OhioTechNet

Partners in Training Ohio's Manufacturing Workforce

# Ohio TechNet Monthly Meeting

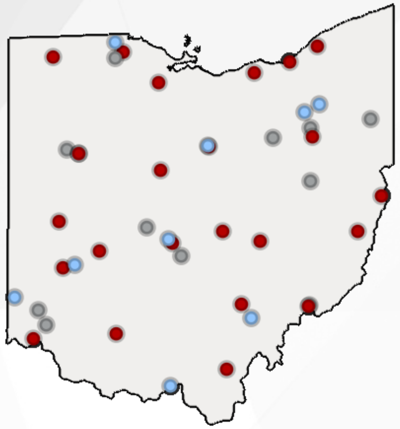
## November 18, 2025

***Thank you for joining us today!***

Enter your name and organization in the chat

# OhioTechNet

Partners in Training Ohio's Manufacturing Workforce



**OTN Members:**

- Community College
- Technical Center
- University

## Vision

The members of the Ohio Technical Skills Innovation Network, or Ohio TechNet, are nationally recognized for partnering with industry to implement collaborative, innovative solutions that meet manufacturing and tech workforce needs.

## Mission

Ohio TechNet supports workforce development and academic professionals to incubate, develop and sustain programming that accelerates the growth of Ohio's manufacturing & technical workforce.

## Purpose

Ohio TechNet partners benefit from peer-to-peer collaboration, technical assistance and access to resources, making program expansion and innovation at their institution more efficient, faster to implement and easier to sustain.

## Strategic Focus Areas

Ohio TechNet's strategic focus areas provide partners with best practices, models, and technical assistance to address the critical workforce needs in the state.

- **Guided Pathways for Youth**
- **Reaching New Audiences**
- **Innovative Earn and Learn**
- **Faculty and Educator Development**
- **Partnering with Industry**

1 CONNECT

2 COLLABORATE

3 CONTRIBUTE

## MONTHLY NEWSLETTER

Subscribe to our monthly newsletter to stay informed about peer-to-peer collaboration opportunities, technical assistance, innovative solutions, and upcoming trainings.

## CONSORTIUM MEETINGS

Join our virtual meetings every 3rd Tuesday at 8:30 AM (EST) to explore collaborative, innovative solutions that support workforce and academic professionals across Ohio's educational institutions in addressing manufacturing and tech talent needs.

## OTN RESOURCES

From industry-aligned partnerships and earn-and-learn programs to faculty development and K–12 outreach, Ohio TechNet offers innovative tools and resources to help institutions and individuals thrive. Visit our website to learn more.

440-366-4215 ohiotechnet.org info@ohiotechnet.org

**Ways to Engage**

OhioTechNet

# MORNING WARM UP

## Favorite Thanksgiving Tradition?

Shopping, Favorite Dish, Turkey Trot, Etc.?

Come off mute and share or enter in the chat.

OhioTechNet

- Lorrayne Miralha, Ph.D., The Ohio State University, *Northeast Ohio Collaborative Climate Resilience* Project
- Tracey Hooper-Porter, Washington State College of Ohio, *Experiential Learning Pilot*
- National Network for Microelectronics Education (NNME) Update
- Ohio Manufacturing Talent Partnership – New Video
- December 2025 Meeting, Partner Year in Review
- 2026 Ohio TechNet Monthly Meeting Planning

OhioTechNet

Lorrayne Miralha, Ph.D., The Ohio State University: *Northeast Ohio Collaborative Climate Resilience* Pro

Training a climate-ready workforce to manage water resources in Ohio's coastal communities

Curriculum & Training

About Areas of Expertise Projects Podcasts Contact Us

PROJECT:

# Climate-Ready Workforce Project

## DACUM Analysis

Based on the results of the employer needs assessment, a DACUM (Developing a Curriculum) analysis was conducted to systematically describe the work of the Data Collection and Analysis Function across job levels and titles supporting the water industry.

The results of this analysis serve as input to inform curriculum development.

Data Collection and Analysis

Additional DACUM analyses completed in collaboration with

- Class I Wastewater Collection System Operator
- Class II Wastewater Treatment Operator
- Wastewater Treatment Operator Class III
- Class IV Wastewater Treatment Plant Operator
- Class I Water Operator
- Class IV Water Supply Operator
- Collection System 2 Operator
- Environmental Specialist II-CDO

2023 Inflation Reduction Act Climate Ready Workforce for Coastal States, Tribes, and Territories Competition

# TRAINING A CLIMATE-READY WORKFORCE TO MANAGE THE IMPACTS OF CLIMATE CHANGE ON WATER RESOURCES IN OHIO COASTAL COMMUNITIES

