

# welcome

# Agenda

Introduction

Regulations and Licensure

Recruitment and Retention

The Future Operator

Conclusions – Q&A

# Introduction

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# Abstract

## ***The Next Generation of Operators – Recruitment and Retention***

*Many utilities are faced with workforce shortages resulting from the pandemic, scheduled and early retirements, and significant competition for the remaining workforce of licensed and experienced operators. Will the next generation of operators be attracted to careers in the industry resulting from technology advancements, sustainable and resilient environmental future, and/or competitive pay/benefits? This presentation will dive deeper into the demographics and other data contributing to the current and future workforces and next steps to attracting and retaining the future generation of operators.*

# History of Regulations

1887

- Refuse Act - prohibited “dumping of refuse” into navigable waters, except by permit

1899

- First biological treatment (an intermittent sand filter) was installed in Medford, MA

1918

- First mandatory operator certification program was started in New Jersey

1947

- Congress established interstate water pollution control commissions, such as NEIWPCC

1948

- The Federal Water Pollution Control Act (FWPCA) was the first major U.S. law to address water pollution

1972

- Clean Water Act - growing public awareness and concern for controlling water pollution led to amendments of the FWPCA in 1972

# MassDEP Regulations

- Approximately 50% of the United States population uses groundwater as a drinking water supply.
- Most groundwater is naturally free of pollutants, but contamination of groundwater can cause serious health effects from pollutants.
- *314 CMR 5.00*, the Groundwater Discharge & Reclaimed Water Permitting Process, regulates the discharge of sanitary or industrial wastewater, as well as the use of reclaimed water in conjunction with a discharge.



Source: [www.mass.gov](http://www.mass.gov)

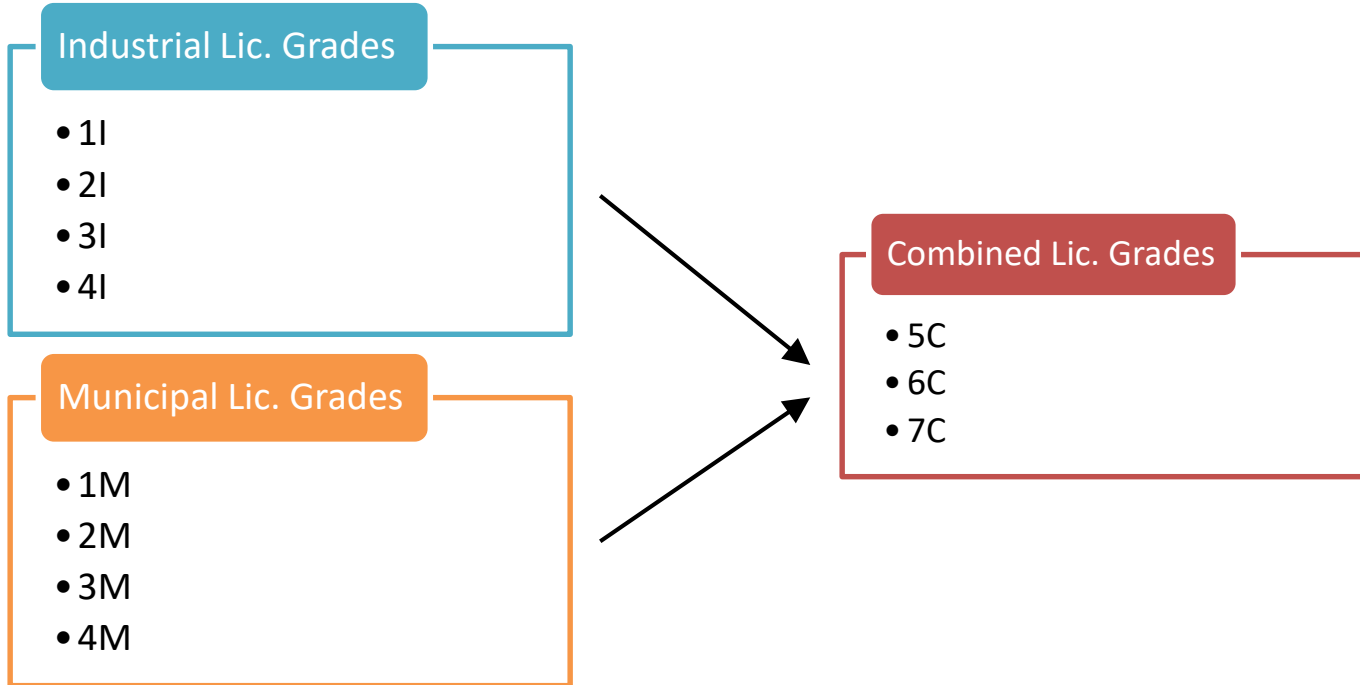
# Operator Regulations

- *257 CMR 2.00: Certification of Operators of Wastewater Treatment Facilities*
  - Those in responsible charge of a WWTP must be certified to the proper grade level.
  - To be certified, you must pass a certification exam.
  - To be “Full Active”, you must possess a certain level of experience at a WWTP of that grade.



