

Compendium of Successful Water Workforce Practices



2021

 **Water Environment
Federation®**
the water quality people®

Executive Summary

Compendium of Successful Water Workforce Practices

The Water Environment Federation (WEF) is committed to promoting and bringing out the very best in the water sector. It is, literally, our reason for being. We seek to celebrate the best practices that our water sector leaders have implemented, and to disseminate them for replication and adaptation across the nation. Perhaps no aspect of water and wastewater treatment is more important than the workforce that performs the day-to-day work needed to provide safe drinking water and to protect our public waterways.

For this reason, WEF has collected 21 case studies demonstrating the ways in which the best-in-class water utilities across the country have implemented innovation to optimize the performance of their water workforces. In addition, this compendium has a special focus on diversity, equity, and inclusion in our national water workforce. WEF stands strongly in favor of the greater attention and support for equity in all aspects of our daily life, including the water sector. As you will see in this collection of case studies, water utilities can, and should, act to provide equitable opportunities to everyone in the communities that they serve ... and equitable opportunities for advancement for every worker that they employ.

Many thanks to the utility leaders who contributed to this compendium of water workforce case studies, and most of all to the water sector workers who are featured in these stories. Every American is entitled to safe drinking water and clean waterways, no matter where they live or what they look like, and it is our water workforce that works hard, each and every day of the year, to provide the public health and environmental protection that everyone is entitled to.

Introduction

When people say that “water is life,” it is truly no exaggeration. Every single person depends on safe drinking water to live. Every ecosystem and environment depend upon clean waterways to thrive. Every job depends on a reliable water supply. So, the nation’s clean water and drinking water utilities have an absolutely essential responsibility to provide safe drinking water and to protect our waterways at all times on a 24-hour-per-day, 7-day-per-week basis. And, in turn, these utilities depend on a reliable water workforce in order to accomplish their missions. Therefore, our water workforces are truly frontline protectors of the nation’s public health and its environmental resources.

This has never been more in evidence than during the current COVID-19 pandemic when clean water is absolutely an essential component to keep people safe and from spreading the virus. And when the nation’s clean water services were most needed, its utilities faced the additional challenge of needing to provide services while keeping its own workforce safe. Our water workforce has met, and is still meeting, the challenge, doing what is necessary to ensure safe drinking water and clean waterways for our nation, even in the midst of the worst global pandemic in more than a century. Clearly, our water workforce must be protected, preserved, optimized, and consistently replenished to ensure ongoing protection of the public health and the environment.

In addition to the COVID-19 pandemic, 2020 has also seen a turning point, and hopefully a tipping point, in the nation’s attitude toward diversity, equity, and inclusion. Greater attention is being paid to opportunities for greater diversity, equity, and inclusion in every aspect of our national life, including our water sector. As baby boomers move closer to retirement, water utility managers across the

country are concerned about reductions in water workforce and loss of institutional knowledge. This is yet another significant challenge for the water sector. However, it is also an opportunity to rebuild our water workforce in a more diverse, equitable, and inclusive way, to make sure that our water workforces fairly represent the communities that they serve, and that all workers have equitable opportunities to advance within their utilities and realize their true potential.

With both the challenges and opportunities facing the water sector with regard to the water workforce, WEF has worked with 19 of the best water utilities in the United States to develop this compendium of successful water workforce practices. Many thanks are due to our water utility partners for providing their case studies as examples for the rest of the water sector to adapt and replicate. The case studies follow the entire life cycle of the water utility workforce, as follows:

- 1) Water sector educational programs and internships that help to inform the public about the work that water utilities are doing to protect the public health and the environment, and also inform potential workers of the future about the range of job opportunities that are available in the water sector. Water workforce jobs are good, reliable jobs that cannot be relocated; they must remain in the locale where the service is provided. In addition, water workers have the additional benefit of not only making a living, but also making a difference. Water sector educational programs and internships let the public know about the variety of water workforce opportunities available, and the multiple benefits associated with each.
- 2) Equitable water workforce recruitment practices designed to create “employment pipelines” to our utilities from the very communities that they serve. In many cases, water and wastewater facilities are located in economically distressed and environmental justice communities with higher-than-average unemployment. As stated above, water utilities are looking for the replacement workers of the future, while the communities that they serve are looking for work. Creating these employment pipelines from community to utility addresses both challenges. In addition, when a greater percentage of the utility’s workforce is from the community that it serves, there is a correspondingly greater probability that the utility itself will serve as a neighborhood partner and anchor institution in the community it serves.
- 3) Employment optimization programs designed to ensure that each employee has the opportunity to reach his or her true potential. Our water utilities are only as good and as successful as the workers that each are comprised of. To optimize the performance of our utilities and create the Water Utilities of the Future, we must help our workers achieve self-actualization and thereby create the Water Workforces of the Future as well. Employee training programs that help workers realize their potential are essential to a successful water utility operation.
- 4) Capture of institutional knowledge is also essential to make sure that the experience of the water workforce is retained within the utility, even when mission-critical employees depart. While there is no replacement for direct experience, capturing institutional knowledge in the form of training, written standard operating procedures, etc., help to cushion the blow when key employees leave the utility.

These 21 case studies represent a collection of best practices from the best utility practitioners in the water sector. It is the hope of WEF that as many utility managers as possible review these case studies and look for opportunities to improve their enterprise through replication or adaptation. And, WEF plans to continue to collect case studies in the future so that this water workforce compendium remains a living document that reflects the best workforce practices of the water sector on an ongoing basis.

Acknowledgments

Prepared by Andrew Kricun

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Case Study 1

Albuquerque Bernalillo County Water Utility Authority

Municipality/State: Albuquerque, New Mexico

Contact Person/Information: David Morris, Public Affairs Mgr.;
dmorris@abcwua.org; 505-289-3111

Year of Inception of Program: 2017



Purpose and Goals of Workforce Program

The Water Authority launched its Youth Mentorship Intern program to create opportunities for at-risk youth in the community, to help them gain work experience, and to provide training in specific work-related skills.

Case Study Summary

Water Authority Executive Director Mark Sanchez asked the utility's education section to explore ways to help at-risk youth improve their credentials pursuant to obtaining the sort of high-quality jobs that the Water Authority provides. Water Authority staff contacted the City of Albuquerque's Department of Family and Community Services for assistance in identifying potential participants, from low-income families or those facing other challenges, who exhibited a strong work ethic and desire to succeed. Three high school seniors were selected for participation the first summer.

The program allows participants who successfully complete a 6-week summer session to extend their internships and continue to work at the Water Authority and, in some cases, receive tuition assistance from the utility while attending college or vocational school. Performance criteria are discussed with participants and used to determine advancement within the program. The idea is that successful participants eventually will be prepared to apply for permanent positions at the Water Authority, if they choose.

The internship program initially rotates participants among different Water Authority departments (including customer service, finance, and operations) to provide them with a big-picture understanding of the utility's mission. Following this, participants are given longer-term, 4-week assignments in specific departments where a need for an intern has been identified.

Evaluations occur after 6 weeks, and in the first year of the program all participants' performance qualified them for extended 12-month internships with the utility. Interns' work schedules were designed to accommodate class schedules as participants began college or vocational school in the fall.

So far, five interns have gone through the Water Authority program and all have completed the 1-year internship. One member of the program's inaugural class, Lorenzo Romero, is now in his fourth year of college and continues to work for the Water Authority in its finance section. He has informed the utility of plans to apply for a permanent position with the Water Authority when he completes his degree (see Personal Story below).

Personal Story/Anecdote from Workforce Program Employee

My name is Lorenzo Romero and I am a business student at the University of New Mexico, working on a concentration in Finance. I have been part of the Water Authority's Youth Mentorship Intern program for the last 3 years and started it right as I graduated high school. I look back and think how wonderful this program has been for me as a student and as a worker.

I originally started this mentorship over the summer with a few other students, and by the time the summer was over I had obtained an understanding of what it means to work in a professional setting such as the Water Authority, and the complexity of operations of such a large business. When told that I could apply to work as a student intern for the utility continuing past the first summer, I was not going to let such an opportunity pass me by.

The best part of this program for me was the introduction and exposure to a variety of career types, such as Engineering, Finance, HR, or Marketing, by meeting with the supervising heads of each utility department and shadowing them to get a clear understanding of what they do and how they do it. It was through the shadowing aspect of this program that I developed my interest in financial management, which led to my choice of major in college. Getting acquainted with how to work in a business field through team work, open communication, and a clear sense of professionalism has been an invaluable opportunity, and my experience with the Water Authority has truly provided me with skills that I can apply not only to my work but in all aspects of my life.

Benefits of Workforce Program

Both the Water Authority and the students involved benefit from this program. The Water Authority gains entry-level help in departments in which budgetary constraints preclude the hiring of permanent employees, and interns are able to learn essential skills and acquire valuable work experience while being paid for their work. Perhaps one of the most beneficial aspects of the program is the opportunity for student participants to form meaningful relationships with a mentor. The staff members who participate invest a lot of time and energy in modelling essential aspects of good workplace behaviors, as well as provide clear direction and support.

Outside Financial Support and/or Program Partners

The 6-week summer portion of the internship is paid for by the City of Albuquerque's Department of Family and Community Services Jobs Mentorship Program. This program also identifies good candidates for participation by collaborating with high school counselors throughout the city. Once the 6-week summer internship is completed, all other expenses related to the program are paid for by the Water Authority.

Greatest Obstacles Encountered

The interns come to the program with a varied range of abilities, and some of them require a lot of direction to complete the tasks set out for them. This requires being very detailed about expectations. Providing consistent, ongoing feedback is essential for the interns to be successful. It can also be challenging to match each intern's skills and interests with the specific workplace needs of the Water Authority.

Case Study 2

Alexandria Renew Enterprises (AlexRenew)

Municipality/State: Alexandria, Virginia

Contact Person/Information: Wendy Callahan,
wendy.callahan@alexrenew.com

Year of Inception of Program: 2012



Purpose and Goals of Workforce Program

To build a pipeline of talent to support AlexRenew's transformation into a digital utility of the future.

Case Study Summary

AlexRenew's workforce program has five core strategies: local internships, apprenticeships, succession planning, compensation studies, and cross-training included in individual development plans. These strategies work together to ensure that AlexRenew is working in our community to prepare, attract, and retain a highly qualified workforce.

The local internship program targets young people in high school from economically disadvantaged neighborhoods in Alexandria. AlexRenew works in partnership with two local organizations, Urban Alliance and the Arlington Career Center, to advertise, recruit, and administer these programs. The Urban Alliance program offers students year-long, paid internships and access to a wide variety of water jobs and exposure to a professional workplace. An important component is the assignment of an AlexRenew mentor to support the students as they rotate through the different departments and ensure that department projects given to students are viable and challenging. The partnership with the Arlington Career Center program allows students to complete their required Capstone Experience project at AlexRenew and gain hands-on experience in STEM-related fields.

The Apprenticeship program was started in 2012 and is approved by the Virginia Department of Labor and Industry. This program provides formal career training and on-the-job experience to people interested in a water sector career. Each year, AlexRenew hires a new cohort of apprentices who are assigned an employee mentor and undergo extensive training. Apprentices choose to specialize and at the end of the 2 years are prepared to be certified as operators; or, they can be certified as mechanics or electricians at the end of 4 years. At the completion of the program, apprentices are promoted to full-time, in-training employees for 2 more years. Close to 40 apprentices have been hired to date.

In addition to the internship and apprenticeship programs, AlexRenew invests in biennial compensation studies, cross-training, and succession planning to increase retention of highly skilled employees. Succession planning and cross-training are used to ensure depth of bench in key areas, while also providing employees with opportunities to grow and advance their careers. The compensation studies allow AlexRenew to benchmark our compensation to similar positions in the area to make sure that we are providing a competitive compensation package.

Personal Story/Anecdote from Workforce Program Employee

Tuvshin started at AlexRenew as an Arlington Career Center intern, completing her capstone project with our SCADA team. At the close of her capstone project, Tuvshin was invited to continue her internship with the SCADA team, supporting a multiyear SCADA upgrade project. This year, she applied for and was accepted to the apprenticeship program to continue her training and career with AlexRenew.

Benefits of Workforce Program

AlexRenew has been able to prepare and recruit diverse local talent to help close the gap from upcoming retirements. New recruits have brought new ideas to AlexRenew and the employee mentorship of apprentices has increased knowledge transfer and retention.

Succession planning and cross-training have helped retain talent and provide meaningful careers to people who have started their careers at AlexRenew in the apprenticeship program. Apprentices have been hired for supervisory, process engineering, and laboratory roles because of the exposure to different departments in AlexRenew.

Outside Financial Support and/or Program Partners

AlexRenew relies on local partnership for these programs. The internship program is a partnership with the Arlington Career Center and Urban Alliance. These organizations provide the administrative support to AlexRenew and the students participating in this program.

The apprenticeship program is approved by the Virginia Department of Labor and Industry and training is provided in partnership with various sources, such as the Maryland Center of Environmental Training and Fairfax Adult Community Education Center.

Virginia Department of Labor and Industry funds the apprenticeship program with a one thousand dollar (\$1,000) per apprentice per year incentive grant to assist AlexRenew with the costs for the on-site courses, curriculum component of the program.

Greatest Obstacles Encountered

The greatest obstacle in our region is to find qualified candidates interested in participating in the program and putting forth the effort to learn the trade. The retention rate on average from hire to program completion across all three trades is about 55%.

AlexRenew is a small organization that employs roughly 100 people. The small size of our staff can be a barrier to career growth. We rely on cross-training and succession planning to help overcome this barrier.

In addition, Northern Virginia has a strong economy and we compete with other industries for qualified employees. The compensation studies are critical to ensuring that we provide competitive compensation packages so we can attract key talent.

Links to Additional Information on Workforce Program

<https://alexrenew.com/careers>

Case Study 3

Atlantic County Utilities Authority

Municipality/State: Atlantic City, New Jersey

Contact Person/Information: Richard S. Dovey; rdovey@acua.com

Year of Inception of Program: 2018



Purpose and Goals of Workforce Program

Atlantic County Utilities Authority (ACUA) needed to encourage, train, and develop new managers within the organization. Using HR staff as trainers, we would give an in-depth view of what it is to be a successful manager and the skills needed to work towards being a future leader at the ACUA.

Case Study Summary

ACUA has provided training to its employees supporting college and industry training via tuition reimbursement and facilitated seminars on management and leadership practices. We had an unmet need for an ACUA-focused leadership training that covered specific aspects of what is needed to be a successful manager and future leader in our organization. In late 2017, our Human Resources department started development of a one-day training to meet this need.

ACUA prides itself in identifying internal talent and offering them the opportunity to advance their career. To that end, an employee that once was a peer in a department or group will now be their supervisor. To accelerate the development of our newer supervisors, we identified some core skills and knowledge of the overall organization to jump start their success. The topics covered include: Peer to Leader Transition, Delegating, Emotional Intelligence, Ethics, Priorities and Organization, Time Management, Communication, Leadership Styles, Building and Sustaining a Team, Avoiding Favoritism, Anti-Harassment and Anti-Discrimination, Managing Difficult Employees, Workplace Violence Prevention, Reasonable Suspicion, Safety, Workers Compensation, Family and Medical Leave Act (FMLA), Evaluations, Acknowledging Employee Success, Payroll and Attendance, and Discipline Procedures.

The program and materials took several months to develop, with meetings and delegation of sections to different members of the HR team. The training is interactive having a mix of PowerPoint slides, a follow-along training manual, and eight short activities that help reinforce the principles as they are presented. A final approval of the materials and activities was presented to executive management and the first training was held in May 2018. Our survey of the trainers and attendees at the end of the course gave us some minor changes to the program.

From the employee feedback, we realized that this training would help our veteran supervisors as well. Now we try to have a mix of supervisors in each class limited to about six participants. This allows for an experienced supervisor in another section of the organization to get to know a newly minted supervisor. The interaction in class, at first, is limited, but usually by the early afternoon they have another resource in the ACUA to lean upon.

To date, we have trained 41 supervisors in this program. Our intention is to do a refresher every 3 years for those that are in the same position. Supervisors that are new or change departments are trained close to their transition into the new position. We will continue to refine the current training using feedback from our staff and changes in internal policy or legislation.

Personal Story/Anecdote from Workforce Program Employee

What happens when you have been a line-level employee, who has worked in many different departments, over several decades and now you are promoted to that leader of the group you have worked in for the last 6 years? You know your old job, you know the people, you know the organization, but you don't know all the do's, don'ts, and what ifs.

Let's call him Mel, he is a big man, 6' 4", and what he learned is his role changed. The training made him much more aware of his department when communicating to his direct reports and other supervisors. His passion for doing a good job could, if not for his self-awareness, seem overbearing. This was a big take-away for Mel, as he said this was the most valuable lesson of the day.

Mel told me that the activity "Letter to My Future Self" is the one activity that really stood out and he could not wait to read it when it arrives this December. It asks the employee to write a letter to be read in one year that asks the following questions: What kind of leader will you be? What goals do you want to achieve? What steps do I need to take to achieve my personal goals to be a better leader? Mel's excitement to get the letter back tells me that he values his personal goals, takes ownership for his personal development, and wants to meet or exceed his goals stated in the letter.

Benefits of Workforce Program

The training, as designed, is specific to ACUA in its procedures and expectations of employees in supervisory positions. Our supervisors are trained and have materials that can be used as a quick reference when dealing with a difficult employee, understanding the use and rules for FMLA, and handling payroll issues associated with time and attendance at the ACUA. Our trainees may have met a supportive colleague in another area of our organization to use as a resource. Our goal for the program is to provide an overview of their job duties and spark their interest to become a better leader in their respective departments. All attendees of the program have come away with a better understanding of the diverse aspects of their role as a supervisor and insight on ways to improve their job performance.

