

Georgia Department of Natural Resources

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October 21, 2011

MEMORANDUM

TO: Council Members

FROM: David Ashley, JJG/Jacobs
Tai-Yi Su, AECOM
Rachel Jones, JJG/Jacobs

SUBJECT: Plan Review and Technical Subcommittee Meeting Summary
Savannah Upper-Ogeechee Water Planning Council Meeting

CC: Jeff Larson, GA EPD
Brian Baker, GA EPD

Georgia Comprehensive Statewide Water Management Plan Regional Water Planning

Plan Review and Technical Subcommittees Meeting Summary

Meeting Date: September 20, 2011
Location: Northeast Georgia Regional Commission, Athens, Georgia

1. Welcome & Introductions

Council Chairman Ron Cross opened the meeting and welcomed the group. He asked the Council members to introduce themselves. Non-council members, including members of the public, partnering agencies, Georgia Environmental Protection Division (EPD) and the Planning Contractor staff also introduced themselves. Chairman Cross stated that twelve Council members were present (including nine in person and three on the phone – Scott McGregor, Chris McCorkle, and Charles Cawthon) and that a quorum (fifteen required) was not met. David Ashley reminded Chairman Cross that he has proxy votes from Larry Walker and Stan Sheppard and that makes fourteen. Chairman Cross elected to proceed with the meeting and see if more members would join on the conference call later. *[Note from Planning Contractor: Council member Thomas Jordan joined the conference call shortly after the count. Quorum has been met.]*

Chairman Cross introduced David Ashley, the Planning Contractor, and asked him to discuss the comments received during the public commenting period (May 9th through June 23rd, 2011).

David expressed appreciation to the Council members for coming to the meeting and stated that the agenda consisted of reviewing the comments received during the public comment period and from EPD, and that they are not too substantial.

2. Discussions of EPD Comments

David Ashley noted that the most substantial comments from EPD were made by Alice Miller Keyes, Water Policy Advisor of EPD. The gist of the comment is that Regional Water Plans need to reflect the requirements provided in EPD's Water Conservation Guidance. In response, the Planning Contractor prepared the *Draft Technical Memorandum for Demand Management* for Council review. . The Technical Memorandum summarized the process the Council went through in selecting the water conservation management practices. The majority of the Savannah Upper-Ogeechee (SUO) Region is required to meet Tier 1 and Tier 2 water conservation practices; however, details for Tier 2 practices are still being worked on by EPD. For the Upper Ogeechee Basin, Tiers 3 and 4 agricultural water conservation practices are recommended to address the projected surface water availability gap at the Eden node because the water demand upstream of this planning node is virtually all agricultural. The PC went over the organization of the Technical Memorandum with the meeting attendees and stated that it was organized to clearly show that the Council met the guidance's requirements.

Bruce Azevedo recalled most of the peak agricultural water usage occurred in a very small window of time. He commented that it did not make sense to look at the irrigation usage based on an annual average daily quantity.

David Ashley noted that there is a small surface water availability gap in the Little Tennessee Basin portion of the SUO Region (0.6 MGD or 1 cfs). The predicted gap is within the range of error for the model (both stream flows and demand projections). The Council had reviewed this issue carefully and no additional conservation measures were recommended for the Little Tennessee Basin.

David Ashley briefly explained the method used by Dr. Hook of the University of Georgia (UGA) for estimating agricultural water use. The Planning Contractor evaluated the data provided by UGA and concluded that the data available was insufficient to make specific recommendations on agricultural conservation techniques and therefore could not be used to properly estimate the savings resulting from implementing these techniques. For example, there is no data on the breakdown of current irrigation types in the Region to make reasonable assumptions on demand reduction. The management practices recommended by the Council (WD4 – Monitoring Agricultural Water Use in the Ogeechee River, WS2 –

Monitor Streamflow to Confirm the Frequency and Magnitude of the Predicted Gap, and WS3 – Conduct Instream Flow Studies) already addressed these concerns.

Bruce Azevedo: So this (Technical Memorandum) was just to document what the Council has done for the last three years.

David Ashley: Yes.

EPD Assistant Branch Chief Jeff Larson confirmed that the TM is required to document the Council's decision process in selecting water conservation practices.

Chairman Cross commented that as chairs of the subcommittees, Bruce Azevedo and Tom Weidmeier did the majority of the review of the Plan. His plan today is to have the committee chairs share their review of the information and recommend their decisions to the Council. Chairman Cross stated that Director Barnes requested an official Council approval for the final plan.

