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(Challenging) Water Utility World

Water Volatility

Aging
Infrastructure

Increasing Costs
and Decreasing
Revenues

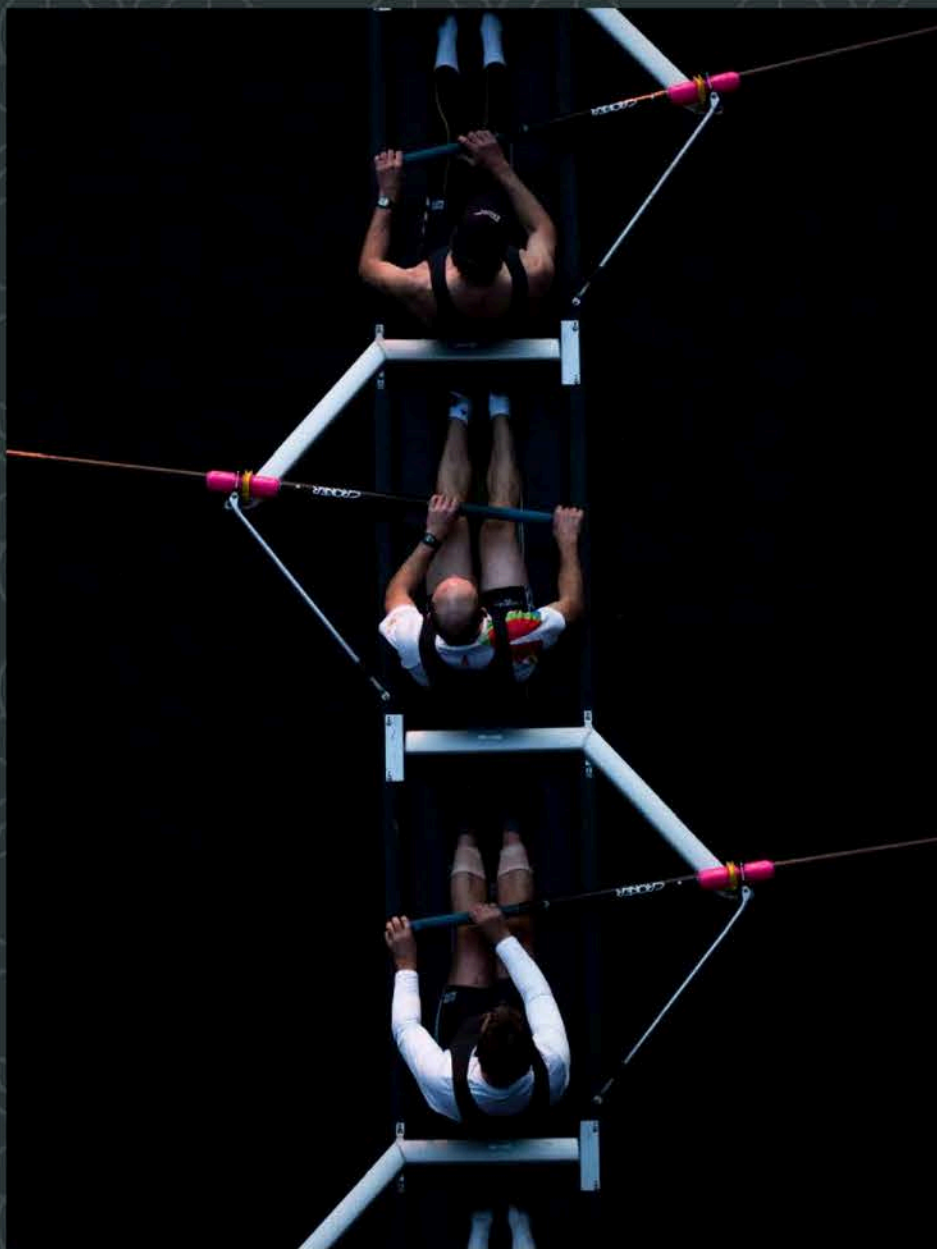
Increasing
Customer
Expectations

Aging
Workforce

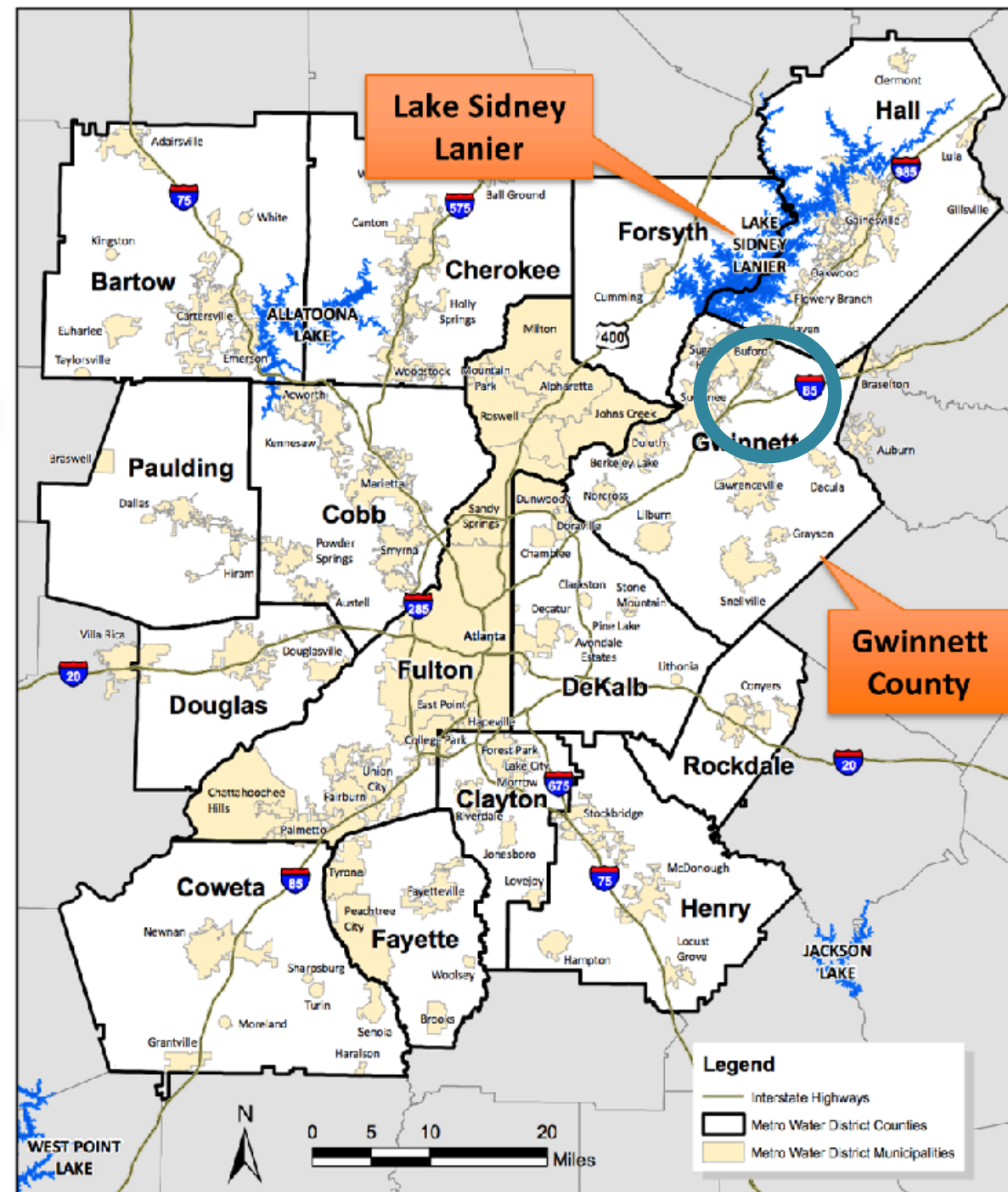
One Water –
holistic water
management



**THE FUTURE OF
WATER DOESN'T
HAPPEN WITHOUT
COLLABORATION**



Where is Gwinnett and The Water Tower?





SITE LEGEND

- A** THE WATER TOWER AT GWINNETT
- B** FIELD TRAINING CENTER
- C** OPTIONAL FUTURE PHASES
- 1** FWAYNE HILL WATER RESOURCE CENTER
- 2** ENVIRONMENTAL AND HERITAGE CENTER



KEY LEGEND

- A** PHASE 1 BUILDING
75,000 SQFT
OFFICE, LAB, AND FLEX
MEETING SPACE
- B** PHASE 2 BUILDING
