



As we head toward the end of our first decade of service, there are impressive results to celebrate. In light of our 2017 list of accomplishments — our coordinated response to a main break, flushing program, lead and copper program, and more — CFPUA first applauds the day to day work of our employees.

Our staff provide an invaluable service to our community. Each day, employees approach their duties with passion and precision. Whether it is the Camera Truck staff inspecting pipes to make sure they are free of obstructions or the finance department working to ensure rates stay affordable, people throughout the organization are committed to providing superior services.

During the past year, CFPUA was in the headlines. Regardless of the news and situation, CFPUA's employees continuously met the needs of our community. This year's annual report focuses on telling you how we responded to the opportunities we faced. The projects highlighted in this year's report show our preparedness.

They highlight our ability of our employees to properly plan, manage, operate, and oversee water and sewer systems that serve our residents.

For example, with the assistance of our state and local legislators, we worked to secure essential Connect NC funding. Funds that were originally earmarked for current sewer projects are now available to use elsewhere. CFPUA put those previously allocated funds towards the continued success of the US 421 water and sewer project. The future economic development of the US 421 area is supported through the construction of water and sewer lines up the corridor.

Every day, there are examples of our dedicated employees providing excellent customer service. It is their day to day work that sustains our mission. The day will soon come when CFPUA serves more than a quarter million people.

When you deliver high quality water and wastewater services to hundreds of thousands of people, challenges will arise. We believe this report shows how strongly CFPUA has risen to the occasion for our customers this past year. CFPUA is not defined by a single story, instead, it is defined by the dedicated staff and their ongoing commitment to this community.

On behalf of the Board Members and the employees of Cape Fear Public Utility Authority, we thank you for your support and we hope you enjoy reading this report.

Sincerely,

Michael C. Brown, III Chairman

Michael C. But

James R. Flechtner, PE Executive Director

Board Members



Michael C. Brown, III
Chairman
Appointed by New Hanover County
Seated in 2010
Term ends in 2019
Committees: Executive & Finance



Wesley P. Corder
Vice-Chair

Jointly appointed by City of Wilmington and New Hanover County
Seated in 2017
Term ends 2020
Committee: Executive & Finance



Jennifer Adams
Secretary
Appointed by New Hanover County
Seated in 2016
Term ends 2019
Committee: Executive & Finance



Kevin O'Grady
Councilman
Appointed by City of Wilmington
Seated in 2014
Term ends 2019
Committees: Human Resources &
Communications





Larry Sneeden
Member
Appointed by New Hanover County
Seated in 2012
Term ends in 2020
Committees: Executive, Finance,
Long Range Planning



William Norris
Treasurer

Appointed by the City of Wilmington
Seated in 2013
Term ends in 2018
Committees: Executive, Finance,

Communications



Charles Davis, Jr.

Member

Appointed by City of Wilmington

Seated in 2016

Term ends 2019

Committees: Long Range Planning & Human Resources



Pat Kusek
Commissioner
Appointed by New Hanover County
Seated in 2011
Term ends in 2018
Committees: Long Range Planning



Skip Watkins
Commissioner
Appointed by New Hanover County
Seated in 2017
Term ends in 2018
Committees: Finance



Cindee Wolf
Member

Appointed by City of Wilmington
Seated in 2011
Term ends in 2020
Committees: Long Range Planning,
Human Resources, Communications

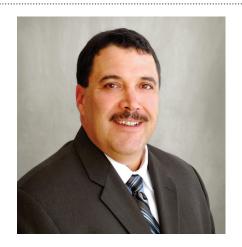


Donna S. Pope Clerk to the Board

Management Team



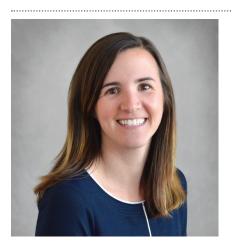
James R. Flechtner, PE Executive Director