Chairman Cross asked if the two chairs were satisfied with the Planning Contractor's work (yes). He then asked the Council members and the members on the phone whether they were satisfied with the Technical Memorandum and with the committee chair's work (all answered yes). All agreed the work is sufficient. Plan review committee chair Bruce Azevedo mentioned that he sent the Technical Memorandum out to his committee members as soon as the Technical Memorandum was sent by the Planning Contractor three weeks ago and they had reviewed the Technical Memorandum carefully.

There was a general consensus that the Technical Memorandum adequately addressed EPD's comment.

3. Discussions of General Public Comments

David Ashley continued discussion of the remaining public comments (see attached handout). He stated that most of the comments were general and represented a wide spectrum of opinions. The Council is not charged to legislate and cannot change EPD's policy. The Council can make recommendations.

Discussions of the comments and proposed responses are summarized as follow:

1. Construction of the well can affect the accessibility of water. There is a need to educate residents using groundwater and also well drillers, particularly residential well drillers, of proper well construction techniques. David Ashley suggested that language on proper casing for well construction can be added to the existing management practice ED-1 (education initiative).

Bruce Azevedo: It is not necessary to make changes to the plan for this comment. Well construction is a local issue. It is not the level of detail this Plan is intended for. This is a plan for decision makers such as county commissioners to look at future water supply and water quality

issues. This Plan has caused him to look at the need for more sewer system in his county. Each County needs to evaluate their issues and address them on a local level.

Chairman Cross: We did the best with the best data available. We don't have to change the plan for a local well drying up. He agreed with the plan review subcommittee chair Azevedo.

Tom Wiedmeier: The Plan was written from a high level perspective and I was impressed with the work that was done. A spring that dried up locally does not mean that we need to change our Plan.

Vice Chair Newton: We cannot predict when the drought will occur and the pivot irrigation systems will start and stop based on economic situation, commodity prices, and the availability of water.

Chairman Cross: A lot of these comments point to things that can be done in a couple years. Regional planning will be a fluid process and as new data becomes available, the Plan can be updated.

2. Discussion of Farm Bureau Comments

Bruce Azevedo commented that agricultural water users were concerned about how the Plan will be used in permitting. Tai-Yi Su noted that the management practice (WS5 –Decrease Surface Water Use during Low Flow Periods) was developed to address seasonal issues and development of drought management plans for use during critical drought periods.

David Ashley asked if the Farm Bureau representatives at the meeting had any additional comments. Council member Jerry Boling (representing the agricultural sector) commented that the Council had adequately addressed agricultural water uses. At one point he was concerned that the agricultural water use projections did not address water use for the poultry industries, but that had since been addressed. The comment (on the drought contingency plan) was referring to irrigation use only [No change to the Plan is required].

3. Discussions on Georgia Industry Environmental Coalition comments.

The Council cannot address most of the comments directed at EPD. Regarding the comment on septic tank return and consumptive use assumptions, David Ashley mentioned that the very few existing studies were available due to lack of data. Because the gaps occur during low streamflow / drought periods, seasonal returns from septic tanks would be essentially nonexistent.

Chairman Cross: I think it (consumptive use) would be impossible to quantify. It would be a guess at best because it involves many parameters and they vary greatly based on local soil conditions, lot size, etc.

Ashley: The USGS conducted a study in Gwinnett County and the estimated annual return in the area was close to 70%. However, the consumptive use was estimated to be nearly 100% during critical drought periods (essentially no septic tank return during drought periods).

4. Georgia Power comments.

Water demand forecast for energy production was only provided through 2017 for this planning process. Bruce Azevedo noted that this Plan will be updated every 5 years and new projections can be used in the update. Tim McGill commented about the uncertainty of regulation changes for energy production.

David Ashley commented that EPD is working on a document that will provide guidance on permitting and Regional Water Plans. He explained that water conservation plans and drought contingency plans are part of the routine submission required for water withdrawal permit application.

The Existing Conditions and Future Resource Assessments were conducted based on existing actual water use and for future full permit use, respectively. Section 5 of the Plan provided comparisons on permitted capacity and projected use.

The Plan acknowledges that Tier 1 water conservation practice is mandatory at this time (in agreement with the comment) and no changes to the Plan are necessary.

5. Georgia Water Coalition comment: The Council agreed that no change to the existing Plan is needed to address these comments, most of which are policy level comments directed at EPD.
6. No changes required to address the Georgia Water Coalition comments, which are general, policy-level comments.
7. North Carolina Department of Environment and Natural Resources: State coordination is needed and no changes are required for the Plan.