Outside Financial Support and/or Program Partners

None

Greatest Obstacles Encountered

Finding the most up-to-date resources on management principles and tailoring that information in a succinct, understandable method.

Case Study 4

Baltimore City Department of Public Works (DPW)

Municipality/State: Baltimore City, Maryland

Contact Person/Information: Yolanda Winkler; 410-396-5026

Year of Inception of Program: 2015



Purpose and Goals of Workforce Program

Develop and introduce young adults to opportunities in the water industry, ultimately leading to employment in the industry.

Case Study Summary

The YH₂O Mentoring Program was implemented by executive privilege and will power given the need to diversify and attract a younger workforce due to many workers retiring and separating from services for a number of reasons. The Program was started with the following structure:

- YH₂O Team was created to frame the Program
- Composition of Program was created: City residents, 18-yrs old to 24-yrs old
- Schedule developed with 3 Phases for Completion of the Program
- Phase I: Recruitment and Outreach (Program/Introductions/Application Screening/Assessment & JRT Sessions)
- Phase II: Career Exploration/Job Shadows/Industry Tours/Mentoring
- Phase III: Youth Works Summer Employment
- Final Phase: Employment with DPW and/or other Partnerships

Personal Story/Anecdote from Workforce Program Employee

My name is Brooke Vaughn, Class of 2017 Graduate of the YH₂O Mentoring Program. I want to start off by saying before this Program I was working at McDonalds, Taco Bell, and all sorts of different jobs. This Mentoring Program gave me something to look forward to, a real career. While in the Program, we went on tours to learn about our water systems. We were taught how the industry worked. Mr. Greene, our mentor, was a very big part of my time in the Program; he got me ready for my future. This Program is helping the youth and this is an inspiration. Honestly, I think more companies should do this, make more careers opportunities available for our youth. This Program has helped shape me into who I am. I started off in the Program making no money to now being able to support my family moving up from a youth worker, to Community Aide, to a City employee with benefits and better pay, and I plan on moving further up in the industry.

Due to this Program and Mr. Greene, I now have stability, and I appreciate everything this Program represents. Thank you, Mr. Greene, for me having been one of the chosen few to have been a part of this amazing Program. We need to continue to educate and help our youth. Also, I want to give thanks to the Mayor's Office and DPW for allowing us to be a part of it.

My name is John Wilford. I was a part of the 2018 Class for the YH₂O Mentorship Program. When I sat down with Mr. Greene, he gave me a layout of what the Program was about and how having a career is important. This Program changed my life tremendously. It made me want to do better for myself. I also

was able to get my first apartment and I am currently looking for a house. On August 13, it will be 2 years that I've been working for the City and it has been amazing. I plan to make the best out of any situation. My family is proud of me.

My name is Jordan Puerta. I was looking for the opportunity to be part of a work organization that would teach me and guide me through the different positions of an industry so that I could make the decision that would change my life by studying and learning something that I like. YH₂O presented me an opportunity to continue developing and growing and for that reason I entered the Program. Currently, I work in the Meter Shop as a Technician 1 and my goal is to continue growing and to become a supervisor.

My name is Raquel Robbins. I personally joined the YH₂O Mentorship Program because, like so many college graduates who receive a degree then find it hard to find a career afterwards, I needed a job and I knew that working for DPW would afford me not only job security, but great benefits. Our day-to-day activities were basic job readiness skills and learning about the water portion of DPW and how to conduct yourself in the workplace, etc. We visited the multiple water facilities, treatment plants, etc. We also had guest speakers give presentations on water and how it relates to our everyday lives. We met a variety of working professionals who are already working in the water industry (i.e., engineers, contractors, and others). We were also mentored by these professionals and built strong relationships with them. I job shadowed with an amazing group of people and I made my decision then that it would be these individuals that I wanted to work with and for. I still work with them to this day and consider a lot of them to be my work family. Once we were officially placed at a job site, we worked and the majority of us became permanent a few months later. Those of us who were placed in office settings became community aides and worked our way up to new titles. I am now a Liaison Officer II and I work for the Bureau of Water and Waste Water, specifically the Bureau Head's Office. I was also awarded Employee of the Year. All of us had mentors and people who pushed us and made sure we excelled. For this Program to succeed, there will need to be the same number of caring individuals leading it. We had amazing staff who really cared about us and wanted us to succeed. We need more people like Anthony Green, Shaaron Phillips, Phillip Chery, and Dale Thompson who took it upon themselves to nurture us and make sure we were trained and ready to go. I am so proud of how this Program has taken shape and how it gives young people the chance to learn and grow in Baltimore City. We never stop learning and growing and I am just glad that I can continue to learn and grow at DPW.

Benefits of Workforce Program

- Program has allowed DPW to diversify the workforce in Water and Wastewater.
- Program affords young adults opportunities that may not have existed otherwise due to the lack of work experience.
- Participants make a livable wage that allows them to help their families.

Outside Financial Support and/or Program Partners

Chesapeake Water Environment Association

Greatest Obstacles Encountered

- Identifying funding to sustain the Program while providing stipends and meeting the transportation needs of the participants.
- Numerous applicants, but limited resources resulting in DPW only being able to accept a maximum of 25 participants in the Program.

Links to Additional Information on Workforce Program

<https://publicworks.baltimorecity.gov/water-mentoring-program>

Case Study 5

Beckley Sanitary Board

Municipality/State: City of Beckley, West Virginia

Contact Person/Information: Luke Stevens, Environmental Specialist;
luke.stevens@beckleysanitaryboard.org; 304-256-1760

Jeremiah Johnson, General Manager; jjohnson@beckleysanitaryboard.org;
304-256-1760

Year of Inception of Program: 2018



Purpose and Goals of Workforce Program

The Intern Workforce program exists to enhance the problem-solving capabilities of the Beckley Sanitary Board (BSB), to provide authentic training opportunities for interns, and to strengthen community ties between BSB and nearby higher education institutions.

Case Study Summary

In 2017, West Virginia University Institute of Technology (WVUIT) relocated its full campus to Beckley, West Virginia, with its administrative buildings, academic halls, and residence halls a mere quarter mile from the BSB office. In late fall of 2017, BSB leadership met with WVU Tech Student Services to discuss opportunities for workforce partnership. WVU Tech Career Services was seeking placements in which students could participate in a local workplace, gaining real-world experience in their fields of study. Among the largest majors of study at WVUIT are the Engineering and Biology fields. As a sanitary sewer and a stormwater utility, BSB's work includes engineering and design, as well as natural resource protection and conservation, closely complementing the skillset of Biology and Engineering majors. BSB was seeking temporary staff help for the summer, and occasional assistance throughout the year. Seeing the overlap of needs and assets, BSB and WVUIT began to form the plan for an intern program.

Each semester, WVUIT Career services sets up a career fair in which students are given an opportunity to engage with more than 100 local and regional employers. Employers in attendance are generally hiring for temporary and intern positions, as well as full time. WVU Tech invited BSB to attend as an employer in order to recruit for intern positions. BSB became a regular employer in attendance at these career fairs. While these fairs were not the only connection between BSB and WVU Tech students, they became a primary and consistent point of contact. Of the three interns hired by BSB in the summers of 2018 and 2019, all three had spoken with BSB staff at a WVU Tech Career Fair.

WVU Tech Career services also facilitated other opportunities for BSB to be involved on and around campus. In 2019, BSB staff were invited to speak at a WVU Tech "Employer Spotlight" event, where students gathered in a campus common area to learn more about the Sanitary Board's work. WVU Tech provided refreshments for students, while BSB full-time staff and a former intern presented an overview of the Sanitary Board and the opportunities provided to student interns. BSB also accepted an invitation to sponsor a WVU Tech Etiquette Dinner. At this event, students (along with sponsor representatives) were coached in dining manners and professional conduct to consider for job interviews. Sponsoring organizations were recognized and honored at the event.

The intern partnership between BSB and WVU Tech was further strengthened by the involvement of Piney Creek Watershed Association (PCWA), a local nonprofit that works closely with BSB in stormwater

pollution prevention and community engagement projects. PCWA coordinated large and recurring volunteer events with WVU Tech students, such as litter pick-ups. In 2018 and 2019, PCWA, BSB, and WVU Tech partnered to launch a long-dormant Piney Creek Watershed Monitoring Program, in which staff from the three organizations would co-lead teams of student volunteers to collect water samples from more than 20 sites within the Beckley urban watershed. Student volunteers in the Stream Monitoring effort became prime candidates for internships with both BSB and PCWA.

BSB fielded one intern position in 2018, and during the summer of 2019, employed an Environmental Internship and an Engineering Internship, as well as hosting an Americorps Summer Associate who completed a project through the City of Beckley and the BSB. Under normal circumstances, BSB actively recruits for interns each year, reaching out through career fairs and other on-campus events, as well as direct invitation to apply extended to student volunteers who assist with Stream Monitoring. During 2020, COVID-19 Response led to a suspension of the BSB Internship Program.

Personal Story/Anecdote from Workforce Program Employee

Almost 4 years ago, I made the decision to separate from the United States Air Force in pursuit of a life closer to my family and childhood home in northern West Virginia. Unsure of what path I would take in the civilian world, I spent countless hours exploring college programs and apprenticeships across West Virginia, Ohio, and Pennsylvania. Ironically, after all these hours of research and weighing options, my decision was ultimately made after an impromptu motorcycle ride to visit my parents while stationed in North Carolina. I decided to take the scenic route through southern West Virginia with a detour through Beckley, where I had learned West Virginia University Institute of Technology (WVUIT) would be moving in a little over a year. As I rode through the upper Kanawha River Valley, then alongside the New River and passed by the waterfalls of Gauley Mountain, I was amazed at the sheer beauty of the region. Then, after finding a vibrant community in Beckley, I knew that was where I wanted to be.

Armed with years of military training and experience in environmental reconnaissance and applied meteorology, I quickly found myself at home in the biology department at WVUIT. During my time as a student, I decided to become more active in the community, and it was then that I found the Piney Creek Watershed Association (PCWA), an organization committed to improving and protecting the waterways in the county where Beckley is located. After volunteering a handful of times and assisting with projects such as stream cleanups and pet waste station installations, the director at the time, Danielle Stewart, informed me of BSB's role in the pet waste stations, and later introduced me to BSB environmental scientist Luke Stevens. Simultaneously, I also started undergraduate research at WVUIT, where I worked with Matthew Williams, PhD, to survey microorganisms in the Piney Creek Watershed.

I say all this because as I continued my studies and involvement in the community, much of what I was doing all began to converge on Piney Creek. It was then that it became clear to me what a critical role BSB played in this mission to improve and protect the watershed. Having grown up in a rural community, where my family and our neighbors were on septic, stormwater and sanitary sewers were something foreign to me. In fact, I knew very little about public sanitation, its role in public health, and the extensive infrastructure hidden underground. So, when an environmental science internship became available at BSB, I jumped at the chance to learn more and was fortunate to receive what turned into a year-long opportunity.

With a minimal understanding of municipal sanitation, BSB gave me the chance to explore all aspects of their operations. From taking stream samples and assessing habitat to mapping lines, using sewer camera systems, recording pump station flow rates, and learning about green infrastructure, every day gave me a new challenge and view into the quickly evolving, high-tech industry of stormwater and sewer management. Furthermore, I was given the opportunity to run with a number of projects, including work with meteorological data collection and analysis using BSB's weather sensor project established in partnership with schools and organizations around the community, where I applied statistical evaluation and programming methods learned in school.

Another unique aspect about this internship was the flexibility and support I received from the staff. When the fall semester neared at the end of my first summer at BSB, I was fortunate to have the opportunity to extend my internship throughout the school year, with reduced hours to accommodate classes. Additionally, during exam weeks or busy times throughout the semester, I was able to move my hours around or further reduce them to focus more on my studies. Then, when summer rolled back around, I was able to increase my hours again. Although a permanent position was not available at the time, BSB worked with me to find full-time opportunities and supported me as I pursued them post-graduation. Undoubtedly, the project and data management, leadership and problem-solving skills I gained while working at BSB enabled me to be where I am today with the West Virginia Department of Agriculture, where I now oversee the development of the Veterans and Heroes to Agriculture program as the program coordinator. Not only was I able to learn from wonderful people during my time at BSB, I was given skills to succeed and a new understanding of the world around me.

– **J. Dane Gaiser, BSB Intern, 2018–2019.**

Benefits of Workforce Program

The BSB Internship program has brought substantial benefit to the BSB workplace. Temporary staff are generally assigned to work on an independent project of an appropriate scale to the student's abilities. Interns have run calculations and prepared preliminary design for small-scale stormwater projects, completed GIS mapping of unmapped or poorly mapped infrastructure, run data analyses, and assisted with numerous workforce tasks as needed. Interns typically bring with them fresh perspective in problem solving, and add energy and vibrancy to the workplace.

BSB student interns benefit through gaining a much broader perspective on the wastewater and stormwater industries, engineering, and environmental compliance fields, as well as an exposure to local government.

Outside Financial Support and/or Program Partners

Beckley Sanitary Board's traditional Intern Program is fully funded through BSB. Some partnership exists between BSB and Piney Creek Watershed Association, as interns may be assigned to tasks related to PCWA's work. PCWA is not a financial contributor to the program.

In 2019, BSB served as a host organization for the AmeriCorps Summer Associate Program, in which a student volunteer worked on an AmeriCorps approved project, under the direction of BSB. The stipend this student received was funded through BSB and AmeriCorps.

Greatest Obstacles Encountered

The program's greatest obstacles have been in the realm of work assignment and logistics. While student interns are typically diverse and efficient workers, assigning them to tasks and projects can be challenging under the tight 10- to 12-week timeframe. To address this challenge, BSB staff typically spend the first week of the internship providing an organizational overview, exposing the new intern to as much of the BSB's work as possible, then evaluating BSB's current needs against the new hire's skillset, to match the intern to a valuable and fulfilling work experience.

Logistically, introducing temporary staff requires preparing space in which the students can work, as well as authorization for using BSB vehicles and other equipment. During the first year of the internship program, BSB full-time staff rearranged office space and coordinated with the Information Technology department to equip new desk space with adequate computer equipment. The first week of an intern's employment is designated for the student to be trained and outfitted with all necessary safety equipment.

Links to Additional Information on Workforce Program

<http://beckleysanitaryboard.org/>

<http://www.facebook.com/BeckleySanitaryBoard/> (Media Postings/Advertisement of Program)

Case Study 6

Buffalo Sewer Authority

Municipality/State: Buffalo, New York

Contact Person/Information: Oluwole A. McFoy, PE

Year of Inception of Program: 2015



Purpose and Goals of Program

- Create living-wage jobs for City residents, particularly under-served communities
- Reduce public infrastructure costs
- Reduce flooding and erosion
- Restore natural hydrological cycles
- Improve environmental quality

Case Study Summary

The Buffalo Sewer Authority (BSA) wanted to create a new model for workforce development to be more inclusive and leverage its investments in stormwater management to provide triple bottom line benefits. BSA contracted with the Buffalo Neighborhood Stabilization Company, Inc. (BNSC) in 2015, through its Community Water Quality Partnership Program to study and implement widescale use of green infrastructure technologies, specifically soil amendments and shallow bioretention, in the City of Buffalo's demolition and vacant lot management program using a diverse and local workforce.

BSA contracted with a community-based organization to install shallow bioretention sites on over 200 recently demolished vacant lots during the 2015–2017 field seasons, with an emphasis on job training and workforce development around green infrastructure.

The work involved hiring local community members to place a sandy-soil mix onto vacant lots of recently demolished buildings, grade them toward the center of the parcel, and establish a low maintenance turf-grass alternative. The work greatly improves the infiltration of stormwater and reduces runoff to the combined sewer system. In total, 221 sites were improved through this program.

The success of the Post Demolition Green Infrastructure pilot project relied heavily on cooperation between a number of entities. The BSA, City of Buffalo Mayor's Office of Strategic Planning, City of Buffalo Department of Permits and Inspection, and Buffalo Neighborhood Stabilization Company worked closely together on this program.

Personal Story/Anecdote from Workforce Program Employee

Vacant lands are often deemed a sign of urban decline. The completion of green infrastructure bioretention installations has granted neighborhood revitalization and beautification, where previously lots were left uncared for.

The success of this project demonstrates the potential for other green infrastructure projects in the City of Buffalo to address combined sewer overflow and improve waters for local wildlife, recreation, local food systems, and clean drinking water. It also reveals potential job creation and growth within the green infrastructure sector within the City of Buffalo.

— **Jenifer Kaminsky, BNSC**

Benefits of Workforce Program

For the duration of the program, 53 different people were given employment resulting from the Post Demolition Green Infrastructure Project. Of the jobs created, 34 workers (64%) were City of Buffalo residents. Twenty-eight workers (53%) were minority workers, with 20 being African American, five being of Hispanic descent, and three Native American workers. There were 19 (36%) women workers on the project.

More important than the initial job creation, BNSC was able to be a frontrunner and local leader in green infrastructure. BNSC would go on to become an approved National Green Infrastructure Program trainer and has trained entry-level BSA staff as well as other community members. Many workforce development programs involving green infrastructure focus on low-level maintenance and installation work, but through BSA's workforce program model, a community-based organization has been cultivated and empowered to provide higher-level professional training work and not just labor for maintenance or installation.

Specialized and niche skills involving green infrastructure are increasingly in demand and as a result of BSA's workforce program, BNSC now has the experience and qualifications to participate in this market with a competitive edge. BSA's workforce program with BNSC has created a self-sustaining entity that can continue to provide green job opportunities to local community members. BSA further benefits by having a local talent pool of knowledgeable and experienced green infrastructure workers to draw from on future projects.

