



JOURNEY

TO WORLD CLASS



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ABOUT WSSC

With a service area spanning nearly 1,000 square miles in Montgomery and Prince George's counties, the men and women of WSSC (fondly known as #H₂OPeople) work 24 hours a day, seven days a week to provide safe, reliable water to 1.8 million residents. In our 99-year history, we have always met strict federal Safe Drinking Water Act standards.

As the largest water and wastewater utility in Maryland, and one of the largest utilities in the nation, WSSC is a leader on national issues impacting the water industry, including the need for more public and private investment to upgrade and replace buried infrastructure.

In the picture above, WSSC General Manager and CEO Carla A. Reid joined #H₂OPeople at a Rally for Water event this year in Washington, D.C., to highlight the economic benefits of investing in water infrastructure. Nationally, one job created in the water/wastewater industry adds 3.68 jobs to the national economy. At WSSC, every \$1 million invested in water and wastewater infrastructure creates 17 jobs in top industries, including construction, engineering, retail and trade.



Pictured above: WSSC General Manager/CEO Carla Reid and FY17 Commission Chair Fausto Bayonet

MESSAGE FROM THE GENERAL MANAGER/CEO AND COMMISSION CHAIR

A journey is more than a destination. A journey is a choice. A choice sometimes born out of necessity, desire or fate, but a choice nonetheless.

At WSSC, we have made a choice to set out on a journey to world class. That might sound a bit pretentious or even cliché to some. Not to us. When it comes to delivering safe, clean water to 1.8 million residents in Montgomery and Prince George's counties, we owe it to our customers to become a world-class water utility.

So how will we get there? Every successful journey starts with selecting the route and working as a team to reach our goal... no matter the challenges or obstacles encountered along the way.

At the heart of our plan is our North Star—five strategic priorities we all agree are key to our success.

Working in unison, WSSC management and commissioners carefully and thoughtfully developed a strategic plan to guide every decision we make. At the heart of our plan is our North Star—five strategic priorities we all agree are key to our success.

With the development of our strategic plan, coupled with the selection of these five priorities, we have mapped out our path forward. But to reach our world-class destination, we all must be on the same page and heading in the same direction. That is why we have reorganized and retooled our organization and initiated a program called Leaders on the Same Page to ensure the entire management team is aligned and on track.

This same singular focus can be felt throughout WSSC. From employees at every level of our organization, to the management team and our six governing commissioners, we are working together more closely than ever to continue our clean-water mission. There is no better example of this collaboration and teamwork than the fact that 2017 marks our 99th year of delivering drinking water that has met every single federal Safe Drinking Water Act standard.

As we approach a century of serving our community, our journey is far from over. We have more work to do to reach world class, but reach it we will. We invite you to take a moment to review our Fiscal Year 2017 Annual Report where you will learn more about our efforts to become THE world-class water utility, where excellent products and services are always on tap.

Highlighted throughout this annual report, our priorities include:



Enhance Customer Experience and Community Engagement

Improve Infrastructure

Achieve Business Process Excellence and Maintain Financial Stability

Inspire Employee Engagement

Protect Our People, Infrastructure, Systems, and Resources



LEADERSHIP

Executive Leadership Team

Pictured below (L to R): Bryan Samuels, Stat Director; Towanda R. Livingston, Office of Supplier Diversity & Inclusion Director; James (J.C.) Langley, Production Director; Maxene Bardwell, Internal Audit Director; Chuck Brown, Communications and Community Relations Director; Seated – Jaclyn Vincent, Chief of Staff; Monica J. Johnson, Deputy General Manager for Strategic Partnerships; Carla A Reid, General Manager/CEO; Joe Mantua, Deputy General Manager for Operations; Thomas J. Street, Deputy General Manager for Administration; Amanda Stakem Conn, Esq., General Counsel; Joseph Beach, Chief Financial Officer; Seated – Crystal Knight-Lee, Customer Service Director; Gary Gumm, Chief Engineer; Laura Ruprecht, General Services Director; David Malone, Chief Procurement Officer; Damion Lampley, Utility Services Director; Todd Allen, Human Resources Director; **Not Pictured:** Vennard Wright, Chief Information Officer; Karyn Riley, Intergovernmental Relations Office Director; Sheila R. Finlayson, Esq., Corporate Secretary



Commissioners



Thomasina V. Rogers

Omar Boulware

Howard A. Denis

Chris Lawson
Vice Chair
FY 2017

Fausto Bayonet
Chair
FY 2017

T. Eloise Foster





CONNECTION



Enhance Customer Experience and Community Engagement

According to the Department of Education, only eight percent of ninth-grade females intend to pursue a STEM (science, technology, engineering and math) career, as compared to 27 percent of their male counterparts.