Start date: August 1st, 2024
End date: July 31st, 2028

**November 18th, 2025**

The Ohio State University

National Oceanic and Atmospheric Administration
NOAA
U.S. Department of Commerce

Great Lakes Climate-Ready Workforce

# OVERVIEW

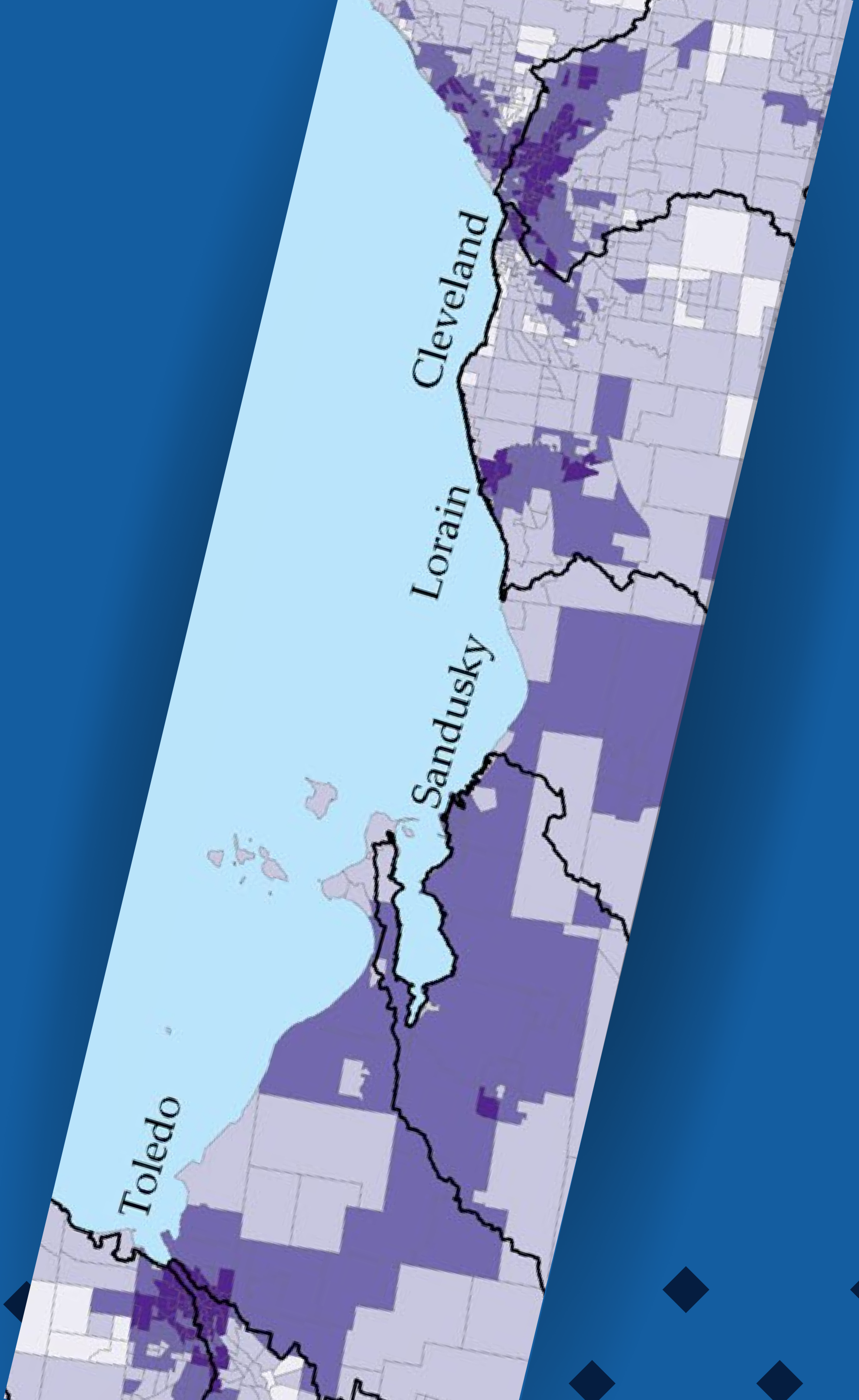
### GOAL

Train at least 100 climate-ready workers, including technicians, scientists, and engineers, to fulfill the specialized workforce needs of the water industry in the Great Lakes by 2028.

### TIMELINE - PROGRAM & RECRUITMENT

**Design Phase:** CETE, ESD, Microcredentials, and Recruitment.

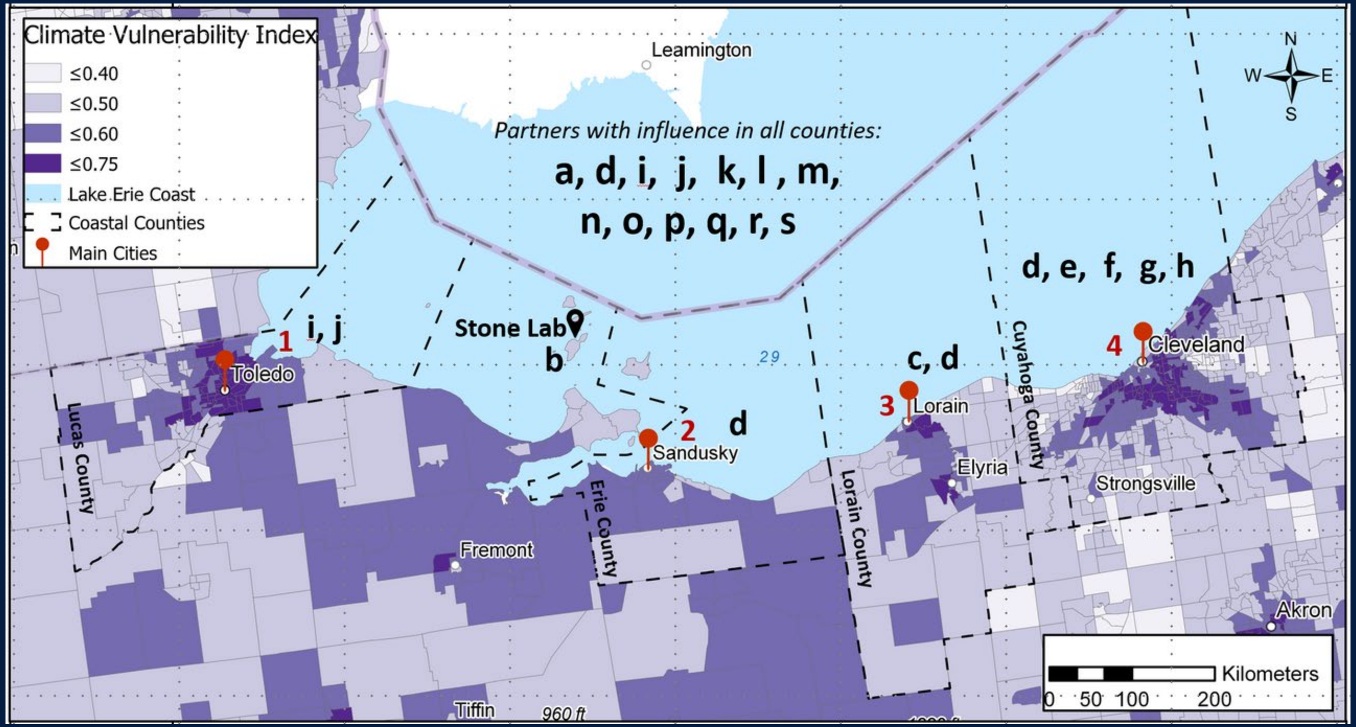
**Implementation Phase:** Hands-on training and jobs