This workforce program not only produced good-paying jobs, it also achieved tangible benefits to the community and BSA's overall green infrastructure initiative. City of Buffalo staff working on the project reported that residents and council members in areas where installations occurred highly approved of the project and specifically requested to see it on other sites. Prior treatments of post-demolition sites generally included hard-packed clay that did not allow for stormwater infiltration or successful growth of new grass, leaving an often-unattractive site for neighbors that also contributed to sewer overflows. As such, the post-demolition treatment was preferred.

Outside Financial Support and/or Program Partners

Buffalo Sewer is grateful to have received some funding assistance from the New York State Environmental Facilities Corporation for this program.

Greatest Obstacles Encountered

Scheduling work and coordinating between demolition contractors and BNSC and various city departments was an initial obstacle that was addressed early on. Each year of the project, the team streamlined and improved communication, which contributed to increased efficiency and efficacy of the project.

While some on the team were initially skeptical of the project's purpose and wary of changing long-utilized specifications and procedures, by the project's completion in 2017, all project participants were fully bought into the project. Throughout the project, the team met regularly, including during the spring before the landscaping season began to address previous season's challenges and suggest modifications. That regular communication, which allowed team members to better understand the different challenges, constraints, and expertise that each member possessed, as well as flexibility to iterate, created an environment where the project could flourish.

Links to Additional Information on Workforce Program

<https://raincheckbuffalo.org/project/green-post-demolition-initiative/>

Case Study 7

Camden County Municipal Utilities Authority: Power Corps

Municipality/State: Camden, New Jersey

Contact Person/Information: Douglas Burns, Chief Accountant;
1645 Ferry Ave, Camden, NJ 08104; Doug@ccmua.org; 856-583-1260

Year of Inception of Program: 2015



Purpose and Goals of Workforce Program

Maintain green infrastructure sites by hiring local young adults and help to improve the community and the workforce.

Case Study Summary

PowerCorps Camden is an AmeriCorps direct service program focused on improving green infrastructure in the City of Camden. In partnership with Camden County Municipal Utilities Authority (CCMUA) and the City of Camden under the National Governor and Mayor's Initiative, the Center for Family Services launched the program in December 2015, with goals to improve outcomes for opportunity youth and maintain green infrastructure in Camden City. The AmeriCorps PowerCorps Camden program is funded by the CCMUA, Camden City, and the Corporation for National and Community Services.

Since 2015, PowerCorps Camden has aimed to increase economic opportunity through job training and readiness for up to 60 youth each year. Since inception, more than 440 acres of land have been treated by PowerCorps members in Camden City. Through projects focusing on Camden's green infrastructure network, PowerCorps members play a key role in maintaining green infrastructure installations including rain gardens, city and county parks, vacant lots, and stormwater inlets that comprise Camden City's green infrastructure network. Through knowledge and skills training, PowerCorps Camden develops and nurtures young adults into environmental stewards and strong candidates for the local workforce.

The service projects PowerCorps Camden members take part in are often directed by CCMUA staff, the Camden Stormwater Management and Resource Training (SMART) partners, and some of the Camden Collaborative Initiative partners. In addition to general green infrastructure maintenance, members take part in environmental trainings, group service-learning trips, and in varied innovative projects, including repurposing concrete/rubble from construction sites to create barriers that protect existing rain gardens within the city. These collaborations allow for members to expand their environmental knowledge and skills while also having a real and lasting impact on the city.

Personal Story/Anecdote from Workforce Program Employee

Paige Prado, a Camden resident, has experienced a number of challenges throughout her life that caused her to struggle to stay on a positive path. After realizing the effect the challenges were having on her family, Paige decided that she needed to make changes to her life. After completing her GED, she began searching for the next step.

That next step initially proved to be difficult as she struggled to find employment and break out of a monotonous lifestyle. Paige's fortunes would, however, soon turn around, as she found opportunity in the unlikeliest of places — Facebook. One day while on the site, she came across a post about a program being implemented in the city. This program was PowerCorps Camden. Interested in the program objectives, Paige actively sought more information, followed the application procedure, and was eventually inducted into PowerCorps Camden's first cohort in December 2015.

Paige quickly emerged as a leader, showing her great work ethic on a daily basis. By the end of the 6-month term, she completed more than 1,000 hours of service, a feat that was of no surprise to her. "I wanted to go above the requirement. The first week of PSO (pre-service orientation), I made it my goal to do more than 900 hours, so I just took the step forward and accomplished over 1,000."

Paige's hard work and dedication was recognized by the staff and she was subsequently invited to continue involvement with PowerCorps, this time as an Assistant Crew Leader with the second cohort. Paige spoke about her own growth and the skills that she obtained as a result of her service with PowerCorps Camden. "I learned a lot about professionalism — how to dress, how to speak, interviewing skills. I used to be scared talking in front of people, but they taught me to overcome that. Now I'm more open."

One of the encompassing goals of PowerCorps Camden is to improve the community through environmental services, and the members are, therefore, taught a wide range of green infrastructure skills. Paige gained skills in areas such as stormwater management, property maintenance, debris removal, and planting, among other green initiatives.

Upon the completion of her second term, Paige stayed on with PowerCorps Camden, this time as an Associate Crew Leader where she worked to engage and retain members and oversee the implementation of environmental projects.

"I learned that I really care about my city. ... I like giving back to my own community."

In February 2017, after completing her Associate Crew Leader term, Paige was hired as a Utility Laborer with American Water. Her determination and persistence had paid off.

In June 2017, Paige was awarded the Environmental Hero Award at the annual Camden Environmental Summit and shared her expertise as part of the youth keynote panel.

Benefits of Workforce Program

The PowerCorps program has been received with great enthusiasm by the members of the Camden Collaborative Initiative. The PowerCorps members have been able to perform the needed maintenance on the 60-plus green infrastructure sites throughout Camden that were constructed to manage stormwater flooding in the city. The PowerCorps program is able to consistently keep the sites clean and functioning for stormwater management. They are fulfilling the missing component of the green infrastructure program in the city, which was maintenance. Other communities in New Jersey have become interested in creating their own program like the PowerCorps.

Many success stories have been told by individual PowerCorps members during meetings and public presentations to the community. The members have described how the program has helped them and they believe they have had a positive effect on the environment and the community by maintaining the green infrastructure sites. They have gained job skills and life skills, and the members have received personal support from the program.

Outside Financial Support and/or Program Partners

The CCMUA, the City of Camden, and the Corporation for National and Community Services provided financial support for the program. The members of the Camden Collaborative Initiative provided training and other support for the program.

Greatest Obstacles Encountered

Funding for the program, lack of equipment, and job placement for the graduates are major obstacles. High turnover among the senior staff members at PowerCorps has been challenging.

Links to Additional Information on Workforce Program

<https://www.centerffs.org/powercorps-camden>

<http://www.ccmua.org/index.php/resources-for-our-community/#PowerCorps-Camden>

<https://www.youtube.com/watch?v=9yZoyPIH1uU>

<https://www.youtube.com/watch?v=GrCwNcUjraQ>

<https://www.youtube.com/watch?v=fkwQvn1cKr8&t=289s>

<https://www.youtube.com/watch?v=oldU3HUz9hl>

<https://www.youtube.com/watch?v=PmccCKAMnCo>

<https://www.centerffs.org/success-stories/embracing-challenge>

Case Study 8

Camden County Municipal Utilities Authority: Green Ambassadors Program

Municipality/State: Camden, New Jersey

Contact Person/Information: Timothy Feeney; Camden County Municipal Utilities Authority; tfeeney@ccmua.org

Year of Inception of Program: 2014



Case Study Summary

The Green Ambassadors is an environmentally focused youth internship program offered at the Camden County Municipal Utilities Authority (CCMUA) since 2014. Over the six cohorts of the program so far, 84 youths have participated. The participants are aged 14 to 18 and are drawn from all the high schools in the treatment facility's host city of Camden, New Jersey.

The interns are exposed to the most critical environmental topics by some of the leading government agencies and nonprofit organizations in the field, including New Jersey Department of Environmental Protection (DEP), U.S. Environmental Protection Agency, New Jersey Audubon, South Jersey Land and Water Trust, the Partnership for the Delaware Estuary, and the Delaware Valley Regional Planning Commission. Through both classroom-style education and site tours, these high school students are taught by true experts and leaders in environmental protection. In addition, the Green Ambassadors tour the facilities of permittees such as a water treatment facility, trash-to-steam facility, and the CCMUA's own water resource recovery facility to see technologies and processes required to meet environmental permits and protect public health.

The program is typically 5 weeks long, 3 days per week, paying \$10 an hour. Early cohorts consisted of 10 participants and a single counselor. In 2017, the program was expanded, with two counselors and 20 participants. It was found that a 7-hour workday, 3 days per week, is the optimal schedule for this type of program.

The Green Ambassadors also benefit from a creative variety of teaching experiences such as canoe tours and ecology hikes conducted by local environmental nonprofits. They also use their own creativity to accomplish projects that beautify and strengthen their own community, while being advocates for a clean and healthy environment to their friends and neighbors. Typical examples of community service projects include riverbank cleanups, recycling promotion and outreach, community garden or park cleanup and beautification, and tree plantings.

Personal Story/Anecdote from Workforce Program Employee

To continually improve the program, year after year, great effort is made to collect detailed feedback from the participants through surveys and exit interviews. The input and insights of each cohort are used to craft the program for the following summer.

Tahee Purnell was 15 years old, a rising sophomore at Camden County Technical School in the summer of 2017, when he participated in the Green Ambassadors Program. He was enrolled in the Technical School's Academy of Law and Public Safety, and his career goal at the time was to become a law enforcement officer.

In his exit interview, he discussed how his view of the environment and personal decisions changed as a result of the program.

"I used to litter every day 'cause at the end of the day, it didn't affect me. Before the program I would be like everyone else and just throw trash on the ground not knowing. But after the program I realized there's parts of Camden that's beautiful, but it's not open to people because there's so much trash there. So really, what we do, it does affect us."

Year after year, UrbanPromise Ministries' Cooper River Ecology History Paddle is voted a top favorite activity by the Green Ambassadors. While out on the water, every summer without fail, at least one Green Ambassador will say something very close to "I can't believe we're in Camden right now." Of that day, Tahee said:

"My favorite part? There was a lot of good things going on, but I have to say the canoe ride, because you would never get to do that. Not unless you were in this program. It was really nice just to paddle through. It was calm too, like peaceful. There's not bad stuff out there."

When asked how the program affected his academic and/or career goals, Tahee said:

"I do school for law and public safety, so I didn't really ever look into environmental science. But after the program, I realized there's like, people in the DEP that solve environmental cases, they carry a gun and a badge. Really, they do the same thing as a cop, it's just a different perspective."

Benefits of Workforce Program

The principal benefit of the program is to introduce high school students to the myriad careers dedicated to protecting the environment as well as the health and safety of the public, especially because these students reside in Camden, New Jersey, a heavily industrial city with a large number of brownfield sites and many environmental justice concerns. They learn how various government agencies, scientific institutions, environmental advocacy groups, and industries interact, sometimes amicably and sometimes with conflict, and the ways in which that interaction improves or degrades the natural resources upon which we all rely.

A person cannot aspire to nor pursue a career path they are unaware of, and cannot work to rectify environmental injustices they do not understand. The Green Ambassador program gives students an in-depth look, through both learning and experience, at environmentally based careers at a formative time in their lives when critical career and academic choices are being made.

Outside Financial Support and/or Program Partners

The Green Ambassadors Program is self-funded by the CCMUA, with enormous help and cooperation from our partners:

- Camden Collaborative Initiative
- New Jersey Department of Environmental Protection
- U.S. Environmental Protection Agency
- UrbanPromise Ministries, Inc.
- Partnership for the Delaware Estuary
- The Salvation Army Kroc Center in Camden
- PowerCorps Camden
- Forest Resource Education Center
- New Jersey American Water
- South Jersey Land & Water Trust
- Rutgers University–Camden
- Camden Lutheran Housing, Inc.
- Camden Block Supporter Initiative
- Covanta Camden Energy Recovery Center
- After-School All-Stars

- New Jersey Audubon Society
- New Jersey Tree Foundation
- Delaware Valley Regional Planning Commission

Greatest Obstacles Encountered

Finding enough students to sign up for the program and follow through with the full process of obtaining the employment certificate to be employed as a minor is a challenge every year. Proper “marketing” strategies must be used to attract students in the first place. Students taking a cursory glance at the job application, or doing a brief internet search, might be turned off at the prospect of working at a waste treatment facility. A good relationship with, and outreach to the local schools and educators, is essential for success.

After they have expressed interest and signed up, the onerous and convoluted process of obtaining a physician’s certification, personal documents, bouncing back and forth between their prospective employer, the school, the doctor, and the school board issuing officer can be daunting, especially for families with limited resources and transportation options. Luckily, Camden high schools are often staffed with extraordinary guidance counselors and teachers that go the extra mile to help guide students through the process.

Links to Additional Information on Workforce Program

<https://bit.ly/cairns-ga>

Case Study 9

Charlotte Water

Municipality/State: City of Charlotte, North Carolina

Contact Person/Information: Carolyn Ross; cross@charlottenc.gov
Sherri Jones; sjones@charlottenc.gov

Year of Inception of Program: 2018



Purpose and Goals of Workforce Program

Case Study Summary

Why the Program Was Implemented

The workforce development programs were implemented as a result of leaderships, assessment of the current workforce skills gap, retention issues in entry level positions, as well as the large number of employees eligible for retirement within the next few years. Another factor contributing to the creation of the programming was the 2016 Opportunity Task Force report that cited a 2013 Harvard University/UC Berkeley study that ranked the Charlotte community as 50th out of 50 in economic mobility amongst the largest U.S. cities – specifically the ability of a child born in the bottom income quintile to rise to the top income quintile as an adult. As a result of the leadership assessment and the task force results, Charlotte Water hired two workforce development training specialists in September 2017 to create an apprenticeship and pipeline academy program. Implementing this workforce development initiative, Charlotte Water is responding to the needs of the City of Charlotte, employers in the region, and job seekers who will enhance and promote the local economy.

Scope of Programming

The workforce development initiatives are designed to develop a skilled pipeline of future employees needed to fill entry-level positions in the water and wastewater industry as well as similar businesses in the region.

On June 18, 2018, Charlotte Water implemented its first Department of Labor (DOL) registered apprenticeship program. This program is the City of Charlotte's first water/wastewater industry apprenticeship program that is designed to increase the number of jobs, training, and career opportunities available for individuals with multiple barriers to employment. The program increases productivity, trains the apprentices in the Utility Technician trade, and improves the quality of the workforce. The classroom training includes fundamental skills such as personal branding, dealing with stress, personal reactions, active listening, communications, code switching, handling feedback, financial literacy, wellness, and strategies on how to be more efficient on the job. The on-the-job training includes hands-on application while being part of a utilities crew and applying what has been learned. Upon successful completion of the Apprenticeship Program, apprentices will earn a nationally recognized credential from the DOL that can open doors for ongoing employment and continued career growth in the industry. The inaugural class graduated in June 2019.

In August 2018, the Charlotte Water Pipeline Academy was developed. The Pipeline Academy is a 7-month paid internship in which the interns are assigned to and may rotate between several identified tracks within Charlotte Water. Intern opportunities have been used in the following divisions: Field Operations, Customer

Service, Lift Station, Wastewater Treatment, and Maintenance. The program targets young adults ages 18 to 27 from the Charlotte–Mecklenburg community and provides them with exposure and experience in the water and wastewater industry. The interns gain exposure and real work experiences in the field that will provide them with the opportunity to develop needed skills to gain an entry-level position within Charlotte Water or other utility companies and/or businesses in the region. The inaugural class began in February 2019.

Personal Story/Anecdote from Workforce Program Employee



"I've learned a lot from people that I am getting on-the-job training from. I've learned how to work with different personalities, and I have a better understanding of the different positions within Charlotte Water."

— Apprentice Edi Cardoza



"My family is very proud of me for having this internship opportunity because I am the first with their foot in the door with the City. I moved to Charlotte to avoid getting into bad situations and so far, I feel the future is bright. The training that I received so far has shown me different points of views on how to handle situations on the job. I really like the life skills that I got and am looking forward to the on-the-job training."

— Intern Jaelyn Morrison, NCWorks NextGen

Benefits of Workforce Program

- Ability to address skills gaps in entry-level positions
- Front-end investment in people, training, and fundamental skills has led to a more engaged and informed employee
- Ability to plan for specific hiring needs
- Allowing for deeper dive into succession planning and needs of the organization
- Ability to train individuals for specific skill sets
- Increased community engagement and partnerships to assist with upward mobility
- Opportunities to connect and build new talent pipelines for the water/wastewater industry
- Opportunity to educate and share who we are with our residents and the unlimited career opportunities available in the industry

Outside Financial Support and/or Program Partners

Workforce development programs are fully funded by the City of Charlotte.

Program partners include more than 35 community-based agencies that provide services to citizens with different barriers. These agencies address issues related to employment, education and training, housing, health, family support, financial literacy, transportation, and many more.

Greatest Obstacles Encountered

- Initial understanding of workforce programs by leadership
- Internal support systems not fully developed at program implementation
- Lack of mid- to lower-level departmental support

Links to Additional Information on Workforce Program

<https://charlottenc.gov/Water/WorkWithUs/Pages/Apprenticeship.aspx>

<https://charlottenc.gov/Water/WorkWithUs/Pages/PipelineAcademy.aspx>

Case Study 10

Clean Water Services

Municipality/State: Oregon's Tualatin River Watershed

Contact Person/Information: Mark Jockers; jockersm@cleanwaterservices.org

Year of Inception of Program: 2014



Purpose and Goals of Workforce Program

Protect public health and the environment by attracting, recruiting, retaining, and developing talented staff who can create the innovative outcomes necessary to meet the unprecedented challenges the water industry faces today.

