### Agenda

**Objectives:**
1. Review and discuss additional water resource assessment results
2. Review and discuss management practices and recommendations
3. Consider recommendations from Plan Review & Inter-Council Coordination Committees
4. Learn about recent studies on water system interconnectivity and biosolids management

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<tr>
<th>Time</th>
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<tr>
<td>10:00</td>
<td>Welcome, Agenda Review, Check-In with New Members</td>
<td>2:45</td>
<td>Next Steps in Plan Review and Revision</td>
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<td>10:05</td>
<td>Chair’s Report</td>
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<td>EPD Report</td>
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<td>Resource Assessment Results</td>
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<td>Information Items: GEFA Study and Biosolids Report</td>
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<td>11:15</td>
<td>Management Practices Review</td>
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<td>Public Comment</td>
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<td>Lunch</td>
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<td>Next Steps</td>
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<td>Management Practices Review (cont.)</td>
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<td>Plan Review Committee Report</td>
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<td>Recommendations Review</td>
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**Georgia Water Planning**
Regional Water Plan Update

Regional Water Plan Review and Revision Schedule

Meeting One
4th Quarter 2021

Meeting Two
1st Quarter 2022

Meeting Three
2nd Quarter 2022

Meeting Four
3rd Quarter 2022
Draft Plan Review

Meeting 4.5
3rd Quarter 2022
If needed to approve Draft Plan (virtual)

Meeting Five (Final)
4th Quarter 2022
Incorporate Comments

EPD targeted date of adoption of revised Regional Water Plan by December 2022
Introductions

STEVE DAVIS
Columbus Water Works

STEVE DAVIS
Columbus Water Works

CHRISTINE VOUDY
Georgia EPD

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Black & Veatch

CORINNE VALENTINE
Black & Veatch

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Council Advisor for:
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mszydzik@h2opolicycenter.org
(770) 543-8497
## Middle Chattahoochee Council Members

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<td>Representative Randy Nix (Ex-Officio)</td>
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Chair’s Report
Presented by Chairman Davis
Resource Assessment Results

[presenter]
Regional Water Planning Models

Water Planning Model Recap

1. Groundwater Availability
2. Surface Water Availability
3. Surface Water Quality
Regional Water Planning Models

Groundwater Availability
• Results presented at last meeting: March 15, 2022

Surface Water Availability
• Previously we focused on how the model works and how we measure results (metrics)
• Results will be shared today

Surface Water Quality
• Some model results were discussed at last meeting and more results will be discussed today
Regional Water Planning Model Results

**Metrics** are used to evaluate the results relative to outcomes of interest.

**Surface Water Availability**
- Do we have enough water to...
  - meet demands?
  - assimilate wastewater?
  - support recreation?

**Groundwater Availability**
- How does groundwater use affect our aquifers?
- Does groundwater use cause adverse impacts? (to users, aquifers, instream flows)

**Surface Water Quality**
- Is water quality adequate to support uses? (drinking water, recreation, fishing)
- How do wastewater discharges affect water quality (dissolved oxygen)?

**Sustainable Yield**
Resource Assessment Results: Water Quality and Surface Water Availability
Draft Resource Assessment by ACF BEAM for Middle Chattahoochee Water Planning Region

Georgia EPD
May 11, 2022
Presentation Outline

• Introduction and Model Settings

• Model Results Baseline Scenarios
  • Water Supply Challenges, Examples (water supply PMs)
    • Carroll County Water Authority
    • Heard County Water Authority
    • PVA Water Association, Inc.
  • Wastewater assimilation Challenges, Example (wastewater assimilation PMs)
    • West Point Elevation
    • Columbus Flow Results

• Additional Performance Measures to consider?
Middle Chattahoochee Region and ACF Model Domain
BEAM Node Types
ACF BEAM Model Baseline and Future Scenarios Settings

- Simulation Period (various hydrologic conditions): 1939-2018
- Withdrawal and Discharge amount: baseline: average of period 2010-2018 (i.e. marginally dry conditions);
- Instream Flow Protection Thresholds: per permit conditions
- Reservoir physical and operational data: from reservoir owner or EPD
Water Supply Settings: Facilities Analyzed in BEAM Model for Middle Chattahoochee Region

<table>
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<tr>
<td>Municipal Discharge</td>
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<td>Energy Withdrawal</td>
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Note: Energy withdrawals are expressed as consumptive uses in modeling.
Example 1: Permit 022-1217-01 BEAM (Node 3385)

- Permit holder: Carroll County Water Authority
- Withdrawal limit: 13 mgd (daily)/11 mgd (monthly)/8 mgd (annual)
- Min flow requirement: 8.42 cfs or natural flow below Reservoir Dam
Permit 022-1217-01 Withdrawal Amount Setting- average of 2010-2018

2010 - 2018

Baseline

Demand at node 3385 -- 022-1217-01: Carroll County Water Authority

Demand at node 3385 -- 022-1217-01: Carroll County Water Authority
Simulated Reservoir Storage Frequency and Water Supply Challenge Frequency

Storage at all times remaining above 4000 acft indicates there is enough storage for water supply.