8. Comment from Larry McSwain (Middle Ocmulgee Regional Water Council member): David Ashley stated that this comment was for all plans. The SUO Plan has a recommendation regarding instream flow studies (WS3-Conduct Instream Flow Studies in the Ogeechee Basin) for confirming the instream flow needs and the size of the gaps in the Ogeechee and Tennessee basins.
9. Southern Alliance on Clean Energy: The comment pointed out other players (electric membership corporations) in addition to Georgia Power in the energy market and provided clarification on the Public Service Commission's role. The Planning Contractor has addressed this comments based on language provided by EPD.
10. Nature Conservancy: David Ashley stated that these comments are high level comments and don't suggest any specific changes to individual plans. The Nature Conservancy recommends a minimum of Tier 3 water conservation practices for all users, but that is not SUO's recommendation. The Council's recommendation is for the agricultural permittees/users in the Ogeechee Basin to consider implementing Tier 3 and Tier 4 conservation practices to address the potential surface water gap (for instream flow needs). Other water users in the Region are only required to implement Tier 1 and Tier 2 practices.
11. US Department of Interior Fish and Wildlife Service comments. David Ashley addressed their comments as follows:
 - The Regional Water Plans comply with all existing state policies and regulations and do not fail to protect natural systems.
 - Regarding the comment on drought conditions, the comparison in the Plan is summarized based on annual average daily quantities and these are the typical basis used for planning of future water supply (monthly demand factors were incorporated as appropriate into Resource Assessments and capacity analysis). The Council agreed that using data based on aggregated "planning nodes" does not mean you won't have local water supply issues. This was the nature of the Surface Water Resource Assessments and that was why county-level permitted capacity analysis was provided in Section 5.
12. Upper Chattahoochee Riverkeeper (on behalf of several organizations including Savannah Riverkeeper): The comments are not specifically for the SUO Region and mostly apply to Resource Assessments and population projections. EPD is recommended to incorporate the comments for future update of plans. No Plan revision is required.

13. Comments by Harris Little: There were discussions regarding the statement of thinking more regional (not basin) and “if Atlanta needs the water we have, treat it and sell it to them, they have the money and we have the water”. Chairman Cross stated that both receiver and donor have to agree in a water transfer. Chairman Cross asked Vice Chair Newton about McDuffie County’s sale to Warren County. Newton stated that it can be considered an interbasin transfer (Savannah Basin to Ogeechee Basin). Cross commented that the Council is more concerned about a “forced transfer” (from SUO to the Atlanta region). Water transfer (in the form of sale and purchase) is okay as long as the receiver and the donor both agree to the term.
14. Jack Gleason’s comment: General comments that apply more to EPD regulations and local ordinances. No Plan revision is required.
15. SUO Council member Larry Walker’s comment regarding the plan became too technical and the Council’s discussion on interbasin transfer. David Ashley mentioned that EPD did promulgate the interbasin transfer rule last year. Chairman Cross commended Larry’s comment and efforts on interbasin transfer.
16. Mike Massey’s comment: No Plan revision is required.
17. Sam Booher’s comment regarding energy projects not mentioned in the plan: He felt that there should be more disclosure on locations and demands of future energy production facilities. David Ashley commented that the energy forecast was not available for various reasons such as future regulations and competition, etc. Chairman Cross mentioned that these may be information the energy companies do not have. Council member Fowler added that in last few years the growth in energy production has been flat and it used to be inclined growth. It is even more difficult to predict based on current trends. He commended that the Region has a good plan to begin with and in 5 years an update will be pursued. Bruce Azevedo stated that the Plan was a good document for educating each county’s decision makers. It was a good document for his commissioners to read and to think about long-term needs of their county. If counties have a shortfall in capacities, they can come up with their own solutions. He liked that the Plan was written such that it was not dictatorial.

Chairman Cross mentioned that many counties are waiting for outcomes, such as the Savannah Harbor TMDL, and many decisions cannot be made until the regulatory information is available. Chairman Cross mentioned a presentation the Southern Company has about nuclear power. Nuclear is part of the supply of power that supports development. Where power sources are is

where people are located. Council member McGill mentioned that in a satellite view, South Korea can be seen as bright at night and North Korea was all dark.

Tim McGill discussed the water demand of the Vogtle expansion being included in the Technical Memorandum. Tai-Yi Su clarified that the revised Surface Water Availability Resource Assessment incorporated the future demand at Plant Vogtle and was documented in a revised Technical Memorandum. This document was included in a supplemental document and has been posted on the Council website under “Our Plan”

http://www.savannahupperogeechee.org/pages/our_plan/documents/SupSec5_PermitVsForecastTables_TM_SUO_Ma_y2011_FINAL.pdf.

4. Public Comments

Chairman Cross asked if the Council and the public have additional comments and there were none.