Case Study Summary

Innovation is baked into the DNA of Clean Water Services, which observes its 50th anniversary this year as one of the nation's first regional water resources management utilities. In 2014, we launched an integrated planning initiative that builds on decades of earlier efforts to bring out the best in each employee, break down silos, and unleash creativity.

There is no "Office of the Workforce Program" managing this work. Instead, it threads throughout the organization, under the guidance of the CEO and her team. Program elements include:

- **Integrated Planning Hubs:** Clean Water Services' approach to integrated planning goes far beyond blending gray and green strategies to achieve permit compliance. We seek to use a watershed approach on a landscape scale to optimize economic, social, and environmental value. To do so requires a mindset change at the level of "I" (the individual), "Us" (the team or department), and "All" (the whole organization). Organizing staff into interdisciplinary hubs is key to our integrated planning efforts. Self-managed, well trained, and adequately resourced, these hubs are powerful platforms for both learning and doing.
- **Performance Excellence and Strategic Approach:** Clean Water Services has adopted the National Institute of Standards and Technology Performance Excellence Framework, an integrated systems approach to organizational performance. Our extended rollout of the framework involves engaging as many employees as possible in processes such as reviewing the strategic approach, identifying metrics, documenting processes, and developing roadmaps.
- **Goal Sharing:** This long-standing program links innovation, collaboration, and measurable achievement. By working together on stretch projects linked to financial compensation, staff builds networks across the organization, expands spheres of personal leadership, and strengthens project management skills.
- **Organizational Structure:** While it's important not to overemphasize the org chart, we've also seen that we can signal our desired culture and create space for innovation by shifting the composition and naming of departments and roles. The team once known as IT has been reimaged as Digital Solutions. Research and Innovation is a spin-off from Regulatory Affairs. A small and growing number of staff has been designated as Practice Leaders. The group once dubbed Leadership Team is now known as Business Partners for Performance Excellence. Its membership is similar — the CEO, CFO, and General Counsel; two managing directors; and half a dozen department directors — but the renaming embodies an emphasis on Performance Excellence as our overall strategy and everyone being a leader in their own sphere of influence.

- **Culture of Kindness and Respect:** We practice change management from the heart to honor each individual’s humanity. Each supervisor reviews the Principles of Respect policy annually with their employees, but more than that we emphasize that each of us contributes every day to the creation of a respectful organization based on kindness.
- **Employee Communication and Engagement:** Our internal communication strategy emphasizes engagement with a twice-weekly employee newsletter, internal branding, communication tools for supervisors, events, feedback channels, and small group meetings with the CEO.
- **Human Resources:** Our HR team works with staff across the organization to practice excellence in recruitment, hiring, onboarding, professional development, performance reviews, compensation, and succession planning.
- **Training and Mentoring:** An organization development expert trains staff in practices such as use of self, facilitation, ikigai, and meeting design. These sessions go much deeper than learning skills; they help create shifts in a person that make deep change possible. Seasoned staff, including the CEO, provide formal and informal mentoring. Our robust internship program helps cultivate the water entrepreneurs of tomorrow among people in the early stages of their careers in engineering, research, project management, and other disciplines.
- **Sharing Our Story:** Many in the industry speak of the “irresistible lure” of Clean Water Services (CWS). The weight of the lure is the fact that innovation is alive at CWS. The feathers that draw attention are the many ways we share the story, including regional, national, and international conference presentations; engaging videos; lively social media feeds; abundant service to professional associations; and recognition by programs such as Leading Utilities of the World and Utility of the Future. This lure has prompted people to move across the country or leave rewarding positions elsewhere – including incredible talent from shuttered paper mills – to join the CWS team.

These elements, many deployed over the past 3 years, are already yielding results, while also laying a foundation for continued change, including the launch of our diversity, equity, and inclusion journey. The historic events of 2020 have confirmed what we already knew: The old ways aren’t working anymore. As we build teams, develop employees, and bolster organizational resilience, we’ve got to get beyond “storming, norming and forming” and “Dissatisfaction x Vision x First Steps is greater than the Resistance” (DxVxF>R). To achieve the kinds of outcomes our watershed needs, we must transform ourselves and our organizations.

Personal Story/Anecdote from Workforce Program Employee

Clean Water Services hired Jamie Hughes as an intern in 2014 shortly after the Oregon native earned bachelor’s and master’s degrees in environmental engineering. Jamie immediately led a pilot project to optimize design of the next phase of our Fernhill Natural Treatment System. In that first year, Jamie made the most of the opportunities CWS provided to share her findings with the industry and the community through publications, presentations (including WEFTEC), and tours.

Within a year, Jamie earned a promotion to water resources analyst. She was entrusted to convene one of our major innovative integrated planning initiatives, the Watershed Assessment Hub, with Dr. Ting Lu of our Digital Solutions program. She serves alongside far more senior colleagues on the Subbasin Planning Team and is a key member of the team that writes, reviews, and implements our NPDES permit and associated plans and programs. While based in the Regulatory Affairs Department, Jamie collaborates with colleagues across broad swaths of the organization. In everything she does, she mirrors CWS’ dual emphasis on scientific rigor and elegant communication.

CWS encourages employees like Jamie to lead and serve regionally and nationally. At the Water Environment Federation (WEF) level, for example, she’s a member of the Watershed Management Committee, Young Professionals Committee, Project Excellence Award Committee, and Watershed Resources and Sustainability Symposium Subcommittee. She’s known for making the most of mentoring

and training opportunities and encouraging others to do so as well. Jamie and colleague Joy Ramirez packed our largest conference room last fall for a presentation about their experience in the Core Growth Program for future water leaders.

“Clean Water Services really values each of its employees as individuals. They strive to help each individual employee find their own personal ikigai. That’s evident through workgroups being formed around leadership development, personal development, professional development, and organization development. Many employees are sent to trainings, conferences – and all of these initiatives are not coming from the top down, but they’re being heard from the individual employee. Individual employees’ needs are being heard and valued. Who wouldn’t want to be part of an organization like that?”

– Jamie Hughes

Benefits of Workforce Program

Emphasizing innovation and personal leadership allows us to develop a deep philosophy of water – of why we do what we do and how we’re going to do it. That kind of philosophical work is necessary preparation for meeting the tremendous challenges faced by the water entrepreneurs of today and tomorrow, including climate change, rapid urbanization, structural inequality, social polarization, economic instability, and COVID-19.

The pandemic has put our workforce to the test and signs of resilience are everywhere. As of this writing in mid-July, about half of our workforce continues to report to their regular locations at our facilities and in the field. These employees have kept essential infrastructure running without interruption and have created new ways to do so within the constraints of physical distancing. The other half of the workforce is primarily working from home and has demonstrated remarkable levels of self-leadership. Across the organization, staff are leaping over the barriers of hierarchy and departmental silos like never before, using the learnings and changes of the past 6 years as a springboard. Our CEO, Diane Taniguchi-Dennis, recently conducted a series of 12 virtual visits with employees that reached about three-quarters of our workforce. Each session opened with an invitation to “share the *one word* that comes to mind when you reflect on what you’ve experienced or observed during the pandemic so far.” Two words arose far more frequently than any other: grateful and thankful.

Outside Financial Support and/or Program Partners

This program involves no outside financial support. It relies heavily on our involvement with professional associations such as WEF, WaterReuse, National Association of Clean Water Agencies (NACWA), Association of Clean Water Administrators (ACWA), and Pacific Northwest Clean Water Association (PNCWA). We are in the early stages of leveraging our close relationship within Washington County to launch a partnership with Worksystems, Inc., to identify people in our community seeking meaningful opportunities to learn and grow a career in water. We want to work mindfully with these potential water entrepreneurs to help overcome the systemic barriers that have, in many cases, kept their intrinsic talent unseen and underdeveloped.

Greatest Obstacles Encountered

Creating lasting change takes time. The challenges we face include:

- Succession planning. Baby boomers constitute almost one third of our overall workforce, and 75% of our executive team could retire tomorrow.
- Inclusion. Neither our workforce nor our candidate pools mirror the racial and ethnic diversity of the community we serve.
- Change management. The people of CWS vary considerably in their appetite for change, including some individuals who tend to identify more firmly with the specific tasks they were hired to do rather than the gifts they can bring to bear in different ways over time.

- Bringing the vision to life, throughout a large and complex organization. For example, in a recent survey 82% of the executive team and 86% of supervisors agreed with the statement, “CWS encourages totally new ideas (innovation)” – but in the larger workforce, only 68% agreed.

Links to Additional Information on Workforce Program

This video (<https://www.youtube.com/watch?v=OuksSjdDC9Q>) includes interviews with Jamie Hughes and other employees embracing innovation, including those who left the private sector or moved to the Portland area to join the CWS team.

We would be happy to discuss the program with interested industry peers and can share presentations we’ve given on it at WEFTEC and elsewhere.

Case Study 11

The District of Columbia Water and Sewer Authority (DC Water)

Municipality/State: Washington, D.C.

Contact Person/Information: Korey Gray, Director,
Compliance and Business Development;
Korey.Gray@dcwater.com; 202-787-2704

Year of Inception of Program: 2016



Purpose and Goals of Workforce Program

DC Water has arguably one of the largest capital programs in the District of Columbia metropolitan area, with multiple large-scale infrastructure projects over the next 10 years. We recognize these projects, such as the 2.7 billion dollar Clean Rivers Project, create lasting economic and environmental opportunities for the District, and we have a duty to ensure that local residents and businesses share in that opportunity.

These projects are largely funded by District ratepayers, and for that reason DC Water launched the Water Works initiative. Included in the Board of Director's Strategic Plan, the purpose is to connect local and District of Columbia residents with the approximate 100 new jobs created by DC Water contractors annually.

Ambitious goals for DC Water Works have been set. Seventy-five percent of new jobs created by contracts are to be filled by local residents. New jobs mean both union and non-union job openings, including vacancies created because of internal promotions, terminations, or other separations, and expansions of the contractor's workforce. Moreover, in support of these goals, DC Water Works is the principal referral source for all new jobs created for our projects – with an emphasis on placing District residents in those positions.

In support of this initiative, DC Water Works partnered with several local municipal agencies and organizations, including the District Department of Employment Service's Project Empowerment and the Infrastructure Academy, to identify qualified candidates for the contractor opportunities.

These goals are reviewed every 2 years by DC Water to determine whether DC Water's objectives are being achieved, based on performance, available procurements, and external conditions affecting contractor employment. Since the program's inception, 307 contractor positions have been filled through DC Water Works. Of this amount, 287 individuals live in the local region, including 187 District residents. It is noteworthy that the DC Water Works Program is not a large program by design. Rather, its training and placement components are "right-sized" based on the projections of our contractors.

Because of the success of the program, in March 2020, the Board increased the local hiring goals from 60% to 75%.

Additionally, due to the success of DC Water Works, in September 2019, DC Water implemented a new registered Apprenticeship Program – not for contractors, but one that created career pathways to DC Water directly. Our apprentices are paid employees working 2,000 hours of on-the-job training and an additional 150 hours of classroom training. In its first cohort, 14 apprentices have been hired.

Case Study Summary

DC Water is committed to the enhancement of opportunities for economic development in the District of Columbia and the region it serves. In carrying out its mission, DC Water actively encourages and supports the development and participation of local residents as part of the Authority's contractor workforce. The creation of a local, readily available labor pool, with skills needed by DC Water's contractors, will enhance its ability to provide efficient and economical water and sewer services.

As previously indicated, DC Water set specific new hire goals for its projects. The new hire goals apply to Construction contractors (prime and sub) with contracts valued at \$300k or more. They also apply to service contractors with contracts values at \$100k or more. In support of the goals, contractors are required to use DC Water Works as the first source for recruitment, referral, and placement of new hires for all new jobs created for the Project, as they become available. Contractors must give DC Water 3 business days to identify qualified candidates for job vacancies. If DC Water is unable to refer qualified candidates, Contractors can fill vacancies through other means, while still working towards achieving the new hire goal for residents.

Moreover, to determine if the goals are achieved, at the beginning of each fiscal year, an employment forecast is prepared – based on the size and scope of the upcoming procurements – identifying the expected contractor positions, as well as the skill sets necessary. The goals and requirements of the DC Water Works Program are incorporated into each contract through the general provisions in its solicitations.

DC Water measures achievement, not by promises made, but by actual hires. Monthly reports are prepared for management review, based on contractor submittals. Additionally, a quarterly report is provided to the Board of Directors through its Governance Committee that summarizes the number of new jobs created over a given period, contractors-filled positions, and how many contractors are complying with the reporting and submittal requirements. Also reported is how many referrals are still employed. As part of the program, DC Water works tracks participants for 18 months after hire.

Additionally, to effectively engage with the public and encourage their participation, DC Water established the following:

- 1) DC Water Job Centers – DC Water Works maintains two Job Centers to ensure residents are aware of and can access employment opportunities. (In FY 2019), the Job Centers are at the following locations:
 - DC Infrastructure Academy: 2330 Pomeroy Rd SE, Washington, DC 20020
 - Anacostia Economic Development Corporation: 1800 Martin Luther King Jr. Avenue, S.E. Washington, DC 20020
- 2) Advertisement – In addition to posting Contractor employment opportunities on the DC Water website and sharing such opportunities with Strategic Partners, job listings are posted at the DC Water Works Job Centers, the District Department of Employment Services Job Centers, the District Public Libraries, and the University of the District of Columbia. Individuals seeking work can view/apply for employment opportunities.
- 3) Employment Fair – DC Water sponsors at least one employment fair each year, at which:
 - Contractor employment forecasting and apprenticeship opportunities are identified.
 - Information on the Job Skills training program and the application process are explained.
 - Staff and Contractor representatives are available to potential applicants to discuss employment opportunities.

Personal Story/Anecdote from Workforce Program Employee

Spotlight on Mr. Tavone Lundy, National Green Infrastructure (GI) Certification Program 2018 Graduate

Pursuant to a Memorandum of Understanding between DC Water and the District of Columbia, there is a goal that 51% of new hires on Green Infrastructure (GI) projects in the Rock Creek and Potomac River sewersheds with GI should be District of Columbia residents.

In support of this goal, DC Water partnered with the University of the District of Columbia, to train and prepare District residents to successfully complete the National Green Infrastructure Program (NGICP) exam. So far, eight training cohorts have been completed with 66 graduates. Of those, 52 are employed, including Mr. Tavone Lundy.

Mr. Lundy manages Rock Creek Conservancy's Downspout Disconnection program where he oversees a team of technicians working to mitigate stormwater overflow that causes pollution in the watershed. Mr. Lundy's work includes supervising GI Technicians and managing work orders. He was certified through the NGICP in 2018.

This is the second position for Mr. Garner-Lundy with Rock Creek Conservancy. Mr. Lundy previously served as the Supervisory GI Technician for this project, where he was responsible for supervising four GI technicians who were also his cohort members. Mr. Lundy was also a supervisor on another DC Water GI-related project. Of special note, one of Mr. Lundy's technicians for this season is Darryl Leach, a graduate of DC Water's Facilities Training Program. Mr. Leach is now pursuing his GI certification.

"My favorite part of the job is actually to install the rain barrels and disconnect downspouts from the old sewer system. From time to time I do not mind getting out there and canvassing with my technicians. Also, I love the fact that I get to work outside and with Mother Nature. Another favorite part of the job is the fact that I get to lead by example, teaching my techs new things that they do not know and vice versa. I believe in teamwork, and you know what they say: teamwork makes the dream work."

Benefits of Workforce Program

DC Water Works program does not just help individuals find jobs. Rather it works to prepare them for careers. This is manifested in several ways. For example:

- 1) Each of the training programs includes a recognized certification or license. In this way, participants can take their training anywhere they go.
- 2) DC Water continues its case management of participants for 18 months. It is important that participants continue to have a support system long after completing training and/or being hired.
- 3) DC Water works with local union halls to help connect participants and referrals to union contractors for jobs outside of DC Water.
- 4) DC Water works with contractors to ensure they demonstrate "Good Faith Efforts" in considering individuals for jobs – particularly minorities and those from low-income communities.

Moreover, to be successful, it is critical that DC Water engage the contracting community as partners in this endeavor. Part of this involves demonstrating the benefits of the Program to them. Contractors can save money through the Program, by not having to spend on recruiting. Even more so by employing a graduate of a skills training program – which in all likelihood was a training developed to meet contractor demand. Also, participating contractors are highlighted in the DC Water Annual Report, and given the opportunity to meet with the General Manager. Finally, contractors can use their participation to highlight their commitment to the community and use DC Water as a reference when bidding on other jobs.

Outside Financial Support and/or Program Partners

To implement the Program, DC Water was keen on working with the community. To that end, DC Water engaged in the following efforts to involve the community:

- 1) Board Committee Meetings – DC Water's Governance Committee meets every other month. At the request of the Committee Chair(s), the Governance Committee was briefed at each meeting, which are open to the public, during the DC Water Works development phase. As part of the briefing, staff conducted walkthroughs of the various elements of the Program, as well as presented various data and analytics to support the approaches taken.

- 2) Stakeholder Meetings – During the development process, DC Water conducted more than 30 stakeholder meetings with the community. While most of the meetings were held at DC Water, several meetings were held off-site in the targeted communities to maximize individual participation.
- 3) Surveys – DC Water conducted three surveys: one to the contractor community and two to other nonprofits. The purpose of the surveys was to understand how contractors make employment decisions, the types of jobs that are regularly needed, how soft skills training is conducted, and how individuals are identified/accepted into training programs.
- 4) Water Works Strategic Partners – DC Water constituted a set of Strategic Partners composed of District government agencies, union organizations, nonprofit organizations, and academic institutions. These partner entities were selected based upon whether the organization could provide individuals for ready-to-fill positions, had a successful track record in placing their participants, and provided follow-up services.