Source: [www.neiwpcc.org](http://www.neiwpcc.org)

# MA WW Treatment Licenses





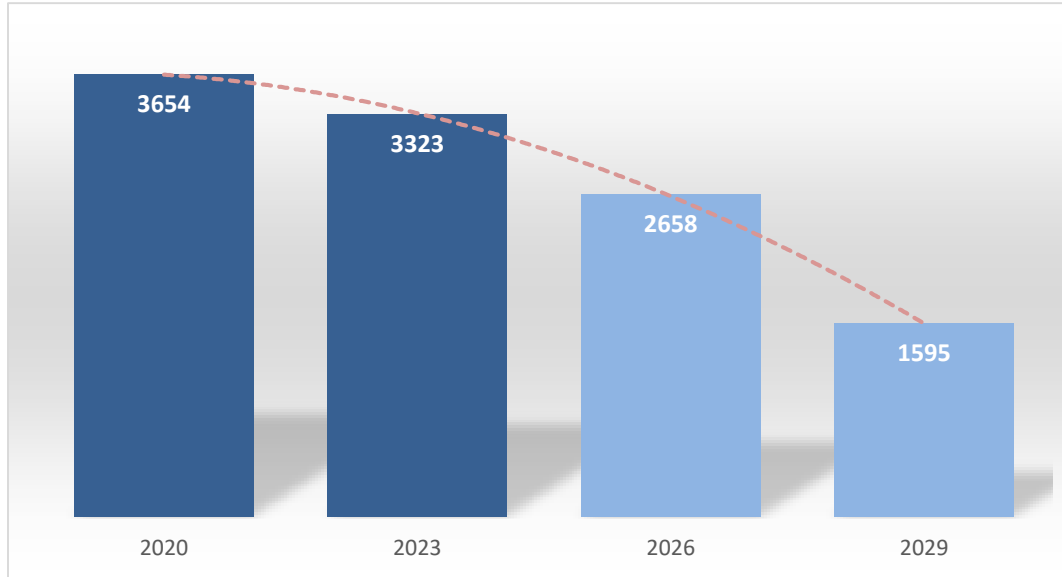
# MA Licensed WW Operators

Licensed Operators 2020			
Grade	Active	Inactive	Total
1M	27	25	52
2M	277	160	437
3M	122	201	323
4M	458	233	691
1I	260	72	332
2I	1004	345	1349
3I	142	65	207
4I	164	106	270
5C	437	159	596
6C	340	150	490
7C	423	110	533
<b>Total</b>	<b>3654</b>	<b>1626</b>	<b>5280</b>

Licensed Operators 2023			
Grade	Active	Inactive	Total
1M	23	26	49
2M	245	139	384
3M	135	167	302
4M	406	218	624
1I	209	87	296
2I	917	355	1272
3I	120	55	175
4I	146	84	230
5C	416	187	603
6C	315	142	457
7C	391	123	514
<b>Total</b>	<b>3323</b>	<b>1583</b>	<b>4906</b>

Source: MassDEP records

# Trend of Active Licenses



MA wastewater treatment licenses

# Licensed Operators vs. WWTPs

## Active Licensed Operators 2023

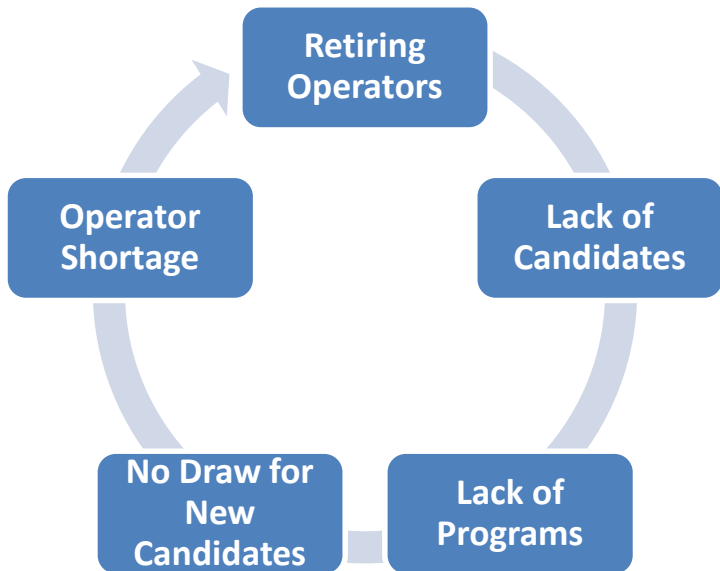
License Type	Total
Municipal	809
Industrial	1392
Combined	391
<b>Total</b>	<b>2592</b>