For a water utility led by a female engineer, and one that is relying on the next generation of engineers, IT professionals and environmental scientists to carry on our mission of delivering clean, safe water, we are determined to do better.

WSSC has a plan in place to build the talent pipeline and encourage future generations of young females to pursue STEM careers. In FY17, WSSC expanded its National Engineers Week efforts to include a special "Introduce a Girl to Engineering Day." Featuring General Manager and CEO Carla A. Reid, the program helped girls learn the important role female engineers play in our society, and encouraged them to pursue STEM education and, ultimately, a STEM career.



Led by WSSC female engineers, 40 girls engaged in hands-on engineering activities associated with the water industry, such as water filter building, designing a sewer system and water tank demonstrations and pressure simulation.

Five of WSSC's engineers shared their own journeys from young student to career engineer while fielding questions from the eager and inquiring students.

"As engineers and STEM professionals, we must collectively build a pipeline of talent that is ready to solve the growing challenges facing our nation," said Reid. "We especially need to ensure we have more girl power and other underrepresented populations in STEM careers. My love for math and science drove me to become a civil engineer, and I'm optimistic that WSSC's extensive involvement in National Engineers Week will help guide local students into this amazing field."

All year long, hands-on programs like these are reaching some 3,500 students from elementary school through college. Each inspired offering is exposing students—some for the first time—to STEM-related educational and career possibilities they might never have considered.

"By partnering with schools, communities and youth-based groups, WSSC is ensuring that the young problem solvers of today become tomorrow's problem-solving STEM professionals," added Reid.

As with many things, WSSC must take a long view of the future. Investing in the youth of the community we serve is a vital part of our journey to world class.





INNOVATION

Improve Infrastructure



By switching to zinc-coated, V-Bio® encased ductile iron pipe, WSSC expects to put that pipe in the ground and not come back to replace it for 100 years or more.

We're traveling the road to world class, and we need infrastructure that will go the distance with us as we head into our next century of service. That means pipes with a longer life span and the durability to prevent, or lessen, breaks.

Approximately 40 percent of our water and sewer mains are more than 50 years old. WSSC crews repair nearly 1,800 water main breaks each year, with the vast majority of them, approximately 1,200, occurring between November and February.

Our water makes its journey to homes through a system of nearly 5,800 miles of pipes. We have an obligation to ensure that water reaches its destination 24 hours a day. This requires attention to detail, sound business practices, and long-range planning.

Beginning in FY17, zinc-coated ductile iron pipe and V-Bio® Enhanced Polyethylene Encasement are now standard materials for water main replacement or for new pipe being put into WSSC's water system. In FY17 alone, we replaced more than 55 miles of water main throughout the system.

Zinc coating and polyethylene encasement may not sound like much on the surface, but when those pipes go underground, it's making a big difference for WSSC and our customers.

Traditional ductile iron pipe lasts about 50-75 years. By switching to zinc-coated ductile iron pipe, WSSC expects to put that pipe in the ground and not come back to replace it for 100 years or more.

As the first water utility to use this combination of zinc-coated and encased pipes, WSSC is leading the way with our aging infrastructure. We're taking an innovative approach to routine matters, putting us one step closer to world class.

*WSSC is the first to use the combination
of zinc-coated ductile iron pipe and
polyethylene encasement.*





EXCELLENCE

Achieve Business Process Excellence and Maintain Financial Stability



Key to improving our infrastructure is WSSC's diverse Energy Management Program.

Producing safe, clean drinking water for 1.8 million people while also properly treating wastewater requires energy—lots of energy. And that energy costs money. As one of Maryland's largest energy consumers, WSSC consistently examines how we can be smarter and more efficient in our energy use.

Just look at the numbers. In FY17, WSSC used 220 million kilowatt hours (kWh) of energy, at a cost of more than \$25 million. To put that cost into context, the average American household uses about 11,000 kWh at an annual average cost of \$1,320. Working to fulfill our mission in a financially responsible manner, WSSC established a comprehensive Energy Management Program, which is producing real cost-saving results.

One key cost-saving measure is the use of alternative energy, such as wind and solar power, along with increased hydropower. Our plan also involves installing more efficient machinery and processes at our two water and six wastewater treatment plants, which resulted in energy savings of more than \$3 million in FY17.