Shortage is zero indicates no challenges encountered.
Example 2: Permit 074-1220-02 (BEAM Node 3625)

- Permit holder: Heard County Water Authority
- Withdrawal limits: 4 mgd (daily)/3.1 mgd (monthly)
- Centralhatchee Creek IFPT of 13.0 cfs (8.4 mgd)
Permit 074-1220-02 Withdrawal Amount Setting-average of 2010-2018 and 2060 projection

2010 - 2018

Demand at node 3625 -- 074-1220-02: Heard County Water Authority

Baseline
Water Supply Challenge in 2007

Graph showing the shortage at node 3625 -- 074-1220-02: Heard County Water Authority.
Water Supply Challenge in 2012

Shortage at node 3625 -- 074-1220-02: Heard County Water Authority
Water Supply Shortage Frequency in 1939-2018

Shortage at node 3625 -- 074-1220-02: Heard County Water Authority
Example 3: Permit 074-1220-03 (BEAM Node 3684)

- Permit holder: Heard County Water Authority
- Withdrawal limits: 4 mgd (daily)/3.1 mgd (monthly)
- Hillabahatchee Creek IFPT of 12.0 cfs (7.8 mgd)
Permit 074-1220-03 Withdrawal Amount Setting - average of 2010-2018 and 2060 projection

Demand at node 3684 -- 074-1220-03: Heard County Water Authority

2010 - 2018
Water Supply Challenge in 2000

Shortage at node 3684 -- 074-1220-03: Heard County Water Authority
Water Supply Challenge in 2011

Shortage at node 3684 -- 074-1220-03: Heard County Water Authority
Water Supply Shortage Frequency in 1939-2018

Shortage at node 3684 -- 074-1220-03: Heard County Water Authority
Example 4: Permit 072-1224-02 (BEAM Node 4225)

• Permit holder: Pine Mtn Valley Water Association, Inc.
• Withdrawal limits: 0.55 mgd (daily)/0.50 mgd (monthly)
Permit 072-1224-02 Withdrawal Amount Setting- average of 2010-2018 and 2060 projection
Water Supply Challenge in 1986

Shortage at node 4225 -- 072-1224-02: Pine Mountain Valley
Water Supply Challenge in 2011

Shortage at node 4225 -- 072-1224-02: Pine Mountain Valley

Month / Year

Shortage (AF)
Water Supply Shortage Frequency in 1939-2018

Shortage at node 4225 -- 072-1224-02: Pine Mountain Valley
Pine Mountain Valley Water Association

- Water supply intake located at “X Street Springs.”
- Water withdrawal permit does not have an instream flow protection threshold.
- Permittee’s intake has a small drainage area.
Wastewater Assimilation Challenge

• Wastewater increases with population growth, which may also bring challenge to water resource management.

• Effluent limitation is determined by two factors:
  • Available technology – technology based effluent limitations
  • Water quality standards – upholding water quality standards in the receiving water body - 7Q10 flow is usually used as low flow threshold for determining wastewater assimilation and NPDES permit limitations
Wastewater Assimilation Challenge Example 1:
Permit GA 0033618 (BEAM Node 4318)

- Permit holder: City of Hamilton (Hamilton WPCP)
- Permitted monthly discharge flow: 0.2 mgd
- 7Q10 Flow at discharge location: 0.96 cfs
Simulation Results at GA 0033618 Location
Flow Frequency

![Graph showing Total Arc Outflow at node 4319 for GA0033618-RR](image-url)
Simulation Results at GA 0033618 Location
Flow Frequency (low end) (7Q10 = 0.96 cfs)
Simulation Results at GA 0033618 Location
Flow in 1986
Simulation Results at GA 0033618 Location
Flow in 2007

Total Arc Outflow at node 4319 -- GA0033618-RR

7Q10
West Point Elevation (BEAM Node 3980)
Simulated West Point Elevation in 1986-1988
Simulated West Point Elevation in 1999-2002

Elevation at node 3980 -- West Point Lake
Simulated West Point Elevation in 2007-2008

Elevation at node 3980 -- West Point Lake

Month / Year

Elevation (FT)

620 622 624 626 628 630 632 634 636 638 640

01/07 07/07 12/07 06/08 12/08
Simulated West Point Elevation in 2011-2012

Elevation at node 3980 -- West Point Lake
Simulated West Point Elevation Frequency

Elevation at node 3980 -- West Point Lake
Columbus Flow Condition (BEAM Node 4441)
Simulation Results at USGS 02341500 Location
Flow in 1986
Simulation Results at USGS 02341500 Location
Flow in 2000

Total Arc Outflow at node 4441 -- 02341500: CHATTACHOOCHEE RIVER AT COLUMBUS

Month / Year

Total Arc Outflow (CFS)
Simulation Results at USGS 02341500 Location
Flow in 2007

Total Arc Outflow at node 4441 -- 02341500: CHATTahoochee River AT Columbus
Simulation Results at USGS 02341500 Location
Flow in 2012

Total Arc Outflow at node 4441 -- 02341500: CHATTAHOOCHEE RIVER AT COLUMBUS

Month / Year
Simulation Results at USGS 02341500 Location
Flow Frequency

Total Arc Outflow at node 4441 -- 02341500: CHATTahoochee RIVER AT COLUMBUS
Simulation Results at USGS 02341500 Location
Flow Frequency (low end)
Summary

• Moderate water supply challenges under baseline water use conditions
• Moderate wastewater assimilation challenges under baseline water use conditions
• West Point Elevation under baseline water use conditions
• Flow at Columbus under baseline water use conditions
• Additional evaluation can be added according to stakeholders’ inputs
• RA team will provide updates with Tech Memo and presentation as additional results become available
Questions?