5. Vote to Approve the Final Plan for Submittal to EPD

The Chair asked if the Council members were ready to take a vote to include the Technical Memorandum in the final plan. A motion was made by Bruce Azevedo, seconded by Tom Wiedmeier, and the Council voted unanimously to approve the Technical Memorandum (including the four members on the conference call).

The Chair then asked for a final motion to approve the Plan with the changes approved today. A motion was made by Bruce Azevedo, seconded by Tom Wiedmeier. The Council voted unanimously to approve the submission of the final Plan to EPD (including the four members on the conference call).

6. Additional Comments

Chairman Cross opened the floor for additional comments.

Bob Carpenter from International Association of Plumbing and Mechanical Officials (IAPMO) provided the Green Plumbing and Mechanical Code Supplement to all meeting attendees. He commented that he had worked with EPD’s Alice Miller Keyes on water conservation features, including cooling tower and other plumbing fixtures. Municipalities can use the document to implement conservation programs. He welcomed municipalities to consider the membership to the association, mentioned that information is online and the first year of membership is free. His association advocates water conservation throughout the Southeast and offer help to local governments and utilities.

Chairman Cross asked the Planning Contractor to mail the packages to the four members on the phone and also Council member Larry Walker.

Chairman Cross asked about schedule for completion. David Ashley stated that the Plan is due for final submittal to EPD by September 30th. The Planning Contractor will submit the Plan on behalf of the Council and will send all Council members a hard copy of the final Plan.

Council member Thomas Jordan (on the phone) stated that many groundwater wells dried up in his area and he would like to understand more about well construction. He noted that he called in a little late to hear the discussion regarding well construction. Chairman Cross asked if any had answers. David Ashley restated that if a well is properly cased and completed into the Floridan aquifer, there supply should generally be plentiful and it would not affect surface water level. Charlie Newton stated that the commodity price will change the agricultural irrigation landscape.

Chairman Cross asked Jeff Larson of EPD for opinions. Larson suggested that Jordan contact Cliff Lewis (at EPD's Tifton office) who is very familiar with irrigation wells. He asked for Cliff's information to be emailed to Thomas Jordan.

Chairman Cross commented that as the society becomes more urban, the people's eating habits change. People eat more meat and it takes more grains to feed the cattle. Vice Chair Newton talked about the relationship of commodity prices and demands of goods. To produce what is needed (irrigation is needed to grow grains), you have to have water.

Chairman Cross thanked the attendees. Council members thanked Chairman Cross for his leadership.

There was no more comment and the meeting adjourned at 11:30am

Meeting Attendees

Council Members in attendance

Ron Cross, Chair
Bruce Azevedo
Jerry Boling
Charles Cawthon (by phone)
Don Dye
Dan Fowler (Alternate)
Thomas Jordan (by phone)
Scott MacGregor (by phone)
Chris McCorkle (by phone)

Tim McGill
Charlie Newton, Vice Chair
Tom Wiedmeier
Tenia Workman

Council Members not in attendance (proxy provided)

Stan Sheppard
Larry Walker

Council Members not in attendance

Braye Boardman
Deke Copenhaver
Barry Cronic
Mike Eskew
Patricia Goodwin (Alternate)
Larry Guest
Pat Goran (Alternate)
Toye Hill
Ralph Hudgens (Ex-Officio)
Robert Jenkins
Eddie Madden
James H. Newsome
Lewis Sanders
Lee Webster
Tom McCall (Ex-Officio)

Staff in attendance

Jeff Larson (EPD)
Brian Baker (EPD)
Ted Hendrickx (EPD)
David Ashley (Jacobs)
Rachel Jones (Jacobs)
Tai Yi Su (AECOM)

Partnering Agencies and General Public

*Deatre Denion, Department of Community Affairs
Wende Martin, Oglethorpe Power Corporation
Pam Burnett, AECOM
Bob Carpenter, Member of the Public

**Indicates attendee represented a partnering agency*

Attachment A – Meeting Handouts

Proposed Responses to Public Comments



Georgia's State Water Plan

Savannah-Upper Ogeechee Water Planning Council Subcommittee Meeting Draft Agenda September 20, 2011 Athens, GA

Objectives:

- 1) Review Comments on Draft Regional Water Plan
- 2) Discuss suggested responses to comments
- 3) **Vote to Approve Final Plan for Submittal to EPD**

9:45-10:15 a.m.	Registration
10:15-10:30	Welcome and Introductions
10:30-11:15	Review of Comments Received on Draft Plan and Suggested Changes to Address Comments
11:15-11:30	Subcommittee/Council Discussion
11:30-11:35	Vote to Approve Final Plan for Submittal to EPD
11:35-11:45	Local Elected Official and Public Comments
11:45-12:00 p.m.	Schedule for Completion/ Wrap Up/Acknowledgements
12:00 p.m.	Adjourn / Lunch

Follow Up Email

To: Jeff Larson and Brian Baker
Copy: Bennett Weinstein
From: Alice Miller Keyes
Date: July 8, 2011

RE: Review of Savannah-Ogeechee and Coastal GA Regional Water Plans

Jeff and Brian,

Thanks for speaking with me over the phone about your two regional water plans. I know the process has been a long one, so congratulations for reaching this milestone!