In addition to being good for the bottom line, the Energy Management Program is designed to dramatically reduce WSSC's carbon footprint. Since the program's inception in 2005, WSSC has reduced our greenhouse gas emissions by more than 50,000 metric tons a year. That's the rough equivalent of filling up 1,400 Olympic-sized pools with gases that could contribute to global warming. WSSC is committed to further reducing our carbon footprint by an additional 30 percent over the next 12 years.



**\$3.5-\$4
MILLION**
in overall annual cost savings

Our use of wind power accounts for 28 percent of our total electric consumption and reduces greenhouse gases by 38,000 metric tons per year—the equivalent of taking 100,000 cars off the Capital Beltway. Our solar power program is also heating up. We currently have 17,000 solar panels that provide green power to our Western Branch (Upper Marlboro) and Seneca (Germantown) wastewater treatment plants. The power captured by these panels provides approximately 17 percent of the electricity needed to operate these plants and saves \$3 million over the life of the 20-year agreement. And in 2018, we will expand our solar program—increasing the amount of solar energy generated at the two plants by 66 percent.

Looking to the future, we will invest nearly \$250 million to build a state-of-the-art Bio-Energy facility at our Piscataway wastewater treatment plant. The project, expected to be complete in 2021, will literally turn poop to power by using new treatment processes to turn sewage into renewable fuel to power the entire plant. This will further reduce WSSC's greenhouse gas emissions by 15 percent and vastly improve the safety and quality of our biosolids—the nutrient-rich organic materials resulting from the treatment process.

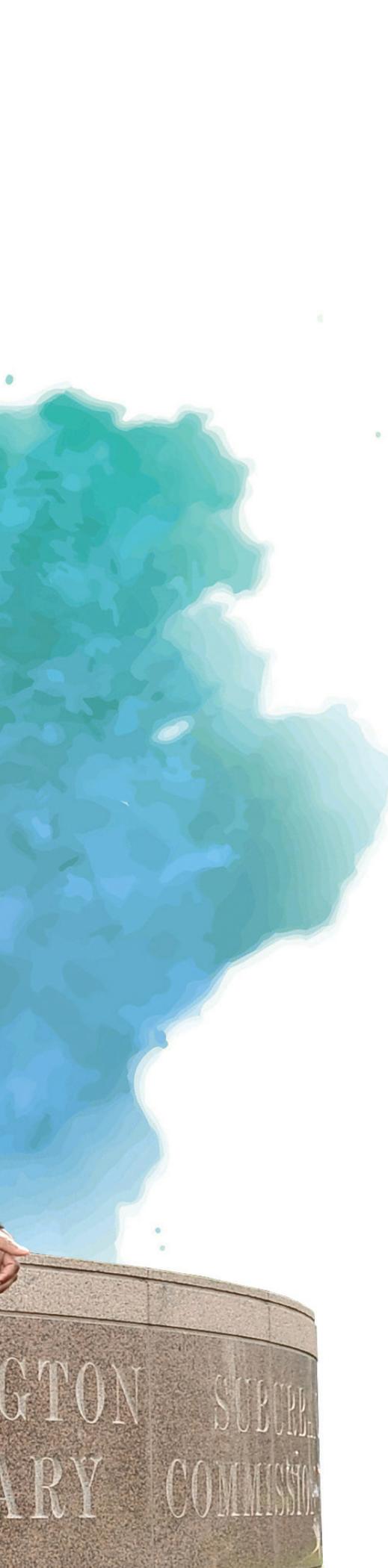
Wind, sun and water. Using alternative energy solutions and innovative business processes that produce real cost savings for our customers. It's another example of the smart choices we are making on our journey to world class. Now, that's powerful stuff.



INSPIRATION



WSSC's dynamic mother-son duo of Markiesha House (right) and Manny Peart celebrate graduating from college one week apart from one another.



Inspire Employee Engagement

A single mom at 15, Markiesha House graduated from high school, but sacrificed a college education to raise her son, Manny. Her focus became providing for him and ensuring he did well in school. And one thing was certain—the college degree that eluded her would not elude Manny.

But Markiesha was determined to forge a successful path of her own; one that would come from attaining progressively more challenging jobs. What she hadn't counted on was that her journey to success, which began at WSSC in 2002 when she was only 22 years old, would lead to a college degree of her own.