Contact Information:

Wei Zeng, Ph.D., Professional Hydrologist
Manager, Water Supply Program
Watershed Protection Branch, Georgia EPD
470-251-4897 (Zoom Phone)  New!
470-898-3891 (Cell)

Wei.Zeng@dnr.ga.gov
Water Quality Resource Assessment

Results under Future Conditions
Watershed Modeling

- These models are not updated at this time, but updates are underway
  - Time-varying landuse inputs
  - Updated meteorological conditions
- Current Conditions:
  - dischargers at 2014 permit limits
- Future Conditions:
  - 2050 assumed permit limits based on forecasted flows
Dissolved Oxygen Modeling

- **Future Conditions addressed in Plan Section 5.3**

  *Figures 5-2 and 5-3 show assimilative capacity at assumed 2050 permitted flows and effluent limits for the Flint, Chattahoochee, and Tallapoosa River Basins.*

- Figure 5-2: Chattahoochee Basin results
- Figure 5-3: Flint and Tallapoosa Basin results
Dissolved Oxygen Modeling

- Current Conditions
  - 2019 Permit Limits
- Future Conditions
  - 2060 Assumed Permit Limits
- DOSAG and Riv-1 Models:
  - High temp, low flow conditions
- Assimilative Capacity
  - How DO levels compare to water quality standard of 5.0 mg/L (or natural conditions)
DO Conditions: Below Lake Lanier

Current Conditions

Future Conditions

Legend
Available Assimilative Capacity
- Very Good
- Good
- Moderate
- Limited
- None or Exceeded
- Unmodeled Lakes and Streams
DO Conditions: Above West Point Lake

Current Conditions

Future Conditions

Legend
Available Assimilative Capacity:
- Very Good
- Good
- Moderate
- Limited
- None or Exceeded
- Unmodeled Lakes and Streams
DO Conditions: West Point to Columbus

Current Conditions

Future Conditions

Legend
Available Assimilative Capacity
- Very Good
- Good
- Moderate
- Limited
- None or Exceeded
- Unmodeled Lakes and Streams
DO Conditions: Below Columbus

Current Conditions

Future Conditions
DO Conditions: Tallapoosa Basin
DO Conditions: Flint Basin

Current Conditions

Future Conditions

Legend
Available Assimilative Capacity
- Very Good
- Good
- Moderate
- Limited
- None or Exceeded
- Unmodeled Lakes and Streams
Management Practices Review
Small Group Discussions: Management Practices Review

1. Demand & Returns Management Practices
2. Supply & Instream Use Management Practices

- Which Management Practices are most important to you? (And why?)
- Are there any that should be added/removed?
- Which Management Practices need to be updated? (Committee work)
Plan Review Committee Report

Steve Davis
Plan Review Committee Members

- John Asbell
- Victoria Barrett
- Steve Davis
- Dan Gilbert
- Harry Lange
- Mac Moye
- Ken Van Horn
- Matt Windom
Plan Review Committee Activity

• Meeting: May 6, 2022
• Reviewed Draft Sections 1, 2, & 4
• Committee meeting notes and edited plan sections in pre-meeting packet
• Major topics discussed:
  • Water Control Manual update
  • Population projections discussion
• Committee recommendation – Approve these sections (as edited by committee)
• Note: Further edits to these sections are expected. Any substantial edits will be reviewed by committee/Council.
Inter-Council Coordination Committee Report

Patrick Bowie
Inter-Council Coordination Committee

Members

- Patrick Bowie
- Steve Davis
- Ken Van Horn
## Inter-Council Coordination Committee

<table>
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| April 19, 2022 | **Metro Water District Presentation**  
|             | • Attended and Reviewed Plan                                                                                             |
| May 3, 2022  | **Inter-Council Coordination Meeting**  
|             | • Discussed the Metro Water District Plan Update  
|             | • Discussed Council’s Letter to Metro Water District                                                                   |
| June 2022    | **Inter-Council Coordination Meeting**  
|             | • Include Councils of:  
|             | • Lower Flint – Ochlocknee  
|             | • Middle Chattahoochee  
|             | • Upper Flint  
|             | • Currently Scheduling                                                                                                                                 |


Inter-Council Coordination Committee Report

Meeting on May 4, 2022

1. Discussed the Metro Water District Plan Update
   1. Septic tank use and return flows - dept of public health tracks septic, which lacks reporting.
   2. Increasing Lake Lanier storage and winter pool at West Point
   3. Coosa North Georgia (CNG) Council got a seed grant to study raising summer pool
   4. Acknowledgement that City of Atlanta converting Bellwood Quarry as raw water storage
   5. Coordinate with downstream regional water councils to pursue options to expand regional water storage capacity. Other storage – Carroll County and Heard County proposed reservoirs

2. Recommendations to Metro Water District Plan Update
   1. Improving the lagging septic tank data.
   2. Reduction of Consumptive use
   3. Encourage rural development to use centralized treatment and point source discharge
Inter-Council Coordination Committee

Meeting on May 4, 2022
Discussed the Metro Water District Plan Update

1. Septic tank use and return flows - dept of public health tracks septic, which lacks reporting.
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5. Coordinate with downstream regional water councils to pursue options to expand regional water storage capacity. Other storage – Carroll County and Heard County proposed reservoirs

Recommendations to Metro Water District Plan Update

- Improving the lagging septic tank data.
- Reduction of Consumptive use
- Encourage rural development to use centralized treatment and point source discharge
Letter to Metro Water District – Recommendation to Council

May 12, 2022 DRAFT TO COUNCIL AND METRO WATER DISTRICT

Chairman Glenn Page
Metro Atlanta Water Planning District
122 Peachtree Street, NE
Suite 119
Atlanta, GA 30303

Dear Mr. Page:

The Middle Chattahoochee Regional Water Council (the Council) appreciates the opportunity to review the draft Water Resource Management Plan (WRMP) of the Metropolitan North Georgia Water Planning District (Metro Water District). I am submitting this letter to you with the Council’s comments on the draft plan. These comments were approved by the Council at its May 11th meeting.

Since the inception of the Metro Water District and the Council, both entities have increased coordination in regional water planning, and we applaud this joint effort and commitment to working together. The Council looks forward to increasing coordination with the Metro Water District in future planning.

