MID-OHIO REGIONAL
MORPC
PLANNING COMMISSION

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NOTICE OF A MEETING
SUSTAINING SCIOTO BOARD
MID-OHIO REGIONAL PLANNING COMMISSION

REMOTE MEETING

February 24, 2020, 2:30 pm – 4:00 pm

AGENDA

2:30pm	**Welcome** ***Kristen Atha, Chair***
2:35 – 3:10 pm	**Featured Presentation -** *Danny Johnson, Atlanta Regional Council*
3:10 - 3:20 pm	**Agricultural and Rural Communities Outreach Team –** *Jessica d'Ambrosio, Ag&Rural Working Team Chair*
3:20 - 3:30 pm	**Precipitation Data for Water Infrastructure**
3:30 - 3:40 pm	**MORPC Staff Update –** *Brooke White and Edwina Teye, MORPC*
3:40 – 3:55 pm	**Board member updates**
3:55 – 4:00 pm	**Next Steps** – *Kristen Atha , Chair*
4:00 pm	**Adjourn**

Please notify Lynn Kaufman at 614-233-4189 or LKaufman@morpc.org to confirm your attendance for this meeting or if you require special assistance.

The next Sustaining Scioto Board Meeting
will be on April 28, 2021, 2:30 pm – Location to be determined

SUSTAINING SCIOTO BOARD MEETING

December 9, 2020

MID-OHIO REGIONAL
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PLANNING COMMISSION

Featured Presentation

Daniel Johnson, PE

Atlanta Regional Commission

Metro Water District Climate Utility Study

Danny Johnson, Manager
Katherine Atteberry, Stormwater Planning Manager

Metropolitan North Georgia Water Planning District

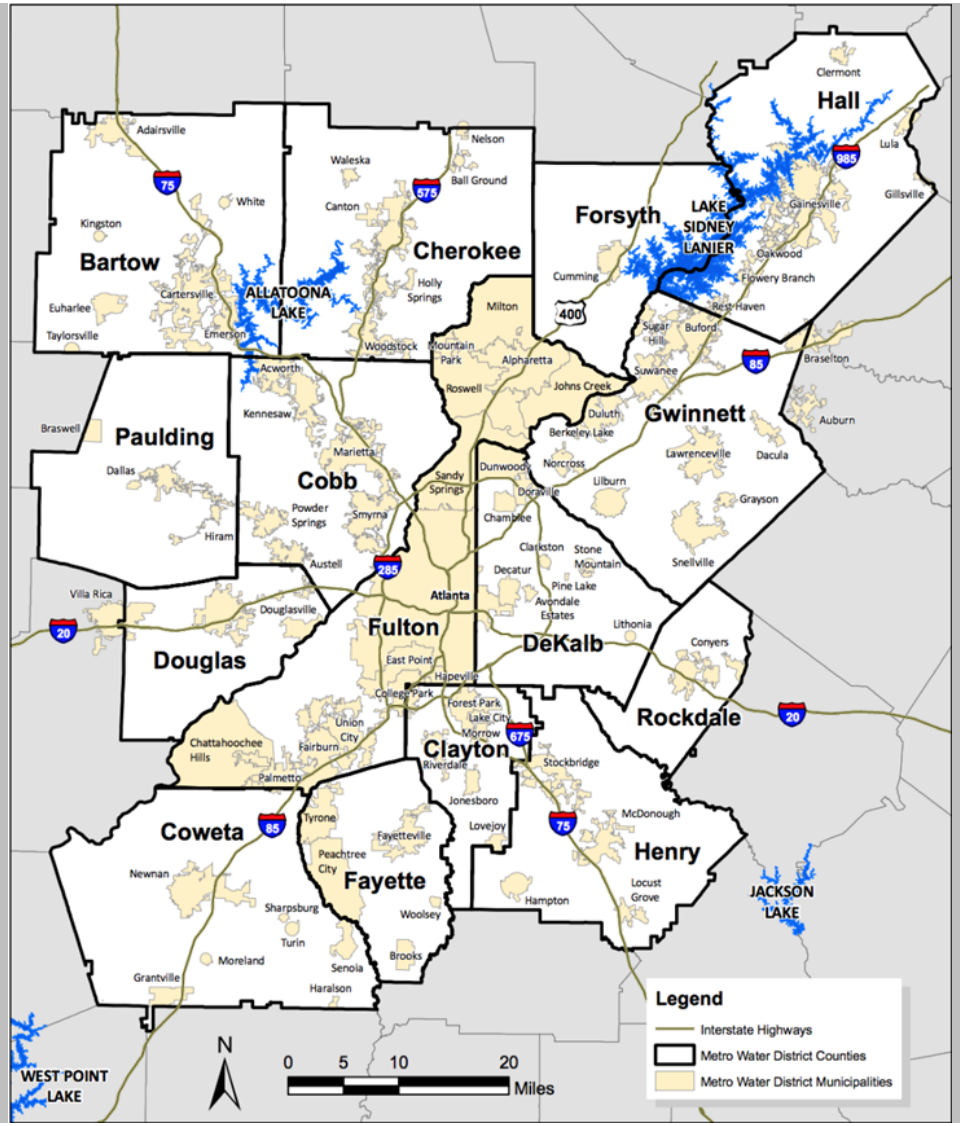
February 2021

Atlanta Regional Commission

METRO NORTH GEORGIA WATER PLANNING DISTRICT

AKA "The District"

