



Apprenticeship Program

Matthew Maffei
Program Coordinator

NJWA Annual Conference

Atlantic City NJ

2023

Presentation Topics

**Apprenticeship
Program
Overview/Status**

**Succession
Planning**

**Other Initiatives &
Observations**

Scope

Water & Wastewater System Operations
(T, W, S, C)

Job Classification

Operations Specialist (licensed operator)

Approved by and registered with

the US Department of Labor

Partners include

US Dept of Labor, NJ Dept. of Labor, and
our National Water Association



Apprenticeship Program



NJWA is the Program sponsor

- ✓ provides administrative oversight
- ✓ technical training, and
- ✓ support to the employer and apprentice

NJWA is not a direct employer of apprentices

NJWA functions to connect participating employers with apprenticeship candidates to fill operator trainee positions

A fully implemented program with Registered Apprentices and **Participating Employers**

Apprenticeship Program

njwater.org

Participating Employers (22)



Trenton Water Works - 6/2020 / Middlesex W. Co. - 7/2020 / Agra Environmental 7/2020

East Windsor MUA 10/2020 / Water Resource Mgt. 12/2020

Pine Beach Boro 3/2021 / Hammonton W. Dept 3/2021 / Gloucester City W. Dept 8/2021

Beach Haven W. Dept. 11/2021 / O&M Solutions 12/2021

Mount Holly MUA 4/2022 / Boro of Spring Lake Hts. 4/2022 / Boro of Woodbine 5/2022

Woodard & Curran 5/2022 / Brick Township MUA 6/2022 / Fayson Lakes W. Co. 7/2022

Kearny MUA - 7/2022 / Parsippany-Troy Hills W. Dept 11/2022

Harrison Township WW Utility 3/2023 / Atlantic City MUA 3/2023

Hackettstown MUA 8/2023 / Willingboro MUA 10/2023

Program Overview



- **Provides a pathway** for apprentices to develop the **knowledge and skills** in the operation and management of water and/or wastewater utilities
- **Two-year program** consisting of **4000 hours** of on-the-job training and **288 hours** of related technical instruction
- **Methods** of Establishing Apprentices
 - Direct Entry** - Incumbent employee
 - New Hire** - AP Candidate List

Primary Goals:

- **Increase the pool** of a highly skilled, licensed workforce that is demanded by the water/ wastewater profession
- **Provide greater employment opportunities** to historically under-represented groups
(women, minorities, veterans, other)



Standards of Apprenticeship

Section IV – Qualifications For Apprenticeship

- **Age** – must be at least 18 years of age
- **Education** – a high school diploma or equivalent
- **Physical** – physically capable of performing the functions of an operator
- **Drug Screening** – prior to employment
- **Background Check** – prior to employment
- **Drivers License** – possess a valid state-issued driver's license

Apprenticeship Program

njwater.org



Standards of Apprenticeship

Section VI - Supervision of Apprentices

- A licensed operator serves as the apprentice's Mentor
- The Mentor must be licensed in the same tract that the apprentice is pursuing: TI, WI, SI, CI and above
- The mentor is responsible for making work assignments, providing on-the-job training, and ensuring worksite safety
- The mentor is readily available to the apprentice
- Current Ratio is 1:3 (one mentor up to 3 apprentices)

Apprenticeship Program

njwater.org



Standards of Apprenticeship

Section XIII – RELATED INSTRUCTION

- Each apprentice participates in coursework as outlined in Appendix A
- A minimum of 288 hours of related instruction is required

Apprenticeship Program

Standards of Apprenticeship



Curriculum Framework Related Technical Instruction (RTI)

Appendix A-1 Water Year I	Appendix A-2 Wastewater (Treatment) Year I	Appendix A-2 Wastewater (Collections) Year I
Intro W & WW - 180 Hours	Intro W & WW - 180 Hours	Intro W & WW - 180 Hours
Orientation - 6 Hours	Orientation - 6 Hours	Orientation - 6 Hours
Professional Requirements - 8 Hours	Professional Requirements - 8 Hours	Professional Requirements - 8 Hours
Health & Safety - 28 Hours	Health & Safety - 28 Hours	Health & Safety - 28 Hours
Emergency Response - 12 Hours	Emergency Response - 12 Hours	Emergency Response - 12 Hours
Total Hours - 234	Total Hours - 234	Total Hours - 234