The Council would like to submit the following comments on the Metro Water District’s draft plan. Our comments emphasize the need for basin-wide coordination in the management of shared resources, particularly in the Appalachian-Chattahoochee-Flint (ACF) basin. Our comments emphasize a top priority the need for improved levels of return flows to water supply sources to support downstream demands and needs—systemic and otherwise. The Council offers the following comments for incorporation into the Metro Water District Plan:

1. Support the Council’s recommendation for assessment of modification of the rule curve for West Point Lake and Lake Lanier to increase system storage and improve operations, for all uses. The Council advocates for consideration of a revision to the rule curve for West Point Lake to increase the conservation pool by two feet to increase ACF System storage. We understand that Lake Lanier has been managed at approximately 8.3 feet above the full pool level for much of the last few years. We also understand that the Coosa and Southern Georgia Water Planning Council received a request to conduct a study to increase the Lake Lanier full pool elevation to 2 feet. We support this effort and would appreciate the Metro Water District’s support of this initiative in its plan. We request that the Metro Water District join our Council in supporting and requesting funds for flood studies and thorough evaluation of alternative operation options in order to improve ACF system storage and operations to meet the needs of all water users. The Council supports cooperative efforts between the State and the U.S. Army Corps of Engineers to fully evaluate those options and support adoption of the proposed rule curve modifications, as appropriate.

2. Advocacy for expanded regional water storage capacity to improve water resource management, the Council believes that water storage in the ACF basin is a critical issue. We commend the City of Atlanta for its effective utilization of the Hollingsworth Reservoir for additional 0.7 billion gallons of emergency water supply. In the ACF, competing and increasing demands for water, including those from the Metro Water District, could strain the capacity of the system and limit its ability to meet needs across the basin. The Metro Water District’s draft plan lacks an expansion of additional regional water storage capacity. The Council requests that the Metro Water District join the Council in advocating for thorough evaluation of options for increased regional water storage capacity through the development of new capacity and/or the enhancement of existing capacity. The Council encourages continued storage efforts and requests the Metro Water District’s support in its plan for coordinated planning and development of regional water storage capacity. We recommend that the Metro Water District Plan continue to make a commitment to coordinating with the Middle Chattahoochee, Upper Flint, Lower Flint, Ochlockonee, and Regional Water Councils to evaluate and support the development of additional regional water storage capacity. These three Councils, downstream of the Metro Water District, share common views on the need for more regional water storage capacity, especially in the ACF basin. We believe that coordination with the Metro Water District would help to minimize common demands, improve water resource management, and ensure that needs across the region are addressed.

3. Other offers an incentive for commendable examples of outdoor water conservation in new developments. The Metro Water District continues to propose a strong plan for water conservation in the draft Plan, and it has achieved remarkable results in implementation of water conservation in previous planning cycles. The Council commends the Metro Water District for its conservation efforts with outdoor water use, and the Council supports this focus because it can help to reduce consumption and support increased return flows to downstream uses. The draft includes Water Supply and Water Conservation Action Items WD4-2, 3-2, 3-4, which expand landscape irrigation system design requirements. The Council welcomes this addition and encourages additional incentives and requirements to reduce outdoor water usage. We continue to recommend that the Metro Water District amend its Action Items to include an award for exemplary outdoor water conservation practices.

I hope you will address the Council’s comments into the Metro Water District’s Plan. If you have any questions about the Council’s comments, please let me know. The Middle Chattahoochee Regional Water Council thanks you for your consideration, and we look forward to continuing to work together.

Sincerely,

Steve Davis, Chair
Middle Chattahoochee Regional Water Council
Inter-Council Coordination Committee

Next meeting will be coordinated with Lower Flint – Ochlocknee and Upper Flint in June 2022

Discussion Topics:

1. Review 2017 Plans - Section 7.4 Recommendations to the State: Coordinated Recommendations with Neighboring Councils
2. Develop Updated Coordinated Recommendations with Neighboring Councils
3. Present to Council at August Meeting
Recommendations Review

Kristin Rowles
Recommendations to the State Section 7.4 of 2017 Plan

1. Improve the Updated ACF Water Control Manual and Operating Procedures
2. Establish Task Forces for Alabama and Energy Water Use Forecasting
3. Increase Metropolitan North Georgia Water Planning District Returns and Reduce Nutrient & Sediment Loading
4. Continue Research on Groundwater Development
5. Increase Storage in the ACF and Tallapoosa
6. Evaluate Water Conservation
7. Address Regional Assimilative Capacity Limitations
8. Fund Additional Resource Assessments
9. Increase State Funding for Implementation of Management Practices
10. Strengthen Coordination in Regional Water Planning and Management
11. Coordinated Recommendations with Neighboring Councils
12. Regional Water Plan Use
1. Improve the Updated ACF Water Control Manual and Operating Procedures

• Water quality: Operate USACE dams consistent with FERC and wastewater quality permits
• Evaluate West Point drawdown rule curve and Lake Lanier storage capacity
• Model Chattahoochee River under extreme conditions
• Consider GA Contemplation performance metrics (2013)
• Consider recommendations for changes in operations from GWRI model results (Georgakakos)
• Evaluate springtime pulse flows coordination for navigation/ecological needs
• Improve scientific justification for minimum flows below Woodruff Dam (Apalachicola River)
• Evaluate structural measures (weirs, gates, steps) to control river states and sediment transport/scour to protect critical habitat below Woodruff Dam
• Update unimpaired flows dataset

Council seeks improvements to:
• increase available storage in the reservoirs
• provide more rapid refill after drought periods
• maintain higher lake levels (esp. West Point)
• provide flow guidelines at the Columbus and Columbia planning nodes

The Council urges the states in the ACF to work with the USACE to evaluate recommended improvements.
2. Establish Task Forces for Alabama and Energy Water Use Forecasting

- Alabama
  - Water use estimates/forecasts
  - Common time horizons/forecasting assumptions

- Energy sector water use forecasts
  - Not geographically specific in 2011/2017
  - Additional information for forecasts (efficiency, conservation, power production, water quality)
3. Increase Metropolitan North Georgia Water Planning District
Returns and Reduce Nutrient & Sediment Loading