Frank C. Styers, PE Chief Operations Officer & Deputy Executive Director



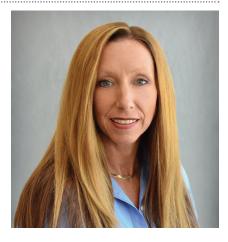
Beth Eckert Environmental and Safety Management Director



Lindsey Hallock
Executive Administrator & Assistant
Communications Officer



Peg Hall Williams
Chief Communications Officer



Kristi Irick Customer Service Director



Denise Matroni Human Resources Director



John McLean, CPA Chief Financial Officer



Carel Vandermeyden, PE Engineering Director



Understanding CFPUA's Infrastructure

Cape Fear Public Utility Authority (CFPUA) treats, pumps, transports, stores, and delivers safe drinking water.

To provide essential clean water to 200,000 people, we have a vast infrastructure that includes pipes, pumps, wells, and treatment facilities. Maintaining, enhancing, and expanding our infrastructure is essential to our area's quality of life, specifically:

- · Disease prevention,
- · Fire protection,
- · Sanitation,
- · Environmental protection, and
- · Economic development support.

To provide this resource, CFPUA pulls close to 20 million gallons of raw, untreated water from our sources each day. CFPUA has two readily available and accessible sources:

- Our groundwater source groundwater is pumped from aquifers and most is treated at the Michael E. Richardson Nanofiltration Plant.
- CFPUA shares our main source the Cape Fear River

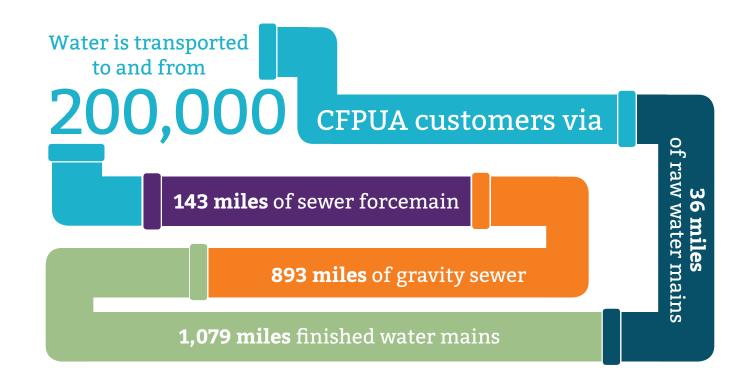
 with Brunswick and Pender counties. This surface
 water source is provided by the Lower Cape Fear Water
 and Sewer Authority, as well as CFPUA's own raw water
 system. The Lower Cape Fear Water and Sewer Authority
 (LCFWASA) is a public agency that partners with CFPUA
 and surrounding counties. They provide wholesale, regional
 water via large mains from the Cape Fear River. We treat
 this water at the Sweeney Plant.

Regardless of the water source, CFPUA's systems for providing clean water are designed to anticipate and meet our customer needs. Our high-capacity system treats water to meet drinking water standards that are set by the Environmental Protection Agency (EPA) and the NC Department of Environmental Quality (DEQ).

Distributing water is another step in CFPUA's infrastructure system. A series of pumps and pipes deliver finished water directly to our residential and commercial customers. It may also be stored in tanks until it is needed.

Finally, CFPUA operates and maintains two wastewater treatment plants. Once water is used in a home or business, it is sent to either the Northside Wastewater Treatment Plant or the Southside Wastewater Treatment Plant. Both locations treat the wastewater to remove pollutants and disease-causing organisms before returning it back to the environment.