75,000 SQFT
OFFICE, LAB, AND FLEX
MEETING SPACE
- C** DEMO BUILDINGS
- D** EVENT SPACE WITH
STORMWATER
BIO-RETENTION



**REIMAGINE
THE FUTURE**



THE FOUR PILLARS

01

02

03

04



THE FOUR PILLARS

**APPLIED
RESEARCH**



02

03

04

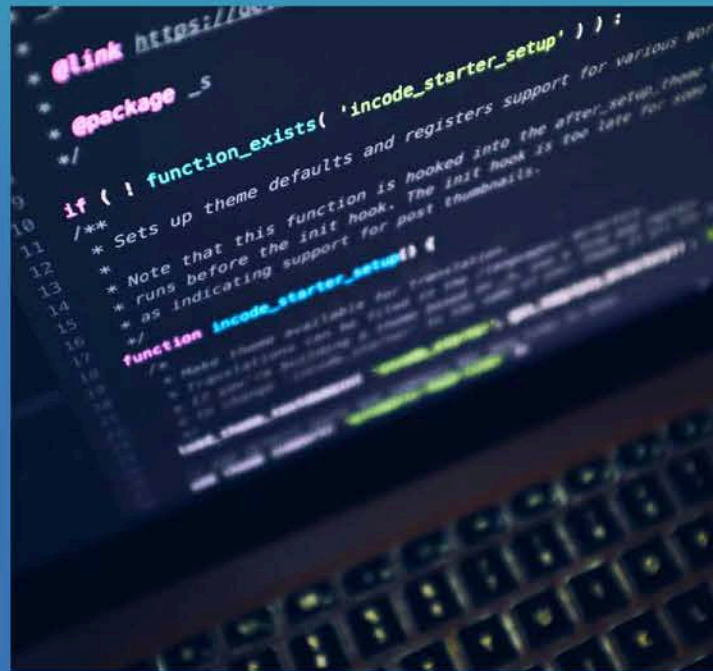


THE FOUR PILLARS

APPLIED
RESEARCH



TECHNOLOGY
INNOVATION



03

04

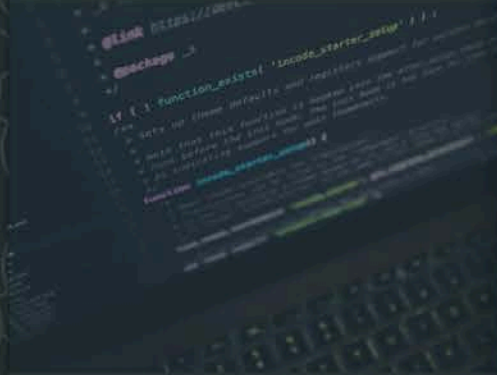


THE FOUR PILLARS

APPLIED RESEARCH



TECHNOLOGY INNOVATION



WORKFORCE DEVELOPMENT



04



THE FOUR PILLARS

APPLIED RESEARCH



TECHNOLOGY INNOVATION



WORKFORCE DEVELOPMENT



COMMUNITY ENGAGEMENT



Integration



APPLIED RESEARCH

- world-class facilities
- real-world application and test conditions
- strategic and collaborative partnerships