## Graded Facilities 2023

Permit Type	Total
Municipal GWD	479
Industrial GWD	1449
NPDES	489
<b>Total</b>	<b>2417</b>

- Many WWTPs require numerous licensed operators and on multiple shifts.
- Operators may be responsible for more than one WWTP (reduced staffing plans/package plants).

# Employment Projections



Employment for the Utilities Industry				
2011	2021	2031	Change 2011-2021	Change 2021-2031
552,500	540,800	506,200	-11,700	-34,600

Source: U.S. Bureau of Labor Statistics

# Combating Employment Decline

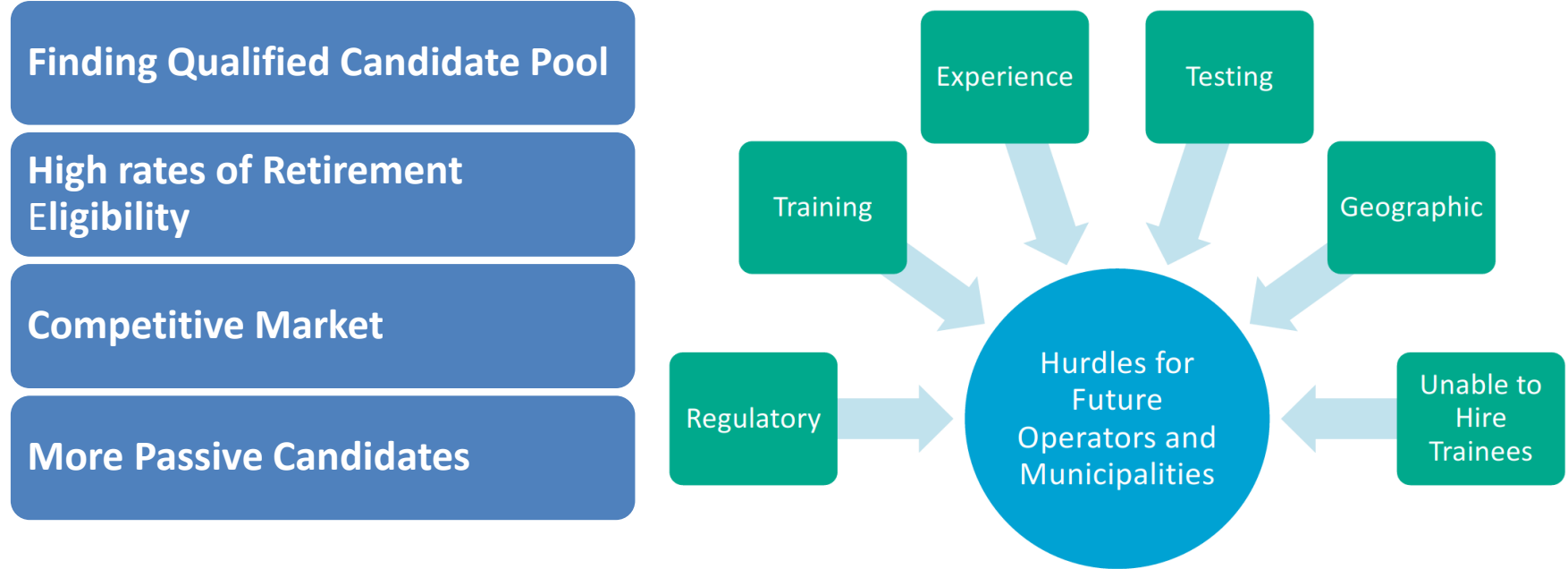
*Recruitment: process of identifying, attracting, interviewing, selecting, hiring and onboarding employees*

Benefits of finding suitable candidates for vacant positions:

- Assists with adapting to change
- Increased performance
- Expands knowledge base, experience
- Reduces turnover
- Improves morale