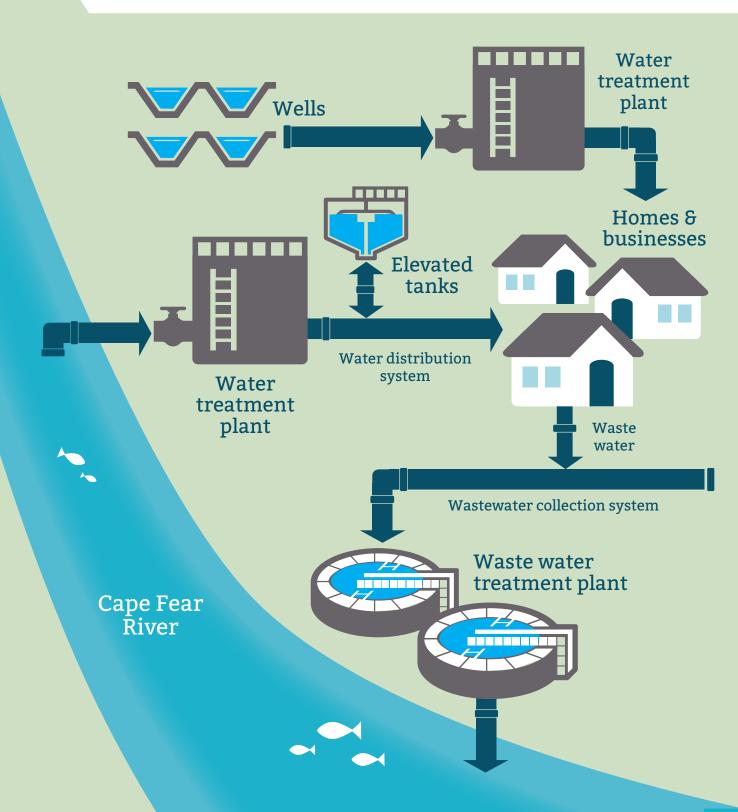
Protecting the infrastructure of our drinking-water supply system and wastewater management infrastructure is vital. It takes a team of trained and skilled water professionals, engineers, and environmental specialists to protect our valuable resource. Together, we can protect and preserve CFPUA's clean water and the infrastructure that delivers our water daily.



From **SOURCE** to **TAP**

... and BACK

Follow the flow as the CFPUA delivers clean water from the Cape Fear River to homes in New Hanover County and then back to the river again.



Flushing

Like most utilities, CFPUA flushes its water system every year.



Flushing is a routine maintenance operation designed to:

- · Maintain water quality,
- · Improve system flow,
- · Protect pipe integrity, and
- · Test essential infrastructure.

During the work, water flows through pipes at high velocity, removing accumulated mineral sediment.

Crews work overnight to flush our water through fire hydrants. CFPUA conducts the program during the spring and summer months for two main reasons:

- The warmer weather can increase the possibility of issues with disinfection byproducts, and flushing helps keep water fresh.
- Conditions are safer for our employees and our customers. Flushing during warmer months eliminates the potential for nighttime freezing of roadways and sidewalks.

As CFPUA crews flush the system, large water valves and fire hydrants are checked for optimal operation. In total, CFPUA checks 1,100-plus miles of water mains, 7,700 fire hydrants, and 15,000 water valves.

Thanks to the flushing program, local firefighters can count on finding a fully-operational hydrant when they need it. Additionally, the program makes it easier to cut off water to an area. For example, during routine maintenance, CFPUA can cut off the smallest area possible. This allows CFPUA to repair parts of our infrastructure while reducing the number of customers who temporarily lose water service.

US 421 Corridor Project

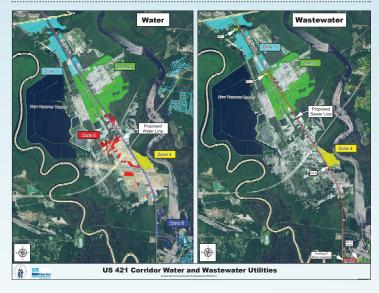
CFPUA is a partner in the area's economic development. In 2013, CFPUA entered into an agreement with Duke Energy to construct a water pipeline under the Northeast Cape Fear River. This infrastructure brings drinking water to the Flemington area from Sweeney Water Treatment Plant. Additionally, the pipeline was constructed with future development in mind.

At the beginning of the year, the announcement came that Connect NC awarded CFPUA \$16.45 million in funding. This grant money is earmarked for restoration and replacement projects. This funding will strengthen CFPUA's current infrastructure through preventative repairs and upgrades to equipment and facilities that have reached the end of their useful life.

