Lower Flint-Ochlockonee Council Meeting
May 12, 2022
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

Agenda

10:00  Welcome, Agenda Review, Check-In with New Members
10:05  Chair’s Report
10:10  Resource Assessment Results
11:15  Management Practices Review
12:00  Lunch
1:15   Plan Review Committee Report
1:35   Inter-Council Coordination Committee Report
1:55   Recommendations Review
2:35   Break
2:45   Next Steps in Plan Review and Revision
3:00   EPD Report
3:10   Information Items: GEFA Study and Biosolids Report
3:40   Public Comment
3:50   Next Steps
4:00   Adjourn
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
  - (Starred) Draft Plan

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

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

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

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## Lower Flint-Ochlockonee Council Members

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<td>Rep. Gerald Greene</td>
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Chair’s Report

Presented by Chairman Royal
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, April 14, 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
• Results presented at last meeting, April 14, 2022
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 Lower Flint-Ochlockonee Water Planning Region

Georgia EPD
May 2022
Presentation Outline

• Introduction and Model Settings
• Model Results Baseline Scenario
  • Water Supply Challenges, Examples (water supply PMs)
    • Georgia Pacific Cedar Springs, LLC
  • Wastewater assimilation Challenges, Example (wastewater assimilation PMs)
  • Bainbridge Flow Results
  • Iron City Flow Results
  • Milford Flow Results
• Additional Performance Measures to consider?
Lower Flint- Ochlockonee Region and ACF Model Domain
BEAM Node Types

- Upstream Junction 1090
- Junction Node 1100
- USGS Gage Node 1101
- Withdrawal Node 1102
- Agricultural Node 1103-1105
- Inflow 1099
- Return Node 1098
- Downstream Junction 1110

- Junction
- USGS Gage
- Reservoir
- Routing Reservoir
- Municipal/Industrial Withdrawal or Thermal Net Consumptive Use
- Agricultural Withdrawal
- Runoff Inflow
- Municipal or Industrial Discharge
- Overbank/Overland Flooding Loss
- Flow Arc
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 Lower Flint-Ochlockonee Region

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Note: Energy withdrawals are expressed as consumptive uses in modeling.
Example 1: Permit 049-1295-01 (BEAM Node 5395)

- Permit holder: Georgia Pacific Cedar Springs, LLC
- Withdrawal limits: 144 mgd (daily)/115 mgd (monthly)
Permit 099-1106-07 Withdrawal Amount Setting-average of 2010-2018 and 2060 projection
Water Supply Challenge in 2007

Shortage at node 5395 -- 049-1295-01: Georgia Pacific Cedar Springs, LLC
Water Supply Challenge in 2012

Shortage at node 5395 -- 049-1295-01: Georgia Pacific Cedar Springs, LLC
Water Supply Shortage Frequency in 1939-2018

Shortage at node 5395 -- 049-1295-01: Georgia Pacific Cedar Springs, LLC
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 0026638 (BEAM Node 8078)

- Permit holder: City of Leesburg (Leesburg Pond WPCP)
- Permitted monthly discharge flow: 1.2 mgd
- 7Q10 Flow at discharge location: 54.99 cfs (29.6 mgd)
Simulation Results at GA 0026638 Location
Flow Frequency

![Graph showing flow frequency vs. percent frequencies exceeded](image)
Simulation Results at GA 0026638 Location
Flow Frequency (low end) (7Q10 = 54.99 cfs)
Simulation Results at GA 0026638 Location
Flow in 2006

7Q10
Simulation Results at GA 0026638 Location
Flow in 2012

7Q10
Bainbridge Flow Condition (BEAM Node 8651)
Simulation Results at USGS 02356000 Location
Flow in 1986-1988

Total Arc Outflow at node 8651 -- 02356000: FLINT RIVER AT BAINBRIDGE, GA
Simulation Results at USGS 02356000 Location
Flow in 1999-2002

Total Arc Outflow at node 8651 -- 02356000: FLINT RIVER AT BAINBRIDGE, GA

20000
15000
10000
5000
0
1/99 7/99 12/99 6/00 12/00 6/01 12/01 6/02 12/02

Total Arc Outflow (CFS)
Simulation Results at USGS 02356000 Location
Flow in 2007-2008

Total Arc Outflow at node 8651 -- 02356000: FLINT RIVER AT BAINBRIDGE, GA
Simulation Results at USGS 02356000 Location
Flow in 2011-2012