AKA MNGWPD



Establishes strategies

- Water Supply
- Conservation
- Watershed Management
- Wastewater Treatment

Integrated and holistic approach

Mixed signals…

Atlanta Flooding Update: Heavy Rain Shuts Down Roads In Metro Area

BY JESSICA MENTON ON 05/31/15 AT 5:25 PM

The New York Times

Drought-Stricken South Facin

By BRENDA GOODMAN OCT. 16, 2007

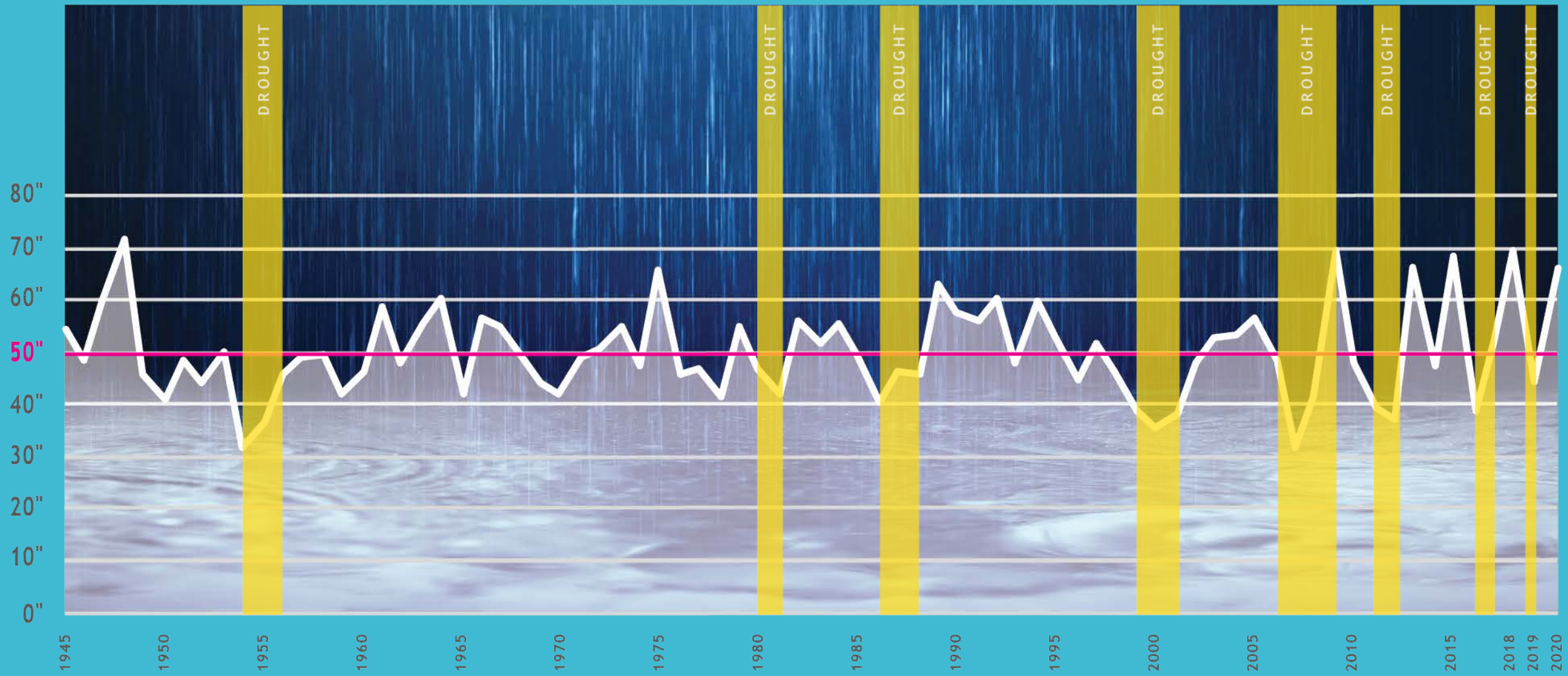
Worst-case analyses indicate that Lake Lanier, the main water source for Atlanta, could be drained dry within four months. Pouya Dianat/The Atlanta Journal-Constitution

Hell and High Water hits Georgia

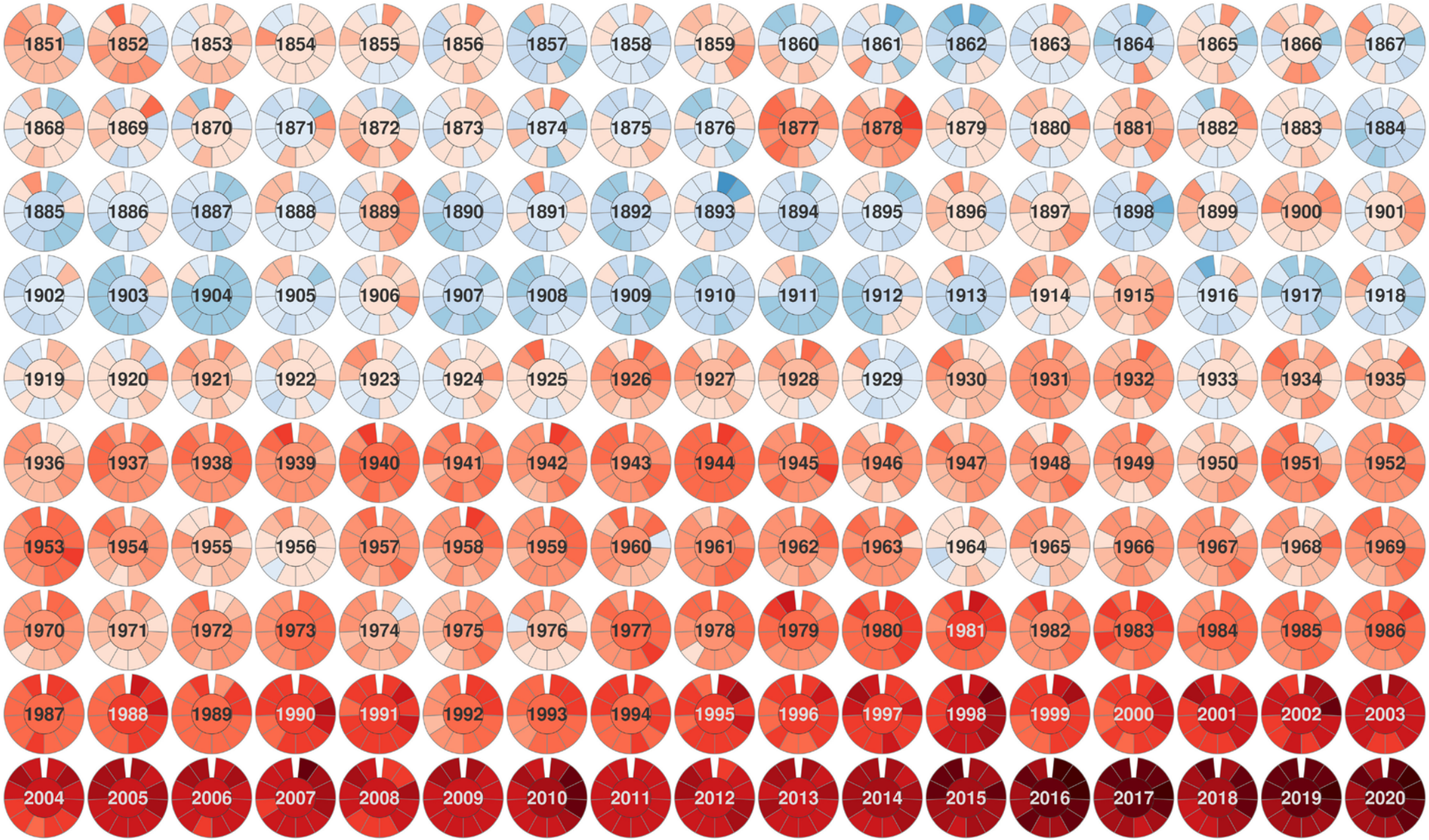
Averages can be Misleading

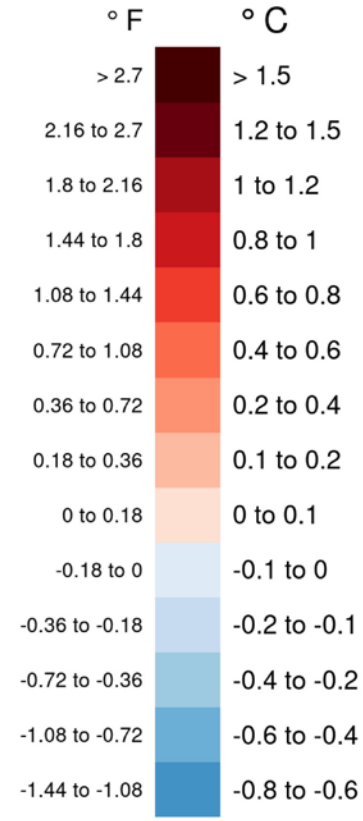
Annual Rainfall

Average Annual Rainfall = 50 inches



Monthly global mean temperature 1851 to 2020 (compared to 1850-1900 averages)