By working with the Strategic Partners, DC Water successfully implemented its program and exceeded its local hiring goals each year. The Partners have been extremely helpful in the referral process, as well as the actual support services and skills training program. For example, regarding the DC Water apprenticeship program, the District of Columbia Infrastructure Academy and Project Empowerment helped prepare and support individuals throughout the recruiting effort. Given the nature of the program, apprentices needed to demonstrate sufficient competency in math and reading. This was measured with the Comprehensive Adult Student Assessment System exam. To help prepare individuals, the Infrastructure Academy enrolled them in the “level up” support program. As a result, each applicant met or exceeded the math and reading requirements, including some who improved their scores by as much as 30 points.

Moreover, by relying on our partners, DC Water Works was able to significantly reduce its overall budget.

Greatest Obstacles Encountered

- 1) By design, the Water Works Program targets hard-to-place local residents. At the time of the program’s inception, the District had one of the highest unemployment rates in the country. Notably within the District, Wards, 7 and 8, consistently ranged in the double-digits in relation to the rest of the city.

Moreover, upon review of the the socio-economic status of the residents of Wards 7 and 8, several key negative indicators were revealed. In addition to the high unemployment rate, residents in the two wards:

- Experienced the highest homicide rate than the rest of the city,
- Had the lowest median income,
- Had the highest percent of families living in poverty, and
- Had the lowest percentage of individuals with higher education.

Therefore, for DC Water’s program to be successful, it had to focus on the social needs of the participant, other than just a job. To that end, every participant would have a case manager/mentor to support them. DC Water also worked with its strategic partners to identify additional support to include bus/rail passes, childcare services, math and reading classes, clothes, and resume writing services.

- 2) It was important to properly manage the community’s expectations – particularly concerning the number of new employment opportunities. Given the overall size of DC Water’s projects, many stakeholders in the community assumed that contractors would be creating thousands of jobs. However, the truth is that most of DC Water’s contractors were fully staffed already, and only a small portion of their contract positions would need to be filled. Moreover, most of the open positions were for skilled laborers and operators. Accordingly, a large part of the community engagement effort involved managing expectations, a realistic forecast of the type and number of positions that would be created. Given the sharp contrast between the forecast and expectations, this proved to be one of the most difficult undertakings of the process.

To overcome this challenge, DC Water implemented a comprehensive change management and communication strategy to educate the community on the goals and expectations of the program. Included in the strategy was the establishment of the DC Water Works Strategic partners, inclusive of

government agencies, union affiliates, labor organizations, and other community-based associations. DC Water worked with its strategic partners to educate the public on the employment opportunities available through DC Water Works and encourage their participation.

3) Another major challenge to DC Water Works was identifying skilled residents for job opportunities. This is particularly true since contractors are paying prevailing wages (i.e., \$30.98 per hour for a general laborer). Therefore, a “goals only” approach was not sufficient. Accordingly, DC Water developed incorporated skills training into the program.

The Skills Training component consists of three stages: (1) Job Readiness Training; (2) Skills Training (Paid); (3) Job Placement Services for the Graduates of Stage 2.

Actual training areas are based on the construction forecast and the expressed needs of project contractors. In FY 19, DC Water Works implemented four trainings:

- 1) Commercial Driver’s License Training: DC Water developed a 6-month Class A CDL program. Eight out of nine participants finished. All eight are employed.
- 2) Facilities Training Program: DC Water, in partnership with the District Department of Employment Services, provides on-the-job training for landscaping and painting. Three participants were enrolled with 100% completing. All three are employed.
- 3) Welding Training Program: DC Water, in partnership with the Southeast Welding Academy, trained six District residents to be certified welders. All six are employed.
- 4) Green Infrastructure Certification Program: Pursuant to the Memorandum of Understanding between DC Water and the District of Columbia, there is a goal that 51% of new hires on projects with Green Infrastructure should be District residents.

In support of this goal, DC Water partnered with the Water Environment Federation and the University of The District of Columbia to develop a national green infrastructure certification training program. Nineteen participants graduated. Eighteen are employed.

Links to Additional Information on Workforce Program

- A Copy of the Board approved DC Water Works Plan

<https://dcwater.com/sites/default/files/Procurement/DC%20Water%20Works%20Plan%20%20PDF.pdf>

- A Copy of the FY 2019 DC Water Works Annual Report

<https://dcwater.com/sites/default/files/Procurement/DC%20Water%20Works%20Plan%20%20PDF.pdf>

- <https://www.rockcreekconservancy.org/component/tags/tag/tavon-gardner-lundy>

- A Copy of a Washington Post article highlighting the National Green Infrastructure Jobs Program:

https://www.washingtonpost.com/local/a-program-that-builds-green-infrastructure-in-the-dc-region-sustains-the-environment-local-workforce/2018/03/12/15ad966e-1bc4-11e8-ae5a-16e60e4605f3_story.html

Case Study 12

Honolulu Department of Environmental Services

Municipality/State: City and County of Honolulu, Hawaii

Contact Person/Information: Tim Houghton, Deputy Director; 1000 Uluohia St., Ste. 308, Kapolei, HI 96707; thoughton@honolulu.gov; 808-768-3485

Year of Inception of Program: 2008



Purpose and Goals of Workforce Program

Fill existing positions in a challenging employment environment.

Case Study Summary

Honolulu is a unique employment environment. The availability of specialty skilled workers is limited and the competition for wastewater jobs is affected by lower civil service/union pay levels compared to private and federal wages. In addition, Environmental Services is by far the largest wastewater program on the island of Oahu and in the state.

Our program is about flexibility and use of outside circumstances to recruit new personnel and train them. We participate in recruitment efforts designed to capture newly unemployed personnel from major business shutdowns like Aloha Airlines in 2008 where we actively made quick-hire options available to laid-off workers. Similarly, we are using short-term quick-hire contracts to bring on laid-off workers during the current COVID pandemic that have drastically changed the employment picture on the island.

Limited availability of specialty skilled workers requires us to bring on unskilled workers for positions like wastewater treatment facility operators and support them with education and training over several years to become certified operators. An apprentice program has been established for electricians to provide licensed electricians because there is a shortage statewide; connections have been made with the University of Hawaii and Hawaii Pacific University engineering programs to provide summer hire and job opportunities for new engineering graduates.

Active participation in Career Expos, job fairs, Career Days, etc., provides opportunities to introduce our career areas to large groups of people.

Personal Story/Anecdote from Workforce Program Employee

When Aloha Airlines went out of business in 2008, the City and County of Honolulu and the Department of Environmental Services held specific recruitment events for those displaced from airline jobs.

Environmental Services hired several people during this effort. Notably, there was the availability of airline customer service personnel who had the skills to communicate with our customers and could be taught the details of sewer service charges and related requirements. These employees made quick adjustments, brought a customer service attitude, and positive work ethic. One of these has moved up to become the head of the Customer Service section.

Benefits of Workforce Program

Being flexible to unusual circumstances allows us to access potential employees who would otherwise not likely consider employment in the government or wastewater. Once introduced to government employment, they generally do not leave.

Outside Financial Support and/or Program Partners:

While we do not have direct outside financial support, we do get strong support for training efforts from the University of Hawaii for wastewater operator training and the Electricians Union for the Electricians Apprenticeship program. We are also partnering with local engineering firms who are doing work for us to help train our young engineers as they collaboratively work on our projects.

Greatest Obstacles Encountered

As a government entity, we are limited in ability to provide compensation to levels set in Union agreements, which are negotiated for all government workers on a statewide basis. Normally, this results in lower pay levels than the private sector and previously enticing fringe benefits have been reduced over time.

The normal extremely low unemployment levels often limit the number of applicants for jobs. Skilled, trained wastewater personnel are largely within our employ. Oftentimes, trained personnel will leave our employment for similar higher paying jobs with the federal government or the few private sector wastewater operations.

Case Study 13

Houston Public Works

Name of Utility (Apprenticeship Utility Partner):

- Houston Public Works/Houston Water
- Trinity River Authority
- Inframark
- Gulf Coast Authority
- Other utilities TBD



Name of Apprenticeship Program Certificate holder:

Water Environment Association of Texas (WEAT)

Municipality/State: Texas

Contact Persons/Information:

- Aisha Niang / aisha.niang@houstontx.gov (Committee Member)
- Katie Zheng / kzheng@swwc.com (Committee Chair)
- Dylan Christenson / ChristensonD@bv.com (Committee Vice Chair)
- Julie Nahrgang / julie@weat.org (WEAT Director)

Year of Inception of Program: 2020

Purpose and Goals of Workforce Program

The mission of the WEAT Workforce Development Committee is to strengthen regional collaboration and the alignment of education, training, and workforce development to ensure a strong pipeline of skilled and diverse workers can thrive and succeed in the water and wastewater industry.

To drive greater regional collaboration among multi-stakeholders, such as high schools, community colleges, public and private water sectors, to promote water career awareness and to support people entering the water utility workforce at multiple stages. The short-term goal is focusing on the implementation of high school curriculum programs, paid operator internship and apprenticeship programs, and a veterans outreach initiative. The long-term goal is forming a “pipeline” that feeds the water workforce from entry-level through more skilled positions.

As part of the long-term initiative, WEAT, industry consultants, utilities, and the U.S. Department of Labor created a Registered Apprenticeship program to bridge the gap between entry-level prospects and the need for a skilled workforce.

Case Study Summary

The Texas water industry faces a looming workforce shortage, especially for workers involved in the daily operations of water and wastewater facilities. As a generation of water and wastewater operators near retirement and new development continues in Texas, it is becoming more difficult to provide safe drinking water and to protect the state waterways from pollutants.

Inspired by a WEFTEC presentation she attended on the YH₂O Career Mentoring Program designed and operated by Chesapeake Water Environment Association and the City of Baltimore, Katie Zheng sought to develop a program for Texas. She recruited Dylan Christenson to join her, and the beginnings of the WEAT Workforce Development committee were born. Since Katie and Dylan were both based in Houston, it was a natural starting place and they began to reach out to local stakeholders to better understand the challenges and opportunities within the water workforce.

For the first 1.5 years of the program, the group met monthly to better understand the needs and resources available and brainstorm possible solutions. The core group of collaborators was local employers, represented by three of the largest in the area, City of Houston, Inframark, and Gulf Coast Authority; educational institutions including Houston Community College and local school districts; and state and federal agencies including the U.S. Department of Labor (USDOL) and local Workforce Solutions workforce development board. Julie Nahrgang, the executive director of WEAT, also provided significant support and guidance throughout the process.

As the group of supporters and contributors began to grow throughout the state, the committee was integrated into the Water Environment Association of Texas Workforce Development Committee. Water Environment Federation's Operator Advisory Panel also provided guidance and encouragement along with several other utilities throughout the state, including Trinity River Authority.

The initial action steps of the group were focused on outreach. Members presented at teacher in-service training to help local educators understand the needs of our industry and the career opportunities for their students. The group participated in any workforce workshop available including an ideation workshop centered around creating a regionally resilient workforce in response to Hurricane Harvey. One of the most successful events was the coordination of a student tour for local high school students at the Texas Water conference. Students spent a half day walking around the exhibit hall with operators and engineers from around the region. The students were able to learn about technologies in the field from various vendors, see the operations teams at work in the Operations Challenge events, and try their hand at solving problems in the Tops Ops quiz competition.

The result of the significant time invested in inviting many different stakeholders to the conversation and intentional outreach efforts was that both the significant need and the significant support of the utilities and operations companies to solve this need was made very evident to the workforce development agencies at the local, state, and even national level. Continued conversations with the USDOL representative in Houston led to the effort to create a federally registered apprenticeship program to help support operators moving from a base level, Class D license to the Class C license. WEAT was able to fill the role of program sponsor to allow employer partners from across the state to join the program and have apprentices.

Currently, the apprenticeship program is in the process of identifying and onboarding the first apprentices and looks forward to lessons learned and continued growth of the apprenticeship initiative as well as the high school internship program and veterans focused outreach programs.

Benefits of Workforce Program

The registered apprenticeship program provides support to employers by helping to identify apprenticeship candidates and then supports those apprentices by providing funds to be used toward training, both on the job and in the classroom, as they complete their apprenticeships. The apprenticeship also allows additional benefits to be accessed for veterans to support their transition into the workforce. The workforce program also seeks to provide benefit to high school students and educators by making them aware of the field and providing opportunities for students to experience the career via tours and internships.

Outside Financial Support and/or Program Partners

- U. S. Department of Labor through the Federally Registered Apprenticeship
- Water Environment Association of Texas

Greatest Obstacles Encountered

Time and Connections. The initial work in gathering the group of diverse stakeholders was very time consuming as there was significant education required for many of the agency and educational partners about the nature and needs of our water industry. There was also significant time invested in connecting with many folks across the state who are working to solve the workforce challenges. We often found that others were working on similar efforts, but we were isolated from each other. This continues to be a challenge as we seek to build connections throughout the state. The goal of the apprenticeship program would be that it is approved and supported across all of Texas' regional workforce boards and thus can be utilized by employers of all geographies and sizes.

Links to Additional Information on Workforce Program

<https://www.weat.org/apprenticeship>

Case Study 14

LA Sanitation and Environment (LASAN)

Municipality/State: Los Angeles, California

Contact Person/Information: Christina Jones, LASAN Executive Office;
213-485-2210

Year of Inception of Program: 2008



Purpose and Goals of Workforce Program

Targeted Local Hire (TLH)

The purpose of the LASAN workforce program is to develop and advance the skill level of future employees to maintain reliable first-class utility services that protect public health and the environment and promote economic prosperity in the Los Angeles region.

The goals for the program include

- Building a pipeline of local workers to eventually become highly skilled employees to meet utility demand and increase the skill levels and confidence of our employees.
- The alignment of LASAN employees with education, human services, and economic development policies and programs to grow and sustain a healthy local economy.
- To employ people that represent the communities that LASAN serves.
- To build the capacity of the workforce development system to respond to local needs, in the face of shrinking resources.
- To connect job seekers to living wage jobs.

Case Study Summary

LASAN is involved with three specific programs for the Water Workforce Water Systems Technology Training program, the Water Utility Apprentice, and the Green Stormwater Infrastructure program.

The Water Systems Technology Training program: LASAN partners with a local community college, Los Angeles Trade Technical College, to reduce the time it takes to become a certified water or wastewater treatment operator, giving the city a competitive edge in the race to replace our retiring operators. The Water Systems Technology program at the college offers students a choice of two concentrations within the water systems industry. The wastewater option offers courses focusing on preliminary, primary, secondary, and tertiary treatment systems as well as disinfection methods, solids treatment, and solids and effluent disposal practices. The supply water option offers courses focused on the operation and design of water systems, wells, pumps, and meters; water treatment for potable water; and technical phases of automatic controls, including power and code considerations.

The Apprenticeship program (Water Utility Apprentice): In 2008, LASAN established the Plant Equipment Trainee Program, in which individuals can obtain paid training and experience while working toward a career in wastewater operations. Approximately 30 Plant Equipment Trainees are hired per 12-month period. Plant Equipment Trainees typically start in groups of 10 to 12 on a staggered basis.

Plant Equipment Trainees are hired as full-time, exempt employees. Candidates should have a high school diploma or equivalent to qualify. A multiple-choice aptitude exam is administered by LASAN. Candidates with a passing score on a Plant Equipment Trainee exam are invited to interview, after which, final scores are determined.

Plant Equipment Trainee candidates attend classroom training in groups of approximately 10 employees. Within the first 4 weeks of employment, employees must receive the Operator-in-Training Certificate issued by the California State Water Resources Control Board. Training consists of classroom instruction and on-the-job-training. The total training period (both classroom and on-the-job) is approximately 12 months. Candidates must take and pass the California Wastewater Operator Grade I exam. Candidates are eligible to transition from Plant Equipment Trainee to Wastewater Treatment Operator I once Program requirements are met.

Classroom training for the Plant Equipment Trainee Program participants is conducted by LASAN's Industrial Safety & Compliance Division. At the conclusion of classroom training, employees are dispatched to specific Water Reclamation Plant Station Posts and paired with seasoned Wastewater Treatment Operators for on-the-job training and shadowing on operational procedures and protocols. Plant Equipment Trainee employment opportunities are posted on the City of Los Angeles Exempt Employment Listing. In addition, opportunities are advertised on LASAN social media platforms.

The Green Stormwater Infrastructure (GSI) program: In development late 2019. This is an Incumbent Training program in GSI for field workers and maintenance staff to develop skilled workers in watershed health through construction and operations and maintenance (O&M). The program teaches the fundamentals for operating stormwater management and GSI facilities (bioretention, permeable pavement, green roofs, wetlands, green streets, rain gardens, drywells, subsurface infiltration galleries, and other rainwater harvesting facilities). The program also provides techniques for troubleshooting in O&M GSI facilities. The GSI program also provides case studies to students to assist them with identifying and understanding best management practices.

Personal Story/Anecdote from Workforce Program Employee

Since its inception in 2008, the Plant Equipment Trainee Program has proven to be highly successful with preparing candidates for careers in Wastewater Operations. One of the first candidates in the program was hired as a Plant Equipment Trainee effective August 18, 2008. The employee was promoted to Wastewater Treatment Operator I effective January 31, 2010, and promoted to Wastewater Treatment Operator III effective November 17, 2013.

The employee was promoted to Senior Wastewater Treatment Operator effective October 15, 2017. The employee has recently taken and passed the Shift Superintendent Wastewater Treatment Civil Service Exam and is on the List of Eligibles for promotion.