Total Arc Outflow at node 8651 -- 02356000: FLINT RIVER AT BAINBRIDGE, GA
Simulation Results at USGS 02356000 Location
Flow Frequency

Total Arc Outflow at node 8651 -- 02356000: FLINT RIVER AT BAINBRIDGE, GA
Simulation Results at USGS 02356000 Location
Flow Frequency (low end)
Iron City Flow Condition (BEAM Node 8811)
Simulation Results at USGS 02357000 Location
Flow in 1986-1988

Total Arc Outflow at node 8811 -- 02357000: SPRING CREEK NEAR IRON CITY
Simulation Results at USGS 02357000 Location
Flow in 1999-2002

Total Arc Outflow at node 8811 -- 02357000: SPRING CREEK NEAR IRON CITY
Simulation Results at USGS 02357000 Location
Flow in 2007-2008

Total Arc Outflow at node 8811 -- 02357000: SPRING CREEK NEAR IRON CITY
Simulation Results at USGS 02357000 Location
Flow in 2011-2012

Total Arc Outflow at node 8811 -- 02357000: SPRING CREEK NEAR IRON CITY
Simulation Results at USGS 02357000 Location
Flow Frequency

Total Arc Outflow at node 8811 -- 02357000: SPRING CREEK NEAR IRON CITY
Simulation Results at USGS 02357000 Location
Flow Frequency (low end)

Total Arc Outflow at node 8811 -- 02357000: SPRING CREEK NEAR IRON CITY
Milford Flow Condition (BEAM Node 8481)
Simulation Results at USGS 02353500 Location
Flow in 1986-1988

Total Arc Outflow at node 8481 -- 02353500: ICHAWAYNOCHAWAY CREEK AT MILFORD

Month / Year

Total Arc Outflow (CFS)

50 CFS
Simulation Results at USGS 02353500 Location
Flow in 1999-2002

Total Arc Outflow at node 8481 -- 02353500: ICHAWAYNOCHAWAY CREEK AT MILFORD

Total Arc Outflow (CFS)

01/99 06/99 12/99 06/00 12/00 06/01 12/01 06/02 12/02

Month / Year

50 CFS
Simulation Results at USGS 02353500 Location
Flow in 2007-2008
Simulation Results at USGS 02341500 Location
Flow in 2011-2012

Total Arc Outflow at node 8481 -- 02353500: ICHAWAYNOCHAWAY CREEK AT MILFORD

Flow in 2011-2012

50 CFS
Simulation Results at USGS USGS 02353500
Location Flow Frequency

Total Arc Outflow at node 8481 -- 02353500: ICHAWAYNOCHAWAY CREEK AT MILFORD

Percent of simulated time steps vs. Total Arc Outflow (CFS)
Simulation Results at USGS 02353500 Location Flow Frequency (low end)
Summary

• Moderate water supply challenges under baseline water use conditions
• Moderate wastewater assimilation challenges under baseline water use conditions
• Flow at Bainbridge under baseline water use conditions
• Flow at Iron City under baseline water use conditions
• Flow at Milford under baseline water use conditions
• Additional evaluation can be added according to stakeholders’ inputs
• RA team will provide updates in Tech Memo and presentation as additional results become available
Questions?

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Management Practices Review
Small Group Discussions: Management Practices Review

1. Demand and Returns Management Practices
2. Supply and Flow Augmentation 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

Murray Campbell
Plan Review Committee Members

- Murray Campbell
- Vince Falcione
- George McIntosh
Plan Review Committee Activity

• Meeting: May 3, 2022
• Reviewed Draft Sections 1, 2, & 4
• Committee meeting notes and edited plan sections in pre-meeting packet
• Committee recommendation: Approve these sections (as edited by committee)
• Note: Further edits to these sections are expected. Substantial edits will be reviewed by committee/Council.
Inter-Council Coordination Committee Report

Jimmy Webb
Inter-Council Coordination Committee

Members

• Hugh Dollar
• Jay Smith
• Jimmy Webb
Inter-Council Coordination Committee

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 and reviewed previous letter to District
• Reviewed Coordinated Recommendations with Neighboring Councils

June 2022
Inter-Council Coordination Meeting
• Include Councils of:
  • Lower Flint – Ochlocknee
  • Middle Chattahoochee
  • Upper Flint
• Currently Scheduling
Meeting on May 3, 2022

1. Discussed the Metro Water District Plan Update
   • Big difference between rural and urban water uses and therefore management practice focus.
     - In LFO, agriculture is the priority.
     - Metro plan has a high focus on water conservation and minimizing water use.
   • Group reviewed previous comment letter – wastewater returns and Corps reservoir operation are addressed in the Metro plan.
   • Biggest LFO concern is what happens when we reach the sustainable yield of resources? This is a shared concern among councils. From a water use perspective, the Metro District uses primarily surface water and supplements with water from different groundwater aquifers than used by the LFO council for agricultural use, which is primarily groundwater supplied.