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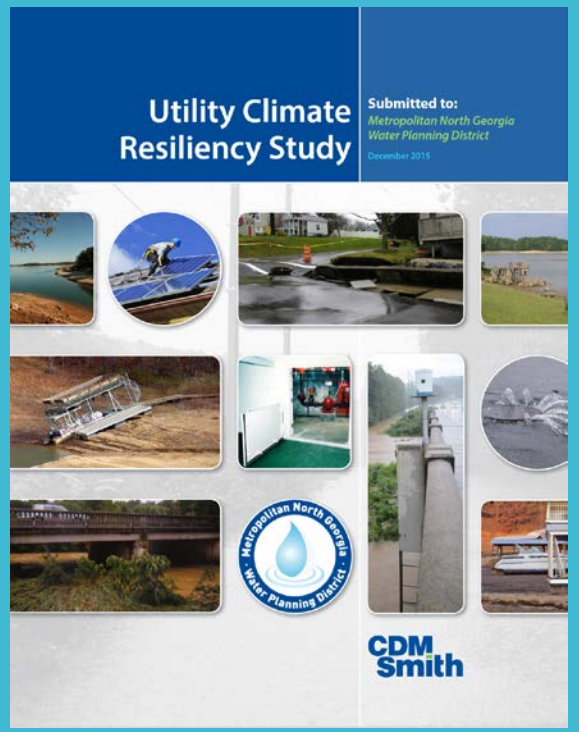


STUDY PURPOSE

…to predict future climate conditions or the likelihood that certain conditions could occur.

…to identify potential climate conditions that, if they do occur, could create specific risks to the water resources within the District

APPROACH

Any future climate variability will create risks to water and water-related facilities, so:

- Define types of risk
- Potential ranges

APPROACH

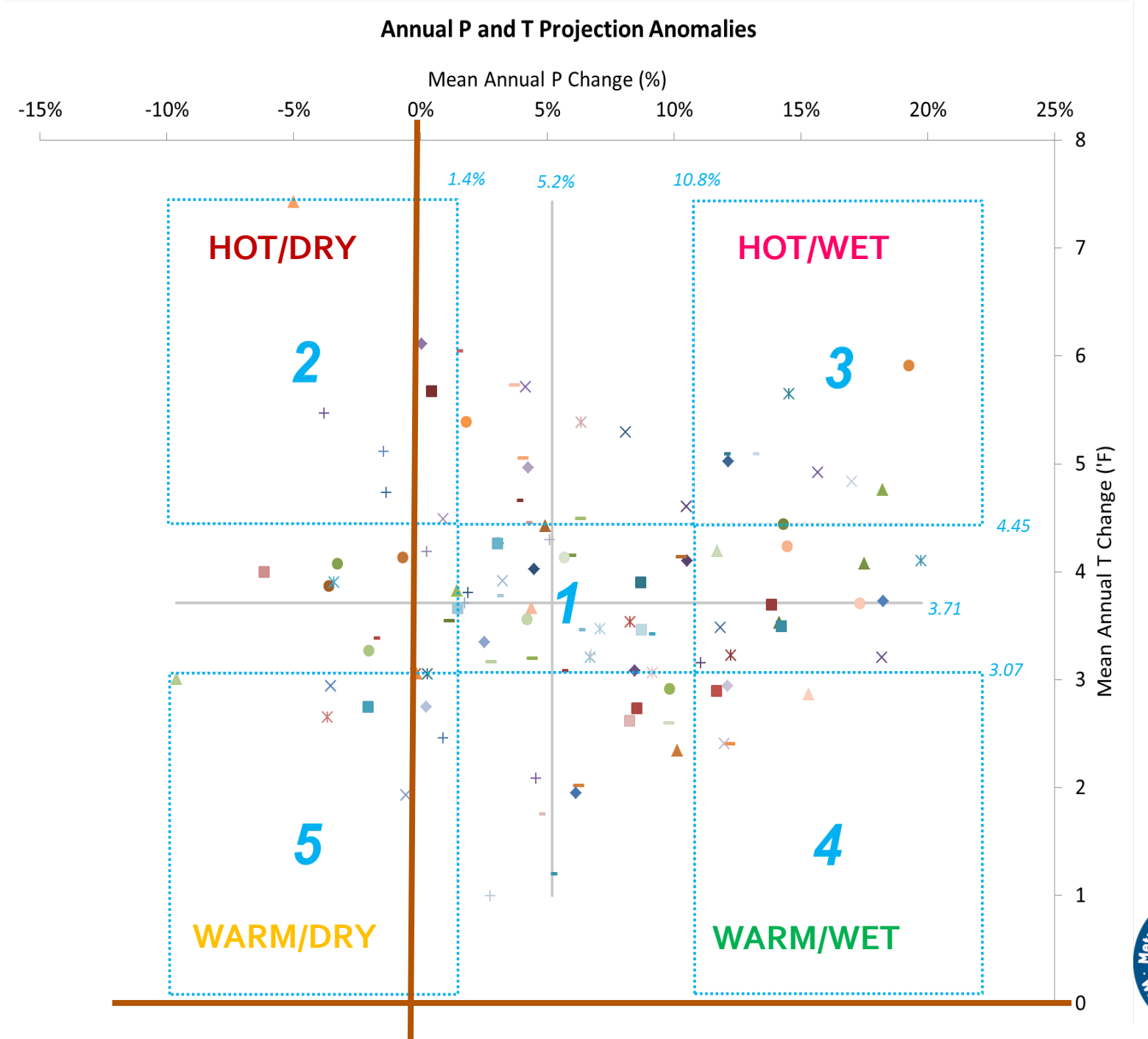
We don't know which trends are most likely, so:

- Monitor climate trends and plan adaptively
- Consider preemptive measures that are low cost, low risk and will yield benefits regardless of climate trends

REPRESENTATIVE SUMMARY OF CLIMATE SCENARIOS

5 based on Global Climate Models (GCMs)

1 based on extending historic records



PRIMARY CLIMATE IMPACTS

WATER QUALITY

- Decrease in annual low flows
- Increase in water temperatures (0.1 to 2.9°F)
- Decrease in Dissolved Oxygen (DO) by up to 1.4 mg/L

PRIMARY CLIMATE IMPACTS

WATERSHED

- Increase in storm frequency & intensity (0 to 12% depth)
- Higher peak stream flow (5- 11% for 5-yr storms)
- Increase in pollutant loading (-1 to +15% range across scenarios)

PRIMARY CLIMATE IMPACTS

WATER SUPPLY

- Test case reservoir yield could decrease by 10% or increase by up to 30%
- Tendency toward more frequent and severe droughts

RESPONSES TO KEY IMPACTS

Preemptive Strategies

Near-term "no regret" recommendations that could enhance ongoing activities or provide multiple benefits beyond reducing sensitivity to climate conditions.