# Recruiting Challenges



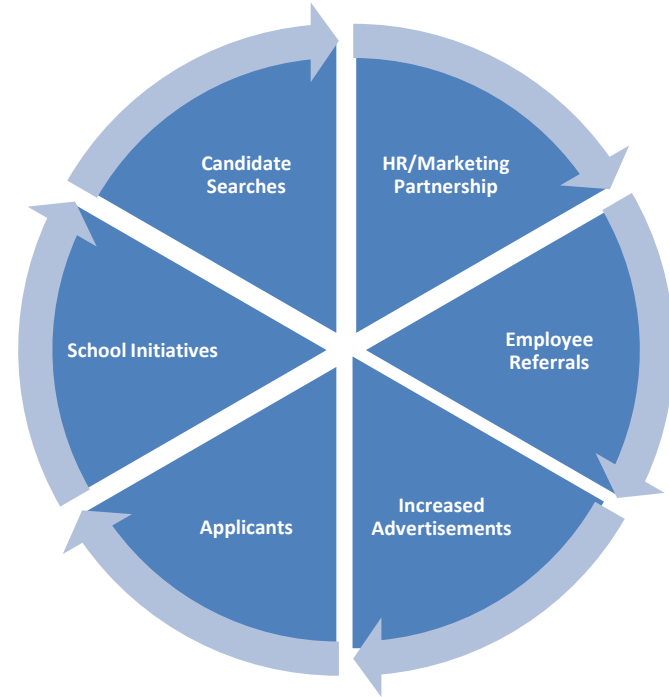
# Expanding Candidate Pool

- Crosstrain entry level personnel or non-technical employees to provide backup operations
- Recruitment of mechanically inclined people that can obtain WW licenses
- Find retiring operators that will work part time
- Post positions on diversity/veteran-focused job boards



# Recruitment Tactics

- Increased social media presence
- Employee referral bonus
- Competitive wages and benefits
- Networking and active recruiting on job boards
- Building school relationships
  - Career fairs
  - Trade/Technical schools
  - STEM programs
- Innovation, technology and environmental sustainability





# Expanding Employee Search

- Focusing on trade/technical schools
- Posting on industry-specific job boards
- Posting on local/state job boards
- Expanding and enhancing job postings and career impacts
- Posting on diversity/veteran job boards (ex. Veterans Enterprise, Women in Business & Industry)
- Increasing exposure - social media platforms, outreach programs