Apprenticeship Program

njwater.org

Standards of Apprenticeship

Curriculum Framework Related Technical Instruction (RTI)



Appendix A-1 Water Year 2	Appendix A-1 Wastewater (Treatment) Year 2	Appendix A-2 Wastewater (Collections) Year 2
Advanced Water Operations - 90 Hours*	Advanced Wastewater Operations - 90 Hours*	Advanced Wastewater Collections - 45 Hours*
Electives Training - 32 Hours	Electives Training - 32 Hours	Electives Training - 32 Hours
Emergency & Security - 22 Hours	Emergency & Security - 22 Hours	Emergency & Security - 22 Hours
Required Total: 54 Hours	Required Total: 54 Hours	Required Total: 54 Hours
Total 2 Years - 288 Hrs w/ advanced course 346 Hours	Total 2 Years - 288 Hrs w/ advanced course 346 Hours	Total 2 Years - 288 Hrs w/ advanced course 301 Hours

Apprenticeship Program

njwater.org

*Qualifier: for apprentices taking advanced classes for T2, W2, S2, C2 licenses during the two-year apprenticeship period, the hours spent in class for any of the Advanced courses can be credited (hour-for-hour) towards the Electives requirement



Standards of Apprenticeship

4,000 Hours On-the-Job Training

- **Tools, Equipment & Workplace Safety** – 240 Hours
- **Vehicles & Specialized Equipment** – 400 Hours
- **Operation & Maintenance** – 1,920 Hours
- **Quality Control** – 960 Hours
- **Logistics, Reports and Supervision** – 480 Hours