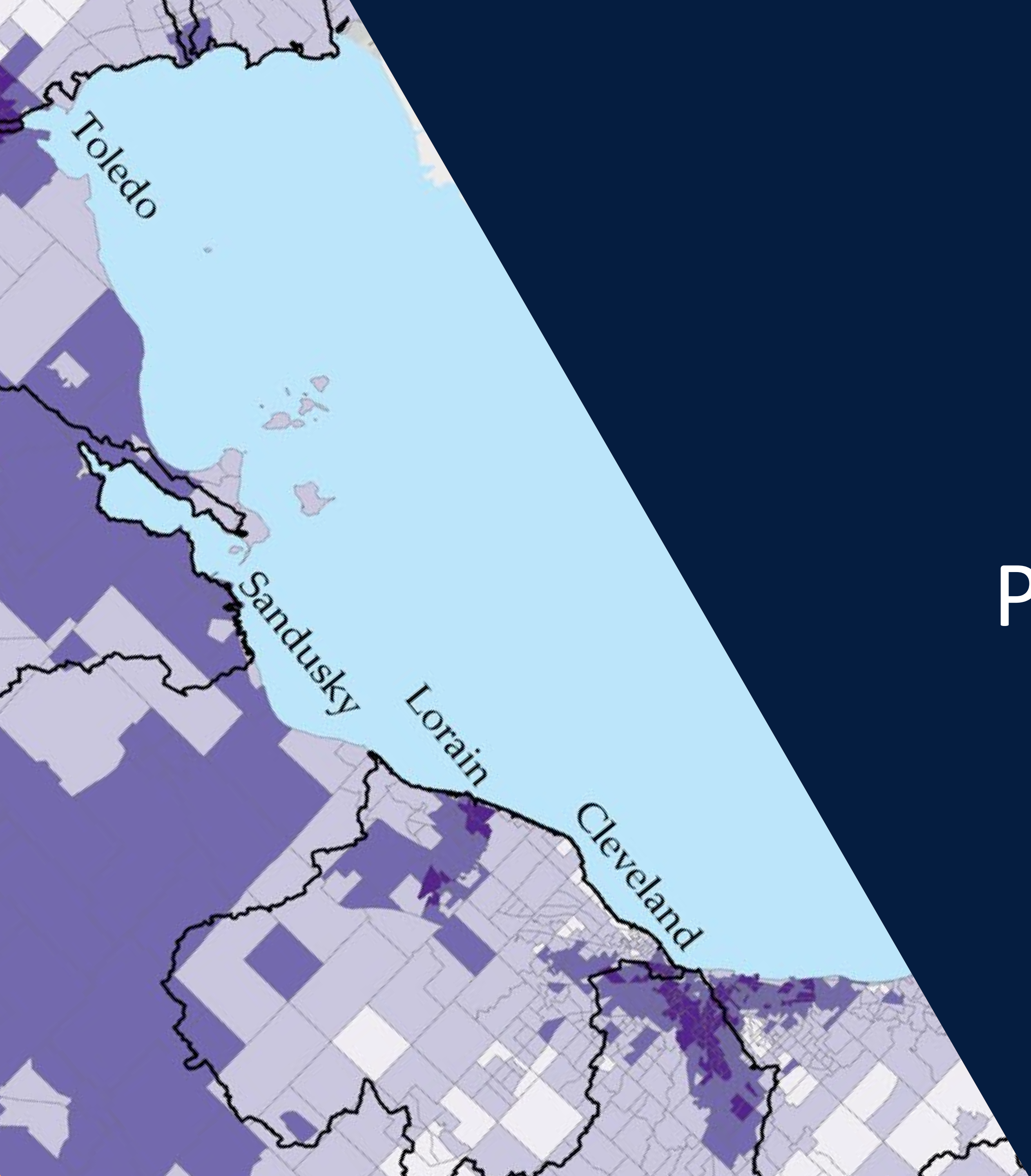


# GOALS

**(1) Address** the need for highly skilled workers in underserved communities and;

**(2) Link** *climate service providers, businesses, and training institutions* (universities, an HBCU, community colleges) to train a workforce able to address **water system challenges** and **accelerate economic growth** in these vulnerable coastal communities.