Adaptive Strategies

Specific suggestions to help reduce water and wastewater facilities' vulnerability to specific climate trends if they develop.

PREEMPTIVE MEASURES

"No Regret"

	Preemptive Measures	Relevant Climate Conditions	Specific Risks	Benefits of the Measure
Adapt	**Implement climate tracking protocols**	All	– Future climate trends are uncertain	– Specific response measures can be triggered by the onset of actual, recognizable trends
Water Quality	**Green Infrastructure**	All	– Increased Storm Depth/frequency/Intensity – Increased nonpoint source pollution – Reduced reservoir yields	– Mitigate storm depth and volume – Reduce nonpoint pollution loads – Increased local water supply
Water Supply	**Drought Management Plans that specifically identify risks to individual reservoirs**	All	– Increased tendency toward more severe/frequent drought conditions from all scenarios – Potential reduction of reservoir yield – Uncertainty about the type of drought that is riskiest for each reservoir (long and gradual vs. short and sudden)	– Specific drought triggers for each utility and supply system – Unified guidance from the District on drought conditions/response – Correlation with Demand Management (below) – Potential for supply side management
	Demand Management	All	– Increase in water demand	– Help conserve water by lowering demand
	Integrate Reclaimed Water into Supply Planning (possibly through policy incentives that do not yet exist)	All conditions could increase demand and drought risk. Dry scenarios also reduce reservoir yield.	– Increase in water demand – Reduction in reservoir yield – Increased drought frequency and/or severity	– Utilizes an available resource to offset demand without new hydrologic stresses – Policies and incentives could foster regional collaboration
Floods	**Extreme Precipitation Analysis**	Central, Hot Dry, Warm Wet	– Increased Storm Depth/frequency/Intensity	– Prioritize specific facilities at the greatest risk (conveyance, treatment, retention, etc.) that would benefit from climate-triggered enhancements
	Conveyance system inspection and maintenance	All	– Increased flows during storm events – Damage due to lowering water table and tree root migration	– Prioritize upgrades to conveyance systems.

MULTI-BENEFIT SOLUTIONS

EXAMPLE

Green Infrastructure

- Reduce flooding from increased storm depth
  - Reduce need for back-up WTP and WWTP
  - Reduce need for increased dam and levee level of service
- Reduce non-point source pollutant loads
  - Wastewater treatment effluent regulations
  - Limit need for changes in WTP treatment processes

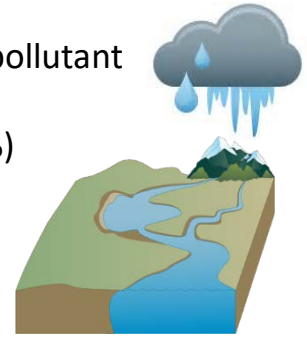
ADAPTIVE MEASURES

EXAMPLE

ISSUE: INCREASE IN NONPOINT SOURCE POLLUTANT LOADS FOR WWTPs

Impact

Increased pollutant loading
(-1 to +15%)



Issues

More stringent effluent regulations

Scenarios

- Central
- Hot/Dry
- Hot/Wet
- Warm/Dry
- Warm/Wet
- Trend

Key Adaptation Strategies

- **Regulate** point sources and non-point source pollutant sources
- **Land use planning** changes
- Mitigate non-point source pollution increases through **green infrastructure**

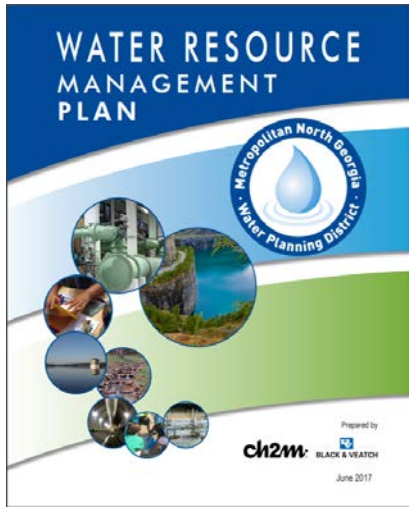
CONCLUSIONS

CONCLUSIONS

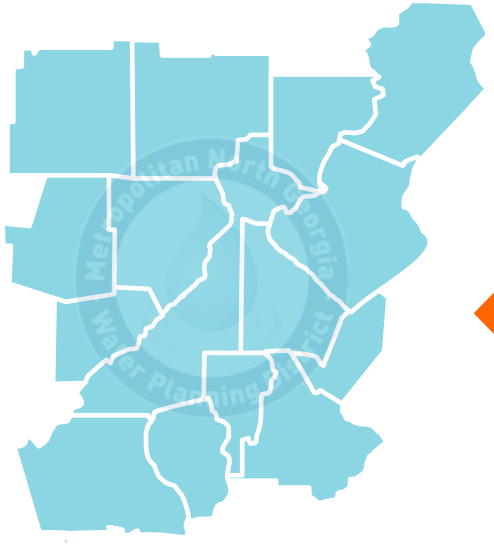
We don't know which trends are most likely, so:

- Monitor climate trends and plan adaptively
  - Identify triggers
  - Prioritize actions based on risk
- Consider preemptive measures that are low cost, low risk and will yield benefits regardless of climate trends
  - Drought management plans
  - Implementation of green infrastructure

Water Resource Management Plan Implementation



Metro Water District develops regional Water Resource Management Plan



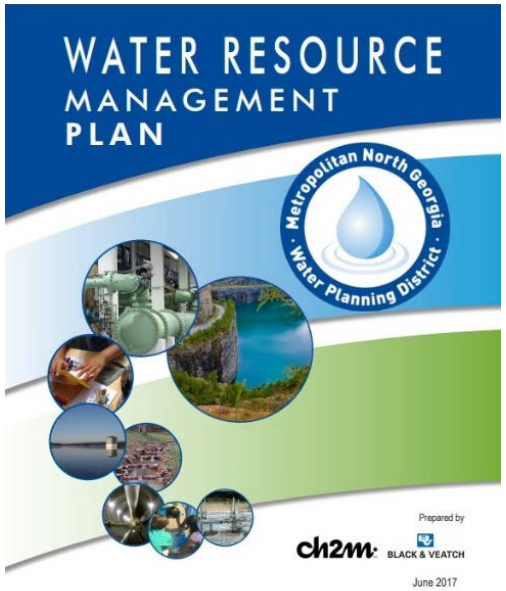
Local governments responsible for implementing plans