- Acknowledge coordination with District & commend water conservation efforts
- Increase wastewater returns to ACF (and auditable reporting)
- Concerns about nutrient and sediment loads from District in Chattahoochee
  - Improve mitigation
  - Document progress
  - Collect data for better modeling
  - Consider tighter nutrient standards for West Point Lake
- Need a better understanding of nutrient and sediment loading
  - Sources/management strategies
  - Peer review of lake/watershed models
  - Review model assumptions/calibration with Councils
4. Continue Research on Groundwater Development

- Develop groundwater as alternative source for municipal, industrial, and agricultural supplies
  - Below Fall Line and where there is not direct interaction of gw/sw
- Improve understanding of agricultural water use
  - Meters – install/maintain
  - More data: monthly use, crops, inputs
5. Increase Storage in the ACF and Tallapoosa

- Mitigate surface water availability gaps with storage
  - Better utilization of existing storage
  - New storage
  - New approaches (e.g., ASR)
- Explore designation of environmental storage in federal reservoirs to meeting downstream needs (use/in-stream)
6. Evaluate Water Conservation

- Conservation = Important part of the regional water plan
- Difficult to evaluate implementation/progress
- Continue to expand the information base
7. Address Regional Assimilative Capacity Limitations

- Improve assimilative capacity below WF George Reservoir
  - GA, EPA, USACE
- Conduct more detailed model verification and consider permit revisions to support availability of assimilative capacity below WF George Reservoir
8. Fund Additional Resource Assessments

- On-going data collection and model refinement
- GWRI ACF Model (for ACF Stakeholders): Consider the improvements in reservoir operations recommended by that model
- Model Chattahoochee under extreme conditions (evaluate resilience)
- Better info on consumptive uses and returns
- BMP implementation assessment and effectiveness evaluation
- GA Forestry Commission’s BMP Complaint and Survey program as a model for the agricultural sector
- Make use of wastewater and stormwater permittee data
9. Increase State Funding for Implementation of Management Practices

10. Strengthen Coordination in Regional Water Planning and Management
   • Recommends state law delegate planning, management, and oversight of water resources to stakeholder-led councils

11. Coordinated Recommendations with Neighboring Councils
   • More water storage capacity in the ACF (e.g., better use of existing, additional new storage)
   • Use of actual/current data in resource assessments
   • Interstate planning organization for ACF (consider transboundary institution recommendation of the ACF Stakeholders)

12. Regional Water Plan Use
   • Important resource for EPD and stakeholders
   • Regional Water Plans are just one source of information and permitting should be based on full framework of laws/rules/guidance and information provided by permit applications
Next Steps in Plan
Review and Revision

Corinne Valentine, Black & Veatch
Regional Water Plan Update

Regional Water Plan Review and Revision Schedule

- **Meeting One**: 4th Quarter 2021
- **Meeting Two**: 1st Quarter 2022
- **Meeting Three**: 2nd Quarter 2022
- **Meeting Four**: 3rd Quarter 2022 Draft Plan Review
- **Meeting 4.5**: 3rd Quarter 2022 If needed to approve Draft Plan (virtual)
- **Meeting Five (Final)**: 4th Quarter 2022 Incorporate Comments

EPD targeted date of adoption of revised Regional Water Plan by December 2022
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Regional Water Plan Update – Before Today

Regional Water Plan Review and Revision Schedule:

Meeting One
4th Quarter 2021

Meeting Two
1st Quarter 2022

Meeting Three
2nd Quarter 2022

Meeting Four
3rd Quarter 2022

Meeting Five (Final)
4th Quarter 2022

Incorporate Comments

Plan Review Committee
Regional Water Plan Update – Today’s Discussion

Regional Water Plan Review and Revision Schedule:

- **Meeting One**
  - 4th Quarter 2021

- **Meeting Two**
  - 1st Quarter 2022

- **Meeting Three**
  - 2nd Quarter 2022

- **Meeting Four**
  - 3rd Quarter 2022

- **Meeting Five (Final)**
  - 4th Quarter 2022

Incorporate Comments
Regional Water Plan Update - Next

Regional Water Plan Review and Revision Schedule

- Meeting One: 4th Quarter 2021
- Meeting Two: 1st Quarter 2022
- Meeting Three: 2nd Quarter 2022
- Meeting Four: 3rd Quarter 2022 Draft Plan Review
- Meeting 4.5: 3rd Quarter 2022 If needed to approve Draft Plan (virtual)
- Meeting Five (Final): 4th Quarter 2022 Incorporate Comments

Committee Work on Remaining Sections
## Committee Work – Next Steps

<table>
<thead>
<tr>
<th>Inter-Council Coordination</th>
<th>Recommendations to the State – Coordinated Recommendations with Neighboring Councils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Review</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
</tr>
<tr>
<td>...</td>
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</tr>
</tbody>
</table>
Information Items:
GEFA Georgia Water Supply and Redundancy Study and GEFA Biosolids Report

Amanda Carroll, Georgia Environmental Finance Authority
Steve Simpson, Black & Veatch
Georgia Water Supply Redundancy Study

Middle Chattahoochee Water Planning Region

Georgia Environmental Finance Authority

See full report for details: Wood, April 14, 2022

May 2022
Study Objectives

- For qualified water systems (i.e., public system usually serving over 3,300 people):
  - Evaluate drinking water supply, demand, treatment, storage, distribution, and interconnectivity
  - Identify redundant water supply sources
  - Emergency supply and deficit under existing (2015) and future (2050) conditions
  - Evaluate potential projects
  - Recommend projects using decision-based prioritization tool
### Water Withdrawals by Type