As we discussed, my review focused on the demand management and water conservation-related sections of your plan. These comments and recommendations are intended to improve your plan and supplemental material to ensure compliance with the State Water Plan, rules for regional water planning¹ and guidance issued by EPD.

With an emphasis on demand management/water conservation, my review closely followed the *EPD guidance for evaluating management practices to manage water demand* (“Detailed guidance”) sent from Linda to the Regional Planning Council members on Sept 21, 2010 (document attached). My review also considered the EPD Technical Planning Guidance titled *Supplemental Guidance for Planning Contractors: Water Management Practice Cost Comparison* (document attached). Where appropriate, the comments are structured around direct quotes from these guidance documents.

Contact me at any time if you have questions or need clarification.

Alice
912-262-3185 – office
404-617-1965 – cell

Attachments:

- 1) EPD Technical Guidance “Supplemental Guidance for Planning Contractors: Water Management Practice Cost Comparison” (April 2011)
- 2) EPD Technical Guidance “Detailed Guidance for evaluating management practices to manage water demand.” (September 2010)

¹ “...The Director will review and recommend regional water development and conservation plans and any amendments thereto to determine if they are consistent with the rules for regional water planning and guidance adopted pursuant to those rules...” (emphasis added)

Savannah Upper Ogeechee Regional Water Plan

1. Detailed Guidance states on page 8 of 13, “In order to effectively evaluate the potential of demand management to close a current or future resource gap, the Council must quantify the maximum amount of water that can be saved through a water conservation portfolio of a variety of conservation practices for multiple water users in portions of the region contributing to the existence or creation of a gap.” (emphasis added)

It goes on to detail five steps the Councils could take to document that they have achieved this evaluation process. Including “c) The Council needs to include, as a supplement to the Plan, a brief Technical Memorandum describing the decision making process, models used, inputs and outputs, and appropriate references used to meet this objective [evaluating water savings]” (emphasis added)

RECOMMENDATION: Revise the plan to reflect how the Council decided upon the final list of conservation practices.

- Consider amending the regional plan to include a narrative summary of discussions and decisions regarding the final list of conservation practices included in the plan.

RECOMMENDATION: Develop a demand management technical memo (TM) following the instructions in the Detailed Guidance (page 8 of 13) and organized following the example in Appendix D (pg 13 of 13) of the Detailed Guidance.

- Include evaluation and conservation practices for all water use groups found in the regions experiencing gaps. Equity is important in a region with such an even mix of water users (Ag = 76 MGD; 92 MGD for municipal; 88 MGD for industry; 69 MGD for energy.)
 - If ag water use is dominant in nodes with gaps, consider including language and calculations for estimating potential savings from farm practices, similar to those in the Upper and Lower Flint demand management TM.
 - For the municipal conservation practices include a description of the evaluation and any relevant calculations of expected water savings. Consider the calculations and charts used for the municipal water conservation practices in the Coosa North Georgia demand management TM.
 - If industrial and energy water use groups are already employing water conservation practices, consider listing those practices.
 - Alternately, consider endorsing the list of basic industrial conservation practices identified in the State Water Plan – Section 8 or the benchmarks identified for industrial water users in the WCIP.
 - Include a narrative description of any discussions that occurred regarding the multiple water users conservation efforts.

2. The Detailed Guidance page 9 states, “Cost is expected to be used as a comparison in selecting the appropriate portfolios (in other words, the cost of implementing demand management practices should be compared to the cost of implementing other water quantity management practices.)”

RECOMMENDATION: Revise the Plan or include in the demand management TM a narrative describing how cost and any cost comparisons were used to finalize the list of management practices.

- Table 7-2 provide very little information regarding the cost of water conservation practices. A range of costs of conservation practices are included in the Supplemental guidance document on Cost (see attached).
- Accompany any detailed conservation analysis with estimates for cost of implementation.
- Consider adding a couple of paragraphs within the new Demand Management TM to briefly describe the role cost played in the process.



