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2018

A Post-Secondary Education Pathway for the Water Workforce

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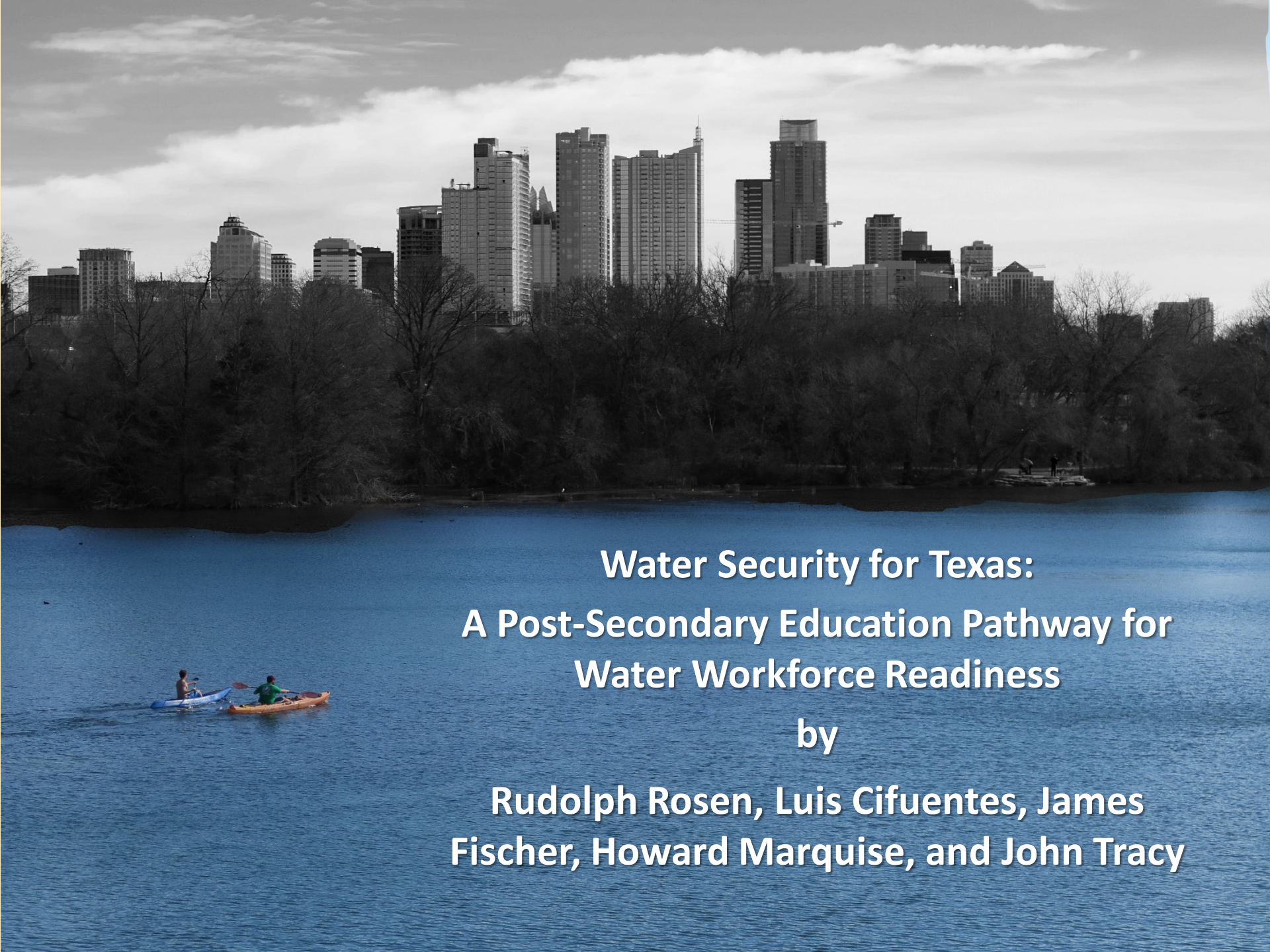
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**Water Security for Texas:
A Post-Secondary Education Pathway for
Water Workforce Readiness**

by

**Rudolph Rosen, Luis Cifuentes, James
Fischer, Howard Marquise, and John Tracy**

JANUARY 2018

1. United States Government Accountability Office (GAO) released a report on water workforce readiness
2. Senate bill 2346 introduced
 - To establish a water infrastructure workforce development program