Competition for Water

Multiple uses including:

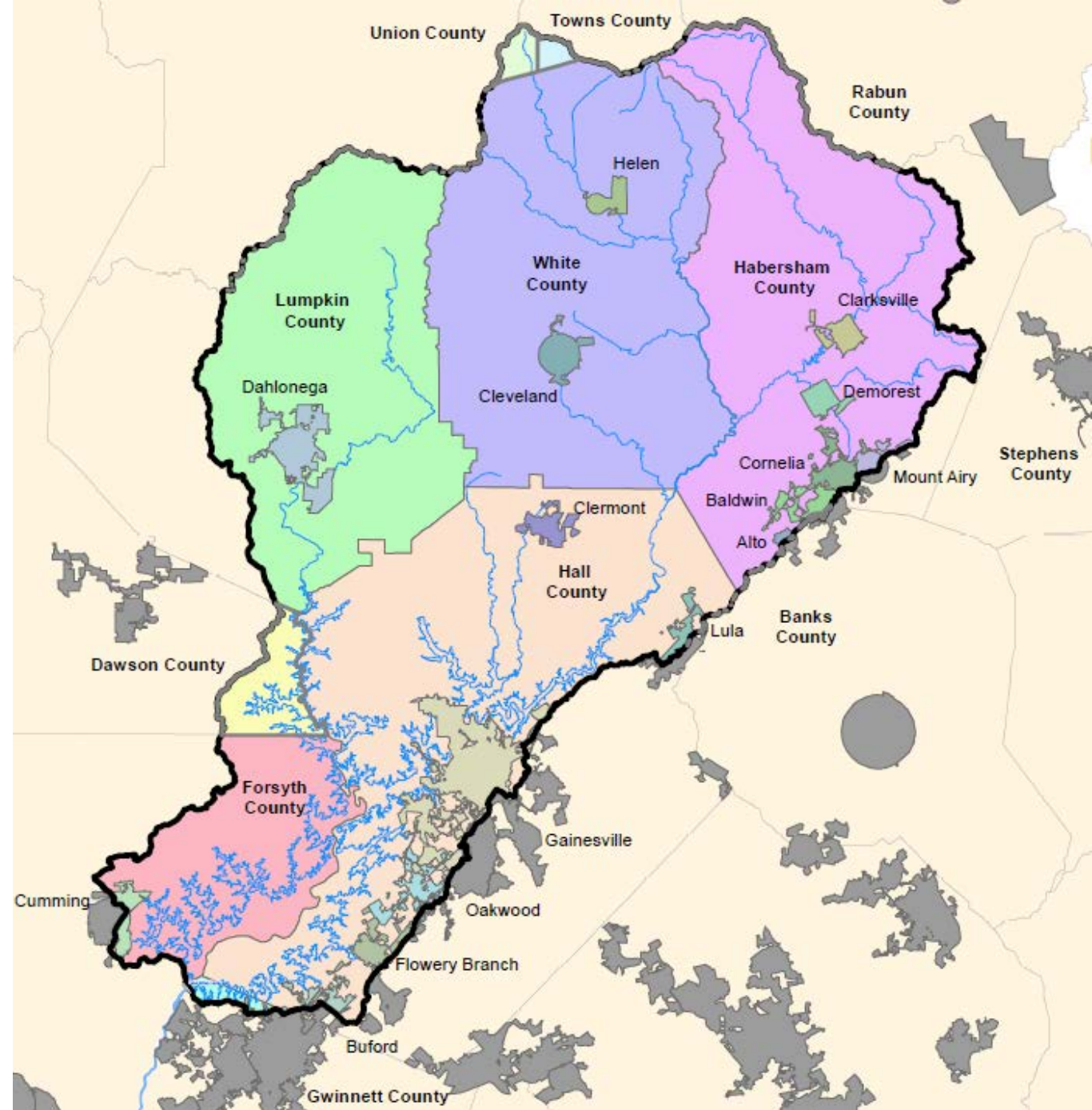
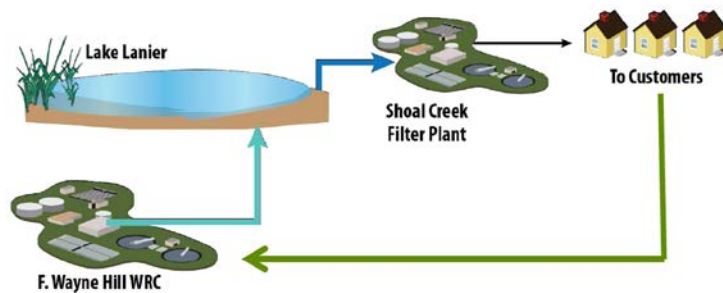
- Power Generation,
- Drinking Water,
 - Navigation,
 - Recreation,
 - Ecology,
- Fisheries and Agricultural

Lake Lanier has only 5% of the drainage basin but has 65% of the reservoir storage in the ACF



Northern Georgia's Urban Water Cycle

- Lake Lanier
- Communities surrounding the Lake rely on it for both discharge of treated effluent and source water for drinking purposes
 - Potable Reuse through Reservoir Augmentation
- Drives careful planning, monitoring, and protection of Lake Lanier and its watershed