- **Groundwater (GW)**
  - 13% of region’s 2010 water supply

- **Surface Water (SW)**
  - 87% of region’s 2010 water supply

#### Withdrawal Category Table

<table>
<thead>
<tr>
<th>Withdrawal Category</th>
<th>Withdrawal (MGD)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>13</td>
<td>59%</td>
</tr>
<tr>
<td>Domestic/self-supply</td>
<td>4.8</td>
<td>23%</td>
</tr>
<tr>
<td>Municipal</td>
<td>3</td>
<td>13%</td>
</tr>
<tr>
<td>Mining</td>
<td>0.9</td>
<td>4%</td>
</tr>
<tr>
<td>Industrial</td>
<td>0.2</td>
<td>1%</td>
</tr>
</tbody>
</table>

#### Municipal Withdrawals Table

<table>
<thead>
<tr>
<th>Withdrawal Category</th>
<th>Withdrawal (MGD)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>69</td>
<td>49%</td>
</tr>
<tr>
<td>Energy</td>
<td>53</td>
<td>38%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>18</td>
<td>13%</td>
</tr>
</tbody>
</table>

Values from: *Middle Chattahoochee Regional Water Plan*. June 2017.
## Region Qualified Water Systems

<table>
<thead>
<tr>
<th>County</th>
<th>Qualified Water System</th>
<th>Raw Water Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carroll</td>
<td>Bowdon</td>
<td>Surface Water (2)</td>
</tr>
<tr>
<td>Haralson</td>
<td>Bremen</td>
<td>Surface Water (2)</td>
</tr>
<tr>
<td>Carroll</td>
<td>Carroll County</td>
<td>Surface Water (1) Groundwater Wells (3)</td>
</tr>
<tr>
<td>Carroll</td>
<td>Carrollton</td>
<td>Surface Water (3)</td>
</tr>
<tr>
<td>Muscogee</td>
<td>Columbus</td>
<td>Surface Water (2)</td>
</tr>
<tr>
<td>Randolph</td>
<td>Cuthbert</td>
<td>Groundwater Wells (4)</td>
</tr>
<tr>
<td>Haralson</td>
<td>Haralson County</td>
<td>Surface Water (1) Groundwater Wells (2)</td>
</tr>
<tr>
<td>Harris</td>
<td>Harris County</td>
<td>Surface Water (1)</td>
</tr>
<tr>
<td>Heard</td>
<td>Heard County</td>
<td>Surface Water (2)</td>
</tr>
<tr>
<td>Troup</td>
<td>Hogansville</td>
<td>Wholesale Purchase</td>
</tr>
<tr>
<td>Troup</td>
<td>LaGrange</td>
<td>Surface Water (1)</td>
</tr>
<tr>
<td>Haralson</td>
<td>Tallapoosa</td>
<td>Wholesale Purchase</td>
</tr>
<tr>
<td>Carroll</td>
<td>Temple</td>
<td>Wholesale Purchase</td>
</tr>
<tr>
<td>Carroll</td>
<td>Villa Rica</td>
<td>Surface Water (2)</td>
</tr>
<tr>
<td>Troup</td>
<td>West Point</td>
<td>Surface Water (1)</td>
</tr>
</tbody>
</table>
Identify Redundant Water Supply Sources

- Redundancy is valuable in this context
  - Excess capacity or duplicate parts that perform if other parts fail
- Three sources of redundancy considered:
  1. Excess capacity
     - Sufficient excess capacity for 12/12 systems in 2015 and 9/12 systems in 2050
  2. Raw and potable water sources
     - EPD’s groundwater and surface water resource availability models indicate sufficient availability for aquifers and varying levels of sufficiency/insufficiently for surface water nodes
     - Potential surface water source/storage options identified (e.g., expanded reservoirs, watershed dams, quarries)
  3. Interconnections
     - Some systems have the potential to interconnect
Emergency Planning Benchmarks

- Reliability targets: 100%, 65%, and 35% of average daily demand
- Each reliability target applied to 2015 and 2050 total demand to give an overview of water availability
Water Supply Risk Evaluations

Evaluate system capability to supply sufficient water to customers during a given emergency

Available Water Supply - Reliability Target Demands = Deficit

Peak Day Design Capacity + Maximum Possible Purchased Water + Stored Water (Scenarios A1, B, D1, D2) - Capacity Loss Due to Emergency
## Water Supply Risks and Emergency Scenarios

<table>
<thead>
<tr>
<th>Water Supply Risk</th>
<th>Emergency Scenario</th>
<th>Type</th>
<th>Duration (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Failure of largest water treatment plant (WTP)</td>
<td>A1. Power supply failure of largest WTP</td>
<td>Short-term</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>A2. Critical asset failure at largest WTP (e.g., loss of clearwell, loss of chemical treatment)</td>
<td>Short-term</td>
<td>30</td>
</tr>
<tr>
<td>B. Short-term catastrophic failure of a water distribution system</td>
<td>Critical transmission main failure from largest WTP or interconnection</td>
<td>Short-term</td>
<td>1</td>
</tr>
<tr>
<td>C. Short-term contamination of a water supply within distribution system</td>
<td>Contamination of distribution system triggers a boil water notice</td>
<td>Short-term</td>
<td>3</td>
</tr>
<tr>
<td>D. Short-term contamination of a raw water source</td>
<td>D1. Biological contamination of largest raw water source</td>
<td>Short-term</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>D2. Chemical contamination of largest raw water source</td>
<td>Short-term</td>
<td>1</td>
</tr>
<tr>
<td>E. Full unavailability of major raw water sources due to federal or state government actions</td>
<td>--</td>
<td>Long-term</td>
<td>&gt;365</td>
</tr>
<tr>
<td>F. Reduced availability of major raw water sources due to federal or state government actions</td>
<td>--</td>
<td>Long-term</td>
<td>&gt;365</td>
</tr>
<tr>
<td>G. Failure of an existing dam that impounds a raw water source</td>
<td>Dam failure for largest impoundment</td>
<td>Short-term</td>
<td>30</td>
</tr>
<tr>
<td>H. Water supply reduction due to drought</td>
<td>Raw water supply available is 40% of ADD due to drought</td>
<td>Short-term</td>
<td>120</td>
</tr>
</tbody>
</table>
**Water Supply Risks: Evaluation Results**