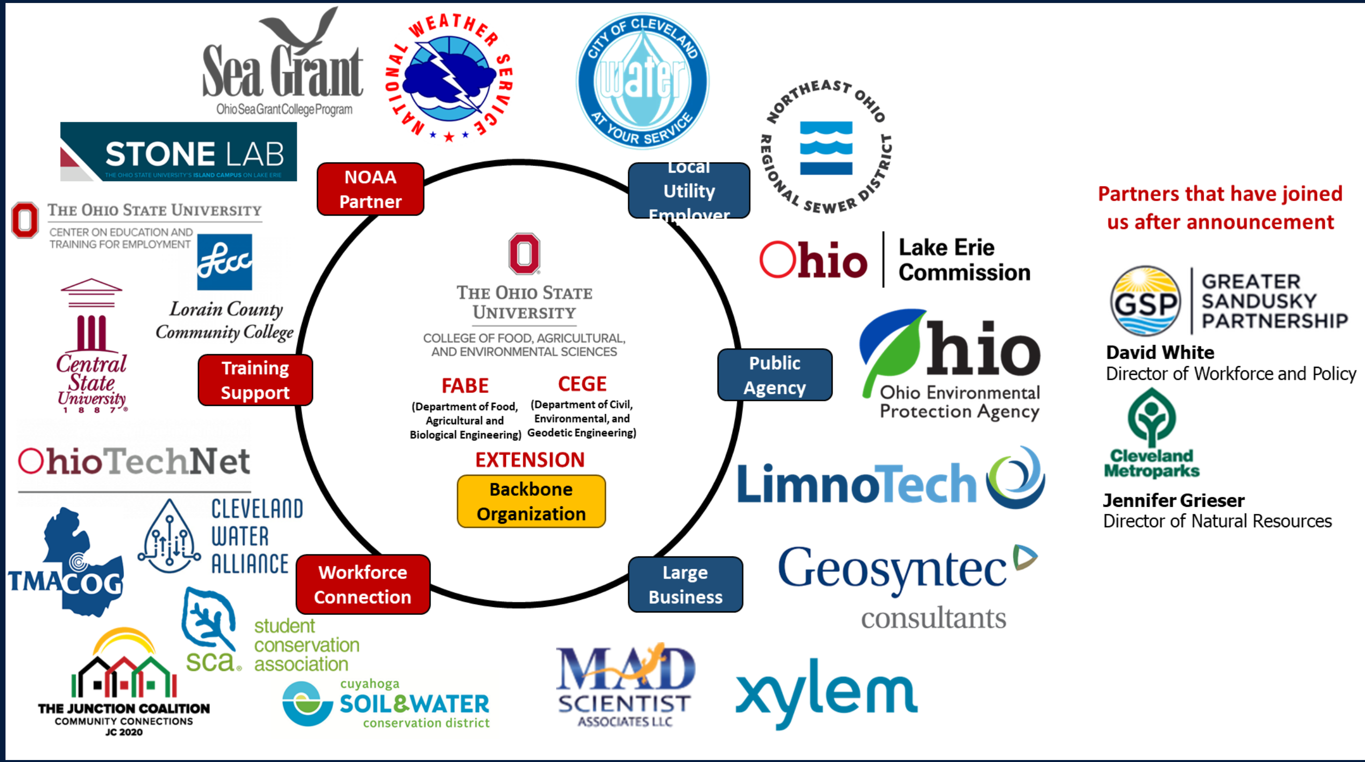


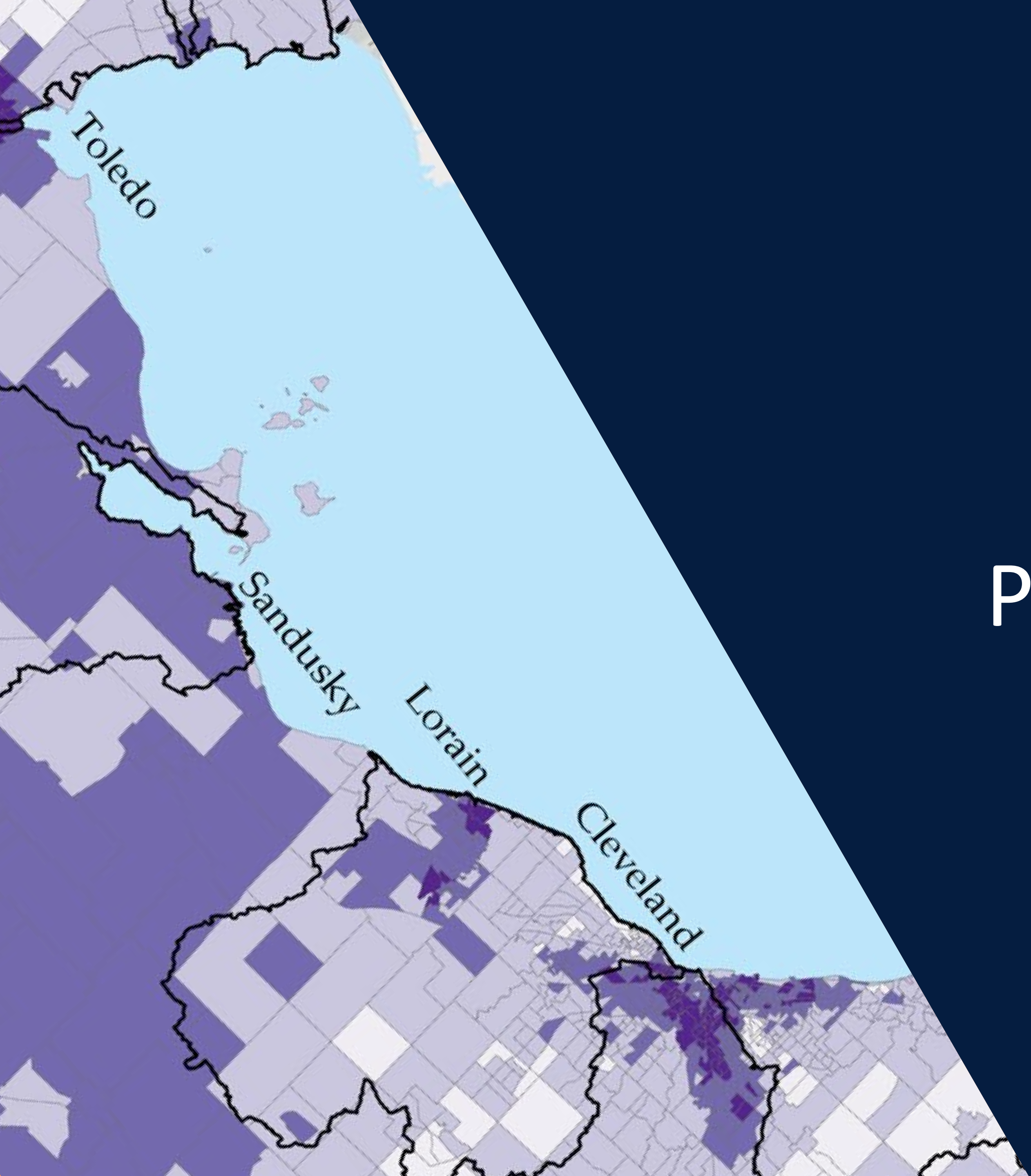



# PARTNERS

# PARTNERSHIP & ROLES

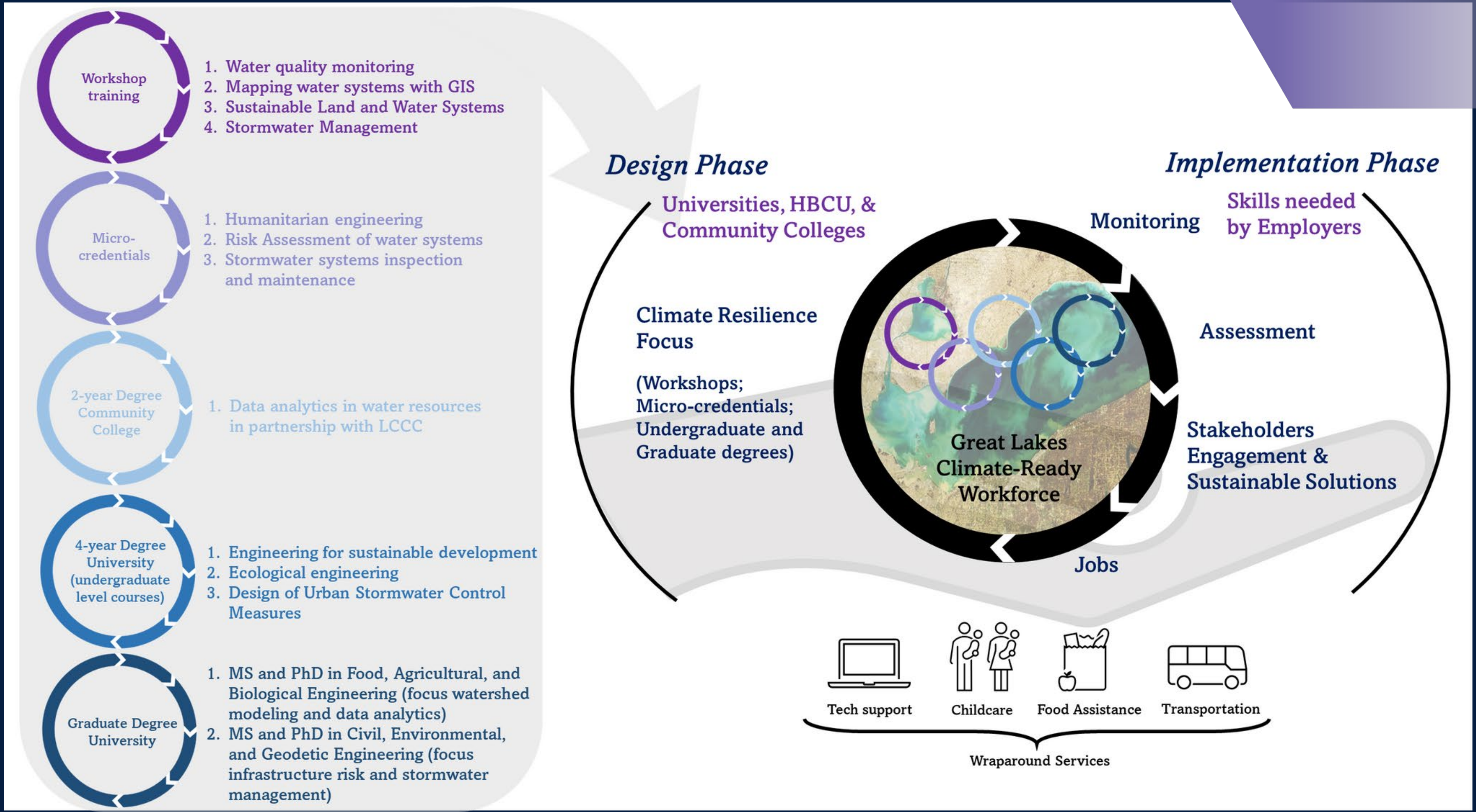
1. **Training Support:** Development of Curriculum and Recruitment
2. **Workforce Connection:** Connecting with communities and supporting job placement
3. **Job Placement:** Employer partners (*local, public agency, large business*)