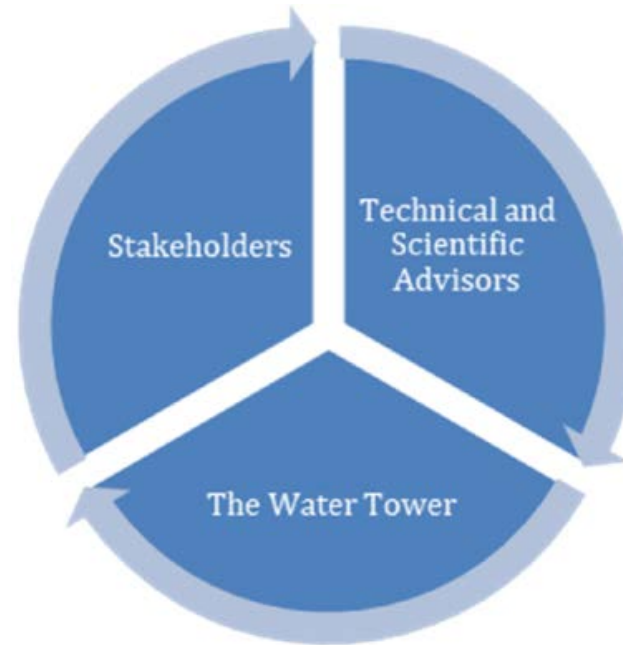


Lake Lanier Watershed 5-Year Research Plan

Research Plan Development

“What keeps you up at night?”

Project Stakeholders
Local Governments and Regulated Entities <ul style="list-style-type: none">▪ Cities and counties▪ Water and wastewater departments
Regional Planning Agencies <ul style="list-style-type: none">▪ Metropolitan North Georgia Water Planning District▪ Georgia Mountains Regional Commission
Regulators <ul style="list-style-type: none">▪ Georgia Environmental Protection Division
Environmental Non-Profit Organizations <ul style="list-style-type: none">▪ Chattahoochee Riverkeeper▪ Georgia River Network
Other Interested Parties <ul style="list-style-type: none">▪ Academia▪ US ACOE - Lanier Management Office▪ Associations and nonprofit organizations▪ General public



“How can we solve these challenges through applied research?”

TAC Member Disciplines

- Lake ecology and limnology
- Water resources and hydrology
- Watershed planning and modeling
- Water, wastewater, and recycled water treatment
- Best management practices
- Water quality (nutrients, CECs, etc.)
- Stormwater and nonpoint source water quality management
- Algal and harmful algal blooms
- Environmental and climate impacts
- Water policy and regulations

Outcome of the Research Plan

32 Applied Research Project Concepts on timely, stakeholder-driven topics

Non-Point Sources
(8)

Water Quality and
Monitoring (7)

Nutrients (7)

Stormwater (4)

Other (6) including
Land Use, Policy,
Outreach, and
Water Reuse



Highly Ranked Projects Under the Plan

Project Number	Project Description	Topic Area
N-003	Lake Lanier Watershed Nutrient-Algae-HABs Working Group	Collaboration
N-007	Improved Information for EPD Base Nutrient Modeling Tool	Modeling
NPS-001a	Improved Modeling of Non-Point Sources in Lake Lanier Watershed (Phase 1)	Modeling
NPS-001b	Improved Modeling of Non-Point Sources in Lake Lanier Watershed (Phase 2)	Modeling
NPS-005	Analysis of Land/Locations for Suitability of BMPs	BMPs
O-001	Lake Lanier Water Quality Outreach Program (Phase 1)	Communications
P-001	Innovative Solutions for Nutrient Management	Poultry Industry
SW-001	Fecal Bacteria Source Tracking in the Watershed	Water Quality and Monitoring
SW-002	Effectiveness of BMPs for First Flush Events (initial surface runoff of a rainstorm)	BMPs
WQ-001a	Watershed Monitoring Techniques – Current Assessment and Roadmap for the Future (Phase 1)	Water Quality and Monitoring
WQ-001b	Watershed Monitoring Techniques – Implement Roadmap (Phase 2)	Water Quality and Monitoring
WQ-003	Assess Lake Lanier Water Quality (and Eutrophication) based on Transparency Measurements (Secchi Disk Depths)	Water Quality and Monitoring
WQ-007	Predictive Modeling of Harmful Algal Blooms (HABs)	WQ and Monitoring

LU-001	Understand Benefits and Develop Incentives to Maintain Forests for Watershed Protection	Land Use
LU-002	Assess Issues Associated with Urbanization and Develop Best Practices for Managing Land Use	Land Use
N-001a	Nutrient Trading for the Lake Lanier Watershed (Phase 1)	Nutrient Trading
N-001b	Nutrient Trading for the Lake Lanier Watershed (Phase 2)	Nutrient Trading
N-006a	Water Quality Monitoring Dashboard/Indicators (Phase 1)	Communications
N-006b	Water Quality Monitoring Dashboard/Indicators (Phase 2)	Communications
NPS-004	Contribution of Nutrients and Non-Point Source Pollution from Septic Systems	Water Quality and Monitoring
NPS-006	Capturing Sediment as a Resource	Sediment
NPS-008	Review of Efficacy of Agriculture and Urban BMPs for the Lake Lanier Watershed	BMPs
NPS-007a	Nutrient Management Practices for Chicken Litter (Phase 1)	Poultry Industry
NPS-007b	Nutrient Management Practices for Chicken Litter (Phase 2)	Poultry Industry
O-002	BMPs for Municipalities, Agriculture Community, and Businesses/Residences (Phase 2)	BMPs
WR-001	Assess Potential and Benefits for Expanded Recycled Water in the Region	Water Reclamation
WQ-004	Non-Algae Water Quality Drivers for Drinking Water Taste and Odor Events and other Impacts	WQ and Monitoring
WQ-005	Assess the impact of CECs in Lake Lanier and the Watershed (CECs Phase 1)	Water Quality (CECs)
WQ-006	Survey of Inputs and Control Measures of CECs to Lake Lanier and the Watershed (CECs Phase 2)	Water Quality (CECs)