Draft Technical Memorandum

Prepared For: Savannah-Upper Ogeechee Water Planning Council and Georgia Environmental Protection Division

Prepared By: Jacobs JIG Planning Team

Date: August 19, 2011

Subject: **Demand Management Practices**
Section 6 Supplemental Document
Savannah-Upper Ogeechee Ocmulgee Regional Water Plan

Introduction

This Technical Memorandum outlines the process for evaluating the water conservation/demand management practices recommended by the Savannah-Upper Ogeechee Water Planning Council (Council). This document supplements Section 6 of the Regional Water Plan¹, which details management practices recommended to address the water quantity and quality issues based on Resource Assessments² conducted by the Georgia Environmental Protection Division (EPD).

Summary of Council Recommendations

The comparison of regional water demand forecasts to Resource Assessment modeling results has shown that there is no water quantity/availability gap at three of the five planning nodes within the planning region. There are projected flow regime gaps at the Eden and Little Tennessee nodes. Therefore, the majority of the region is required to address only the Tier 1 and Tier 2 practices that EPD plans to address in upcoming rules and regulations. Tier 3 and Tier 4 practices are listed in the priority management practices for those counties associated with the Eden (Ogeechee Basin) and Little Tennessee nodes. These practices are listed as additional management practices for the remainder of the region for consideration by entities wishing to further reduce future water demand and improve efficiency.

The Council recognizes the diverse needs and interests of the stakeholders in the region. The Council encourages water users/permittees to evaluate the cost and operational implications of these practices, and implement them when they are beneficial to their operation.

Background

According to the Comprehensive State-wide Water Management Plan (State Water Plan), "water conservation will be a priority water quantity management practice implemented to help meet water needs in all areas of the state and will be practiced by all water user sectors (Section 7, Policy 3)." To comply with this policy, EPD issued "Detailed Guidance for Evaluating Practices to Manage Demand"

(Detailed Guidance)³ on September 21, 2010 for use by regional water planning councils. EPD initially introduced the tiered approach to evaluating water conservation/demand management practices prior to Council Meeting 6 (referred to as CM6 Guidance⁴, June 2010). The Detailed Guidance replaced the CM6 Guidance.

In the Detailed Guidance, water conservation practices were divided into four tiers, as follows:

- *Tier One* includes basic water conservation activities and practices that are currently required by statute or will soon be required in EPD's upcoming amended rules (regarding the State Water Plan and SB370, the Water Stewardship Act).
- *Tier Two* includes basic water conservation activities and practices that will be addressed in EPD's upcoming amended rules, but not required of all permit applicants.
- *Tier Three* includes basic water conservation activities and practices that will not be addressed in current or upcoming amended rules.
- *Tier Four* includes "beyond basic" water conservation practices to be considered if a gap exists between current or future water supplies and demands for the region.

Each Council was expected to include demand management in its Regional Water Plan. The Detailed Guidance indicated that the level of regional demand management should be determined by:

- sustainable capacity of the regional resources (based on Resource Assessments)
- level of conservation already implemented by water users in the region
- economic benefits of demand management as compared to other quantity management practices

Summary of Water Availability Resource Assessments

The Savannah-Upper Ogeechee Region has no water quantity/availability gap at three of the five planning nodes within the planning region. The water supply and instream flow needs in the Savannah-Upper Ogeechee Water Planning Region can be met hydrologically at all major nodes evaluated, except at the Eden and Little Tennessee nodes. For the Hartwell and Augusta nodes, the results were based on the existing operating protocol used by the U.S. Army Corps of Engineers (USACE). While sufficient conservation storage is available for future water supply, this analysis did not include an evaluation of potential economic impact to communities surrounding the lakes. The Savannah – Upper Ogeechee Planning Council recognizes that impacts on local economies, and the state of Georgia as a whole, is an important aspect of the statewide water planning process. Through the Savannah River Basin Comprehensive Study update process, the Council recommends that the USACE evaluate adaptive management strategies that could minimize the use of the available conservation storage. Table 5-1 in the Plan presents a summary of the minimum reservoir volumes predicted for current and 2050 demand conditions.

Table 5-1: Summary of Reservoir Storage Volumes				
Reservoir	Current Minimum Conservation Storage (BG) ¹	Current Minimum Percent of Conservation Storage (%)	2050 Minimum Conservation Storage (BG) ¹	2050 Minimum Percent of Conservation Storage (%)
Hartwell	152.2	33.0	128.2	27.8
Thurmond	98.5	28.9	84.2	24.7

Source: Surface Water Availability Assessment, July 2010, EPD
¹ These are volumes remaining at the critical point. BG = billion gallons

The Resource Assessment predicted that the minimum instream flow targets cannot be maintained at all times while meeting the forecasted 2050 demands at the Eden node. On average, the streamflow at the Eden node is predicted to be approximately 20 MGD below the instream flow target values (4 percent of the time). Table 5-2 in the Plan provides a summary of the flow regime shortage at the Eden node.