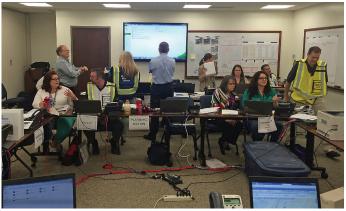
Connect NC funding allowed CFPUA to address infrastructure concerns and free up funds to move forward with the US 421 project. CFPUA estimates the project will be complete in 2019. Water and sewer lines will extend to the Pender County line.

For many years, local business leaders have considered the US 421 Corridor one of the last industrial areas available. By

providing a water and sewer infrastructure to support future development in this area, CFPUA is excited to lay a foundation for future job growth and economic development.







Modeling Exercise

Addressing aging infrastructure is a priority for water utilities across the nation. Pipes, pumps, structures, and materials are reaching the end — and in some cases exceeding — their life expectancies.

CFPUA conducted an emergency exercise to prepare for the challenges that come with aging infrastructure. During the exercise, we deliberately turned off active water supplies and shut down the Sweeney Water Treatment Plan. This allowed CFPUA employees to simulate an emergency scenario.

Following the shut down, crews opened emergency interconnects between CFPUA's water systems. Engineering staff modeled the impacts caused by a dwindling supply of water and the Emergency Operations Center was activated.

During the real-time scenario, CFPUA successfully managed the water supply through:

- Increased use of our Richardson Nanofiltration Water Treatment Plant.
- Expanded the service area of the Richardson groundwater plant.
- Maximized use of the Monterey Heights groundwater system.

As a result of the exercise, CFPUA developed plans to handle a variety of supply-related emergencies. Emergency response plans now include:

- An initial review of the output of other CFPUA water plants.
- An established "protection" of 17th Street tank for NHC Medical Center supply.
- Consideration of potential impacts from opening all interconnects and emergency wells.
- Water budget analysis, depending on success of water restrictions.

During the exercise, CFPUA gained vital data that would inform decision-making a few months later when a large raw water main ruptured.

The oldest line rehabilitated in 2017 was from

1,802

Number of new meters set in FY17

12,022

Number of meters replaced in FY17





Main Break

For decades, Lower Cape Fear Water and Sewer Authority's large water main has provided millions of gallons of raw water to our area. Every day, residents of Brunswick, Pender, and New Hanover counties, counted on this raw water supply. Access to an essential supply of raw water was never in doubt even through hurricanes, floods, and droughts.

That changed during the early morning hours of October 13, 2016. Lower Cape Fear Water and Sewer Authority's main broke near Riegelwood, North Carolina, about 20 miles north of Wilmington. The 48" line furnishes more than 20 million gallons every day to the region. The utility companies that rely on the raw water were losing half their daily supply. Cape Fear Public Utility Authority, Brunswick County Public Utilities, and Pender County Utilities were immediately losing more than 12 million gallons of water.

Within hours of the break, CFPUA's Emergency Operations Center was up and running. We immediately implemented various emergency responses based on policies and procedures. We committed ourselves to:

- Implementing our Water Emergency Management Plan to guide our response.
- Promoting open, internal and external agency communications.
- · Notifying critical customers.

- Maintaining a common operating picture through maps, models, briefings, and meetings.
- Staying cognizant of external impacts (weather, river flood levels, etc.) that could hinder our success.
- Coordinating consistent, clear communications with customers using all available tools and outlets. Critical customers responsible for public health including hospitals, dialysis centers, doctors' offices, and assisted living facilities were contacted with the latest information.







Additionally, other affected utilities came together and immediately mobilized. We collaborated to protect the remaining water supply and to plan for the days ahead.

The failure was in a difficult area to access. Crews could not reach it by driving right to the site. Instead, it broke in an area set back in the woods. Reaching the site was further complicated by flooding, poor soil conditions, and high groundwater. To begin the effort, 500 feet of temporary rock road was built to get heavy equipment to the site.