GAO REPORT

SENATE BILL 2346

- Median age of water sector workers is 48 years.....6 years older than the national median age of all workers.
- Unprecedented workforce replacement needs:
 - 37% of water and 31 % of wastewater workers will retire over the next 10 years.
- There is industry-wide concern about filling jobs.
 - Management of water utilities and to ensure safe drinking water and long-term sustainability.
 - Compliance with the Safe Drinking Water Act and Clean Water Act



EXPERTS EXPRESS ALARM - Nationwide

- American Water Works Association's annual *State of the Water Industry Report*
- In 2017 only 1% of respondents indicated the industry is fully prepared to address workforce attraction and retention in the next 5 years.....the same percentage reported each year since 2014.
- The aging workforce, recruitment, and retention ranked as the 5th overall most important issue in 2013.
- Retirement eligibility may be as high as 50% of the entire workforce within 10 years
- Additional 45% increase in recruitment of water workers is expected.
- The water industry is continuously facing difficulty recruiting, training, and retaining employees, especially for small systems -- 2015 report.



EXPERTS EXPRESS ALARM - Texas

- Texas water met in a series of industry-wide planning forums in 2015 and 2016. Identified a coming crisis in the water workforce.
 - A coming wave of retirements and attrition.
 - Inadequate recruitment.
 - A general failure of post-secondary educational institutions to supply workforce ready graduates for Texas' urban and rural water sectors.
 - **Participants submitted proposals for solution.**



WATER WORKFORCE EDUCATION

- Recommendations include:
 - Mentoring
 - Internships
 - Increased access to industry training programs
 - Pathways to higher education:
 - Job-relevant workforce-ready training
 - A degree that will enable long-term professional growth into managerial positions



ALIGN POST-SECONDARY TRAINING WITH INDUSTRY NEED

- Water workforce training and education need to be responsive to industry requirements for workers.
- Differently sized communities:
 - Different kinds and scale of water facilities
 - Different needs for water workers
 - Different training requirements for the water workforce.



A POST-SECONDARY EDUCATION MODEL

- An initiative in Texas based on three pillars:
 - Advice of experts at the Texas water planning forums.
 - A post-secondary pathway for a water science and technology BAAS degree recently approved by the Texas Higher Education Coordinating Board.
 - Authors' experiences seeking relevant curricula and degree programs.