Manny, the oldest of four siblings, was already enrolled in college when Markiesha attended an open house hosted by WSSC for the Southern New Hampshire University (SNHU) program. After further research and discovering WSSC would contribute up to \$2,000 per year in tuition assistance, Markiesha realized, "This is affordable."

On May 13, 2017, Markiesha became the first WSSC employee to graduate with both an associate's and a bachelor's degree from SNHU as part of WSSC's College for America program. Exactly one week before, Manny earned his bachelor's degree from Allen University.

Like his mother, Manny landed his first job at WSSC, at age 22, as an intern this past summer. Working in the Communications and Community Relations Office, Manny says he values the opportunity he had to apply his skills to WSSC's workplace. While Markiesha says she's done with pursuing higher degrees—at least, for now—Manny is continuing his studies earning a master's degree in Professional Writing from Towson University.

Over the past five years, WSSC has enjoyed the company of more than 200 interns, with 46 in FY17. And in FY17, 30 WSSC employees were enrolled in the College for America program, working toward bachelor's and master's degrees from such institutions as the University of Colorado, University of Maryland, and Prince George's Community College.

WSSC understands that healthy, educated and motivated employees lead to a more productive and efficient workforce. The journey to world class is going to require attaining and retaining industry-best talent. Programs like the one that Markiesha participated in are playing an important role in this effort.



PROTECTION

**Protect Our People,
Infrastructure, Systems,
and Resources**

AFO has alerted WSSC to 20 emergency situations allowing for planned repairs to the PCCP.

Monday, January 24, 2011. It's the start of another work week and the usual crush of commuters can be expected to fill the Capital Beltway. Without warning, at 3:50 a.m., a 54-inch water main breaks in Capitol Heights, spewing some 50 million gallons of water everywhere. Cars and businesses are damaged. The Inner Loop of the Beltway has to be shut down. Four-hundred-thousand customers are put under a Boil Water Alert for three days. The price tag on all this damage and ultimate repairs: approximately \$3 million.

If only we would have known the pipe was in danger of breaking.

In our journey to be world class, water main breaks of this magnitude are huge road bumps. Thanks to some amazing technology, unexpected breaks in our large water mains are becoming a thing of the past, saving WSSC customers millions of dollars and even more peace of mind.

And it's all because of a ping.

The ping sound comes from a tiny cable that floats in 100 miles of the Commission's largest water mains. The cable, which is called Acoustic Fiber Optics (AFO), "listens" for the reinforcing wires inside pre-stressed concrete cylinder pipes (PCCP) to break.

When the AFO "hears" a ping, the data is recorded and sent to WSSC. The ping noise indicates that a reinforcing wire

inside the concrete pipe has broken. This crucial information provides advanced warning of a potential problem in the system's largest pipes.

WSSC began installing the AFO technology in 2007. A decade later, the Commission has the longest active AFO monitoring system in the world. One hundred miles of our PCCP that ranges from 36 to 96 inches in diameter is monitored 24/7.

Fast forward to January 2017. Another section of 54-inch PCCP near the Capital Beltway and Central Avenue in Prince George's County was in danger of failing again. Pings from the AFO inside that pipe started coming into WSSC. While not an emergency situation, the pings gave WSSC enough time to repair the section of pipe in an orderly and timely way.

The AFO gave WSSC the luxury of time to reroute water and make planned repairs, saving ratepayers millions in emergency repair costs.

Since the introduction of AFO, WSSC has avoided 12 imminent failures and repaired well over 300 pieces of PCCP. The use of AFO in our large PCCP allows WSSC to deliver on our clean water mission while also fostering our commitment to protect the community we serve by using state-of-the-art technology in our infrastructure.



SNAPSHOT

Snapshot of INFRASTRUCTURE

FY17 Approved Budget
\$1,426,680,000

TOTAL MILES OF WATER MAINS

5,742 total miles of pipe

Distribution System – **4,883 miles**
(less than 16-inch diameter pipe)

Transmission System – **859 miles**
(16-inch and greater diameter pipe)

WATER MAIN REPLACEMENT

55 miles per year (under 16 inches)

6 miles per year (16 inches and greater)

AGE OF WATER MAINS

Over 50 years: **2,204 miles** (38%)

25 – 50 years: **2,301 miles** (40%)

Under 25 years: **1,237 miles** (22%)

WATER MAIN REPLACEMENT COST

\$1.6 million/mile
(small diameter – under 16 inches)