Table 5-2: Summary of Flow Regime Gap Analysis at Eden Node		
Demand Scenario	Length of Shortfall (% time)	Average Shortfall (MGD)
Current	6	12.3
2050	4	20.0

Source: Surface Water Availability Assessment, July 2010, EPD
 Note: All flows are AAD

At the Little Tennessee node, a small flow regime gap may exist in the Little Tennessee River Basin. The model predicted that the streamflow will be 0.6 MGD below the instream flow targets 6 percent of the time while meeting 2050 forecasted demands. However, this predicted gap (0.6 MGD, or 1 cfs) is very small, approximately 2.7% of the lowest daily average flow and 0.026% of annual average flow recorded by USGS since 1944 (37 cfs), indicating it is well within the standard error of flow monitoring. Table 5-3 in the Plan provides a summary of the flow regime shortage at the Little Tennessee node.

Table 5-3: Summary of Flow Regime Gap Analysis at Little Tennessee Node		
Demand Scenario	Length of Shortfall (% time)	Average Shortfall (MGD)
Current	0	0
2050	6	0.6

Source: Surface Water Availability Assessment, September 2010, EPD
Note: All flows are AAD

In addition to the Resource Assessment modeling, current permitted municipal surface water and groundwater withdrawals have been compared to the forecasted future demands (Table 5-4). For the purpose of this study, the maximum monthly demand (MMD) was calculated by multiplying the annual average demand (AAD) by a typical maximum month to average day peaking factor. A factor of 1.2 was selected based on typical municipal data. This comparison indicates that Columbia, Hart, McDuffie, Madison, and Oglethorpe counties may require additional water supply infrastructure greater than 1 MGD. Water conservation and other supply and demand management practices will be required to meet future needs.

Based on the EPD's revised groundwater modeling results, the estimated total sustainable yield for the prioritized Cretaceous Aquifer units exceeds the demand of the areas within multiple regions relying on the Cretaceous Aquifer. Therefore, no groundwater availability gap is expected for the Savannah-Upper Ogeechee Region during the 40-year planning horizon.

Initial Evaluation Process

The Council's three committees were formed in May-June 2010, and members of these committees were introduced to the Council at CM6⁶ on June 22, 2010. In June 2010, the Council's Technical Committee began the discussion of management practices by examining an initial list (Table 1) of potential water quantity and quality management practices, based on those categories outlined in the State Water Plan. In the subsequent committee meetings (June through October 2010), the committee continued to discuss and refine the initial list, producing a detailed list of management practices that included expanded descriptions and examples. The Planning Contractor (PC) revised the detailed list based on additional input received from the committee, other council members, and stakeholders.

Council Review of Management Practices

The concepts and examples of resource gaps and management practices had been previously introduced to the Council at CM4 (November 10, 2009) and in each of the following Council meetings through June 2010. The tiered approach and the initial Tier 2 and 3 practices listed in the CM6 Guidance were both discussed at CM7 (September 8, 2010). The PC provided an overview of possible water conservation measures and discussed the definitions of the four tiers of measures in EPD's CM6 Guidance with the full Council.

Prioritization of Management Practices

After reviewing the initial list of management practices prepared for an interim submittal for EPD in October 2010, multiple discussions and consideration of feedback from Council members and EPD, the Council's Plan Review Committee requested prioritization of the recommended management practices so that stakeholders could focus their efforts on the most important water resource issues in the Savannah Upper-Ogeechee Region. The recommended management practices were divided into

two groups: 1) priority management practices; and 2) additional recommended management practices (for details, see Tables 6-1A and 6-1B in Section 6 of the Regional Water Plan).

The priority management practices were selected to address water resource gaps and existing regulations. The Savannah-Upper Ogeechee Region has no water quantity/availability gap at three of the five nodes within the planning region. There are projected flow regime gaps at the Eden and Little Tennessee nodes. Therefore, the majority of the region is required to address only the Tier 1 demand management practices required by the Water Stewardship Act (SB370) and Tier 2 practices that EPD plans to address in upcoming rules and regulations. These Tier 1 and Tier 2 practices are included as priority management practices for the entire region (Table 6-1A of the Regional Water Plan). Tier 3 and Tier 4 practices are listed in the priority management practices for those counties associated with the Eden (Ogeechee Basin) and Little Tennessee nodes. These practices are listed as additional management practices (Table 6-1B of the Regional Water Plan) for the remainder of the region, for consideration by entities wishing to further reduce future water demand and improve efficiency. One Council member representing the municipal, agricultural and energy sectors reviewed the water conservation practices listed in the Detailed Guidance. Table 2 lists the recommended water conservation goals, and Tables 3 through 6 list Tier 1 through 4 water conservation practices recommended by the Council, respectively. Tier 4 practices are only recommended for the area in the Upper Ogeechee Basin, which is predicted to have a flow regime gap at the Eden node (not meeting instream flow target). Because virtually all of the water use in the sub-basin is for agricultural irrigation (i.e., very little municipal or industrial use and no energy sector use), the Council recommended Tier 4 agricultural water conservation practices for consideration by the agricultural users in this basin.