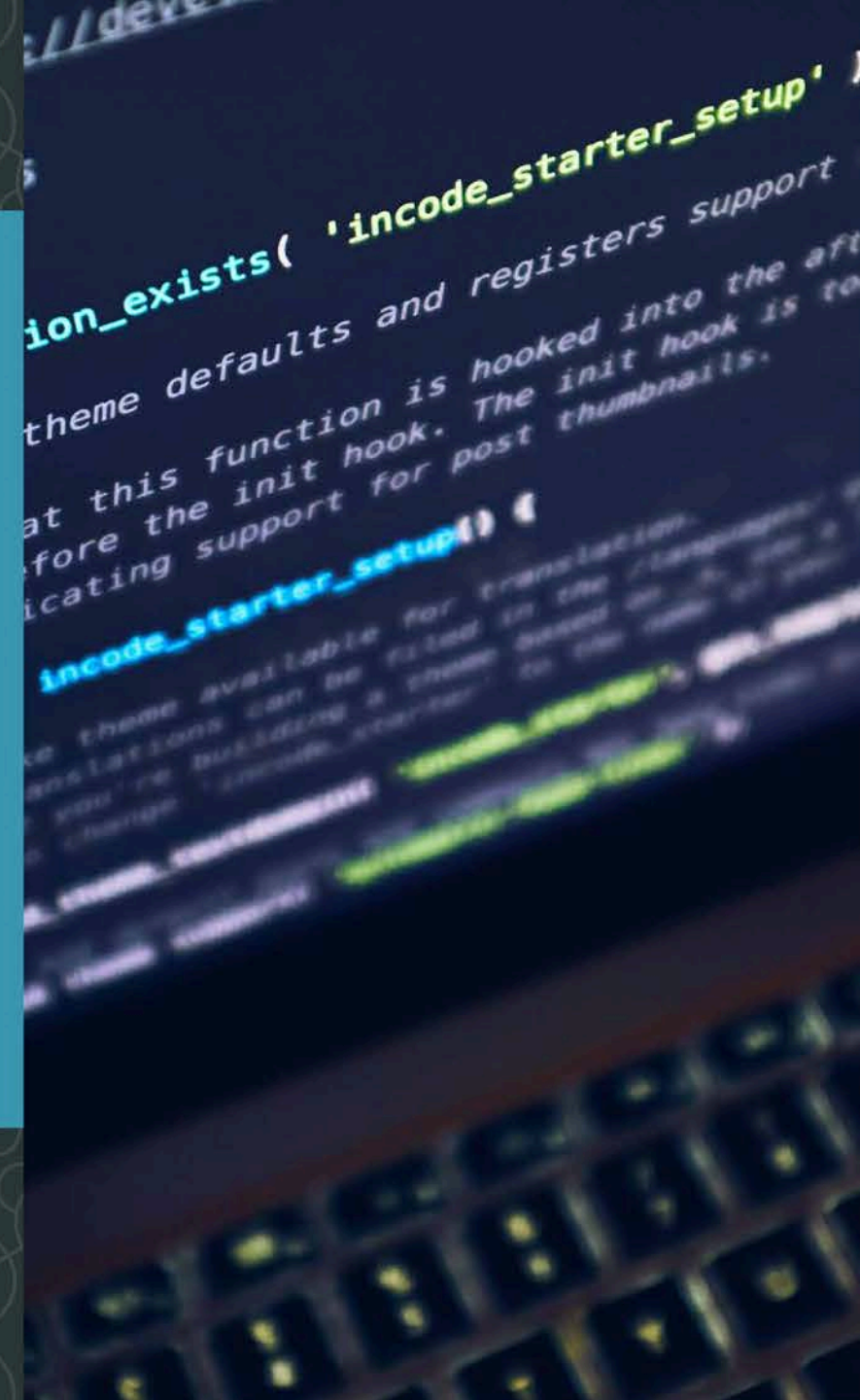
Research Plan: Next Steps

- Funding for projects will be crowdsourced
 - Q2-Q4 2021
 - Stakeholders
 - Nonprofit, Public, and Private Grants
 - VC interested in Environmental Ventures
- Projects will be competitively bid, overseen by a third-party advisory committee, and managed by TWT
 - Starting Q3 2021
- Available for download on TWT Website:
<https://theh2otower.org/five-year-research-plan>



TECHNOLOGY INNOVATION

- demonstration and validation
- workspace and support
- connections critical for deployment





- Primary Influent
- Secondary Effluent
- Advanced Treated Reuse
- Digital Twin/APIs

Digital Innovation

- Position TWT as the premier digital innovation water hub in the US
- Provide space for a Master Control Room to enable utilities to see what digital technologies can do to help create efficiencies

Action Items:

- Engage a diversity of systems to attract digital technologies
- Create Master Control Room
- Incorporate Master Control Room in training opportunities