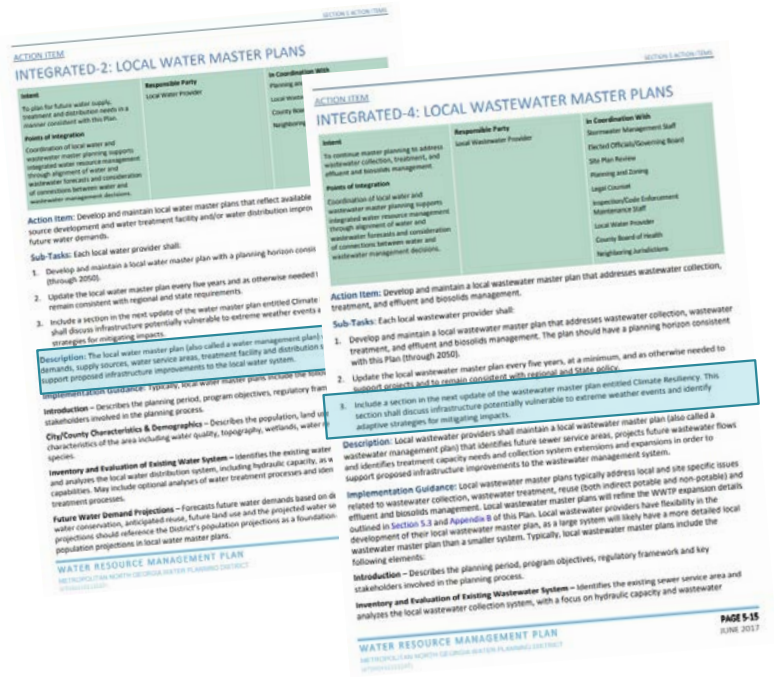
Georgia EPD approves plans and enforces implementation via permits and state funding eligibility

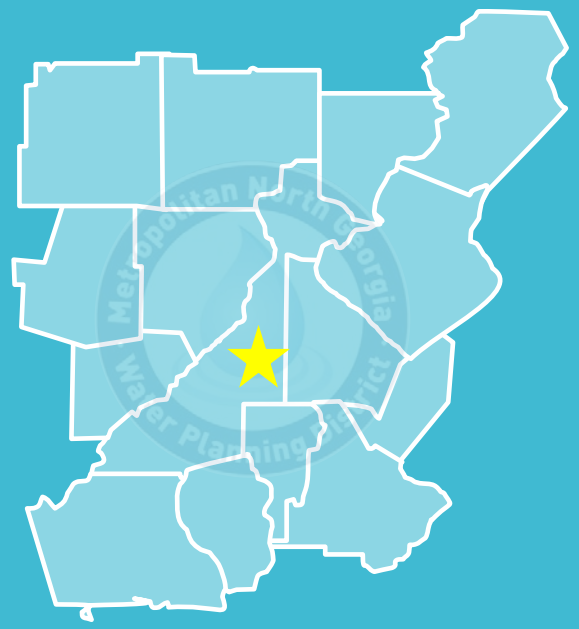
Moving Beyond the Study

In 2017, the District added a new requirement for water and wastewater utilities.

"Include a section in the next update of the water and wastewater master plan entitled Climate Resiliency. This section shall discuss infrastructure potentially vulnerable to extreme weather events and identify adaptive strategies for mitigating impacts."





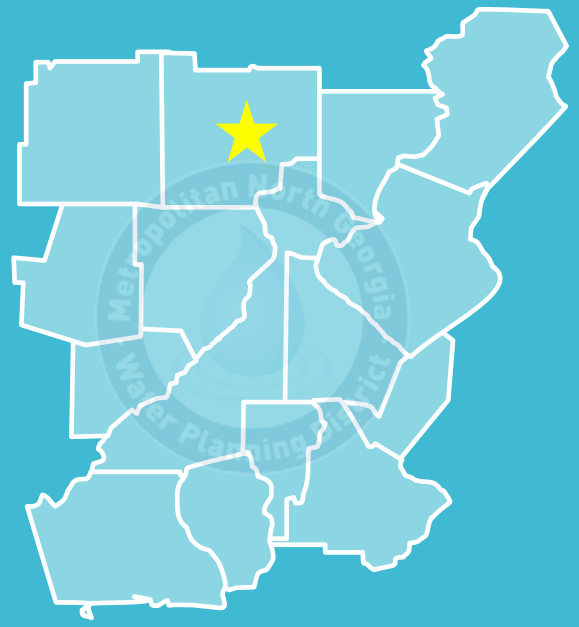


City of Atlanta

Wastewater Master Plan:

Sustainability and Climate Resiliency Objectives

- Reducing Energy Usage and Transitioning to Clean Energy Sources
- Increasing Operation and Facility Efficiency
- Enhancing Resource Recovery
- Reducing Chemical Usage at Water Reclamation Centers