2. Recommendations to Metro Water District Plan Update
   • ICC decided not to send a letter to Metro Water District.

3. Reviewed “Coordinated Recommendations with Neighboring Councils”
   • Recommendation topics still valid.
   • Mark Masters provided input on the ACF Stakeholders that the recommendation for an inter-basin planning agency would likely take quite some time to implement. Some rewording of this recommendation may be appropriate.
Inter-Council Coordination Committee

Next meeting will be coordinated with Middle Chattahoochee 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 to the State Section 7.4 of 2017 Plan

• Information Needs
• Water Policy Recommendations
• Coordinated Recommendations with Neighboring Councils
Information Needs

1) Evaluate impacts of *low flow conditions* in model results for Bainbridge
   • Determine low flow thresholds below which adverse ecosystem impacts are predicted

2) Improve *agricultural water meter* program
   • Comprehensive installation of meters
   • Maintenance inspections
   • More data: monthly use, crops, inputs
   • Continue to report aggregate results
   • Continue to prepare data for use in resource assessments

3) Conduct comprehensive assessment of baseline water conservation and water quality *Best Management Practices* by agricultural producers
   • Expand survey of water efficiency equipment adoption in Lower Flint River Basin to Flint and Chattahoochee Basins and assess more practices
Information Needs

4) Evaluate *water conservation* practices – implementation and effectiveness
   • Conservation = priority focus of this plan
   • Difficult to measure progress/impact
   • Need more information to assess implementation and benefits

5) Evaluate impacts of *farm ponds* on stream flows (intercepted drainage, evaporative loss) to assess their impacts and improve how *farm pond withdrawals* are incorporated into resource assessments

6) Evaluate costs & benefits of reducing minimum threshold for *water withdrawal permits* (surface and groundwater)

7) Promote additional studies of *drought*, drought triggers, drought response in the Flint River Basin
Information Needs

8) Evaluate alternative *metrics* for use as thresholds for *potential gaps* for the surface water availability assessments
   - Council should provide input to EPD on metrics related to desired flows

   - Does it enhance the capacity of the system to support all uses, including greater storage for water supply and flow augmentation?

10) Verify *water quality model* assumptions to reflect actual conditions
    - Check assumptions about wastewater volumes and treatment methods: Allocation between land application and discharging facilities may change given in-stream flow concerns.
    - Address this concern through coordination between Council and EPD
Information Needs

11) Evaluate **effectiveness** of water quality management and pollution prevention tools, including nonpoint BMPs

12) Continue to develop data on **nutrient loading** to support effective nutrient management (esp. in Ochlockonee Basin)

13) Conduct periodic **peer review of the resource assessment models** used in regional water planning
Water Policy Recommendations

1) General Assembly should seek input from regional water councils in managing, planning, and providing oversight of water resources.

2) General Assembly should provide funding for Regional Water Planning to:
   • Continue regional water planning
   • Monitor plan implementation
   • Collect resource assessment data
   • Refine resource assessments

3) General Assembly and implementing agencies should explore all possible sources of funding for Regional Water Plan implementation:
   • Especially possible federal sources
   • Financial incentives and reimbursement for plan implementation will expedite progress toward the Plan’s goals
Water Policy Recommendations

4) Inter-basin Transfer (IBT)
   • State policy should *not preclude* IBT as an option for future water management, as needed and following thorough scientific and economic evaluation
   • Recommend *against new IBTs* from any basin in this region where the surface water availability resource assessment model indicated a potential gap
   • *Reverse* IBTs where appropriate and reasonable

5) Any changes in water *withdrawal permitting* practices should consider the updated surface water availability and groundwater availability resource assessment model results. (See also: Section 5.4 for discussion of the Council’s concerns with modeling approaches and results)

6) Develop improved tools for *drought management* and adopt legislation needed for implementation
   • Need more than the Flint River Drought Protection Act provides
   • Need funding for implementation of drought management
Water Policy Recommendations