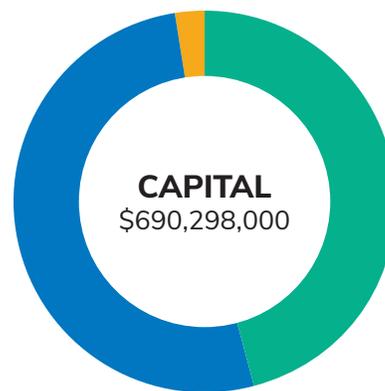
SEWER

5,546 total miles of pipe

Over 50 years: **2,076 miles** (37%)

25 – 50 years: **2,494 miles** (45%)

Under 25 years: **976 miles** (18%)



MOVING AHEAD BY LOOKING BACK

At WSSC, we've always got an eye toward the future, seeking out the best approaches to ensure the water we deliver is safe, clean and reliable. It's just one part of our journey to become THE world-class water utility.

But in 2018, we'll be taking a look back. That's because in 2018, WSSC will have achieved 100 years of service; 100 years of providing clean water to our customers with zero water quality violations.

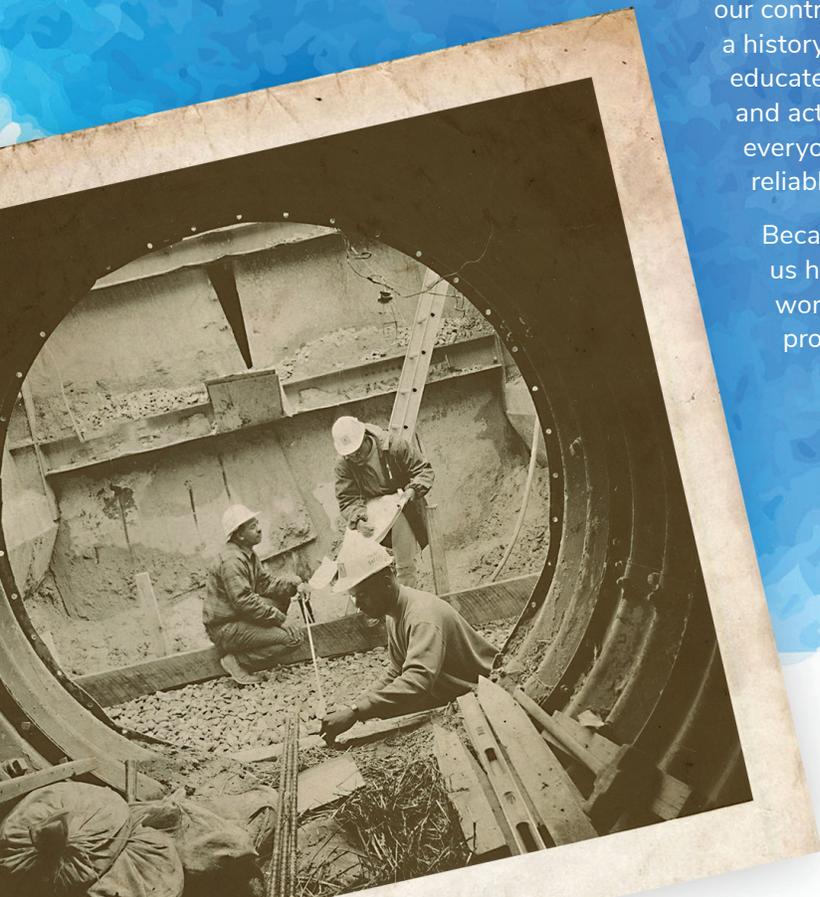
And that's something worth celebrating!

Our theme: *A Century of Serving Our Community* reflects our 100-year commitment to our customers and stakeholders. After all, we wouldn't be here if it weren't for them.

To show our appreciation, our celebration will include community events, a history book, and an Internet microsite that will keep visitors up to date on everything Centennial, all year long.

Throughout the celebration, we'll be highlighting our past and future, as well as the value of water and our contributions to the water industry. More than a history lesson, our year-long celebration will educate and inform through hands-on events and activities about the work we do and how everyone plays a role in ensuring safe, clean and reliable water.

Because in looking back, we learn what got us here. And that will prepare us to be THE world-class water utility, where excellent products and services are always on tap.





FSC® CERTIFIED

This report was printed with environmentally conscious products, including FSC certified paper, vegetable-based inks, and 20% wind power.

302 GALLONS 
water saved

20 POUNDS 
solid waste not created

56 POUNDS CO₂e 
of net greenhouse gases prevented

1 MILLION BTUs 
energy not consumed

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