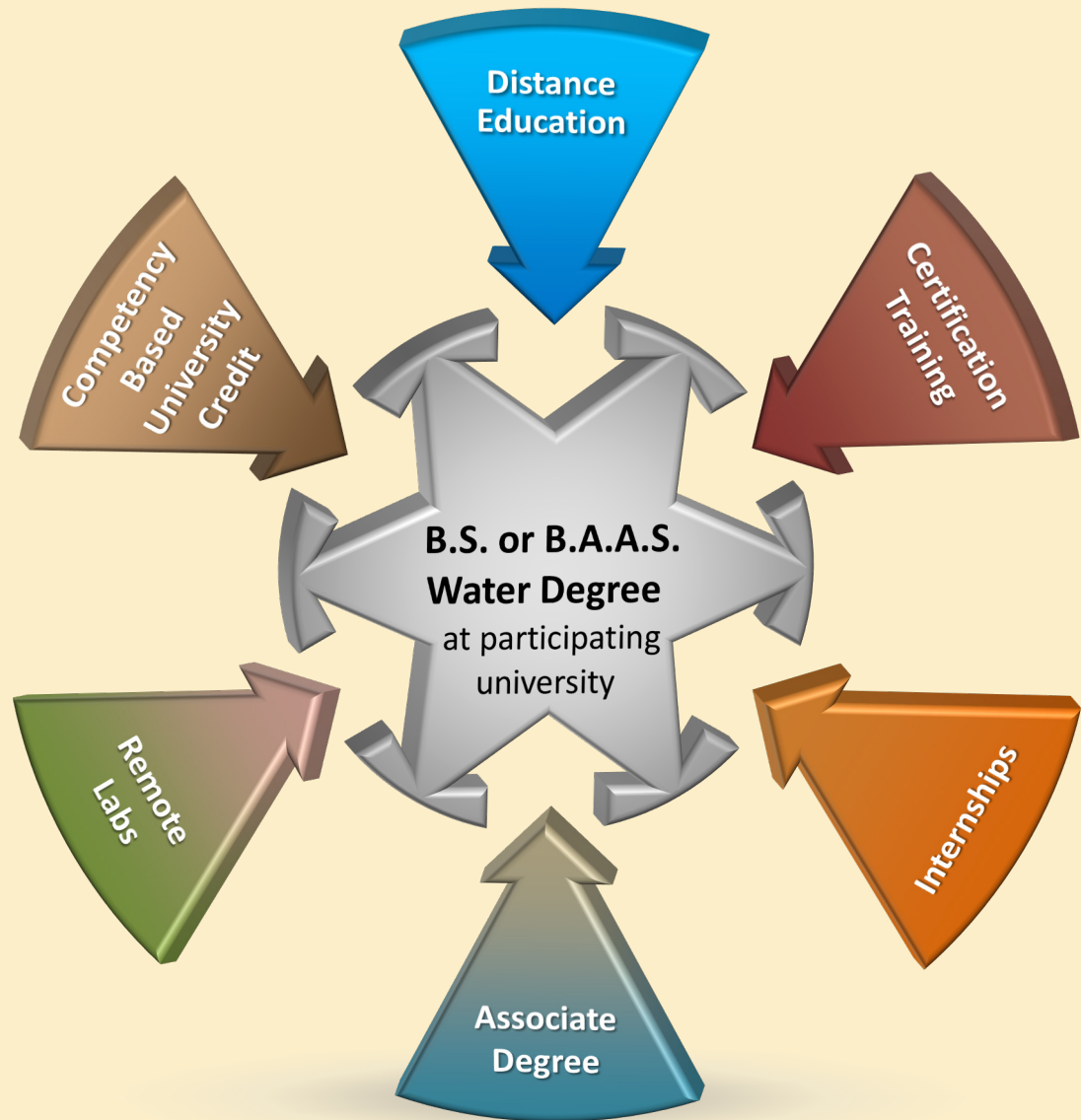


B.S. / B.A.A.S. DEGREES

- Ensure local access to a water science and technology degree:
 - Distance education
 - Extension & industry education
 - Mobile laboratories
 - Community colleges
 - Regional universities