Despite around-the-clock efforts, initial repair attempts were not successful. The repair was much more complicated than suspected. The work area was as large as several football fields. The project required significant removal of water because of flooding in the area. Since CFPUA had access to needed resources, we took the lead in the second repair efforts.

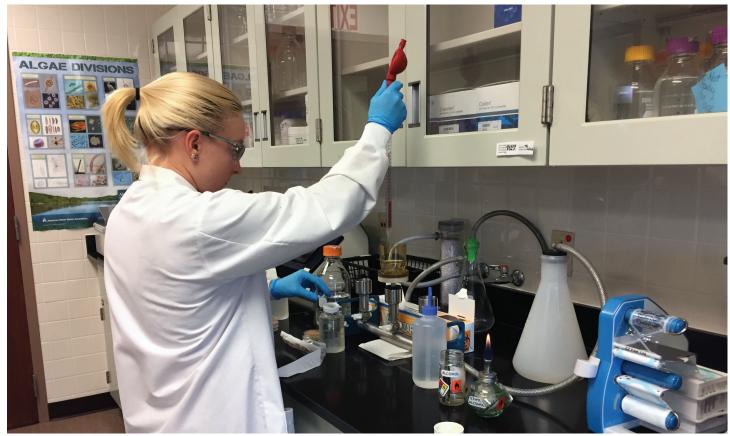
The second repair attempt involved the construction of a 900-foot-long bypass water line to allow the region's water supply to reach pre-break capacity. Because the repair would last weeks instead of hours, the secondary line

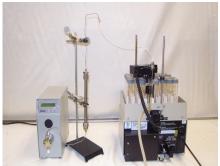
allowed crews to repair the broken main. The bypass line worked without fail until the original line was repaired and tested.

The emergency passed without water outages or water quality issues. Lower Cape Fear Water and Sewer Authority's infrastructure was repaired. Water supply was restored to necessary levels to lift all water restrictions. The knowledge gained during the incident will aid in CFPUA's emergency response for years to come.

Lead & Copper Testing

Through lab testing, CFPUA can confirm that we do not have lead in the water leaving our water treatment plant. However, the possibility exists that lead can enter drinking water from corrosion of plumbing materials, such as lead service lines and plumbing fixtures in homes.







To ensure the safety of CFPUA's residents, CFPUA has a Corrosion Control Program. This program uses an additive to coat pipes and prevent the leaching from such plumbing materials into the water. Over the last year, CFPUA conducted 50 different tests for lead and copper in our Sweeney drinking water system.

To assess the success of the program, CFPUA's staff conducts compliance monitoring for lead and copper. Working with the customer, CFPUA's laboratory conducts plumbing evaluations, collects samples, coordinates sample analysis, reviews data, compiles reports, and coordinates customer notifications.

Ongoing data verifies the corrosion control program implemented within the CFPUA water system is effective throughout the system and meets EPA guidelines. This program continues to protect our customers from lead and copper that has the potential to leach from their home plumbing systems.



Unregulated Compounds

No one wants to learn that there are unregulated chemicals in drinking water. Even when unregulated contaminates are found in low concentrations — parts per trillion — it's not easy to hear.

Perfluorinated compounds known as PFOAs are one type of unregulated compound; GenX is a PFOA. When studies found GenX in the Cape Fear River, CFPUA took deliberate steps to continue to protect our customers and our water. As a public water system, CFPUA's focus is on operating its plants and systems under drinking water standards set by EPA. Although the EPA offers no regulatory standards when it comes to GenX, CFPUA moved into action to protect the area's water through the following actions:

- CFPUA worked with the North Carolina Department of Health and Human Services (NCDHHS). NCDHHS can develop a health assessment when regulatory standards do not exist. On July 15, NCDHHS issued a revised GenX health goal of 140 parts per trillion—the level of GenX below which no adverse health effects would be expected over a lifetime of exposure.
- CFPUA began testing water at the Sweeney Water Treatment Plant for GenX.
- CFPUA partnered with the University of North Carolina Wilmington to identify and test for other unregulated compounds in the river.