Apprenticeship Program

njwater.org

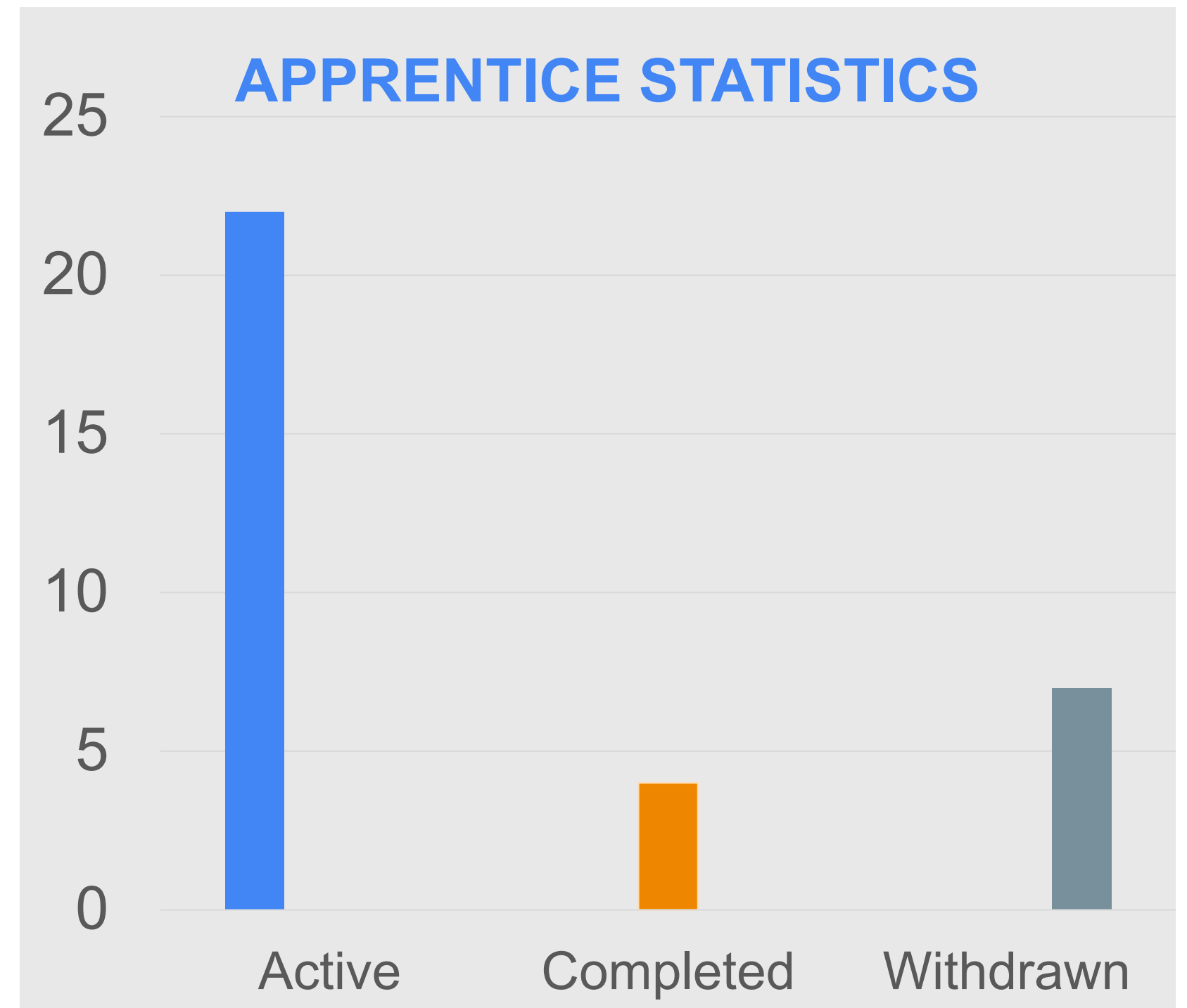


Program Stats

Total Apprentices: 33

- ✓ **Active Apprentices: 22**
- ✓ **Completed Apprentices: 4**
- ✓ **Withdrawn Apprentices: 7**

Timeline: 3 + years (since 6/2020)



