more sustainable, it will also be safer. Charlotte Water plans to improve the public's health by removing lead pipes in old neighborhoods, schools, and childcare facilities in our community. Galvanized service lines – which consist of steel pipes dipped in protective zinc coating – also will be removed and replaced in both public and private lines to inhibit corrosion and rusting.

Likewise, we are pleased to be replacing an aging facility for Field Operations in Zone 4, which handles water and wastewater pipe repairs, with a new facility that will include space for Storm Water Services and other staff. Finally, Stowe Regional Water Resource Recovery Facility is scheduled for completion in 2024 and will serve western Mecklenburg County and the Belmont and Mount Holly communities in eastern Gaston County. This new facility is anticipated to process 15 million gallons of wastewater per day and operate 24 hours a day, seven days a week.

As always, we look forward to serving you in a brighter tomorrow.