# PROGRAM

# PROGRAM


Workshop training
1. Water quality monitoring
2. Mapping water systems with GIS
3. Sustainable Land and Water Systems
4. Stormwater Management
Micro-credentials
1. Humanitarian engineering
2. Risk Assessment of water systems
3. Stormwater systems inspection and maintenance
2-year Degree Community College
1. Data analytics in water resources in partnership with LCCC
4-year Degree University (undergraduate level courses)
1. Engineering for sustainable development
2. Ecological engineering
3. Design of Urban Stormwater Control Measures
Graduate Degree University
1. MS and PhD in Food, Agricultural, and Biological Engineering (focus watershed modeling and data analytics)
2. MS and PhD in Civil, Environmental, and Geodetic Engineering (focus infrastructure risk and stormwater management)
Design Phase
Universities, HBCU, & Community Colleges
Climate Resilience Focus
(Workshops; Micro-credentials; Undergraduate and Graduate degrees)
Implementation Phase
Skills needed by Employers
Monitoring
Assessment
Stakeholders Engagement & Sustainable Solutions
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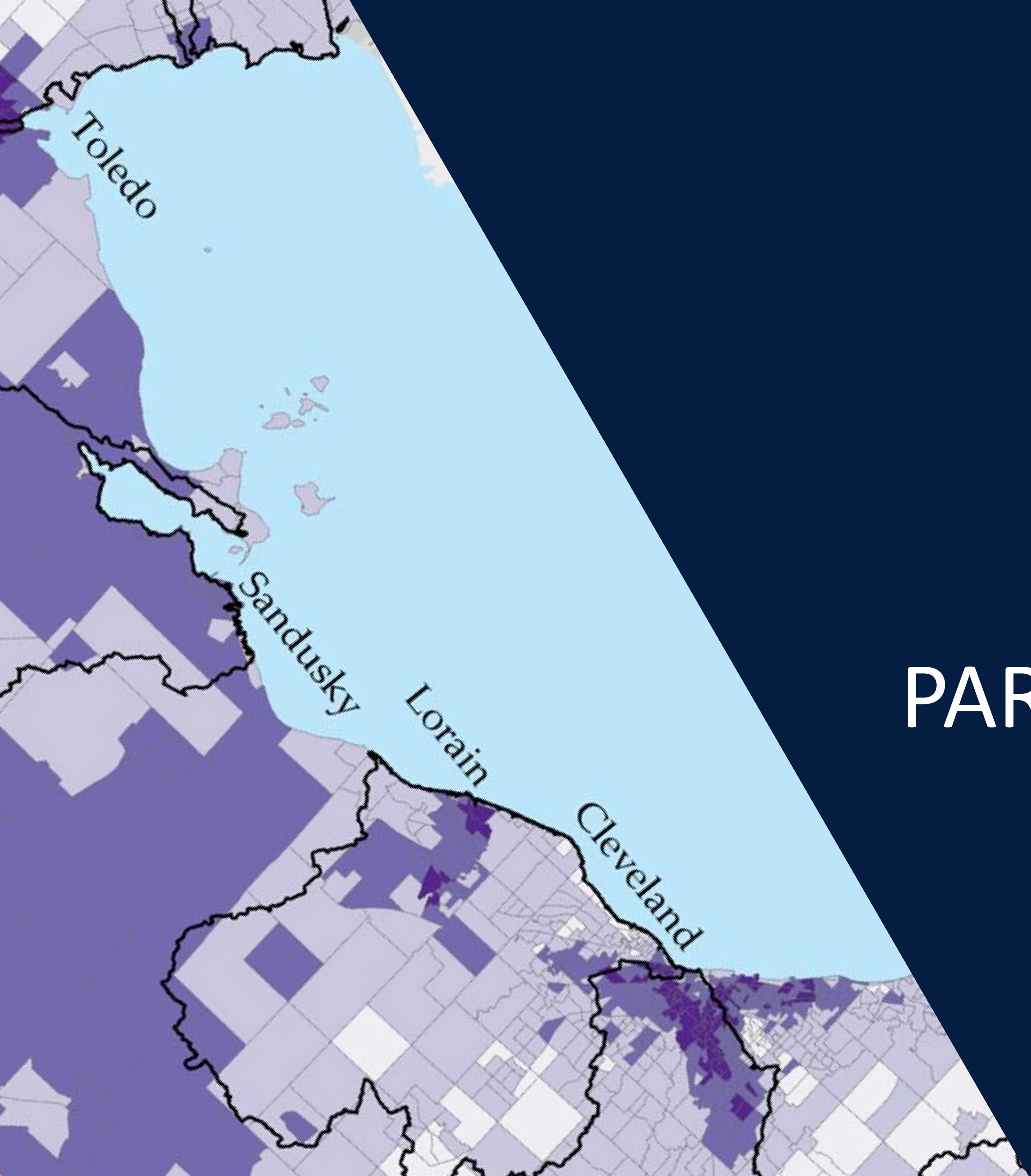
Transportation
Wraparound Services




# PROGRAM PARTNERS’ NEEDS

# Climate-Ready Workforce Employer Needs Assessment Survey

## Goals

- Gather information to better understand local workforce needs
- Identify training needs associated with those workforce needs
- Assist with identifying opportunities for occupational analysis and input for supporting curriculum development

## Implementation

- Conducted October 7, 2024 through October 25, 2024
- Shared with stakeholders and distributed through their networks

American Water Works Association

# Water Career Clusters Map

**Clusters**

**Pathways**

## Architecture and Construction

**Design and Pre-construction:**
- Environmental Engineer
- Environmental Engineering Technician
- Electrical Engineer
- Electrical & Electronic Engineering Technician
- Mechanical Engineer
- Civil Engineer