Apprenticeship Programs



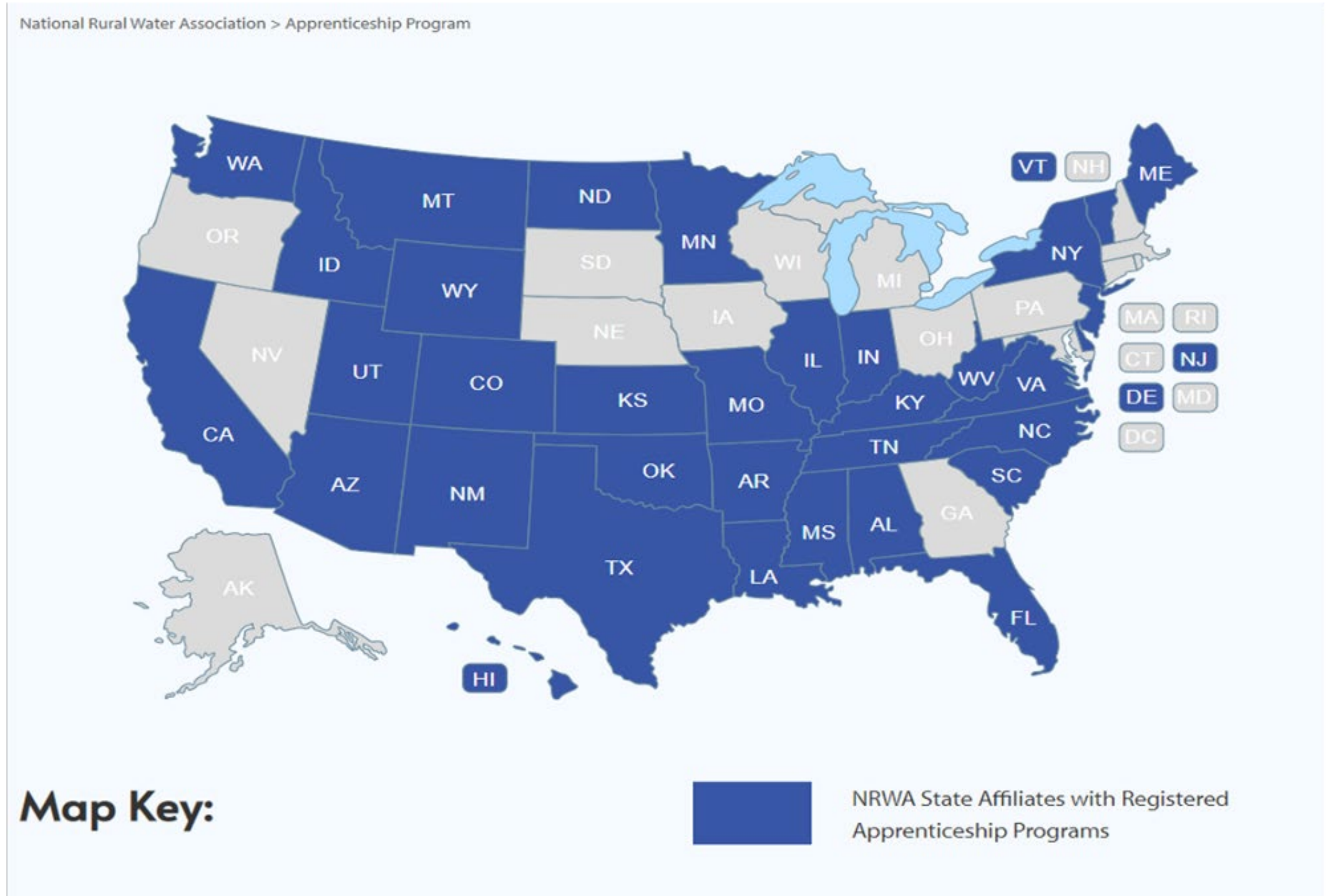
The U.S. Dept of Labor advocates partnering with a registered apprenticeship program to support your workforce development initiatives because it:

- ✓ **Reduces the Costs** associated with recruiting new employees
- ✓ **Minimizes the Skills Gap & Increases Productivity**
- ✓ **Creates a more diverse Workforce**
- ✓ **Provides an Entry Point** for long-term career pathways

National Effort



Water Industry Apprenticeship Programs



Workforce Issues



- Water and wastewater utilities **face challenges** in recruiting, training, and retaining operators
- **National assessment** (January 2018) involving the USEPA, Water Environmental Foundation, American Water Works Association projected that **upwards of 50%** of the licensed operator workforce may retire this decade

Other factors thin the workforce:

- **Increasing Professional Demands**
 - Advancements in treatment technologies & Ever-increasing regulatory requirements
- **Lack of Exposure to Employment Opportunities**
- **Competition** with other Trades

Succession Planning



- **Finding:** AWWA's State of the Water Industry Reports (2014 & 2019) indicate that fewer than 1% of utilities are prepared for or planning to cope with their retiring workforce
- **Related Observations:**
 - ✓ Reservations - Many approaching retirement adopt the mind-set that it's not my problem
 - ✓ Employment Concerns - I'm not going to bring someone onboard that will take my job
 - ✓ Changing Dynamics - due to changing economics the retirement age is expanding creating a buffer to the projection of 50%
 - ✓ Competing Priorities - Succession planning is not a top priority and managers/operators are consumed with day-to-day operational & maintenance issues, regulatory compliance, and infrastructure projects

Lack of Preparation

Succession Planning

The Importance



- **Long-Term Sustainability and Resiliency** of water and wastewater operations involves several critical activities:
 - Resilient & Redundant Infrastructure
 - Emergency Response and Asset Management
 - Long-term Sustainable Rate Strategies
 - Energy Efficient Operations
 - Resiliency to Climate Change
 - **SUCCESSION PLANNING & KNOWLEDGE TRANSFER**