- CFPUA assessed groundwater systems in the southern and northern areas of New Hanover county. GenX was not detected in these systems.
- CFPUA has issued a statement to express our position that compounds should be stopped at the source. CFPUA continues to work with the North Carolina Department of Environmental Quality (NCDEQ) to keep Genx and other per-fluorinated compounds out of the Cape Fear River. NCDEQ has confirmed that Chemours has stopped discharging GenX into the river, and CFPUA has asked NCDEQ to prohibit its discharge in the future.
- CFPUA is researching other advanced treatment technologies.

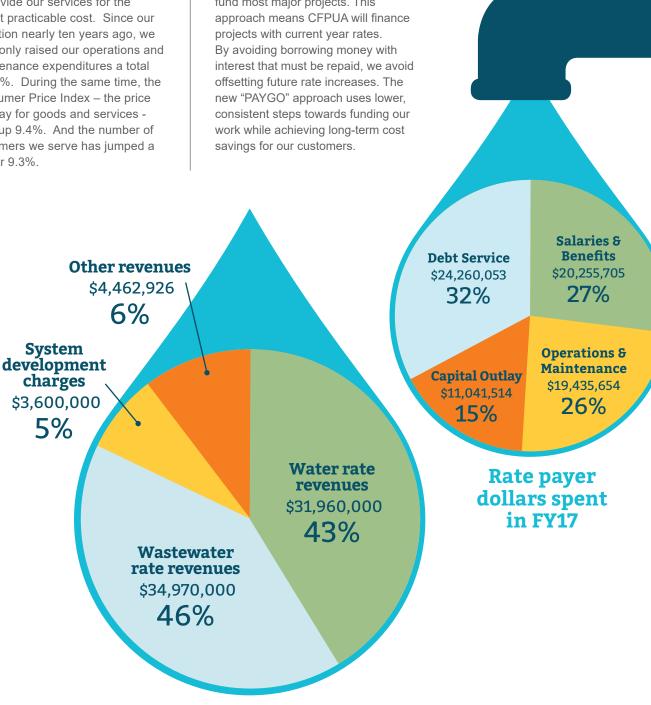
As CFPUA continues to make progress, we will continue to update the public. CFPUA remains committed to providing the highest quality drinking water for our customers.

CFPUA's Financial Strength

Improved financial strength put CFPUA in a position to provide long-term cost savings to our customers.

When we prepare our annual budget, one of our main goals is to meet our responsibility to provide our services for the lowest practicable cost. Since our inception nearly ten years ago, we have only raised our operations and maintenance expenditures a total of 2.6%. During the same time, the Consumer Price Index – the price you pay for goods and services went up 9.4%. And the number of customers we serve has jumped a similar 9.3%.

This year, we altered our driving fiscal policies to include a "PAYGO" approach — "Pay As You Go" — to fund most major projects. This approach means CFPUA will finance projects with current year rates. By avoiding borrowing money with offsetting future rate increases. The new "PAYGO" approach uses lower, consistent steps towards funding our work while achieving long-term cost savings for our customers.



How CFPUA is funded

Statement of Net Position*

DATE: JUNE 30, 2017

ASSETS

Current assets	\$114,168,486
Noncurrent assets-noncapital	\$28,158,507
Noncurrent assets-capital	\$676,771,310
Total assets	\$819,098,303

DEFERRED OUTFLOWS

OF RESOURCES

LIABILITIES

Current liabilities \$28.030.891 Noncurrent liabilities \$292,961,730 Total liabilities \$320,992,621

DEFERRED INFLOWS

OF RESOURCES

\$168,111

\$18.106.934

NET POSITION

Net investment in capital assets \$391.215.264 Restricted \$10.966.309 Unrestricted \$113,862,932

> **Total net position** \$516,044,505

This statement shows the Authority's net position (i.e. the extent to which the Authority's assets exceed its liabilities.) This statement categorizes net position into three types:

- 1) Net investment in capital assets is equal to the depreciated value of the Authority's capital investment in water and sewer infrastructure less any outstanding amount of debt used to acquire or construct those assets. These amounts are not available to fund the Authority's ongoing operations.
- 2) Restricted net position represents assets and liabilities that are restricted by law, Board action, or outside parties. For the Authority, the amounts in this category are restricted to pay prinicipal and interest on outstanding debt.
- 3) Unrestricted net position is the portion of total net position that is available to fund the Authority's ongoing operations. A relatively high amount of unrestricted net position is an indication of financial health and resilience.