**Construction:**
- Plumber
- Technician

**Maintenance Operations:**
- Electrician
- Plumber
- Wastewater Maintenance Technician
- *Water Maintenance Technician**
- *Maintenance Mechanic**
- *Maintenance Manager**
- *Instrumentation* Technician*
- *I&C Technician**
- *SCADA Technician**
- *GIS Technician**

## Science, Technology, Engineering and Mathematics

**Engineering and Technology:**
- Civil Engineer
- Electrical Engineer
- Mechanical Engineer
- Water Treatment Engineer
- Environmental Engineer
- Electrician
- Electronics Technician
- Project Engineer

**Science and Math:**
- Biologist
- Chemist
- Conservation Scientist
- Hydrologist
- Laboratory Technician
- *Microbiologist**

## Agriculture, Food & Natural Resources

**Power, Structural and Technical Systems:**
- Electronics Systems Technicians
- Waste Water Plant Operator
- *Water Plant Operator**
- *System Operator**
- *High-Tech Operator**
- *Plant Operator**
- *Collection Operator**
- *Industrial Waste Operator**

**Natural Resources Systems:**
- Water Monitoring Technician
- Hydrologists
- Watershed Manager

**Environmental Service Systems:**
- Environmental Sampling and Analysis Scientists/Technicians
- Water Environment Manager
- Water Quality Manager
- Waste Water Manager
- *Environmental Manager**
- *Conservation Manager**

***Recommended additions in Italics that could be added.***

***Source: State Career Clusters Initiative, http://www.careerclusters.org***

# Responses and Results

## Aligned organizational titles to common categorical titles

| Title Category | # of times org title aligned to category | # currently filled | # currently vacant | # needed in 3 years |
|---|---|---|---|---|
| **Environmental Manager** | 20 | 121 | 41 | 122 |
| **Environmental Sampling and Analysis Scientist** | 21 | 391* | 230* | 380* |
| **Environmental Sampling and Analysis Technician** | 14 | 94 | 68 | 84 |

*Note: large numbers were provided by a respondent from a statewide organization, specifically for the organizational title Environmental Specialist 2. Further clarification has been requested to verify context.

# Results and Recommendations

## Identified Skill Gaps

- Basic knowledge in watershed issues
- Basic taxonomy
- Data analysis programs such as R
- General computer classes
- Identification of macroinvertebrates and fish species
- Interpreting topographic maps and construction plans
- Wetland identification/delineation
- More hands-on experiences

## Recommendations

- Conduct functional occupational analysis in Data Collection and Analysis
- Gather additional information regarding required trainings
- Gather additional information regarding technical and soft skills needed


# DACUM Functional Analysis

- Purpose: to systematically describe the work of the Data Collection and Analysis function across job levels and titles
- Leveraging employer partner subject matter expertise:
  - Environmental Manager
  - Environmental Sampling and Analysis Scientist
  - Environmental Technician
- Workshop held March 10-11, 2025 at MAGNET in Cleveland

# DACUM Results

## DACUM Research Chart for Data Collection and Analysis Function

**March 10 & 11, 2025**

| DUTIES | TASKS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A. Perform Project Planning | A.1 Determine project objectives (e.g., goals, hypothesis, outcomes) | A.2 Obtain management approval | A.3 Assemble project coordination team | A.4 Coordinate with project partners and stakeholders | A.5 Obtain project funding (e.g., grant funds, budget, milestones) | A.6 Review historical data (e.g., reports, as -builts, video footage) | A.7 Obtain work permits/property permissions | A.8 Determine project methodologies (e.g., sampling, assessment, testing) | A.9 Identify data collection sites |
| | A.10 Establish data collection schedule | A.11 Create data management plans (e.g., study plan, retrieval, storage) | A.12 Create QA/QC plan | A.13 Develop data analysis plan | A.14 Create project assets (e.g., templates, forms) | A.15 Determine project resource requirements (e.g., tools, tech, staff) | A.16 Identify project-specific training and development needs | A.17 Delegate project tasks | A.18 Develop project evaluation plan (e.g., deliverables, model confirmation, timeline) |
| | A.19 Determine safety plans | | | | | | | | |
| B. Maintain Supplies & Equipment | B.1 Purchase supplies and equipment | B.2 Maintain spare part and supply inventory | B.3 Test technical equipment (e.g., instruments, meters, motors) | B.4 Troubleshoot technical equipment | B.5 Repair malfunctioning tools and equipment | B.6 Perform equipment preventative maintenance (e.g., clean, batteries, fuses) | B.7 Maintain equipment records | B.8 Assemble technical equipment | B.9 Update equipment firmware and software |
| C. Conduct Field Work | C.1 Determine sampling requirements | C.2 Confirm field work permissions | C.3 Determine site access locations | C.4 Gather field work supplies and equipment (e.g., bottles, paperwork, preservatives) | C.5 Verify equipment calibration | C.6 Provide field work information to public | C.7 Gather site information from public | C.8 Install monitoring equipment | C.9 Collect in situ measurements |
| | C.10 Conduct field inspections (e.g., hydraulic, structural, debris) | C.11 Conduct environmental field assessment (e.g., biological, habitat, plant/animal) | C.12 Collect field samples | C.13 Coordinate sample processing with lab (e.g., chain of custody, schedule, hold times) | C.14 Restore work area to original condition | C.15 Verify industrial self-monitoring reports | C.16 Report nuisance conditions | C.17 Document field data (e.g., scan, transcribe, upload) | |
| D. Analyze Field Samples | D.1 Complete sample chain of custody | D.2 Subdivide field samples | D.3 Store field samples | D.4 Prepare sample per intended analysis | D.5 Prepare test reagents and standards | D.6 Analyze biological samples (e.g., identify, quantify specify) | D.7 Conduct chemical analysis (e.g., | D.8 Verify quality control checks (e.g., | D.9 Maintain lab environment (e.g., |
| | D.10 Maintain laboratory glassware (e.g., clean, sterilize) | D.11 Re-analyze anomalous results | D.12 Ship samples for commercial analysis | D.13 Input data into secure information management system | | | | | |
| E. Conduct Data Analysis and Interpretation | E.1 Compile project data and metadata | E.2 Create data optimization resources (e.g., scripts/macros, programs, templates) | E.3 Prepare data for analysis (e.g., clean, sort, filter) | E.4 Perform data exploration (e.g., compute summary statistics, initial visual representation, data gaps) | E.5 Conduct statistical analysis (e.g., test hypothesis, identify trends and relationships) | E.6 Develop predic models (e.g., tes validate, calibrat | | | |
| | E.10 Evaluate data and analysis outcomes (e.g., hypothesis, future data needs) | E.11 Obtain stakeholder feedback (e.g., peer review, public comment) | E.12 Address stakeholder feedback | E.13 Finalize project report | | | | | |