Benefits of Workforce Program

The LASAN local workforce system includes educational partner LA Trade Tech College (LATTC) and youth partner California Conservation Corps and conducts other activities that prepare people for employment; it helps workers advance in their careers, and ensures a skilled workforce exists to support local industry and the local economy over time.

The reasons for public financing of education and job training are

- to help the utility sector meet its labor market demand for skilled workers and
- to provide training for the disadvantaged who are less able to access it.

Employer "demand" for skilled workers has risen, and the compensation for those with these skills has increased as well. The "supply" of skilled workers has not grown fast enough to keep pace with growing labor market demand. Utility labor markets need to invest in the education and training to meet such demand.

Public investment also is needed because disadvantaged youth and adults, like racial/ethnic minorities and the economically disadvantaged, get too little education and training in general. At a time when the gap in earnings between more- and less-educated American workers has risen, disadvantaged people have less access to employers that provide on-the-job training and promotional opportunities than more advantaged workers. Training programs that lead to secondary

or post-secondary credentials, along with work experience including the utility sector, are effective for disadvantaged workers and communities.

Outside Financial Support and/or Program Partners

The LASAN training partner LATTTC implements two specialized welfare-to-work programs that offer services to Temporary Assistance for Needy Families recipients in education, job training, and job readiness to become successfully employed:

- Greater Avenues for Independence and
- California Work Opportunities and Responsibility to Kids.

Other program partners at the school include the Los Angeles Department of Public Social Services, Employment Development Department, Work Source Investment Board, Work Source Centers, the LATTTC campus Student Employment Center, and Advisory Committee of community and campus representatives.

Greatest Obstacles Encountered

The next generation of programs for our youth and working poor and transitional workers can be promising. These approaches combine: (1) education and training that grant workers a post-secondary credential; (2) has direct ties to employers that provide well-paying jobs in the utility sector; and (3) provides for a range of support and services such as child care and transportation during the training period and beyond. The obstacles that hold back a high performing workforce program are also the greatest opportunity for success.

1) Program infrastructure

- a. Consistent focused investment in staffing these programs.
- b. Managing participants from recruitment through employment is needed to increase the number of trainees that become full-time utility employees.
- c. Consideration of other investments like child care and transportation.
- d. Strengthen the effort in identifying and marketing the training program to targeted groups and individuals including jobs flyers with description, requirements, and compensation.
- e. Identify and secure other training partners.

2) Regional/State recognized certification

- a. Create a post-secondary certification standard for utility/water jobs.

3) Target/Tailor programs to address different needs

- a. Create a veterans workforce program to help veterans secure jobs in the water industry.
- b. Create a transitional jobs program for ex-offenders and/or homeless providing 6 to 12 months of paid work experience and training.
- c. Expand the incumbent worker training program that targets entry-level workers in existing jobs and supports efforts to train them for higher-level jobs in our utility.

Links to Additional Information on Workforce Program

<http://www.latttc.edu/academics/programs>

<http://www.latttc.edu/academics/pathways/cmu/certificates-degrees/supply-water-systems-technology>

Case Study 15

Milwaukee Metropolitan Sewerage District

Municipality/State: Milwaukee, Wisconsin

Contact Person/Information: Jeff Spence, Community Outreach and Business Development Director, jspence@mmsd.com and/or Lisa Sasso, lsasso@mmsd.com

Year of Inception of Program: Initial launch 1980s, various additions since the initial components were launched



Purpose and Goals of Workforce Program

Case Study Summary

Milwaukee Metropolitan Sewerage District (MMSD) is committed to growing the next generation of water workforce through a variety of career exploration and training opportunities. We recognize that the water industry has a wide continuum of career possibilities and the necessity for a variety of strategies that recognizes where people are in their knowledge of these opportunities, particularly those from underserved communities is essential in creating a workforce that represents the diversity of those we serve.

The following program elements were not brought on as a package, but grew over the last 35 years as our organization recognized a need and opportunity.

MMSD Internships

MMSD's internship program has been in existence for over 35 years. Our goal of the MMSD internship program is to grow awareness of opportunities with MMSD and careers in water-related industries. Exposing students to a hands-on learning experience helps inspire and educate students about future water-related careers.

MMSD's intern program operates year-round, with the majority of students hired for a summer experience. On average, MMSD hires 30 interns and co-op students for a summer term. Students can expect a paid work experience in areas such as Water Quality Protection, Laboratory Services, Engineering, Construction, Planning, and Sustainability. To complement the hands-on experience, we offer students activities such as tours of District and community facilities that affect water resources.

The foundational opportunities students gain through our internship program results in many students applying for subsequent summer internships with MMSD. In addition, we have hired several former intern participants as permanent MMSD employees, and currently employ senior-level staff that were once participants in the MMSD intern program.

Regional Internship in Science & Engineering (RISE) Program

The RISE program, sponsored by MMSD, is a career and professional development program for college engineering students who attended high school or are currently residing in the MMSD service area. The program, in partnership with Prism Technical, provides meaningful paid work experiences for students and an opportunity to build long-lasting working relationships between students and MMSD service providers (construction contractors, engineering designers, consultants, and planning firms).

This internship exposes students to opportunities and prepares them for increased success in the Greater Milwaukee engineering infrastructure job market. More than 65 local Milwaukee students have landed internships since the RISE program began in 2009.

Pre-apprenticeship Training and Opportunities

MMSD is committed to developing and aligning skilled workers for our current and anticipated projects. In partnership with Wisconsin Regional Training Partnership |Building Industry Group & Skilled Trades Employment Program, MMSD has helped recruit, train, and place local workers in the construction trades through its pre-apprentice training program. The District also places apprentice utilization requirements on many of its large construction projects to support local apprentices to achieve journeyman status.

Local Workforce Utilization Policy

MMSD is committed to ensuring our communities that are funding our projects have residents that are employed in the work. To maximize the economic effect of our annual spending, local workforce requirements are typically placed on all construction bids. On average, local workers make up more than 50% of hours on all MMSD construction projects each year.

National Green Infrastructure Certification Program

MMSD is a part of the National Green Infrastructure Certification Program (NGICP) developed in partnership with the Water Environment Federation and other water utilities. NGICP provides the base-level skill set needed for entry-level workers to properly construct, inspect, and maintain green stormwater infrastructure. MMSD works with local partners to set up training courses and exam dates and uses NGICP as a tool for skill development in green infrastructure and workforce development. MMSD is continuing to develop and refine the training program to fit the need of our local workforce.

Fresh Coast Ambassador Program

MMSD has been involved in workforce development for more than 20 years. The primary focus has been on the trades. Green infrastructure training started 4 years ago through the National Green Infrastructure Certification Program and in 2019, MMSD piloted the Fresh Coast Ambassador Program. The Fresh Coast Ambassador Program was developed to increase awareness in the education and career paths in the water industry for young adults. There is a lack of equitable representation in the blue-green workforce. Currently, people of color represent less than 12.4% of the environmental workforce and over 94% of leadership positions in the environmental sector are held by whites according to a report by Green 2.0. Racial homogeneity is not the only problem the industry faces as age diversity is similarly sparse. With Wisconsin's current workforce rapidly aging into retirement, our youth population of residents under the age of 18 has simultaneously declined by more than 45,000 (3.4%) since 2011. The Fresh Coast Ambassador Program not only provides skills training and labor to address undermaintained green infrastructure investments on public land, it introduces water career pathways to young people whose identities are significantly underrepresented in the green-blue sector while consequently fostering a deeper connection to community and nature.

Goals:

- 1) Introduce youth ages 14 to 24 years of age to water industry career pathways, watercourse issues, and green infrastructure but also
- 2) increase their personal and professional development through trainings and industry recognized certifications, and
- 3) enhance their social network by introducing them to industry professionals.

Case Study Summary

MMSD, Cream City Conservation Corp, and Employ Milwaukee were a couple of the entities involved in the Milwaukee team for the U.S. Water Alliance's Water Equity Taskforce. While we were meeting, we saw a gap in awareness of the water industry, especially at the young adult age. We began meeting to discuss program goals, funding needs, recruitment strategies, timelines, and what both participants and employers wanted to gain from this program. The three entities signed a Memorandum of Understanding in early 2019 for the pilot program and again in early 2020 for the second year.

The Fresh Coast Ambassador Program introduced young adults of the 30th Street Corridor and Kinnickinnic River neighborhoods who were between the ages of 14 and 24 to water industry careers, watercourse issues, and green infrastructure, while generally promoting personal and professional development. Learning and work experiences included natural resource conservation, urban agriculture, green infrastructure, and trails. The curriculum promoted competency consistent with the Common Core Standards for English language arts, history, social studies, science, and mathematics. Table 1 shows learning objectives by theme. Table 2 shows typical activities by theme.

Personal Story/Anecdote from Workforce Program Employee

"This was a great opportunity for me since this was my first job, and by working with you guys it made me step out of my comfort zone. I'm also glad we had two great leaders to help guide us. I never thought I would be doing a job like this, but I loved it, and I can't wait until next season."

— **Laniya Sims, Fresh Coast Ambassador**

"This experience has made and shaped my relationship to the environment. The program opened my eyes to how much nature impacts us, not only in resources, but also in community. I had learned so much more about the importance of taking care of the environment in order to preserve it for later generations."

— **Hanan Ali, Fresh Coast Ambassador**

Benefits of Workforce Program

The Fresh Coast Ambassador Program provides access to education and career paths in the green infrastructure and water industry. The Ambassadors are able to learn about potential next steps in their education or career before entering the field blindly. The Fresh Coast Ambassador Program not only provides personal development but also professional development. The Fresh Coast Ambassadors gain field experience with invasive species removal, green infrastructure installation and maintenance, training in industry recognized certifications, and participation in career panels. New in 2020, the Fresh Coast Ambassadors are having work days with MMSD's interns to gain more field experience and training.

This program is invested in our community to help grow our young adults and set them up for success. The Fresh Coast Ambassadors have a chance to grow with the program as well to gain leadership experience. The Fresh Coast Ambassadors start as crew members but can grow to apprentice crew leader and crew leader.

A wide array of benefits has been delivered through our investments.

- Creating advocates for careers in water
- Increasing diversity within the water industry
- Attracting and retaining an educated workforce
- Increased collaboration and partnerships with the workforce development sector and our vendor community

- Development and attraction of future workers for MMSD
- Opportunity to attract and retain skilled labor in the region
- Creating advocates in the protection and improvement of water resources

Outside Financial Support and/or Program Partners

- Cream City Conservation Corps
- Employ Milwaukee
- Milwaukee County
- While there is a strong commitment to fund many of our workforce activities through allotments in our annual budget, we also rely on funding through our local workforce investment board as well as support through the many water-based vendors that are often seeking qualified individuals relied on to sustain/grow their businesses.

Greatest Obstacles Encountered

The greatest obstacle faced with this program is funding. Both MMSD and Cream City Conservation Corp are able to fund the majority of the elements, but Employ Milwaukee has very strict guidelines on what they can fund. Employ Milwaukee covered payroll, workers comp, and wages.

Another obstacle for this program is transportation, getting the Ambassadors to and from the job site along with field sites. The purpose of this program is not full-time employment, but that is an area we would like to grow this program. The Fresh Coast Ambassadors are paid but we would like to expand their opportunities further after the program.

A final obstacle included talent preparation on the craft labor/Tech School components.

Links to Additional Information on Workforce Program

<https://www.mmsd.com/careers/workforce-development>

<https://www.creamcityconservation.org/>

<https://www.mmsd.com/careers/workforce-development>

<https://wrtp.org/>

<https://www.prismtechnical.com/rise>

<https://www.employmilwaukee.org/Employ-Milwaukee.htm>

Table 1: Learning Objectives by Theme

Core Principle	Theme	Objectives
LEADERSHIP	Risk Management	Demonstrate situational awareness, risk management, and an understanding of how they relate to the member's service.
	Leadership Development	Participate fully in the team community, as both a leader and a member of the team.
	Career Readiness	Actively manage one's time and resources.
		Represent C4 and its partner organizations in a professional manner.
	Career Readiness	Gain exposure to the various career pathways in STEM, including Water, Agriculture, Conservation (Land & Wildlife Management), and Outdoor Recreation.
SERVICE	Technical Skills	Demonstrate the skills required to complete one's service in a satisfactory way.
	Position Management	Set and track progress toward personal goals.
		Meet member expectations articulated by C4 Staff and the Crew Member Handbook.
	Reflection	Effectively communicate one's experience and what it meant to them.
Develop a plan for making one's experience with environmental sustainability relevant at home.		
CONSERVATION	Environmental Stewardship	Develop and describe one's personal environmental sustainability/conservation ethic.
	Conservation History	Understand the basics of conservation and articulate the role of people of color in the conservation movement.
	Ecological Literacy	Understand the crew's local ecology.
Understand one's ecological footprint.		
STEWARDSHIP	Diversity, Equity, and Inclusion	Identify one's own personal characteristics and those of others that increase the capacity of the group.
		Demonstrate awareness of and empathy for others' experiences.
		Develop understanding of power, privilege, marginalization, and components of allyship. Practice embodying an equity lens.
	Outdoor Recreation	Identify local green spaces and prepare to recreate in those spaces.
	Sustainability	Identify how one's actions affect the ecosystem around them, and actively work toward mitigating that effect as a team.
	Community Engagement	Understand the value of being an engaged community member.

Table 2: Typical Activities by Theme

Theme	Modules	Activities
LEADERSHIP	Safety & Risk Mitigation	Emergency Response Plan Job Hazard Assessment First Aid & CPR Body Mechanics Spacing & Communication Tools (Usage, Storage, & Maintenance)
	Reflection	Guided Reflection Self-Evaluation Your Effects: Carbon Footprint Video: The Story of Stuff
	Self-Awareness	NOLS No-Doze Leadership Styles True Colors Growth VS Fixed Mindset Colors in a Cup Letter to Myself Performance Feedback Personal Iceberg Personal Pie Chart Defining Happiness Film: Happy Smart "SPARK" Goal Setting Financial Literacy (50/30/20) Financial Literacy (Savings, Credit, Budgeting)
	Team Work/Collaboration	Duty Captain/Chore Wheel Crew Contract Crew Budget (if applicable)
SERVICE	Technical Skills	Mechanical Advantage Sticks, Stacks, and Steps Knots & Hitches Chain Saw Certification (18+) Herbicide Applicators License (18+) Invasive Plant ID Water Quality Testing Intro to Soil Science

Table 2 (continued): Typical Activities by Theme

Theme	Modules	Activities
CONSERVATION	Leave No Trace	Camping: Basecamp Set Up & Take Down Recreation Trip Planning Goofus & Gallant in Leave No Trace Theater Leave No Trace Violation Debate
	Political Advocacy/Civics	Town Hall: A New Frontier Activity
	Natural Resource Management	Something for Everyone
	Ecological Literacy	Introduction to Watersheds Invasive Plant Scavenger Hunt Web of Life Garbology Drilling Down Sustainability Recycling Relay
	Health & Wellness	Film: Food Inc. Mindfulness Nature Hunt & Mapping Mental Obstacle Course: Food Security Physical Obstacle Course: Food Security
STEWARDSHIP	Belonging (Diversity, equity, and inclusion focus)	Identity Signs Label Game Values Continuum Identity Circle Identity Bingo Allyship Toolkit & Scenarios 4 Dimensions of Interrupting Unconscious Bias Healthy Relationships/Expressing Emotion (Team Teal365) Conflict Management

Case Study 16

Sewerage and Water Board of New Orleans (SWBNO) COVID HR Response Team

Name of Utility: Municipality/State: New Orleans, Louisiana

Contact Person/Information: Dave Callahan, 504-913-3712

Year of Inception of Program: 2020



Purpose and Goals of Workforce Program

The purpose of this program is to provide guidance and protocol relative to the Sewerage and Water Board of New Orleans (SWBNO) operations and any reduction, closure, or relocation thereof as a result of the city, state, and federal declarations of emergency due to COVID-19 and concerns for the safety of the public and board employees.

Case Study Summary

Like many utilities, SWBNO was initially hit hard by the COVID 19 pandemic. The New Orleans metro area experienced widespread infection between February–March 2020. As our 1,300 employees are a small snapshot of our community at large, it quickly became apparent that SWBNO leadership would need to assess the possibility of a high infection rate reaching our own workforce. In our first few COVID cases, we realized just how complex various aspects and functions surrounding the response and handling of each case would be. We found the local Parish and municipal health system subject matter experts and resources largely overwhelmed and unavailable. We were essentially on our own.

After our fourth employee case, we came to the realization that we would need to develop internal resources and points of contact to work these cases. The demand areas and needs were:

- 1) Some type of centralized 24/7 available COVID subject matter expert or guidance capability.
- 2) The ability to counsel and guide the symptomatic or positive-tested employee in a highly responsive manner.
- 3) The ability to counsel and guide the employee's immediate supervisor in a highly responsive manner.
- 4) The ability to quickly assess and direct isolation/quarantine actions to prevent further COVID spread in the workforce.
- 5) The ability to conduct contact tracing for each case in a timely manner and execute on associated quarantines quickly.
- 6) The ability to coordinate and direct required workspace decontamination/cleaning after a positive case was detected.
- 7) The ability to provide timely guidance and information to employees and supervisors regarding COVID-related protective scheduling, remote work, civil leave, etc.
- 8) The ability to collect and track COVID statistics and report them to the utility leadership in a timely manner for use as a decisional tool.
- 9) The ability to do all the above in a protected, HIPAA-sensitive manner.