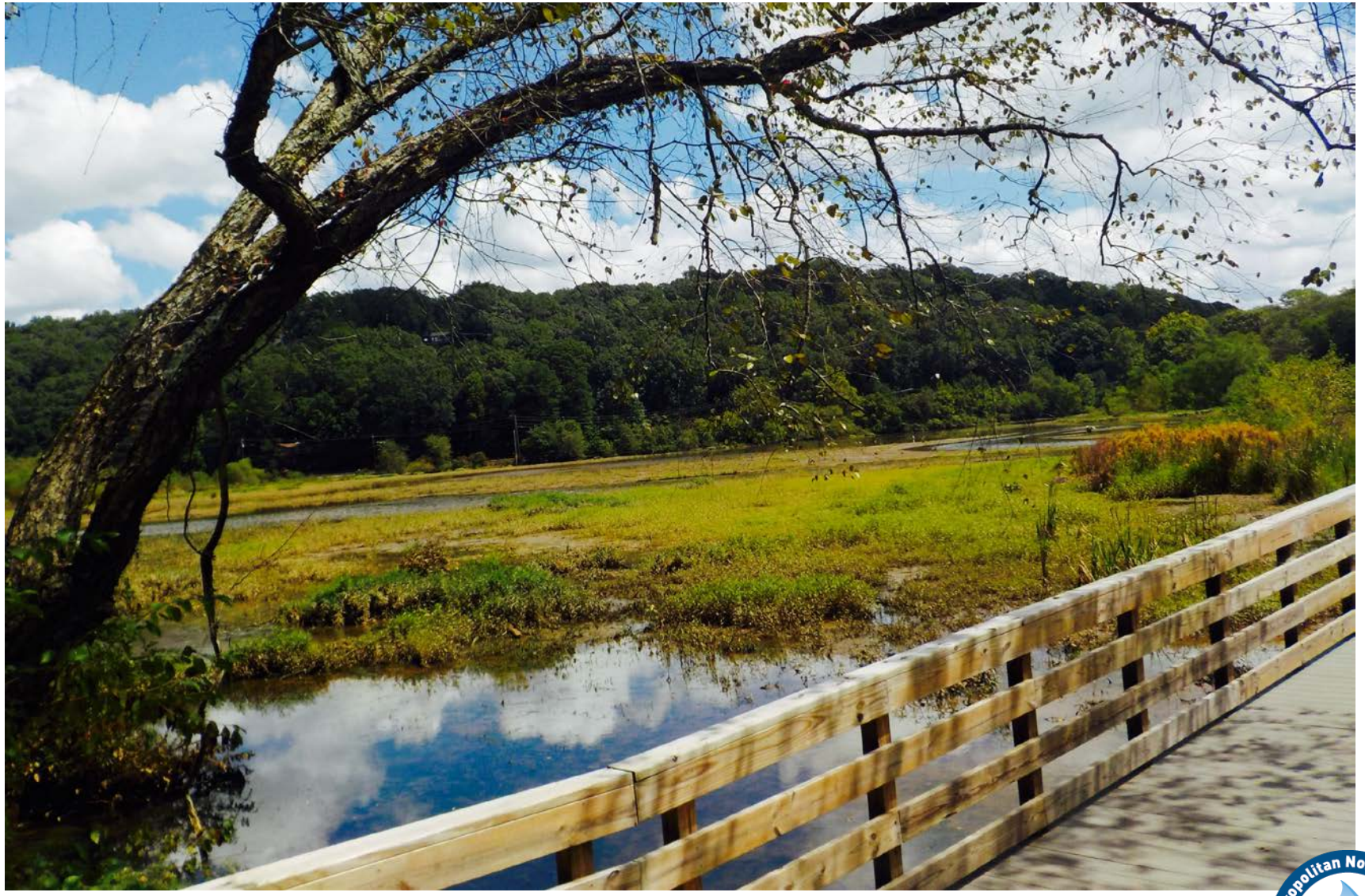
Cherokee County Water Authority

Water System Master Planning

- Opportunity to prepare for drought
  - Evaluate range of actions
- Capital Improvement Projects
  - Identify projects that would mitigate drought impacts
  - Evaluate long term financing options

Model Ordinances

- Post-Construction Stormwater Management
- Floodplain Management
- Stream Buffer Protection
- Illicit Discharge and Illegal Connection
- Litter Control



Post-Construction Stormwater Management

Practicability Policy for Runoff Reduction

- Soil Infiltration Rate
- Water Table
- Shallow Bedrock
- Extreme Topography
- Karst Topography
- Hotspots/ Contamination
- Historic Resources
- Site Constraints
- Economic Hardship

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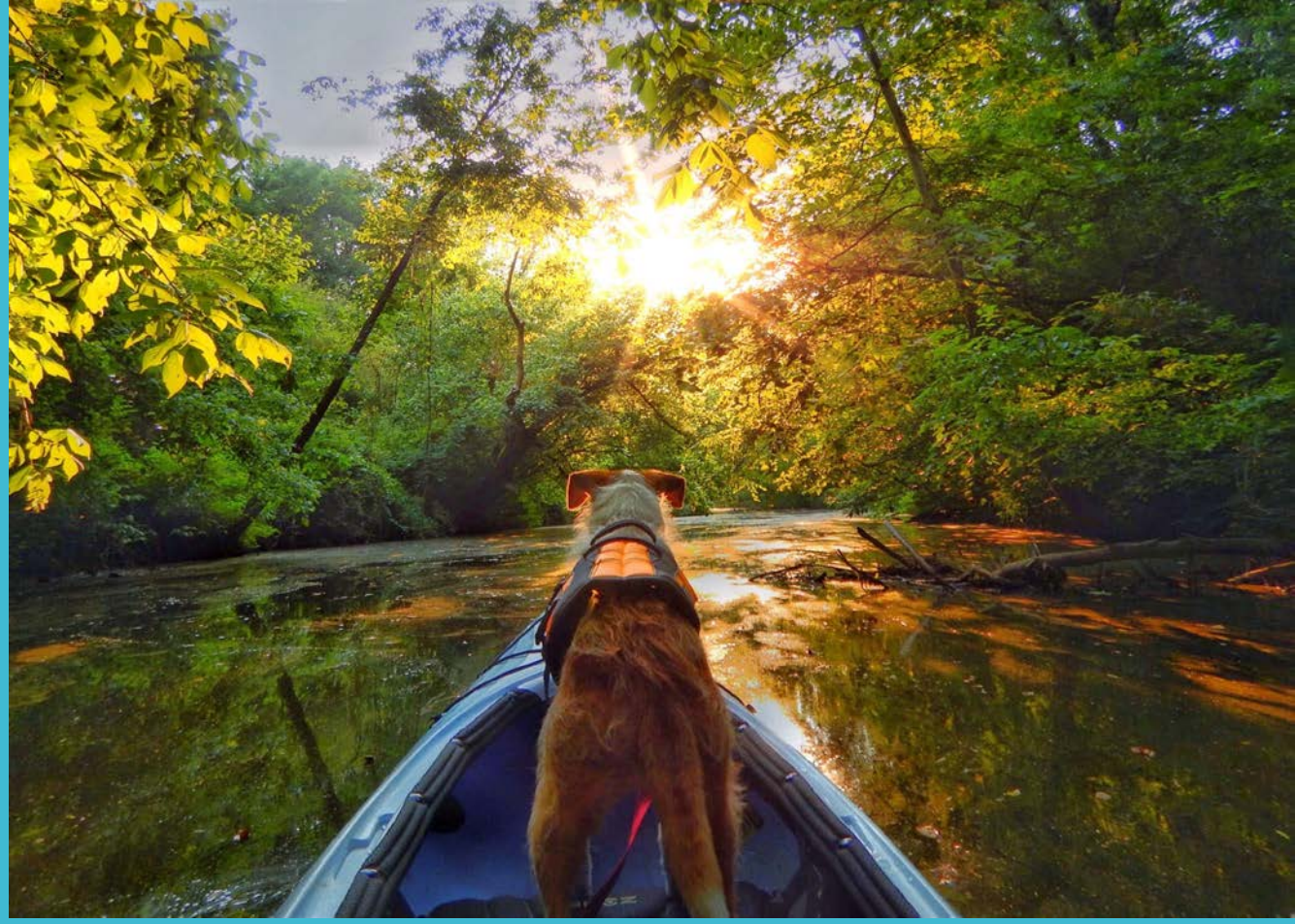

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Agricultural and Rural Outreach Working Team

Jessica D’Ambrosio, Chair

Establishing partnerships within the Agriculture and Rural Communities

County SWCD Supervisors

Elected Officials

- Lens to community
- Overview of community interests
- Ag. Practice adoption
- Willingness to participate in programs
- Attitudes about Water Quality and Climate Change Risks
- Barriers and Concerns etc.