- **2015 deficits:**

<table>
<thead>
<tr>
<th>Qualified Water System</th>
<th>100% ADD</th>
<th>65% ADD</th>
<th>35% ADD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrollton</td>
<td>◊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbus</td>
<td>◊</td>
<td>◊</td>
<td></td>
</tr>
<tr>
<td>LaGrange</td>
<td>◊</td>
<td>◊</td>
<td></td>
</tr>
</tbody>
</table>

- **2050 deficits:**

<table>
<thead>
<tr>
<th>Qualified Water System</th>
<th>100% ADD</th>
<th>65% ADD</th>
<th>35% ADD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowdon</td>
<td>◊</td>
<td>◊</td>
<td></td>
</tr>
<tr>
<td>Carroll County</td>
<td>◊</td>
<td>◊</td>
<td></td>
</tr>
<tr>
<td>Carrollton</td>
<td>◊</td>
<td>◊</td>
<td></td>
</tr>
<tr>
<td>Columbus</td>
<td>◊</td>
<td>◊</td>
<td>◊</td>
</tr>
<tr>
<td>LaGrange</td>
<td>◊</td>
<td>◊</td>
<td>◊</td>
</tr>
</tbody>
</table>
Schematic of Key System Data – North
Schematic of Key System Data – South
Potential Project Development

- Scenario(s) rendering systems with less water supply were further evaluated
  - Logical, implementable projects retained for systems with less available supply
    - Not all systems have projects
- Potential conceptual-level redundancy projects developed
- For this region, three project types:
  1. New interconnection
  2. Upgrade existing interconnection
  3. New parallel raw water transmission main (internal project)
## Potential Projects

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Qualified Water System(s) Benefitted</th>
<th>Potential Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bowdon Carroll County</td>
<td>Interconnection: Bowdon-Carroll County; 0.9 miles along Garrett Creek Road</td>
</tr>
<tr>
<td>2</td>
<td>Carroll County Carrollton</td>
<td>Upgrade existing interconnection: Carroll County-Carrollton; new booster pump; Mt Zion Road</td>
</tr>
<tr>
<td>3</td>
<td>Carroll County Carrollton</td>
<td>Upgrade existing interconnection: Carroll County-Carrollton; new booster pump; Shady Grove Road</td>
</tr>
<tr>
<td>4</td>
<td>Columbus Harris County</td>
<td>Upgrade existing interconnection: ability to send water from Harris County to Columbus and increase supply to Harris County; McKee Road</td>
</tr>
<tr>
<td>5</td>
<td>Columbus Harris County</td>
<td>Upgrade existing interconnection: ability to send water from Harris County to Columbus and increase supply to Harris County; US-27</td>
</tr>
<tr>
<td>6</td>
<td>LaGrange</td>
<td>Upgrade existing interconnection: ability to send water from Hogansville to LaGrange</td>
</tr>
<tr>
<td>7</td>
<td>LaGrange</td>
<td>Upgrade existing interconnection: ability to send water from West Point to LaGrange</td>
</tr>
<tr>
<td>8</td>
<td>LaGrange</td>
<td>New parallel raw water transmission main: 2.3 miles</td>
</tr>
</tbody>
</table>
Prioritization Criteria and Weighting

- Potential projects prioritized based on performance under weighted quantitative and qualitative criteria
  - 8 criteria
    - E.g., population benefitted; cost; potential environmental, system, and community impacts
  - 4 scores (1 through 4)
  - 3 weights (1 through 3)
### Potential Projects Sorted by Final Rank Order

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Systems Benefitted</th>
<th>Potential Project Description</th>
<th>Cost ($)</th>
<th>Final Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Columbus Harris County</td>
<td>Upgrade existing interconnection: Harris County and Columbus; US-27</td>
<td>$ 50,000</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Columbus Harris County</td>
<td>Upgrade existing interconnection: Harris County and Columbus; McKee Road</td>
<td>$ 50,000</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Carroll County Carrollton</td>
<td>Upgrade existing interconnection: Carroll County-Carrollton; new booster pump; Mt Zion Road</td>
<td>$ 1,071,000</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Carroll County Carrollton</td>
<td>Upgrade existing interconnection: Carroll County-Carrollton; new booster pump; Shady Grove Road</td>
<td>$ 1,071,000</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>LaGrange</td>
<td>Upgrade existing interconnection: West Point to LaGrange</td>
<td>$ 50,000</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Bowdon Carroll County</td>
<td>Interconnection: Bowdon-Carroll County; 0.9 miles along Garrett Creek Road</td>
<td>$ 723,900</td>
<td>6</td>
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<tr>
<td>6</td>
<td>LaGrange</td>
<td>Upgrade existing interconnection: Hogansville to LaGrange</td>
<td>$ 1,700,000</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>LaGrange</td>
<td>New parallel raw water transmission main: 2.3 miles</td>
<td>$ 9,306,600</td>
<td>8</td>
</tr>
</tbody>
</table>
Conclusion

- Middle Chattahoochee Region has three 2015 deficits and five 2050 deficits
- Potential projects identified can assist Councils and systems in understanding the types of upgrades that could benefit the Water Planning Region
- Projects support Council Management Practices
  - Interconnections – WS-4: encourage interconnection of regional supply systems for reliability, specifically in times of drought or emergency conditions
- Interconnection redundancy projects highlight the potential for systems to interconnect
- Internal infrastructure redundancy projects highlight the potential for a future management practice: encourage public water systems to enhance their water supply redundancy and treatment/unit process redundancy
Questions?
GEFA Biosolids Assessment and Prepared Study