Statement of Revenues, Expenses, and Changes in Net Position*

REVENUES

Operating revenues

Charges for services	\$72,952,927
Other operating revenues	\$4,223,916
System development charges	\$6,277,464

Nonoperating

j revenues		
	Investment earnings	\$880,543
Contributions	from New Hanover County	\$627,000
Ot	her nonoperating revenues	\$309,153
	Total revenues	\$85,271,003

EXPENSES

	Total expenses	\$71,702,422
Nonoperating expenses		\$9,321,091
Depreciation and amortization		\$20,880,300
Operating expenses		\$41,501,031

Increase in net position before capital contributions \$13,568,581

> Capital contributions \$17,654,167 Increase in net position \$31,222,748

> > Net position, July 1 \$484.821.757

Net position, June 30 \$516,044,505

This statement shows how the Authority's net position has changed from the prior fiscal year. The Authority's net position increased by \$31.2 million during FY17. The increase was mainly due to the following:

- 1) Capital asset additions funded with FY17 revenues outpaced depreciation expense by \$13.9 million.
- 2) The repayment of approximately \$15.3 million in principal on outstanding debt funded with current year revenues.
- 3) Billings for water and services and system development charges that outpaced expenses by approximately \$20 million.
- * Information contained on this page is unaudited. CFPUA maintained Aa1 and AA+ credit ratings from Moody's and S&P, respectively. Both ratings are just one notch below the highest possible rating.

CFPUA Committee Reports

Executive Committee

The Executive Committee, which comprises officers of the Board, met monthly to review board meeting schedules and agendas, appoint committee members, and receive legal advice. The Executive Committee also reviewed legal issues that affect CFPUA. The committee consults with other members of the Board who have expertise or interest in certain areas and solicits input from the public. Members oversee and monitor the performance of the Executive Director.

Finance Committee

The Finance Committee meets monthly to review financial reports, significant contracts, budgets, and other finance-related matters to make recommendations to the Board. The Authority's Treasurer serves as Finance Committee Chair.

In fiscal year 17, the committee reviewed and recommended more than 100 agenda items relating to a variety of financial issues. The committee deliberated and recommended changes to the Authority's debt and cash reserve policies with the goal of continuing the CFPUA's strong financial position and affordable rates over the long term.

Incorporating these policy changes, the committee reviewed, discussed, and recommended an fiscal year 18 budget with increases to rates that would increase the average residential water and sewer bill by 2.05%. The committee received and discussed the Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2016 prepared by CFPUA staff. The auditor presented a "clean" opinion on this report, which also received the Government Financial Officers Association's Certificate of Achievement for Excellence in Financial Reporting.

Human Resources Committee

The Human Resources Committee is a standing committee that meets on an as needed basis. The function of the committee is to review, advise, and recommend action as it relates to matters that involve CFPUA employees, and other matters as designated by the Board.

The Human Resources Committee met twice during fiscal year 2017. Items considered at the meetings were: review and approval of proposed premium increase for the State Health Plan for employee health insurance and dental insurance premiums; increase in the North Carolina local government retirement employer contribution; review of the Executive Director's job performance; and review and approval of the fiscal year 18 pay plan and employee compensation adjustments.

Communications Committee

The Communications Committee provides guidance about CFPUA's strategies to deliver vital information to our customers and other key stakeholders in a timely manner. The Communications Committee meets quarterly to review efforts to inform ratepayers, stakeholders, and the media. The committee also reviews communication and public relations strategies. Their review and input enable staff to better develop and implement plans to inform our audience about how CFPUA provides essential public services.