**Succession Planning -
vital to the success of
business operations &
objectives**

Succession Planning

NEXT STEPS

- **Observation:** There's a need to promote the capacity of water and wastewater systems to develop a Utility Workforce Succession Plans



NJWA intends to sponsor training (Spring 2024) for water and wastewater utilities on the process of developing Succession Plans:

- ✓ Identify critical positions
- ✓ Anticipate future staffing needs
- ✓ Establish a supporting budget
- ✓ Develop appropriate Job Titles/Job Descriptions
- ✓ Prepare an Action Plan to recruit and train employees to ensure necessary skills & abilities
- ✓ Fill critical positions

Workforce Development Initiatives



- **Increase awareness of careers** involving the water industry
- Expand collaborations & promote **pre-apprenticeship opportunities** with a nexus to apprenticeship programs



Workforce Development Initiatives

- ✓ NJWA participated in various youth outreach initiatives and collaborations
- ✓ Goal: to promote apprenticeship candidate recruitment and pre-apprenticeship opportunities

New Jersey Future - Water Workforce Pilot Program

Partners include Jersey Water Works, Hudson County Community College, NJ Water Association, Veolia, NJ Community College Consortium and NJ Utility Association

- ✓ **Overview:** an 8-Week, 50-hour program introducing participants to water industry careers through classroom and field activities
- ✓ **Duration:** Program runs from September through November
- ✓ **Outreach:** events were held on June 6, July 6, and August 1
Kickoff reception was held on September 13
- ✓ **Outcomes:** graduating participants will have the option to enter the apprenticeship program, accept internships with Veolia, or continue with their higher education

Workforce Development Initiatives

- ✓ Other NJWA collaborations



NJ Department of Environmental Protection - Youth Inclusion Initiative

Partners include: NJDEP, NJ Water Assoc., Rutgers Camden, Camden Work Group, and the Newark Ironbound Community Corp and other entities in Mercer & Union Counties

- ✓ **Overview:** a 6-Week, program introducing participants to environmental programs, careers & opportunities
- ✓ **Target Population:** Youth (ages 16-20) from underrepresented and underserved urban communities
- ✓ **Outreach:** Events were held on August 4 and 11
- ✓ **Thank you:** to Andy Clauhs, Territory Manager for Mueller Water Products. Andy supported the event with demos of hydrants, valves, water main repair clamps, etc.

Workforce Observations

Other Takeaways



Operator Trainee Salary

Observation: operator trainee positions with a starting hourly rate in the **\$16-\$17** range is proving insufficient for retaining hired employees

- ✓ **Consideration:** establish wages that are competitive with other trades/employers

Unlicensed / Licensed Earnings Differential

Observation: the hourly rate between unlicensed and licensed (class 1) individuals is not commensurate with the responsibility, sometimes less than \$1

- ✓ **Consideration:** incentive the attainment of licensing through adequate salary increases

Operator Trainee Titles

Observation: utilities have operator trainee titles locked up by individuals who can't pass or don't desire to take the State Licensing exam

- ✓ **Consideration:** establish alternate career pathways (title series) to maintain valued employees but that frees up critical operator trainee titles

Summary



- ✓ **Succession Planning is a critical course of action**
necessary to ensure the success of business operations & objectives
- ✓ **Education and Support** is needed to assist water/wastewater utilities in getting ahead of succession planning activities and ensure critical operator positions are filled

Summary



- ✓ NJWA's Apprenticeship Program provides a **reasonable, structured, and comprehensive** pathway for educating and training unlicensed employees in water/wastewater operations
- ✓ And serves as a tool **to support** implementation of water/wastewater utility **succession plans & workforce development initiatives**

For more information



Visit: njwater.org

Contact: Matthew J. Maffei,
Apprenticeship Coordinator

matt@njwater.org

Office: 609-242-7111

Let's Collaborate, and Bridge the Gap

to the industry's need of the next generation of skilled operators