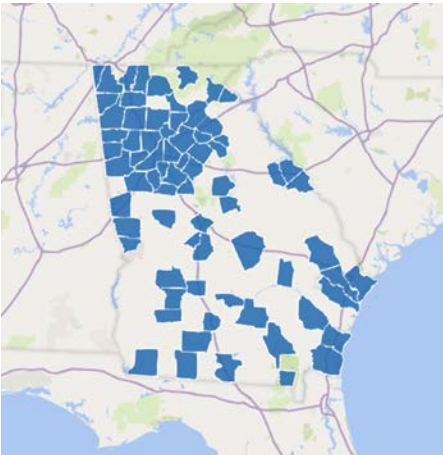
WORKFORCE DEVELOPMENT

- in-the-field and other specialty water-industry training
- career pipeline through recruitment
- internships and apprenticeships

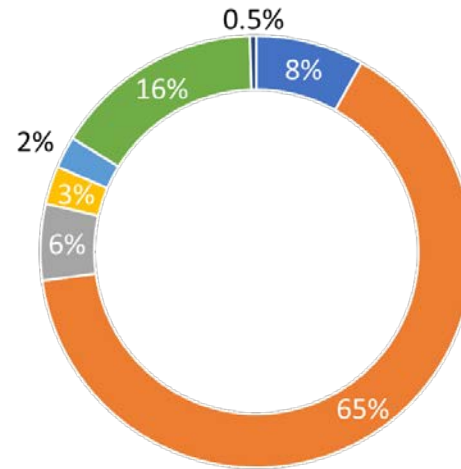


Workforce Scan & Benchmarking

- 95/55 utilities
- > 210 Reqs

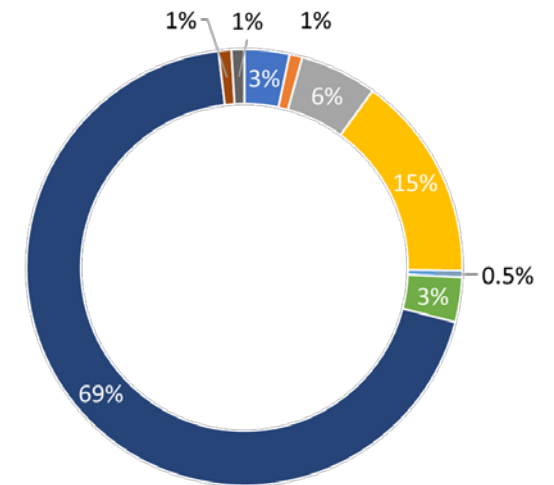


Education



- Not Specified
- High School Diploma or GED
- Associate's Degree
- Technical or Vocational School
- Currently Enrolled in College/University
- Bachelor's Degree
- Master's Degree and above

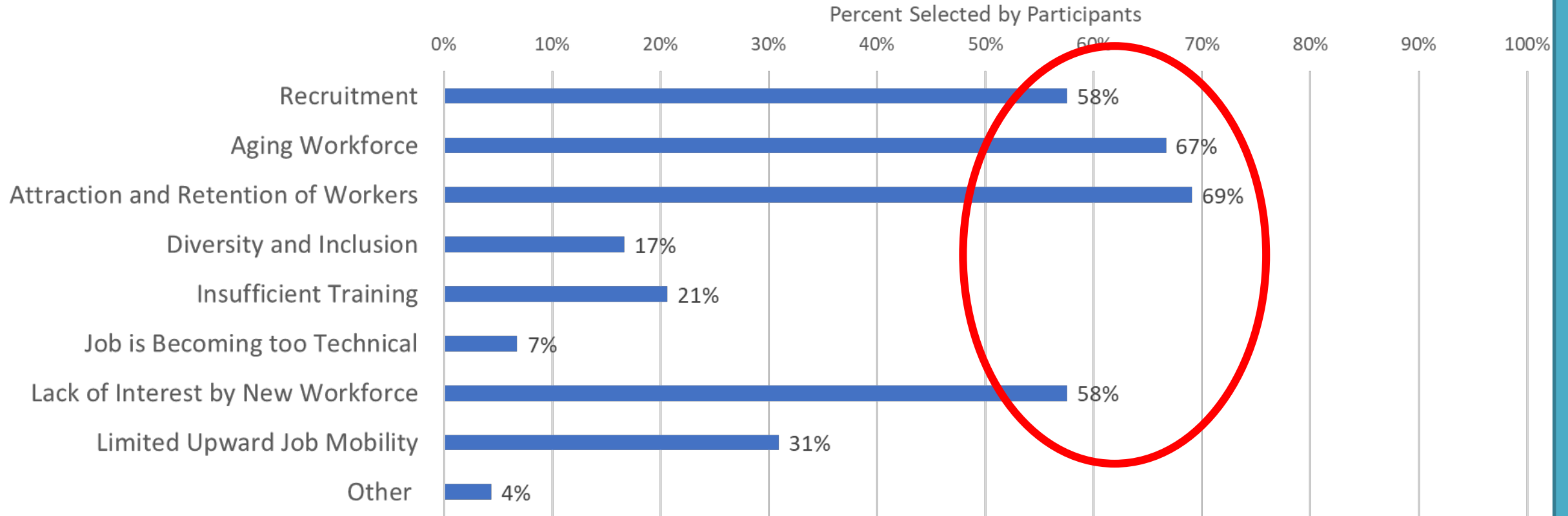
Department



- Administration
- Customer Service
- IT
- Operations and Maintenance
- None
- Communications
- Engineering
- Management
- Procurement