May 2022
Biosolids Management: Drivers and Trends

Photos courtesy of GA EPD, Presentation to MNGWPD WW TCC Meeting, January 24, 2019
Key Trends for Solids Management

- **Landfilling**
  - HMCW concerns dominate
  - Tip fees likely to remain high
  - Potential limited biosolids acceptance

- **Land application**
  - Class B field storage logistics
  - Local jurisdiction resistance
  - PFAS-based restrictions

- **Incineration**
  - Permitting, cost may limit potential use
Current and Projected Solids Production Estimates
Comparison of Solids Production and Landfill Capacity* for Biosolids

- Landfill capacity diminishing
- Few new landfills currently in progress

* Based on estimated closure dates from EPD, and assumes biosolids acceptance ratios remain constant
Survey Update: Biosolids End Use in Georgia
Survey Update: Biosolids End Use or Disposal Cost

Biosolids Disposal Cost per wet ton, USD

- **Maximum**
- **75 percentile**
- **50 percentile**
- **25 percentile**
- **Minimum**

[Box plot showing the disposal cost distribution for 2018, 2019, and 2020]
Utility Interest in Implementing Alternative Solids Treatment Processes

Ranked in order of highest interest (1=little to 5=high)
Regionalization for smaller plants could result in scale efficiencies
Market Assessment

1. Rotary Drum Heat Dried Biosolids
   - Uniform hard pellet or grain
   - 0.5-4 mm diameter
   - Density 40-45 lb/cf

2. Granular Belt Heat Dried Biosolids
   - Somewhat uniform and hard granule
   - 0.5-4 mm diameter
   - Density 40-45 lb/cf

3. Extruded Belt Heat Dried Biosolids
   - Irregular shape, somewhat friable
   - 2-8 mm diameter
   - Density 20-25 lb/cf

4. Paddle Heat Dried Biosolids
   - Somewhat uniform and hard granule
   - 0.5-4 mm diameter
   - Density 40-45 lb/cf

5. Biosolids Compost
   - Mulch-like appearance
   - Size varies (bulking agents used and screening)
   - Density 25-35 lb/cf

6. Lime Stabilized Biosolids (Class A)
   - High pH product
   - Consistency of wet dirt, but can be dried
   - Density 70-100 lb/cf
Market Assessment

2% market penetration required to make use of all biosolids in GA

State wide solids production / potential demand estimate (dtpy)

<table>
<thead>
<tr>
<th>Market</th>
<th>Solids Production</th>
<th>Sod Production</th>
<th>Golf Courses</th>
<th>Parks &amp; Rec.</th>
<th>Silviculture</th>
<th>Total Ag.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>198,200</td>
<td>53,400</td>
<td>67,600</td>
<td>739,200</td>
<td>2,113,600</td>
<td>5,570,000</td>
</tr>
<tr>
<td>Silviculture</td>
<td></td>
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<tr>
<td>Parks &amp; Rec.</td>
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<tr>
<td>Sod Farms</td>
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<tr>
<td>Golf Courses</td>
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<td>Parks &amp; Recreation</td>
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<tr>
<td>General Urban Uses</td>
<td></td>
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</tr>
</tbody>
</table>

Agriculture
Large volume market, familiarity with biosolids, cost/ease of use matter

Silviculture
Potentially large market, potential impacted by market forces, demos/education needed

Sod Farms
Small market, mixed reception, positive lime-stabilized biosolids experience

Golf Courses
Familiarity with biosolids, dried pellets/compost of greatest interest, cost/uniformity/size matter

Parks & Recreation
Potential for dried pellets and compost, cost critical

General Urban Uses
Some familiarity (pellets/compost), compost market not expanding, education needed.
Gap Analysis Summary

- GA solids production is increasing
- More than half of existing GA MSW landfills may fill within next 30 years
- Capacity issues potentially exacerbated by HMCW restrictions

Concerns
- Landfilling dominant practice in GA
- Solids production will exceed available landfill capacity

Addressing the Gap
- Consider new processes/alternative outlets for up to 77,000 dt/yr solids
  - Class B land application
  - Class A product for agricultural or urban uses
## GEFA Funding Available for Biosolids Projects

<table>
<thead>
<tr>
<th>Georgia Fund</th>
<th>Clean Water SRF</th>
</tr>
</thead>
<tbody>
<tr>
<td>State funded</td>
<td>Federally funded</td>
</tr>
<tr>
<td>Water, wastewater, and solid waste infrastructure projects</td>
<td>Wastewater infrastructure and pollution prevention projects</td>
</tr>
<tr>
<td>$3 million per year maximum loan amount</td>
<td>$25 million per year maximum loan amount</td>
</tr>
<tr>
<td>Interest rate of 1.63% for a 20-year loan</td>
<td>Interest rate of 1.13% for a 20-year loan</td>
</tr>
<tr>
<td></td>
<td>Scoring criteria not well aligned to biosolids drivers</td>
</tr>
</tbody>
</table>

### Notes and Recommendations to GEFA
- Consider potential biosolids specific funding initiative
- Provide additional guidance for utilities seeking biosolids funding
- The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) can also provide funding for biosolids projects (EPA administered)
Questions?

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Public Comment
Next Steps
Next Steps

• Next Meeting: Aug 23 – Draft Plan Review
• Committees to work on plan revisions
  • Inter-Council Coordination – Joint meeting with neighboring Councils
  • Plan Review
  • Others…
Thank You
Middle Chattahoochee

https://waterplanning.georgia.gov/water-planning-regions/middle-chattahoochee-water-planning-region