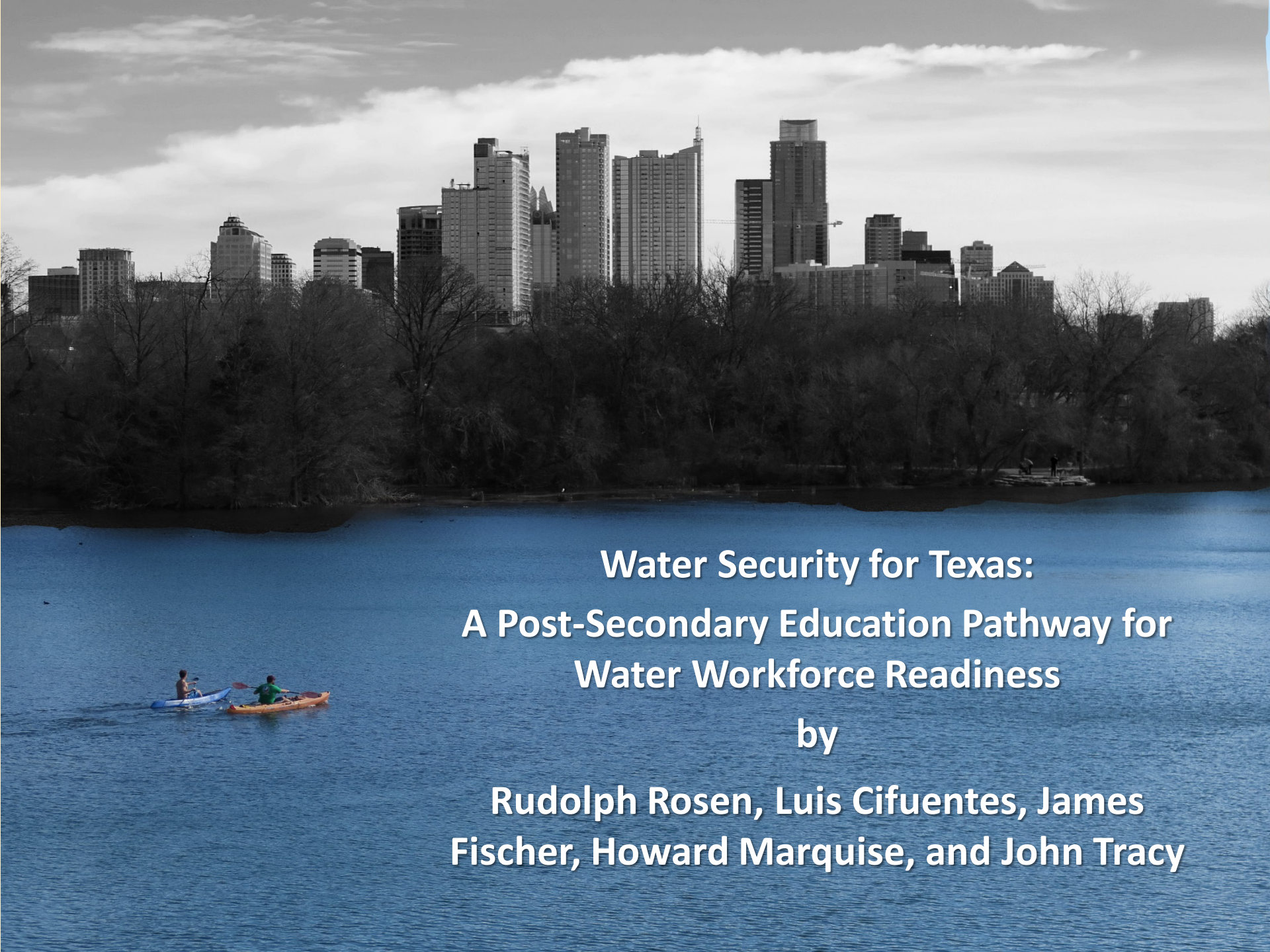
- Texas Core Curriculum provided by the Virtual College of Texas, supported by the Texas Association of Community Colleges.
- Training from trade industry sources or extension education (e.g., TEEX).
- Work-study at industry locations and water systems facilities.
- Two-year degree in Water Science and Technology at participating community colleges.
- Mobile training facilities for campuses not having labs and for training throughout rural Texas.
- Credit for previous experience and training courses taken.



WATER EDUCATION FOR TEXAS' FUTURE

1. Adaptable to changing and emerging needs in water industries in rural and urban systems.
2. Address industry liability issues and regulatory requirements.
3. Meet basic educational degree requirements for long-term employment of graduates.





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