Key Challenges

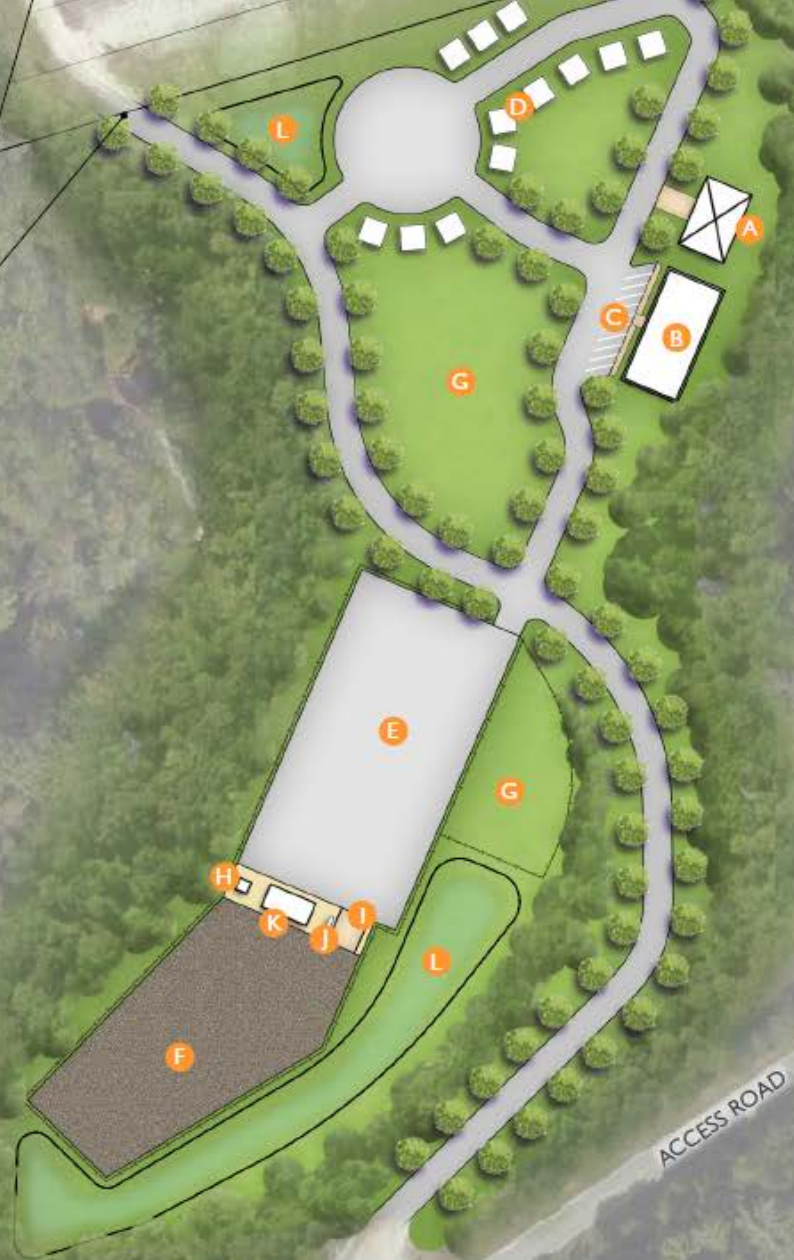


Water Warriors

- Workforce Development for Resilient Communities
 - Community Based Recruitment
- Blended Learning
 - Classroom, On-Line and Hands On 4-month program
 - Operators, Field and Lab Tech



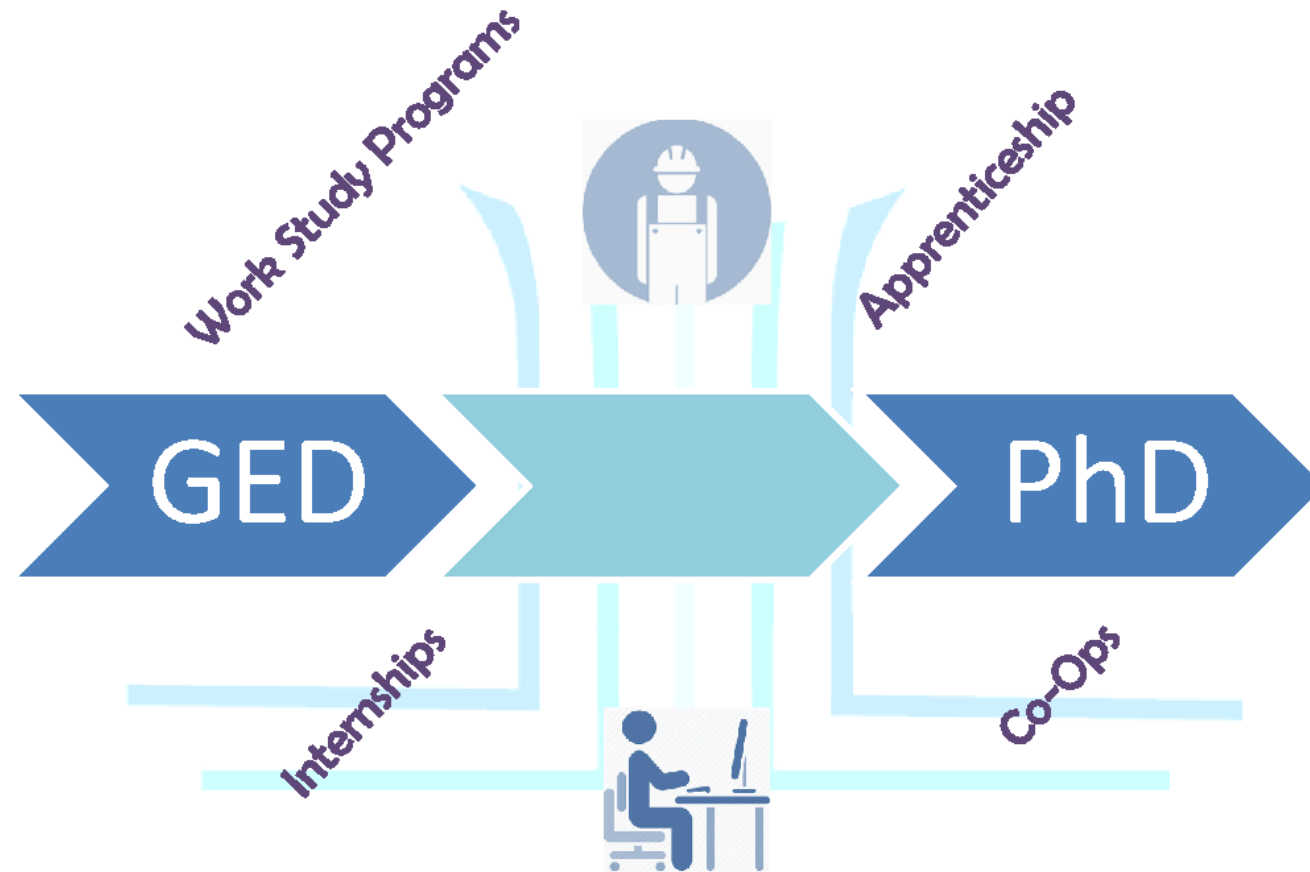
FUTURE SUGARLOAF PARKWAY R.O.W.