# Exposure and Recognition



Local veteran job fairs



MassDEP performance awards

# Community Outreach



**Presenting at a technical schools**

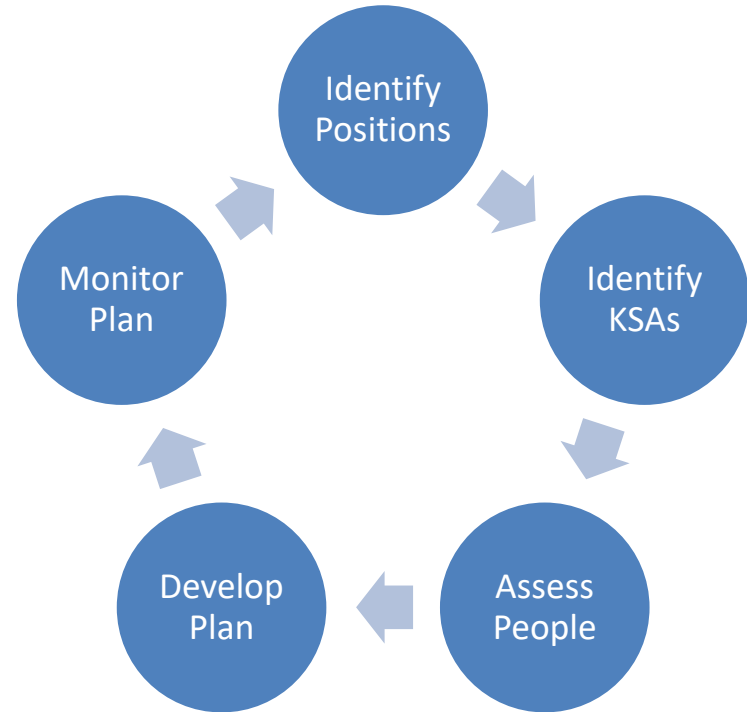


**Open houses for customers**

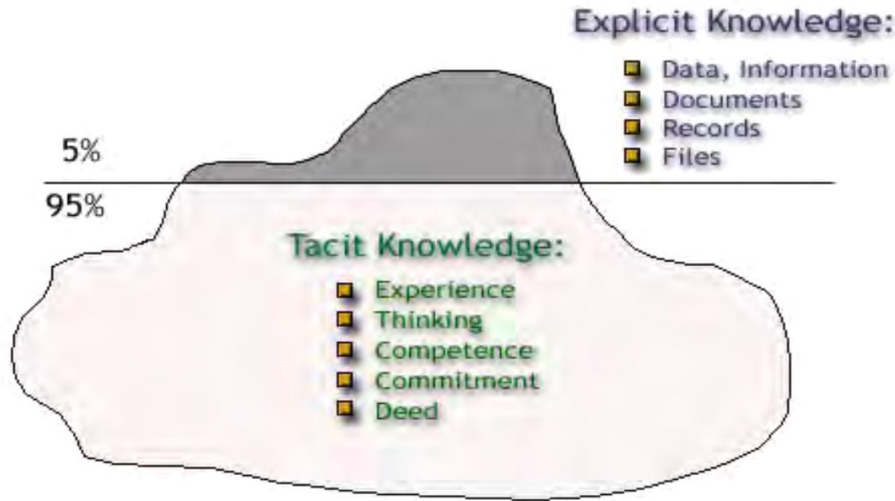
# Recruiting Within

*Succession planning is a systematic approach to building replacement workers to ensure continuity by identifying potential successors in critical work processes.*

- Transferring knowledge, skills, abilities (KSAs) to the next generation of operators



# Losing Key Personnel

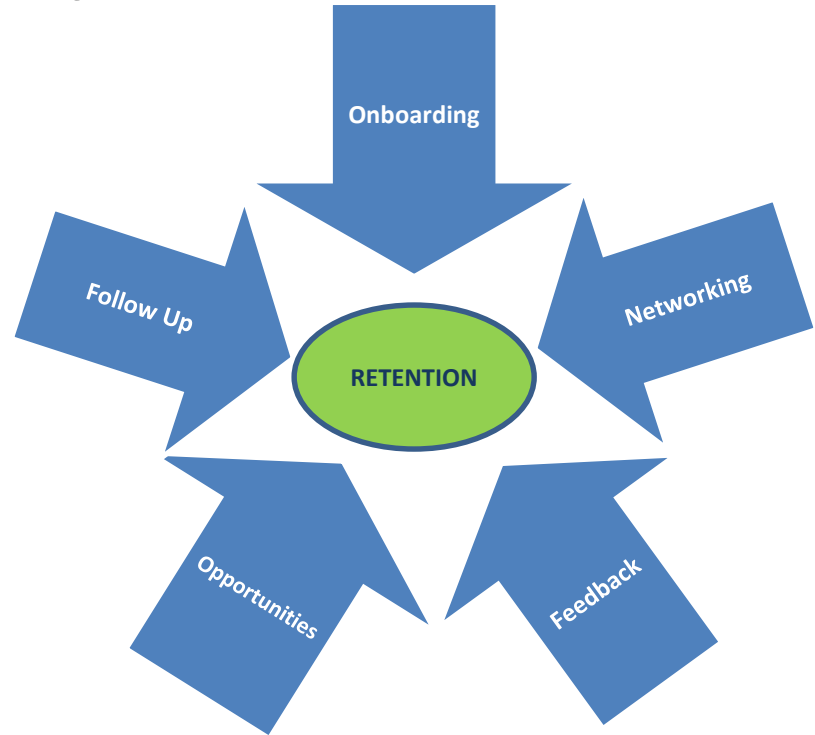


## Why employees leave:

- Lack of management support
- Insufficient communication
- Challenges with obtaining licenses
- Compensation
- Few opportunities for advancement
- Lack of appreciation

# Increasing Employee Retention

- Induction/Onboarding
  - Be a mentor, provide guidance
- Encourage networking
  - Build internal and external relationships
- Provide regular feedback
  - Check in and engage the employee
- Development Opportunities
  - Offer internal and external trainings
- Follow up
  - Arrange frequent meeting and social activities





# Future Operators

How do we make the work more attractive to successfully recruit and retain employees?

- Providing a safe work environment
- Use of innovative technology
- Enhanced software/hardware



# Future of O&M

## Augmented Reality (AR)

Operator trainings



Ex. Microsoft HoloLens2





# Future of O&M

## Augmented Reality (AR)

Interactive instructions to perform maintenance and evaluations



# What's next?

The future of operations is unlimited for the next generation...



# questions?

# thank you!

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