# Curriculum Next Steps

- Disseminate Data Collection and Analysis DACUM data as input for curriculum development
- Provide additional, existing DACUM data sets (e.g., Collection System, Water Operator, Wastewater Operator, etc.)
- Identify other areas for DACUM analysis, if needed
- Re-do annual employers and partners assessment survey

# PROGRAM

**Workshop training**

1. Water quality monitoring
2. Mapping water systems with GIS
3. Sustainable Land and Water Systems
4. Stormwater Management

**Micro-credentials**

1. Humanitarian engineering
2. Risk Assessment of water systems
3. Stormwater systems inspection and maintenance

**2-year Degree Community College**

1. Data analytics in water resources in partnership with LCCC

**4-year Degree University (undergraduate level courses)**

1. Engineering for sustainable development
2. Ecological engineering
3. Design of Urban Stormwater Control Measures

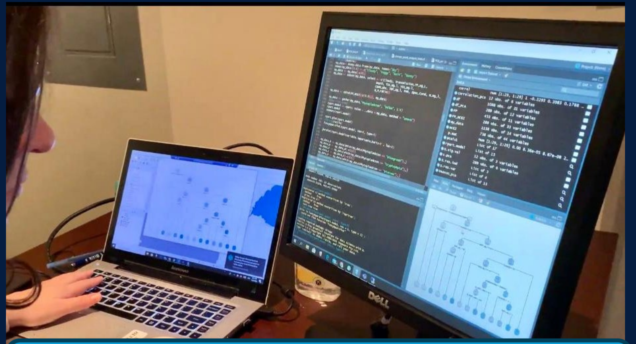
**Graduate Degree University**

1. MS and PhD in Food, Agricultural, and Biological Engineering (focus watershed modeling and data analytics)
2. MS and PhD in Civil, Environmental, and Geodetic Engineering (focus infrastructure risk and stormwater management)

Water Quality Monitoring

Sensor Technology

And More!