Long Range Planning Committee

The Long Range Planning Committee generally met monthly during fiscal year 2017, and reviewed over 31 action/information items and presentations. The committee's reports including items requiring Board action and other noteworthy information that were reported to the Board during its regular scheduled meetings.

Significant achievements during this reporting period included the development and approval of the FY18 Capital Improvement Program and the 10-year Capital Improvement Program for 2018 through 2027. The committee also reviewed and considered a number of ordinance revisions and policies, including: clarifying private and public pump station permitting, revisions to allow refunding of system development charges, system extension and cost recovery policy, surplus real property policy, environmental policy update, changes to easement and conveyance requirements, changes to capacity allocation reimbursement agreements, and cost recovery projects.

In addition, the committee received updates on strategic projects and initiatives, including: providing water and sewer utilities to the Castle Hayne area, the Southside Waste Water Treatment Plant interim rehabilitation, Phase 1 Sidbury utilities concept plan, the new raw water transmission main design with Brunswick County and Lower Cape Fear Water and Sewer Authority, enhanced sewer modeling with wet weather flows, the Enforcement Response Plan, the SAS water tank, and the Bulk Sewage Conveyance and Treatment rate.

AWARDS

- Administrative Services: North Carolina Department of Labor Achievement in Outstanding Safety and Health – Seventh consecutive year. GOLD
- Centralized Maintenance: North Carolina Department of Labor Achievement in Outstanding Safety and Health – First year.
 SILVER
- Customer Service: North Carolina Department of Labor Achievement in Outstanding Safety and Health

 Third consecutive year. GOLD
- Customer Service, Meter Services: North Carolina
 Department of Labor Achievement in Outstanding Safety and Health
 First year. SILVER
- Engineering: North Carolina
 Department of Labor Achievement
 in Outstanding Safety and Health
 Sixth consecutive year. GOLD
- Environmental Management
 Community Compliance: North
 Carolina Department of Labor
 Achievement in Outstanding
 Safety and Health Eighth
 consecutive year. GOLD
- Environmental Management Laboratory Services: North Carolina Department of Labor Achievement in Outstanding Safety and Health – Second year.
 GOLD
- Government Finance Officers Association's Certificate of Achievement for Excellence in Financial Reporting – Eighth consecutive year.
- Government Finance Officers
 Association's Distinguished
 Budget Presentation Award Fifth consecutive year.
- Sweeney Water Treatment Plant: 2016 North Carolina Area-Wide

- Optimization Program (AWOP) Certificate of Facility Optimization, Turbidity Removal.
- Utility Services, Collection System Operations & Maintenance: North Carolina Department of Labor Achievement in Outstanding Safety and Health – Fifth consecutive year. SILVER
- Utility Services, Pump Station Maintenance: North Carolina
 Department of Labor Achievement in Outstanding Safety and Health
 Sixth consecutive year. SILVER
- Utility Services, Water Quality and Locate Services: North Carolina Department of Labor Achievement in Outstanding Safety and Health – First year. SILVER
- Utility Services Water/Sewer Construction: North Carolina Department of Labor Achievement in Outstanding Safety and Health – First year. SILVER
- Wastewater Treatment, James A. Loughlin Wastewater Treatment
 Plant: North Carolina Department of Labor Achievement in
 Outstanding Safety and Health –
 Fourth year. GOLD
- Wastewater Treatment, M'Kean Maffitt Wastewater Treatment
 Plant: North Carolina Department of Labor Achievement in
 Outstanding Safety and Health – First year. SILVER
- Water Treatment, Nano Filtration Plant: North Carolina Department of Labor Achievement in Outstanding Safety and Health – Eighth consecutive year. GOLD
- Water Treatment, Sweeney Water Treatment Plant: North Carolina Department of Labor Achievement in Outstanding Safety and Health
 First year. SILVER