With these requirements identified, our next step was to create a team. As we looked across our existing workforce, it was decided that the HR Department would be best to act as the source, and the core of what we would call our “HR COVID Response Team.” We started with a small group of HR employees (approx. 5) led by an experienced HR professional from our Benefits Division and overseen by the HR Director. This group had a team lead position, two counselors/contact tracers, and one or two data handlers. The staffing concept was to keep the group makeup and size adjustable/scalable depending upon the COVID case load at any given time. The team lead maintained a 24/7 COVID Response Team hotline to take and/or return calls from employees/supervisors at all hours.

We leveraged the expertise of the New Orleans City health department to train and develop contact tracing skills within the team, and the team quickly became experts on COVID testing referral, quarantine procedures, sick/civil leave policy/procedures, and all other COVID-related matters. We established organizational policy that any employee who became COVID symptomatic was required to immediately contact the COVID response team and their immediate supervisor. The policy also required supervisors of symptomatic employees to immediately contact the COVID Response team. The team would then, in conjunction with the affected employee and their supervisor, immediately begin assessing the situation and providing advice/direction to the employee and their supervisor. This often involved directing self-quarantine/isolation and arranging for COVID testing. If warranted, the contact tracing component of the team would start assessing and tracing to identify any other potential exposures.

A central and key objective of the team was to provide a single point of contact our employees and their supervisors could consult on all things COVID related. The team also developed a daily statistics report, which was reviewed and sent to the utility leadership. This report enabled the executive leadership team to see trends and make decisions related to COVID risk.

Benefits of Workforce Program

This program provided structure and guidance at a time when chaos and fear could have consumed our employees and continues to do so as we deal with resurgences of higher infection rates in our community. The COVID-19 Response Team managed both medical and personnel issues related to COVID. The team, following HIPAA and CDC guidelines, provided an invaluable service to all employees of the utility, by ensuring all levels of supervisors received guidance and assistance carrying out the necessary responsive actions, such as contact tracing, ascertaining leave, and pay status of affected employees.

The ability of an employee or their supervisor to pick up a phone and connect via a 24/7 hotline with a fellow employee dedicated to helping them navigate through the fear and complexities of a potential or actual COVID infection was invaluable. In addition, it considerably reduced the burden on our field supervisors who needed to focus on the critical mission of an operational utility. The fact that they did not have to search for guidance/direction, and it was always a quick phone call away, significantly reduced their workload and stress. The COVID stats report produced by the team really became a situational awareness and decision tool as we pressed through the pandemic.

Outside Financial Support and/or Program Partners

None

Greatest Obstacles Encountered

A careful balance was always required when it came to HIPAA requirements regarding confidentiality. The team ensured measures were in place to protect information, but release enough to guarantee appropriate preventive and responsive actions were taking place. Another significant challenge was team burnout. On the heavy caseload days, between assessing, tracing, and communicating, the hours were extremely long.

Couple this with the need to maintain a 24/7 response posture and the fatigue that comes with it, a COVID team member's limits could be tested. We found it necessary to expand, train, and rotate a larger group of COVID Response team members to give them appropriate down time. We found it particularly important to rotate the team lead position.

Case Study 17

Northeast Ohio Regional Sewer District (NEORSD)

Municipality/State: Ohio

Contact Person/Information: Jacqueline Muhammad, Senior Manager of Government and Customer Relations; muhammadj@neorsd.org

Year of Inception of Program: 2013



Purpose and Goals of Workforce Program

To better connect the Sewer District with the communities it serves. This progressive, one-of-a-kind job-development initiative integrates community outreach with career development opportunities for unemployed and underemployed individuals in neighborhoods affected by Sewer District construction projects.

Case Study Summary

The Good Neighbor Ambassador Program is a 1-year cohort program for up to 10 individuals. The foundation of the program is rooted in the Sewer District's Core Values of Environmental Stewardship, Ethics, Honesty and Transparency, Customer Focus, Balanced and Informed Decision Making, Progressive Culture, Accountability, and Respect.

The Ambassadors act as liaisons between the Sewer District, various community and business organizations, government officials, and the general public. The Ambassadors keep residents up to date on what is happening in their neighborhood, distribute informational materials, answers questions, and address concerns about the Sewer District's construction projects.

The Ambassadors also perform cleanup, maintenance, and general landscaping work near the job sites and participate in educational and professional-development opportunities offered by the Sewer District. They all receive full benefits, including tuition reimbursement, and work 30 hours per week.

The Program is designed to be a means of temporary employment and prepares the Ambassadors for full-time employment (either at the Sewer District or externally); it also offers training opportunities on a regular basis. Each week, the Ambassadors receive career-development hard and soft skill training on such topics as resume writing, interviewing, public speaking, and personal finance skills in addition to completing their hands-on community work.

To date, 46 Good Neighbor Ambassadors have completed the program and are currently employed in full-time, fulfilling careers. Seventeen of the former ambassadors are employed at the Sewer District.

Personal Story/Anecdote from Workforce Program Employee

Shareasa Morris (Cohort 3), Billing Specialist, Finance Department

"Working as a Good Neighbor Ambassador provided me with the opportunity to improve and develop both my intrapersonal and interpersonal skills. The program's holistic approach broadened my understanding of the importance of water quality, the environment, and community relations. All while providing me with the skills necessary to obtain, retain, and sustain full-time employment. It helped me to chart my career path and long-term goals. Overall, I had a great experience!"

Demetrius Tucker, Good Neighbor Ambassador Supervisor

“One of the main reasons I wanted to be the GNA supervisor was it exposes GNAs to occupations that most people never heard of and many of these occupations do not require a college degree.”

Constance T. Haqq, Chief Administrative Officer

“The Ambassador Program has helped build goodwill for the Sewer District in some of the most distressed neighborhoods in our service area. Not only do their clean-up activities visibly revitalize the area, the Ambassadors are taking advantage of an opportunity to transition themselves into full-time family sustaining jobs for the benefit of themselves and their families.”

Stanley Miller, SRM Group (consultant assisting with the program)

“Other programs, even here in Cleveland, are generally job-focused. We tried to put together a program that would give our Ambassadors skills to be successful in any career, not just here. A lot of the Ambassadors want to work for the Sewer District and it’s the first time they are in a setting with a welcoming, supportive job environment.”

Benefits of Workforce Program

Construction projects of this magnitude certainly create jobs, but many residents argue that there are not enough local residents working on these projects. While the Sewer District cannot dictate hiring practices on its construction projects, senior leadership at the agency wanted to do everything possible to help a neighborhood directly affected by years of construction.

In addition to helping our local workforce, whether Ambassadors are hired full time at the Sewer District or elsewhere, the Good Neighbor Ambassador program provides good will within our communities. As construction projects move to new neighborhoods, Ambassadors are hired from a pool of candidates familiar with those neighborhoods, and good will, water quality appreciation, and financial effects are spread throughout Greater Cleveland.

Outside Financial Support and/or Program Partners

This program is funded entirely by NEORSD, but program partners include

- Burton Bell Carr Development Corporation
- City of East Cleveland
- Cleveland City Council
- Greater Cleveland Food Bank
- Urban League of Greater Cleveland
- Operator Training Certification of Ohio
- Cuyahoga Community College
- Great Lakes Construction

Greatest Obstacles Encountered

A key obstacle of the Good Neighbor Ambassador Program is the lack of understanding about the program with both internal and external stakeholders. The Sewer District is working to increase the visibility of Ambassadors through the addition of a mentorship program, active involvement in the Sewer District’s educational outreach programming, and more active participation and leadership of the Good Neighbor Ambassador Employee Resource Group, which makes the Ambassadors more visible at Sewer District locations.

Although the Good Neighbor Ambassador Program has outstanding success stories to share, there are some Ambassadors who have not successfully completed the program. The program is not an easy pathway to success and requires commitment from both the Ambassadors and the Sewer District.

However, through outstanding partnerships with workforce development organizations, particularly Cuyahoga Community College, we have worked to overcome these challenges and, to date, 68% of hired Ambassadors complete the program and 17 are full-time Sewer District employees.

Links to Additional Information on Workforce Program

From our website:

<https://www.neorsd.org/community/community-benefits/good-neighbor-ambassadors/>

Media story:

<https://www.news5cleveland.com/a-better-land/northeast-ohio-regional-sewer-district-ambassador-program-cleans-while-lending-a-helping-hand>

Case Study 18

Philadelphia Water Department (PWD)

Municipality/State: Philadelphia, Pennsylvania

Contact Person/Information: Candi Jones; candi.jones@phila.gov

Year of Inception of Program: 2013



Purpose and Goals of Workforce Program

- Name of Program: PowerCorpsPHL & Philadelphia Water Department
- Purpose & Goals: Through partnerships with organizations such as PowerCorpsPHL, PWD enhances its ability to provide meaningful career and work experiences to Philadelphians striving to advance their professional development through public service.

Case Study Summary

Launched in 2013, PowerCorpsPHL focuses on local talent and honing existing skills to create a sustainable career pathway while addressing systemic barriers to employment. PowerCorpsPHL supports members, ages 18 to 28, through trainings on teamwork, task management, and other soft skills necessary for the workforce while also providing technical skills, mentorship, a living stipend, and expungement services. The program, aiming to address the city's gun violence, youth unemployment, and sustainability challenges, launched as a coordinated effort through the Mayor's Office, and the Philadelphia Water Department was a founding utility partner.

As a service foundation to the partnership, PowerCorpsPHL team members working with PWD have been tasked to support green stormwater infrastructure (GSI) maintenance throughout the City of Philadelphia. In this role, PowerCorpsPHL members receive work orders from PWD and work together to clear debris and litter, remove sediment, prune trees, pull weeds, plant vegetation, and apply mulch to GSI systems to ensure proper functioning. Through the partnership, members are introduced to GSI concepts and related careers through preliminary "on-the-job" training. As members progress through the partnerships programming, successful participants receive higher-level technical training and apply those skills through work order management, working to maintain more than 270 annually serviced GSI systems at 125 different locations across the city.

In addition to "on-the-job" training, PWD offers introductory water resource industry classroom instruction alongside PowerCorpsPHL staff. The introductory training offers PowerCorpsPHL participants an opportunity to learn about the water industry, and specifically the extent to which PWD affects Philadelphia citizens' daily lives; the breadth of services offered by the utility; and how the system works to provide drinking, waste, and stormwater services across Philadelphia. Offering this introductory training also opens the doors for career opportunity discussion, which leads to further classroom instruction highlighting employment opportunities, pathways, and a "how-to" presentation on City of Philadelphia and PWD civil service application, hiring, and employment.

Given the knowledge, skills, and experience gained during their time working on PWD's water infrastructure systems, PowerCorpsPHL alumni are well-trained and competitive applicants. In addition to traditional knowledge, skills, and abilities gained through this partnership, successful graduates of PowerCorpsPHL are awarded additional points on civil service exams by participating in an AmeriCorps sponsored service program, further benefiting members' career pathway opportunities in City of Philadelphia and Water Department civil service.

Since the partnership launched in 2013, PWD has employed over 30 PowerCorpsPHL alumni. These alumni go on to work in positions ranging from Electricians and Electronic Technicians to GSI Maintenance Workers and Engineering Aides, and they play an important role as members of the PWD community.

Personal Story/Anecdote from Workforce Program Employee

A proud Philadelphian, Alumnus of PowerCorpsPHL and the PWD Apprenticeship Program, and a leader in the green infrastructure maintenance industry, Aaron Kirkland represents the tremendous, positive effect local jobs and professional development partnerships in sustainability and the water industry provide to young people and communities.

After an introduction to PWD and Green City, Clean Waters through PowerCorpsPHL, an innovative AmeriCorps program focused on local talent and honing existing skills to create a sustainable career pathway while addressing systemic barriers to employment, Aaron took a strong interest in the water and green infrastructure industry and entered PWD's Apprenticeship Program. As Aaron successfully progressed through his apprenticeship and worked towards full-time employment, he directly assisted with forming the Country's first municipal green infrastructure maintenance program. During this time, Aaron also started a family, bought a home, and continued working with other young people in Philadelphia interested in working in the water industry and learning more about careers in sustainability.

Aaron is now Green Stormwater Operations Supervisor at PWD, responsible for maintaining a significant portion of City-operated GSI systems, leading a team of permanent staff, and mentoring apprentices following in his footsteps. He lives with his wife and two young children in Philadelphia.

"The success of my career path in the Philadelphia Water Department was due to two things: equal opportunity and mentorship. Alex Warwood and Gerald Bright saw real potential in me and invested time and effort to create an environment that I could reach true actuality." **Aaron Kirkland, June 2020**

Benefits of Workforce Program

According to the Brookings Institution's 2018 report *Renewing the Water Workforce*, "as workers retire or leave, the water industry struggles to find qualified replacements. Even when students and other prospective workers demonstrate an interest in water careers, pursue needed education, and gain relevant experience, there can still be challenges in hiring them and providing long-term growth opportunities. Some prospective workers may lack job readiness or have a nontraditional background, which employers – and other community partners – may not have the time, resources, or programmatic flexibility to handle. At the same time, many of the nation's water infrastructure assets are in urgent need of repair, maintenance, and restoration."

Although the outlook is challenging, PWD's leaders believe that with a strategic workforce development plan in place, including strong partnerships with organizations such as PowerCorpsPHL, the utility can continue to make real, tangible strides forward as a utility of the future. Developing, implementing, and executing effective and efficient workforce development programming with partners such as PowerCorpsPHL will allow the department to maintain a strong position to meet its operational demands in the 21st century.

Outside Financial Support and/or Program Partners

PWD directly contributes an annual dollar amount to PowerCorpsPHL to support programming operational costs.

Greatest Obstacles Encountered

Through our partnership, PWD and PowerCorpsPHL have experienced challenges, but we continue to improve through support and communication. The biggest challenges encountered can be broadly categorized as internal departmental buy-in, clearly defined expectations, and metrics tracking challenges.

Links to Additional Information on Workforce Program

PowerCorpsPHL: <http://powercorpsphl.org/>

Aaron Kirkland, PWD: <https://vimeo.com/382437196>

Case Study 19

Springfield Water and Sewer Commission

Municipality/State: Massachusetts

Contact Person/Information: Katherine Shea, Educational Outreach and Communications Specialist; katherine.shea@waterandsewer.org; 413-452-1311

Year of Inception of Program: 2019



Purpose and Goals of Workforce Program

The Concepts and Practices of Basic Drinking Water Treatment Online Training program is designed to be a collaborative and statewide workforce initiative aimed at supporting current water industry employees in advancing their career and completing required training, as well as providing a unique and cost-free opportunity to enrolled Massachusetts community college students to learn more about the industry and take the next step in pursuing a career in the water sector. Students who successfully complete the course will have met the basic treatment training requirement set by the state of Massachusetts and are eligible to sit for the state licensing exam, an important first step in pursuing a career at a water utility. The training program is a great opportunity for community college students, who by passing the course, have many options for employment and further training in the water sector. The course is offered in partnership with the Springfield Water and Sewer Commission (Commission), Massachusetts Water Works Association (MWWA), and Springfield Technical Community College (STCC). The purpose of this specific program is to enhance the training options for water sector employees already offered through MWWA while broadening the reach and exposure to the general public. The Basic Treatment course has been offered through MWWA as an in-person course for many years. Attending the in-person course requires participants to dedicate several hours out of the workday or several hours in the evening to attend and can sometimes require a long commute to the training location. The in-person course also has limited class size and is geared toward current water sector employees. Most often, course enrollees attend the training as part of a state requirement to sit for the Treatment 2 (T2) state licensing exam. The T2 license is the entry level license required to continue working and training under an experienced water operator at most water treatment facilities.

Compendium of Successful Water Workforce Practices 2

The program goals are:

- To provide flexible learning opportunities for water sector employees so that they can complete the required treatment course and take the Massachusetts T2 licensing exam.
- Increase exposure and attract new candidates to the water industry, specifically nontraditional students, and students enrolled in local community colleges.
- Make this opportunity accessible to community members by reducing barriers some face in furthering their education, such as cost or schedule.
- Address the needs of the water sector to fill positions that will be left vacant due to retirements.
- Support local and state efforts to raise awareness of water sector careers and the critical need to build the water workforce of the future.

Case Study Summary

The program was implemented in collaboration with MWWA and STCC to provide training to individuals already working in the water industry, community college students exploring career options, and nontraditional students. The course, Concepts and Practices of Basic Drinking Water Treatment, was already offered through MWWA as an in-person course and completion of the course is required to take the T2 state licensure exam. The benefit of this program is the opportunity to offer the course online through the STCC online instructional portal, giving students the opportunity to view lessons and complete weekly coursework at a time most convenient for them. It also provided community college students across the state with the opportunity to enroll in the course tuition-free and learn more about the water operator profession. Waiving the tuition was a significant step in eliminating some of the barriers individuals face in pursuing educational and career training opportunities and allowed some students to enroll who might not otherwise have had the opportunity to take the training course. The online format made it ideal for busy students as well as water industry employees balancing work, families, and completion of required training. Students are able to register for the class through STCC. For community college students, tuition and fees are waived and the textbook also is provided free of charge. The course follows a 12-week online format, in which students complete assigned reading, coursework, and quizzes. The course instructor is available to assist students and answer any questions by phone or email. Utilizing the Blackboard online classroom portal, students are also able to engage in discussions with each other. Though the course offers in-depth training and information about the water treatment process, reading, coursework, and videos are no substitute for hands-on learning. As part of the course, all community college students are required to attend a half-day micro-internship at a water treatment facility; for students already working in the industry, the micro-internship is optional, though most take advantage of the opportunity.