GIS & Data Analytics

Stormwater Control Measures

Micro-credential

Intercultural Competency at Work

Computer Literacy

Climate 101 Resilience

NOAA Online Training

Stormwater Control Measures

Certificate

Project Management

Stakeholder Engagement

Micro-credential

Intercultural Competency at Work

Computer Literacy

Climate 101 Resilience

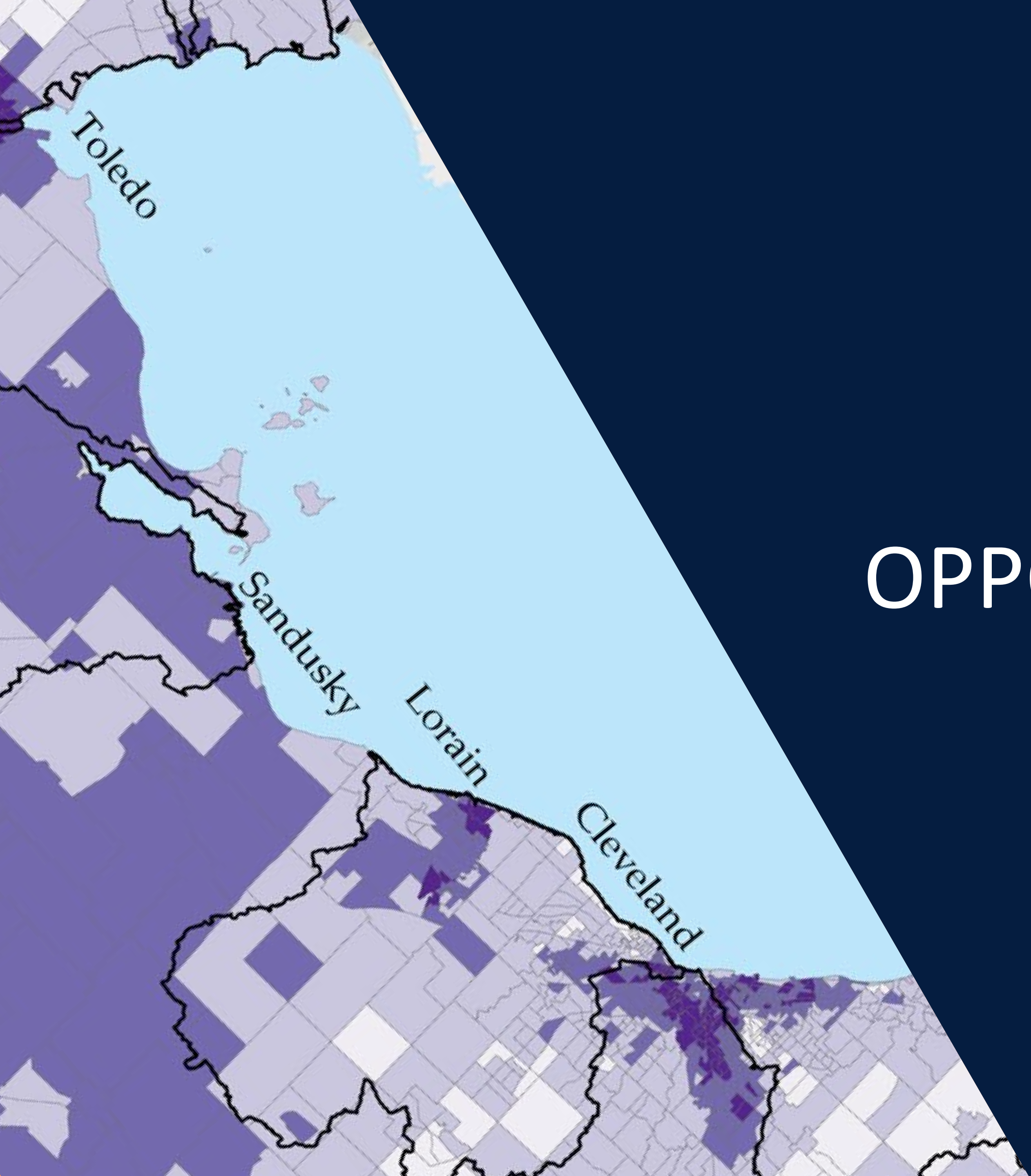
NOAA Online Training

Water Quality Monitoring and Modeling

Certificate

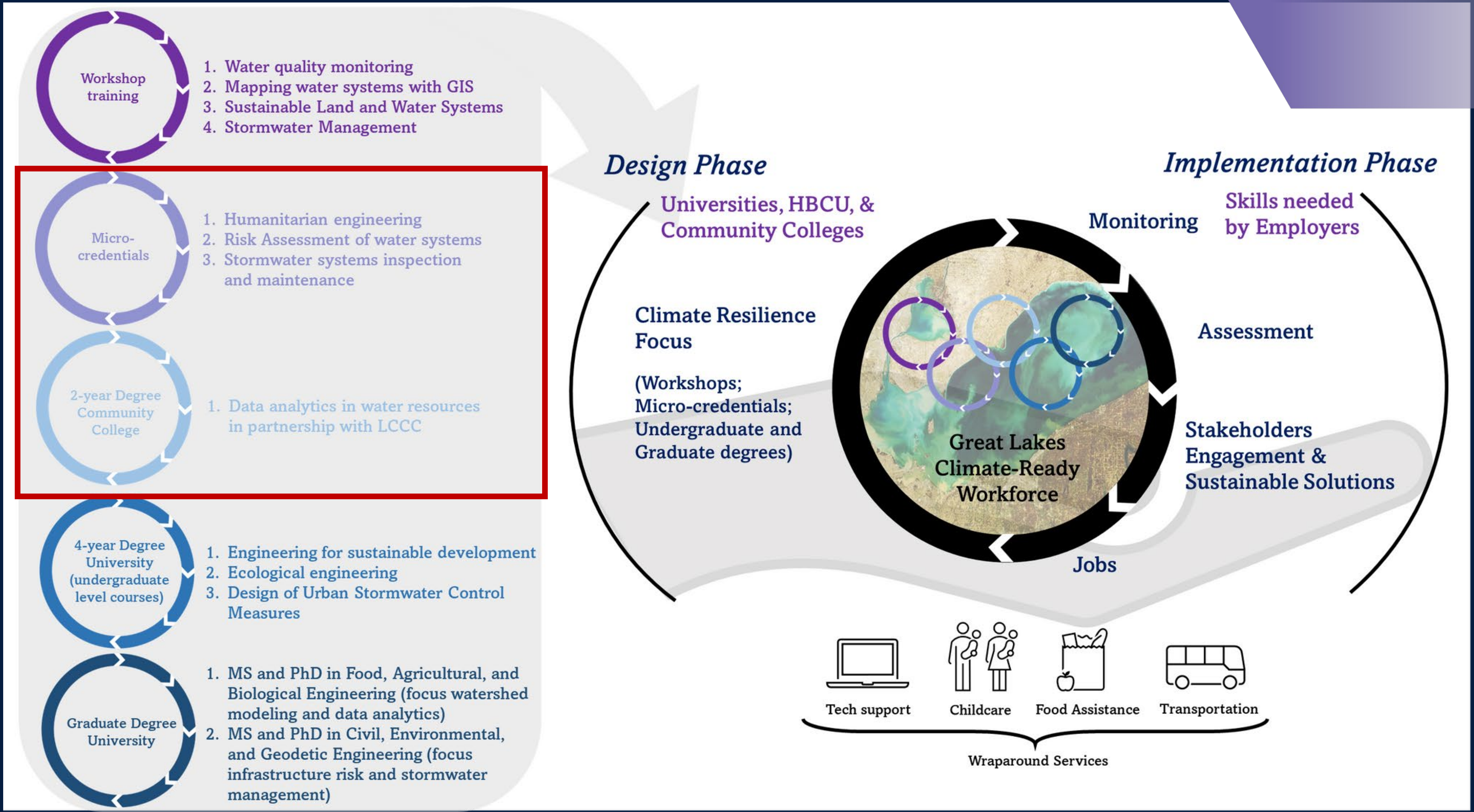
Project Management

Stakeholder Engagement




# OPPORTUNITIES

# PROGRAM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(Workshops; Micro-credentials; Undergraduate and Graduate degrees)
Implementation Phase
Monitoring
Skills needed by Employers
Assessment
Stakeholders Engagement & Sustainable Solutions
Jobs
Great Lakes Climate-Ready Workforce
Tech support
Childcare
Food Assistance
Transportation
Wraparound Services

# Final Remarks

## Coming up in 2026:

Drone Certification Training

Wetland Delineation Training

Construction Site Sediment and Erosion Control Training

## Contact Information:

Lorrayne Miralha (Program Lead):
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Maggie Gottfried (Program Assistant):
gottfried.75@buckeyemail.osu.edu

# Questions?

OhioTechNet

Tracey Hooper-Porter
Washington State College of Ohio

*Experiential Learning Pilot*

WASHINGTON STATE COLLEGE OF OHIO

OhioTechNet

# National Network for Microelectronics Education (NNME)

[www.nnme.org](http://www.nnme.org)

NNME

NATIONAL NETWORK FOR MICROELECTRONICS EDUCATION

## National Network for Microelectronics Education (NNME):

### Regional Node Request for Proposals

*Advancing America's microelectronics talent pipeline through collaborative regional ecosystems.*

Issued by the SEMI Foundation

**Release Date:** October 13, 2025
**Proposal Submission Deadline:** December 22, 2025 • 11:59 PM ET

**Contact for Questions:** nnme@semi.org

Access the RFP: https://nnme.org/wp-content/uploads/2025/10/NNME-Node-RFP-10.13.pdf

OhioTechNet

# Ohio Manufacturing Talent Partnership

*Ohio's Manufacturing Workforce Blueprint*

**The Blueprint overview video released at the OMA Summit is now live on ohiomtp.com.**

This resource offers a clear way to explain the statewide strategy, the role of our partnerships, and how the work connects across regions. We encourage you to use it in presentations, meetings, or conversations with local partners as you continue to share and advance this work.

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Partners in Training Ohio's Manufacturing Workforce

**FOLLOW**

**OHIO TECHNET**

**ON LINKEDIN!**

# NEXT MEETING:

## December OTN Meeting

**Dec. 16, 2025 at 8:30am**

***'Celebrating 2025 – A Year in Review'***

OhioTechNet

# December 2025 Meeting, Partner Year in Review

We want to hear about your 2025 successes, projects, best practices, etc. !

Please send us 1-2 slides on your 2025 successes that can be shared in the December Year in Review meeting on December 16th!

Submit your slides to Courtney Tenhover, ctenhover@loraincc.edu, by Friday, December 2nd.

OhioTechNet

# OPEN DISCUSSION:

## Help shape our 2026 meetings!

What topics, programs, best practices, challenges, or statewide initiatives would you like Ohio TechNet to feature in its 2026 meetings?

- Guided Pathways for Youth
- Reaching New Audiences
- Innovative Earn and Learn
- Faculty and Educator Development
- Partnering with Industry

OhioTechNet

# THANK YOU!

# HAPPY THANKSGIVING!