7) General Assembly should provide funding and authority for Council to work with USFWS to resolve potential conflicts between agricultural water use and *imperiled species* in the region
   - State agencies should join in the process, including EPD
   - Continue efforts to consider/develop a *Habitat Conservation Plan* to provide habitat protection and water security

8) Council urges timely resolution of *interstate conflict in ACF*
   - Develop a tristate framework to address interstate management and include the regional water councils in this framework

9) Continue *coordination and cooperation among water planning regions* (Middle Chattahoochee, Upper Flint, Metro District)
Coordinated Recommendations with Neighboring Councils

1) More water *storage* capacity in the ACF (e.g., better use of existing, additional new storage)

2) Use of *actual/current data* in resource assessments

3) *Interstate planning organization* for ACF (consider transboundary institution recommendation of the ACF Stakeholders)
Next Steps in Plan
Review and Revision

[presenter]
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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*June 2017*
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 Sub-Committee
Regional Water Plan Update – Today’s Discussion

Regional Water Plan Review and Revision

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 Steps

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

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on Remaining
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<thead>
<tr>
<th>Inter-Council Coordination</th>
<th>Recommendations to the State – Coordinated Recommendations with Neighboring Councils</th>
</tr>
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<tbody>
<tr>
<td>Plan Review</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
EPD Report

Jennifer Welte, GA EPD
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

Lower Flint-Ochlockonee Water Planning Region

Georgia Environmental Finance Authority

See full report for details: Wood, March 11, 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)
  - 66% of region’s 2010 water supply

- Surface Water (SW):
  - 34% of region’s 2010 water supply

<table>
<thead>
<tr>
<th>Withdrawal Category</th>
<th>Withdrawal (MGD)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>370</td>
<td>86%</td>
</tr>
<tr>
<td>Municipal</td>
<td>41</td>
<td>9%</td>
</tr>
<tr>
<td>Industrial</td>
<td>11.3</td>
<td>3%</td>
</tr>
<tr>
<td>Domestic/self-supply</td>
<td>9.2</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Withdrawal Category</th>
<th>Withdrawal (MGD)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>110</td>
<td>48%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>68</td>
<td>30%</td>
</tr>
<tr>
<td>Energy</td>
<td>50</td>
<td>22%</td>
</tr>
</tbody>
</table>

Values from: *Lower Flint-Ochlockonee 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>Dougherty</td>
<td>Albany</td>
<td>Groundwater Wells (28)</td>
</tr>
<tr>
<td>Decatur</td>
<td>Bainbridge</td>
<td>Groundwater Wells (4)</td>
</tr>
<tr>
<td>Early</td>
<td>Blakely</td>
<td>Groundwater Wells (3)</td>
</tr>
<tr>
<td>Grady</td>
<td>Cairo</td>
<td>Groundwater Wells (5)</td>
</tr>
<tr>
<td>Mitchell</td>
<td>Camilla</td>
<td>Groundwater Wells (5)</td>
</tr>
<tr>
<td>Terrell</td>
<td>Dawson</td>
<td>Groundwater Wells (3)</td>
</tr>
<tr>
<td>Seminole</td>
<td>Donalsonville</td>
<td>Groundwater Wells (2)</td>
</tr>
<tr>
<td>Lee</td>
<td>Lee County</td>
<td>Groundwater Wells (10)</td>
</tr>
<tr>
<td>Colquitt</td>
<td>Moultrie</td>
<td>Groundwater Wells (6)</td>
</tr>
<tr>
<td>Mitchell</td>
<td>Pelham</td>
<td>Groundwater Wells (3)</td>
</tr>
<tr>
<td>Worth</td>
<td>Sylvester</td>
<td>Groundwater Wells (4)</td>
</tr>
<tr>
<td>Thomas</td>
<td>Thomasville</td>
<td>Groundwater Wells (7)</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 2015 and 2050 demands for the 12 systems
  2. Raw and potable water sources
     - EPD’s groundwater and surface water resource availability models indicate varying levels of sufficiency or insufficiently for aquifers and surface water nodes
     - Potential surface water sources and storage options were not identified
  3. Interconnections
     - Few in this region, and some systems have the potential to interconnect
Emergency Planning Benchmarks

- QWS in this region do not regularly purchase water
- 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>
Schematic of Key System Data