Feedback to guide and design direct engagement opportunities

Updated Precipitation Data for Infrastructure

The City of Columbus is committed to protecting its citizens and local businesses from localized flooding through the design and construction of adequately sized public and private stormwater infrastructure. As stormwater infrastructure is sized based on rainfall amounts and distribution, it is important that the rainfall design criteria used in local stormwater regulations reflect current climate trends. The rainfall criteria used in the City's stormwater regulations were derived from the National Oceanic and Atmospheric Administration (NOAA) in 2004 which raises questions about its efficacy especially when compared to the increase in number and severity of storms experienced within our region over the past several years. In an effort to ensure that future stormwater infrastructure is appropriately sized to control localized flooding, the City would like for MORPC to consider this topic as an item of discussion with the Sustaining the Scioto Committee to determine if there is general interest from the Committee and Central Ohio communities in supporting an update to NOAA's Atlas 14 Volume 2 rainfall study.

Potential 2021 Forum

Focus

use of up to date or projected precipitation to inform water infrastructure planning

Attendees

Local government engineers, etc. from across the region

Local speakers

water infrastructure planning practices in the region

External speakers

example best practices from across the U.S.
US EPA

Is there work in this topic area to propose to OWDA in June?

Central Ohio Water Resources Planning

Edwina Teye
Associate Planner

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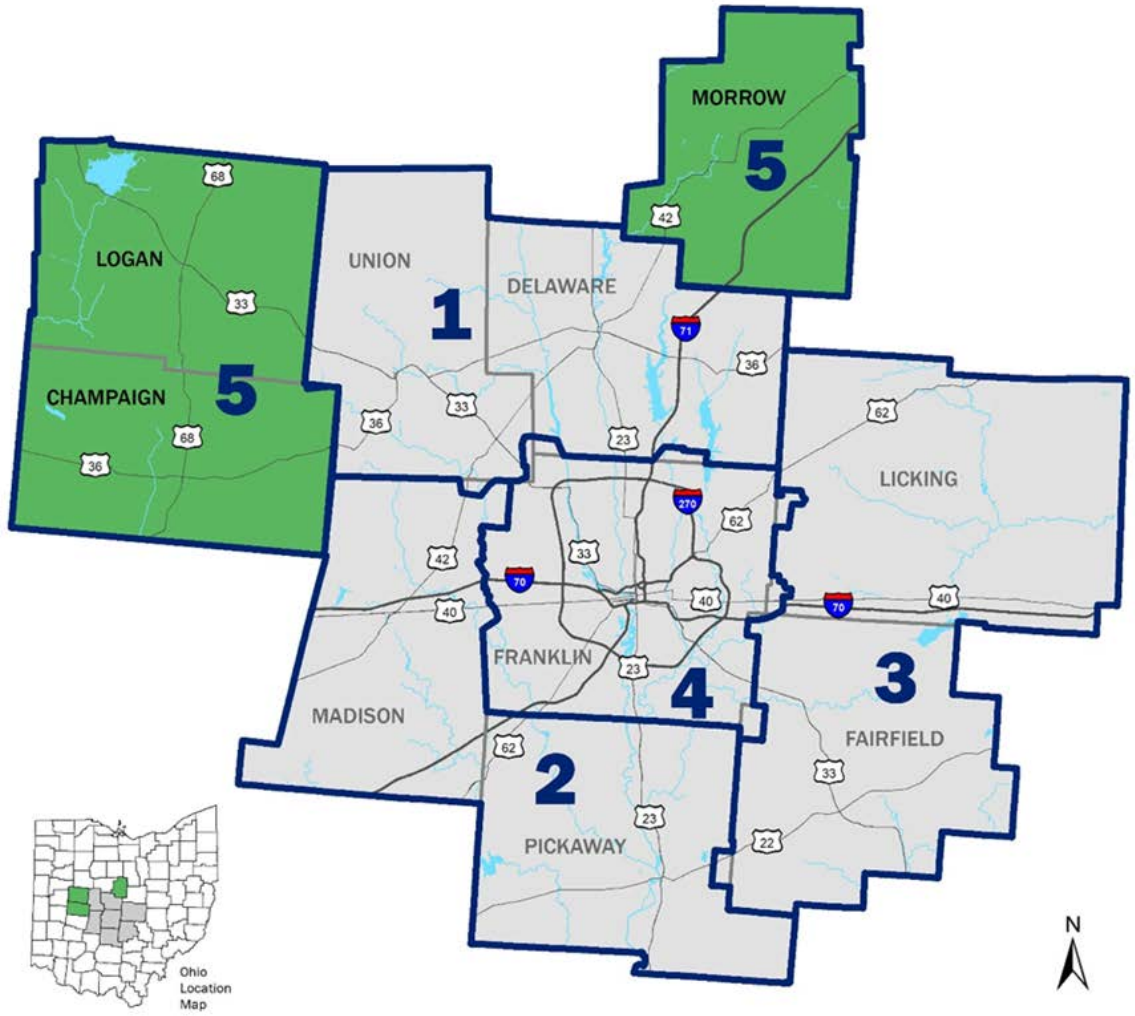
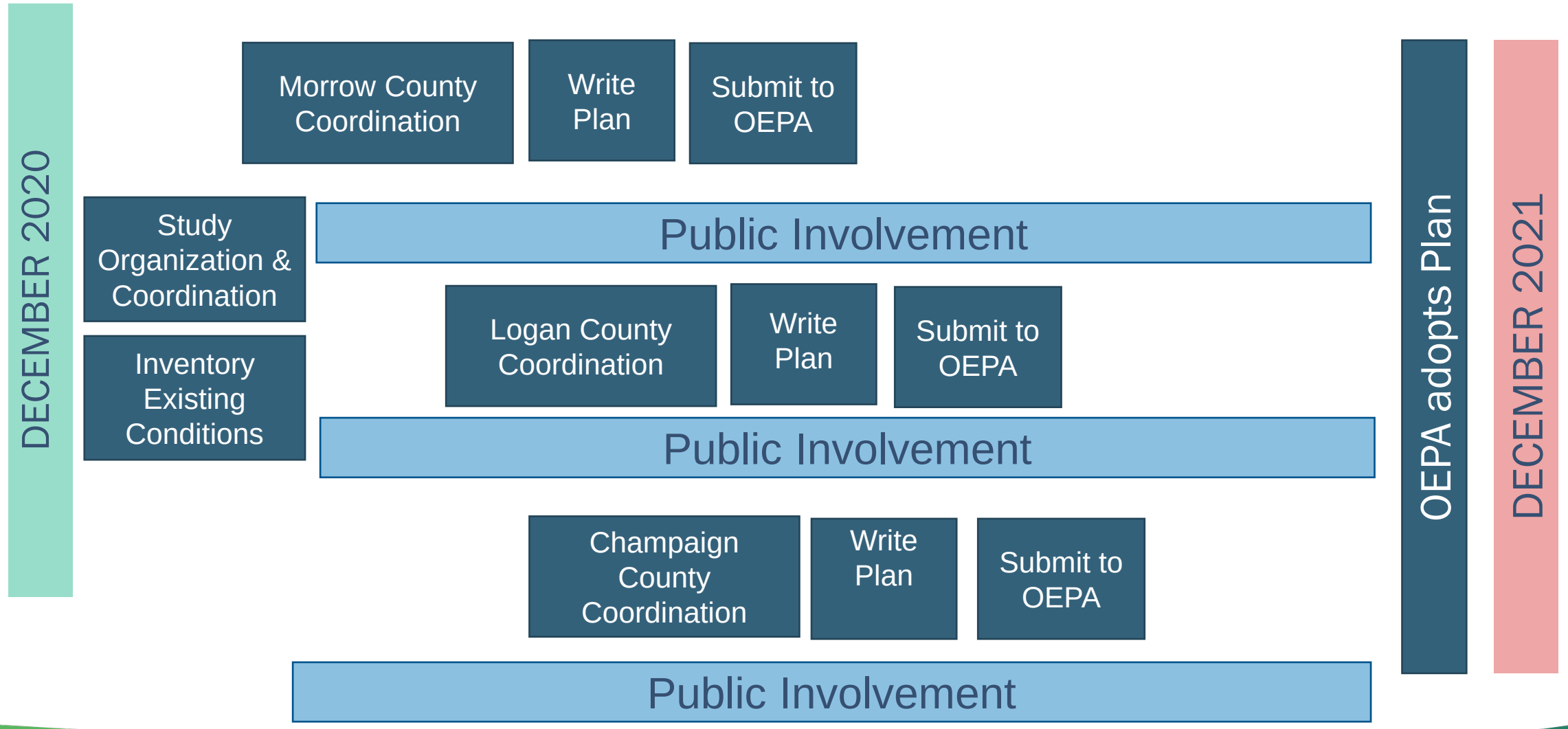
New Phase Water Resources Planning