Compendium of Successful Water Workforce Practices 3

The course instructor arranges micro-internships at several water treatment facilities across the state and at various times and days of the week to accommodate the students' busy schedules. The Springfield Water and Sewer Commission hosts many of the students for a micro-internship at the West Parish Filters Water Treatment Plant located in Westfield, Massachusetts. At the micro-internship, students are able to see what they have learned during the course come to life as they tour the reservoir, treatment facility, chemical storage area, pipe gallery, and the laboratory for water quality monitoring and water sample testing. The day is organized by a team of water operations professionals and gives the students an opportunity to learn from and ask questions of these experienced employees. The guided tour of the water treatment facility given by a seasoned water operator is especially beneficial for the students as they learn more about the operator's profession, career path, and what their daily job functions entail. For students who have never visited a water treatment facility before, it is a great learning opportunity and allows them to apply what they have been learning in a virtual format in a real-world setting. At the conclusion of the 12-week course, students are required to pass a final examination based on the course material. Upon successfully completing the course, the students are eligible to sit for the state licensing exam. Once they have passed the state exam they are officially certified as a T2 licensed operator in the state of Massachusetts.

Personal Story/Anecdote from Workforce Program Employee

Providing workforce training for community members is beneficial and further supports outreach efforts to grow the water operator profession. However, a critical aspect of this workforce training partnership has been to provide an accessible training program to our current water workforce to keep them in the industry and up-to-date with all classes, certifications, and licenses. What distinguishes

this program from other basic treatment training programs offered throughout the water industry is the scheduling flexibility the online format provides. The course helps busy, working individuals find a necessary balance between family responsibilities and taking the next step in their career. One program participant, and current water industry employee, noted how beneficial the online format was. As a parent of three, finding the time to complete an in-person course, while also working full-time and raising their children, was going to be a challenge. They mentioned that as hockey season was starting up, much of their evenings would be spent at their child's hockey practices and games. Fitting in an evening course would be difficult, if not impossible. Having the option to enroll in an online class allowed them to continue working in the water sector, care for their children, and complete the necessary training to take the state license exam, which is necessary for a long-lasting career in the water industry. This is just one of the many examples from working parents, some of single-parent households, that welcomed the opportunity to fulfill their training requirements utilizing the new online format. It also highlights the Compendium of Successful Water Workforce Practices 4 ways in which this course filled a crucial need to support our current workforce in attaining required licenses and encouraging career advancement.

Benefits of Workforce Program

The Springfield Water and Sewer Commission has seen many benefits of this workforce program. It has provided several employees with the opportunity to complete necessary training and further their career in the water sector. Many of the Commission's Water Operations positions require licenses to maintain employment or for promotion eligibility. This training program allows the Commission to hire individuals with the foundation and ambition for the role while also providing them with a flexible opportunity to complete training and obtain the license required for the job. It helps support entry-level professionals in advancing their career. They are able to learn not only through the course but through mentoring and hands-on application in their position.

Within the first year of offering this program, the Commission had three employees successfully complete the course. One of these employees was able to continue working in their current position as a laboratory technician while completing the online training and preparing to take the T2 exam. By obtaining their T2 license, the employee was eligible to be promoted to their new role as a chemist for the Commission. Another employee who finished the class and passed their T2 exam was promoted from laborer to the full-time position of operator-in-training, which is critical as the Commission seeks to build its workforce and maintain an adequate number of water operators on staff. By offering the course at a community college, the workforce program has also led to more community awareness of water industry professions and the need to address the shortage of water operators. The collaboration between the Commission, STCC, and MWWA has been critical to enhancing workforce programs and strengthening outreach. The benefits of the program are not exclusive to Springfield, but other communities across the state that have also had employees and community members successfully complete the course.

The course instructor has noted that approximately 10% to 20% of program participants thus far were neither industry workers nor community college students, but rather individuals from communities in Western, Central, and Eastern Massachusetts who heard about the course and enrolled to pursue a career change. For those seeking new employment opportunities with a positive, long-term job outlook, the water industry provides an excellent pathway. As opposed to other career training or workforce development programs that may require several semesters of course work, this program allows those who successfully complete the training to sit for the state exam and begin working in a water treatment facility while they further their water education and build their career.

Compendium of Successful Water Workforce Practices 5

Outside Financial Support and/or Program Partners

- Springfield Water and Sewer Commission
- Massachusetts Water Works Association
- Springfield Technical Community College

Greatest Obstacles Encountered

Although online courses offer students flexibility with their schedules, some students, particularly community college students who were new to water treatment concepts, found the online format less beneficial than an in-person course. The water treatment course is particularly math intensive and students who did not have strong foundational math skills said they found some of the material challenging. The instructor recognized these challenges early on and added more math-focused student support, increased virtual office hours, and added more student check-ins to encourage students to stay on pace with the course work. Maintaining accessibility and schedule flexibility is fundamental to this course. While the micro-internship is a great learning opportunity, finding a day and time that works best for students was a challenge. Some students preferred weekdays while others preferred weekend micro-internship dates. Ultimately, two date options were offered during the spring semester, a weekday and a Saturday, and students could attend the date that worked best for their schedule. Because the course is offered online and students reside across the state, the course instructor worked with other utilities to provide an opportunity for a micro-internship at another utility in the eastern part of the state, so that students living in that area would have a more easily accessible treatment plant to visit for the micro-internship.

Links to Additional Information on Workforce Program

<http://waterandsewer.org/?s=stcc>

<https://www.stcc.edu/wdc/descriptions/drinking-water-concepts/>

<https://mwwa.memberclicks.net/education>

<https://www.mass.gov/get-a-drinking-water-supply-facility-operators-license>

Case Study 20

Toho Water Authority

Municipality/State: Osceola County, Kissimmee, Florida

Contact Person/Information: Todd Swingle, Executive Director; tswingle@tohowater.com
Rebeca Martinez, Director of HR; fmartinez@tohowater.com

Year of Inception of Program: 2015



Purpose and Goals of Workforce Program

Training and Development

Case Study Summary

Toho Water Authority approved its first Training Coordinator position in 2014 and we quickly moved to establish the Training and Development office. The immediate need was to ensure compliance trainings, safety, and regulatory, were current and documented as required.

After the first year, we expanded the focus to include other training and development needs. A gap assessment was conducted to identify areas of need for training in the workforce. We quickly found an opportunity to bring several off-site trainings on-site to alleviate scheduling constraints, budget limitations, and overall more effective coordination. Several trainings were brought on-site and, in some cases, were opened up to other utilities for their employees to join. This approach added networking and collaborative value. In addition, we introduced Toho's first Leadership Development Program – a 12-month program with various trainings aligned with the topic of the year. Crucial Conversations, Accountability, and Customer Service were among the topics. The Leadership Development Program was offered completely on-site and offered instructor-led classes, workshops, and team-building activities. One of the highlights of the program was what we branded "TWA Tour," an opportunity for employees to visit the departments and facilities and learn about how they relate to their position. The success of this activity was such that we expanded it to non-supervisors and included it as part of our new employee onboarding activities.

By the third year, the Training and Development Office hosted its first annual "Training Day" fair that December. A wide range of local schools, regulatory agencies, and training providers were invited to attend and to share resources with employees. Employees were invited to this event and it was very well received. The event allowed employees access to learn more about a certification program offered through University of Florida Training, Research and Education for Environmental Occupations Center or a degree through Valencia. Employees also had an opportunity to network internally and learn more about other jobs available within Toho.

Training and development classes, courses, refreshers, workshops, and activities continue to increase and expand. This past year, we introduced a new Learning Management System. This could not have been kicked off at a better time than now, during this new virtual world we've been forced to join! The new Learning Management System (LMS) was a component of our existing HR software program that includes performance reviews, new hire onboarding, and the application database. So, employees were already familiar with the system and navigating it was intuitive. The new LMS kicked off in June and introduced access to a broader catalog of training topics, the ability for employees to "self-serve" their training requests and inquiries, and transparency for employees and supervisors alike

with regard to training documents. We've used the new LMS to make important topics accessible to our workforce in a timely manner, including Hurricane Preparedness, Diversity and Inclusion, and Managing Stress. The feedback from employees, so far, has been very positive.

We continue to move into the next phase of our Training and Development strategic vision. This includes using this new LMS as a tool to facilitate career planning and succession planning. We recognize the importance of developing talent and also retaining it, even if that means moving the talent to another department within the organization. As an organization we want to encourage career development either vertically or horizontally, to ensure we retain top talent.

Personal Story/Anecdote from Workforce Program Employee

We've had several success stories during our Training and Development (T&D) program. An employee who took their certification test multiple times and couldn't pass it but, who after being assigned an internal tutor – coordinated by our T&D office – successfully passed it. Another is our organization being selected as a DEP Testing site to help us get exposure to potential candidates. Another is a number of our supervisors gaining a greater, broader, appreciation for how the departments at Toho connect and how their role or work units fit into the greater picture.

One of the reasons for the success of this program is the individual at the heart of it all. Toho's Training Coordinator is someone who has been with the organization over 25 years and has "grown up" here. She began at a young age and in an entry level position. Her knowledge of the organization, the workforce, its culture, and dynamics have added much value to the role. However, more importantly, is her commitment and passion for helping employees learn. It is evident in her resourcefulness and dedication to find solutions and options to meet the training needs.

Benefits of Workforce Program

We believe our employees are our greatest asset. An employee who is well trained and whose talent is developed, results in greater productivity and higher quality of work. This includes employee safety, job knowledge, problem solving abilities, and solutions. Needless to say, greater productivity and quality of work are reflected in our service to our customers and our community. The benefit of T&D is ultimately to provide our customers and the community a safe product and excellent service.

Outside Financial Support and/or Program Partners

Not applicable

Greatest Obstacles Encountered

Perhaps not so much an obstacle, but rather, a challenge. The success of establishing a T&D has been shouldered by one person. Our T&D office is "womaned" by one, very brave, soldier. It's not been an obstacle per se. However, it does affect our resource availability to move some initiatives as quickly as we'd like, such as a formal mentor program or internship program.

Case Study 21

Prince George's County & Montgomery County/Maryland

Municipality/State: Prince George's County & Montgomery County/Maryland

Contact Person/Information: Monica Johnson, Deputy General Manager for Strategy and Partnerships; 301-206-8199 or Monica.Johnson@wsscwater.com.

Year of Inception of Program: Programs have started and grown over the past 15 years – from 2005 through 2019.



Purpose and Goals of Workforce Program

Case Study Summary

WSSC Water addresses workforce development through a multi-faceted approach primarily focused on recruitment and retention. From a recruitment standpoint, our workforce development efforts start with students in elementary schools within our service area (Montgomery and Prince George's counties) through a variety of Science, Technology, Engineering/Energy, Arts, and Mathematics (STEAM) educational outreach programs. These programs bring WSSC Water staff into classrooms where they educate students about the science and technology behind drinking water production and wastewater treatment through enriching hands-on activities. WSSC Water programs geared to elementary school students include:

- Water Works School Programs: Provide on-demand, in-classroom STEAM activities designed for 30 students at a time;
- Children's Water Festival: 400 fourth graders participate in hands-on learning focused on source water protection;
- Discover Engineering Family Day: WSSC Water and STEAM organizations join forces at the National Building Museum for a day of exploration; and
- Facility Tours: Children of all ages attend tours at our Consolidated Laboratory and Water Resource Recovery Facilities to learn about careers in the water sector.

WSSC Water has a targeted effort to engage middle and high school students about careers in the water sector. Focusing on middle school students ensures that their interest in water sector careers translates to their coursework selection in high school and in college, ultimately leading to careers in the water sector. These programs focus on outreach to underrepresented groups. WSSC Water programs geared to middle and high school students include:

- Water Works Summer Camp: Week-long camp focused on introducing careers in the water sector;
- Introduce a Girl to Engineering: Middle school girls spend a day with female engineers participating in hands-on learning that allows participants to explore water-sector careers;
- Sewer Science: Middle and high school students create simulated labs to learn about careers in wastewater;
- Water Works Academy: High school students not interested in attending college learn about water infrastructure-related careers;
- H2O Engineers: In-depth program for 11th and 12th grade students to learn engineering principles of flow, pressure, design/planning, technology, and innovation.

WSSC Water's workforce development efforts also extend to several robust internship programs.

Since 2011, WSSC Water's Intern Program has identified and attracted undergraduate and graduate students pursuing diverse fields of studies that include not only our engineering, science, and planning teams, but also finance, legal, human resources, and communications functions. Through project-based work assignments, our staff observes the skill, creativity, and innovation of the students while offering guidance and training. This is a paid internship program; however, some students receive college credit through their universities. The program advanced from an inaugural class of 21 students to an average of 50 students. To date, approximately 400 students have participated.

In 2018, WSSC Water partnered with Don Bosco Cristo Rey High School in Takoma Park, Maryland, to implement a Corporate Work Study Program. WSSC Water General Manager and CEO Carla A. Reid established this strategic partnership for three main reasons: to advance an organizational goal for succession management; support young people with mentoring opportunities; and provide valuable skills to high school learners in preparation for college advancement. The work-study program opens doors to students who will likely be the first in their families to attend college and provides workplace experience and exposure. A team of four students works with WSSC Water's Customer Service Department to complete work assignments each day of the week.

WSSC Water's workforce development efforts also rely on strong partnerships with the workforce development programs of the two counties that we serve. In 2019, WSSC Water partnered with both local school systems to introduce students to careers in the water sector. Montgomery County's Summer R.I.S.E. program is a job observation program that allows high school students to identify a career of interest, then shadow select WSSC Water staff for a 3-week period to observe the key aspects of the job. During the same period, we also partnered with Employ Prince George's and its Summer Youth Enrichment Program to provide summer opportunities for unemployed and underemployed youth, ages 16 to 24. This program provides a student with a 6-week employment opportunity that fosters interest in pursuing similar careers, builds readiness skills, and helps gain work experience. The goal of both programs is to attract talented candidates for future positions.

Career exposure efforts further extend to our local universities through working with students throughout the academic semester to provide hands-on projects. Our Strategic Performance Office has created a partnership with the iSchool at the University of Maryland, College Park, where students work on data-related problems during their semester-long capstone courses. The partnership has produced two major projects that have helped to identify ways to make WSSC Water's fleet services division more efficient. The first project, conducted in fall 2019, resulted in a dashboard that allows fleet services to track vehicle use across WSSC Water. The second project, completed in spring 2020, resulted in a dashboard that allows fleet services to better manage assets and their lifespan.

Personal Story/Anecdote from Workforce Program Employee

Princilla Adusei (12th Grade — Don Bosco Cristo Rey High School) — Customer Service Department

****Note:** Unfortunately, due to the COVID-19 crisis, the program was suspended temporarily. We reached out to her to see how she was doing and received the following response:

I hope you guys are all doing okay and are thriving during the time that we are in right now. I want to say that I appreciate you guys allowing me to work with you and teaching me a lot of things along the way. Thank you for all the advice and support you've given me. I appreciate every little thing you all have done to help and support me.

****We** are proud to share that Princilla graduated in May 2020 with Honors. She will be attending Penn State University in the Fall of 2020 and has aspirations of becoming a doctor.

Blen Jimma, P.E. — Environmental and Engineering Services Division, Student Intern Program

I started my graduate degree in Environmental Engineering focused on water resources at the University of Maryland, College Park, in January, 2018. It was in the summer of 2018 that I found an internship

opportunity with WSSC Water. I had the pleasure of working in the Environmental and Engineering Services Division (EESD), which provides civil engineering design support for utility services and the in-house pipeline replacement program. Particularly, I worked for the section that was focused on research and innovation. This section finds new technologies and processes that will improve sustainability and reduce operating expense for pipeline networks and treatment places. I knew WSSC Water was the right place to stay and gain invaluable practical experience. At the end of my graduate studies in May 2019, I was hired as a materials engineer with EESD at WSSC Water. In this role, I work on various pipe material analysis and testing, forensic material testing, corrosion, and materials design reviews, and many other exciting projects.

Rabbouni Mertus — Strategic Performance Office, Student Intern Program, iSchool — University of Maryland

During my tenure at WSSC Water, I was able to develop and refine new skills, work on enriching projects, and network. The projects I worked on allowed me to use the skills I have gained throughout my academic career. I also felt challenged to grow and learned new skills that made me a more cross-functional professional. I was also able to work with multiple departments, which allowed me to network while learning about all the units that allow WSSC Water to run successfully after all these years.

Benefits of Workforce Program

Our workforce programs have enabled WSSC Water to attract, recruit, and retain knowledgeable and highly qualified employees and counter the sectorwide challenge of an aging workforce. These workforce development programs help to ensure we continue to build the talent pipeline.

Our programming spans different age groups, and the hands-on experiences that we offer elementary and middle school students introduce them to a wide variety of careers in water and wastewater. The goal is to excite these young students and encourage them to pursue coursework in high school and college that leads to a career in the water sector.

Our programs also help create stronger partnerships with the communities we proudly serve. This leads to a positive reputation for WSSC Water and ensures that the next generation truly appreciates the value of water.

Outside Financial Support and/or Program Partners

The Summer Youth Enrichment Program with Employ Prince George's does provide pay for youth in the 6-week program. WSSC Water has an opportunity to extend assignments, where possible, and assume financial responsibility for work in excess of the 6-week program.

Greatest Obstacles Encountered

One of the greatest obstacles WSSC Water faces is its inability to convert more students to full-time hires due to budget constraints and the unavailability of jobs. While our sector has historically been underrepresented in terms of diverse populations, our programs are geared to increasing diversity and inclusion in an effort to promote equity within WSSC Water and the sector.

Links to Additional Information on Workforce Program

www.wsscwater.com/steam

www.wsscwater.com/intern

www.employpg.org/

www.montgomeryschoolsmd.org/departments/partnerships/summer-rise/

www.dbcr.org/corporate-work-study/

www.dbcr.org/videogallery/don-bosco-cristo-rey-corporate-work-study-program/

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