No deficits
Potential Project Development

- Despite no deficits, projects were recommended because system-specific assessments can provide valuable information for scenarios not considered.
- 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, two project types:
  1. New interconnection
  2. Backup generator (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>Albany, Lee County</td>
<td>Low Range: Interconnection: Albany-Lee County Multiple options near Ledo Road</td>
</tr>
<tr>
<td>2</td>
<td>Albany, Lee County</td>
<td>High Range: Interconnection: Albany-Lee County Multiple options near Ledo Road</td>
</tr>
<tr>
<td>3</td>
<td>Albany, Sylvester</td>
<td>Interconnection: Albany-Sylvester 8.5 miles along Red Rock Road</td>
</tr>
<tr>
<td>4</td>
<td>Bainbridge</td>
<td>New generator: WTP/Well 306 or WTP/Well 307</td>
</tr>
<tr>
<td>5</td>
<td>Dawson</td>
<td>New generator: WTP/Well 302</td>
</tr>
<tr>
<td>6</td>
<td>Lee County</td>
<td>New generator: WTP/Well 101 or WTP/Well 103 or WTP/Well 108</td>
</tr>
<tr>
<td>7</td>
<td>Moultrie</td>
<td>Interconnection: Moultrie-Moultrie Spence Field 2.8 miles along GA-133 South</td>
</tr>
<tr>
<td>8</td>
<td>Moultrie</td>
<td>New generator: WTP/Well 105</td>
</tr>
<tr>
<td>9</td>
<td>Pelham</td>
<td>New generator: WTP/Well 101 or WTP/Well 103</td>
</tr>
<tr>
<td>10</td>
<td>Sylvester</td>
<td>New generator: WTP/Well 104</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)
<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>1</td>
<td>Albany Lee County</td>
<td>Low Range: Interconnection: Albany-Lee County Multiple options near Ledo Road</td>
<td>$47,600</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Lee County</td>
<td>New generator: WTP/Well 101 or WTP/Well 103 or WTP/Well 108</td>
<td>$61,500</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Moultrie</td>
<td>New generator: WTP/Well 105</td>
<td>$137,000</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Bainbridge</td>
<td>New generator: WTP/Well 306 or WTP/Well 307</td>
<td>$137,000</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Sylvester</td>
<td>New generator: WTP/Well 104</td>
<td>$137,000</td>
<td>5</td>
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<tr>
<td>2</td>
<td>Albany Lee County</td>
<td>High Range: Interconnection: Albany-Lee County Multiple options near Ledo Road</td>
<td>$141,100</td>
<td>6</td>
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<tr>
<td>9</td>
<td>Pelham</td>
<td>New generator: WTP/Well 101 or WTP/Well 103</td>
<td>$61,500</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Dawson</td>
<td>New generator: WTP/Well 302</td>
<td>$93,500</td>
<td>8</td>
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<tr>
<td>3</td>
<td>Albany Sylvester</td>
<td>Interconnection: Albany-Sylvester 8.5 miles along Red Rock Road</td>
<td>$12,163,300</td>
<td>9</td>
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<tr>
<td>7</td>
<td>Moultrie</td>
<td>Interconnection: Moultrie-Moultrie Spence Field 2.8 miles along GA-133 South</td>
<td>$3,623,300</td>
<td>10</td>
</tr>
</tbody>
</table>
Conclusion

• Lower Flint-Ochlockonee Region has no deficits
• Potential projects identified can assist Councils and systems in understanding the types of upgrades that could benefit the Water Planning Region
• 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

[Graph showing current and projected solids production estimates for different regions of Georgia.]
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
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

Biosolids Products

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

<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>
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<td></td>
<td>2,113,600</td>
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<tr>
<td>Silviculture</td>
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<tr>
<td>Parks &amp; Rec.</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Sod Farms</td>
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<td></td>
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<td></td>
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<tr>
<td>Golf Courses</td>
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<td></td>
<td>739,200</td>
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<tr>
<td>Silviculture</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2,113,600</td>
</tr>
<tr>
<td>Total Ag.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,570,000</td>
</tr>
</tbody>
</table>

State wide solids production / potential demand estimate (dt psy)

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

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

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

### 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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Bernadette Drouhard
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Amanda Carroll
acarroll@gefa.ga.gov
Public Comment
Next Steps
Next Steps

- Next Meeting: August 22 – Draft Plan Review
- Committees to work on plan revisions
  - Inter-Council Coordination – Joint meeting with neighboring Councils
  - Plan Review
  - Others…
Thank You
Lower Flint-Ochlockonee