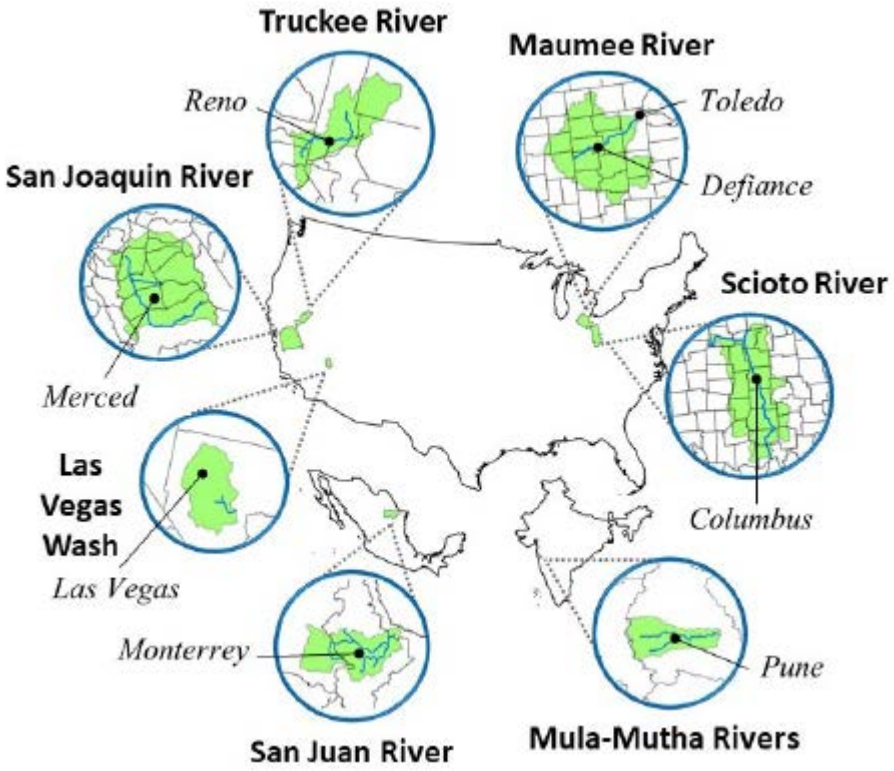
MORPC



PLANNING PROCESS



NSF Smart and Resilient Watershed Proposal



Smart and resilient watersheds: Collaborative cyberinfrastructure for resilient watersheds

"The **Smart and Resilient Watersheds (SRW)** project looks at the intersection of watershed management, emerging information systems and smart tech, civic innovation, and the regional interaction of communities that rely on watershed services. "

NSF Smart and Resilient Watershed Proposal

Goal I: Conduct primary research projects in each individual watershed lead by local experts that address issues that converge around rural-urban linkages, regional connectivity, and future-oriented information systems.

Activity: Pilot smart tech information system project for each watershed based on local feedback

Goal II: Conduct research in each watershed focused on watershed scale information systems for all seven (7) watersheds.

Activity:

Administer a research survey of watershed managers and users, their access to, use of, and demand for new information on watershed ecosystem services.

Prepare “Watershed Scale Information Assessment” report for each watershed.

Conduct seven (7) “Smart and Resilient Watershed Workshop” across all study area watershed to present material to partners and co-develop pilot smart tech projects in each watershed.

Goal III: Conduct comparative analysis across all seven (7) watershed cases using primary and secondary data, processes, and lessons from implementation activities to expand socio-ecological technological systems analysis.

Activity: Conduct network analysis of rural and urban manager and uses in each watershed.

NSF Smart and Resilient Watershed Proposal

Goal IV: Develop new system of training, education, and workforce development activities around smart tech and information systems for watersheds.

Activity

Create paid problem-based internship opportunities for each of the five (5) US-based watersheds.

Design and administer five (5) “Hack the Watershed” event to take place in each study area watershed.

Goal V: Establish a new community of practice around Smart and Resilient Watersheds.

Activity

Design a new “Smart Watersheds Professional Network” composed of researchers, students, interns, and community partners on the project as seed member.

Design activities to specifically target underserved communities and expand membership by groups underrepresented in environmental, water, and technology fields.

Create an advisory board to engage with more private, nonprofit, and public sector organizations, increase inclusion and diversity, and assist with sustainability of the network beyond the life of the project.

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