KEY LEGEND

- A** PAVILION
- B** ADMIN BUILDING
- C** ANGLED PARKING
- D** MOCK UP RESIDENTIAL AREA- 12 UNITS
- E** COMMERCIAL DRIVERS LICENSE DRIVING AREA
- F** HEAVY EQUIPMENT YARD
- G** LAWN/ OPEN EVENT SPACE
- H** OVERLOOK TOWER
- I** GATED ENTRANCE/EXIT
- J** FILL UP STATION
- K** STORAGE
- L** DETENTION

Workforce Pipeline



COMMUNITY ENGAGEMENT

- peers
- partners
- public



Engage the Community

- Be a beacon of community engagement, serving as a forum for the public to connect and learn about the value of water
- Priorities for 2021: Virtual Book Club, Virtual Networking, Educational Water Videos, Youth Environmental Summit
- TWT will also host specific networking sessions throughout the year



Action Items:

- Establish a Community Engagement Committee
- Conduct Outreach Events throughout Georgia
- Secure Funding for Outreach Priorities
- Build the Brand



Community Engagement Activities

Digital Learning Materials

21 Videos



Job Shadowing and
Career Fairs



Student Design
Competition



Tour F. Wayne Hill Water
Resources Center



Virtual Book Club



W3 Networking



1,252 Followers



977 Followers



188 Followers



65 Likes and
Followers



1,817 Video
Views



~1,000
website
views/month



(Social media metrics updated 2/2021)

TWT Collaborators

Founding Partners



Global WaterWorks



Product Donors



MUNICIPEX









THE WATER TOWER









The Water Tower Board of Directors

The Water Tower at Gwinnett (501c4)

- Melvin Everson, Gwinnett Technical College
- Jennifer Fennell, Jackson EMC
- Jann Joseph, Ph.D., Georgia Gwinnett College
- Nick Masino, Gwinnett Chamber and Partnership Gwinnett
- Daniel R. Sosebee III, CPA, Moore Stephens Tiller
- John D. Stephens, JDS Holdings LLC
- Maurice Thompson II, Consultuoso
- Jessica Rantamaki, Geo-Hydro Engineers

The Water Tower Institute (501c3)

- Paul Bowen, Ph.D, Retired, The Coca-Cola Company
- Glen T. Daigger, Ph.D., P.E., BCEE, NAE, University of Michigan and One Water Solutions LLC
- Terrell S. Gibbs, Ph.D., P.E., CERM
- Christopher A. Impellitteri, Ph.D., US EPA Office of Research and Development
- Linda MacGregor, P.E., City of Gainesville
- Nick Masino, Gwinnett Chamber and Partnership Gwinnett
- Andrew D. Morris, J.D., Atlanta Regional Commission and Metro North Georgia Water Planning District
- Eileen O'Neill, Ph.D., Water Principles LLC

How can you get involved?

- Become an innovation partner
- Plan to have a presence on the campus in March 2022
 - 3rd Floor Tenant
 - Co-Working
 - Company Strategic Planning and Collaborative Events, client events, workshops, conferences
 - Demonstrations and Research
- Participate in TWT events
 - Mailing List/Social Media
 - Research Master Plan
 - Book Club
 - Watering Hole Golf Tournament on 10/21/21



Unlimited Opportunity

Innovation & Knowledge Sharing: ROI



INTERNATIONAL ACCLAIM

Ideas realized in Gwinnett are implemented across the world, impacting all major waterways and water utility providers



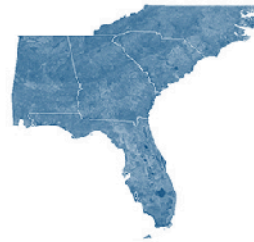
NATIONWIDE

Word gets out – the WIC and campus become the go-to training ground for all of the United States



SOUTHEAST US

The Southeastern states become a hot bed of water innovation and best practices



GEORGIA

Trials of innovative ideas are expanded beyond Gwinnett to other counties in the State



GWINNETT

Innovations are discovered at the WIC and environmental campus, and implemented in Gwinnett



**HOW WILL YOU
IMPACT THE
FUTURE OF
CLEAN WATER?**



theh2otower.org