Projected Savings from High Efficiency Plumbing Fixtures

The Council recommends the implementation of Tier 1 demand management practices and other SB 370 requirements. One significant element of SB 370 is the requirement for high efficiency toilets using 1.28 gallons per flush (gpf), instead of the currently required 1.6 gpf fixtures. EPD requires that this savings be documented in this technical memorandum and in the Regional Water Plan. The estimated water savings and revised municipal forecasts are summarized in Table 6 (also Table 6-2 in the Regional Water Plan). Region-wide, the estimated reduction in water demand and wastewater flow for the 40-year planning period is approximately 4 MGD on an annual average daily basis. The methodology used to estimate this savings is described in the draft Technical Memorandum “Municipal and Industrial Water and Wastewater Demand Forecasts” (October 2010, Jacobs).

Projected Savings from Agriculture Management Practices

The Eden Node has a projected 2050 surface water gap of 20 MGD that is primarily from agricultural demand, as there is minimal municipal and no industrial or energy surface water demand within the basin. The Savannah–Upper Ogeechee region is responsible for approximately 75 percent of the demand in the Eden node, with agricultural demand from the Altamaha, Upper Oconee, and Coastal Georgia water planning regions making up the remaining portion.

Water savings from agricultural management practices may vary widely, depending on the number and types of practices selected. In addition, available data related to water savings from agricultural management practices does not include information specific to the Savannah-Upper Ogeechee Planning Region. The data sources that are available provide statewide estimates for types of irrigation systems and potential reduction in water use resulting from upgrades to these systems. In an effort to quantify the effects of implementing agricultural management practices within the SUO Region, water use data and irrigation upgrade savings estimates were obtained from three sources:

- 1) 2005 publication *Ag Water Pumping*, authored by Dr. James Hook of the University of Georgia,
- 2) 1998 Georgia DNR, EPD and Geologic Survey publication *Irrigation Conservation Practices Appropriate for the Southeastern United States* and
- 3) 2010 data for irrigated fields and water sources by county, local drainage area, and sub-watershed located on the National Environmentally Sound Production Agriculture Laboratory (NESPAL) website.

Review of the data provided in these sources resulted in the conclusion that it was far too general in nature to be applied specifically to the SUO Region.

The predicted 2050 gap at the Eden node (20 MGD, or 30 cfs, 4% of time) is small relative to flow, amounting to 1.3% of mean annual discharge (2245 cfs) or 42% of the lowest daily mean flow since USGS records began in 1937. Given the small size of the predicted gap relative to total streamflow, and the lack of available accurate data on water savings from agricultural conservation management practices, it is important to note that the Savannah-Upper Ogeechee Council recommends that additional data on agricultural water use be collected within the region. In consideration of that fact and the very general nature of the data developed in the *Ag Water Pumping* document, the Savannah-Upper Ogeechee Council made six pertinent Management Practice recommendations that are presented in Table 6-1A of the Regional Water Plan, as follows:

- **WD3** – Evaluate/Encourage Tier 3 and Tier 4 Agricultural Water Conservation Practices (Ogeechee River Basin);
- **WD4** – Monitor Agricultural Use in the Ogeechee River (Ogeechee River Basin);
- **WS2** – Monitor Streamflow to Confirm the Frequency and Magnitude of the Predicted Gap (Ogeechee River Basin);
- **WS3** – Conduct Instream Flow Studies (Ogeechee River Basin);
- **WS4** – Increase Groundwater Supplies from the Floridan Aquifer (Ogeechee River Basin); and
- **WS5** – Decrease Surface Water Use during Low Flow Periods (Ogeechee River Basin).

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Table 1: Water Conservation Goals

Foundational Water Conservation Goals
Educate and empower Georgia's water users
Create incentives to encourage water use efficiency
Enhance data collection, monitoring, research, and evaluation
Measure water use efficiency
Plan for the future
Integrate water conservation and energy conservation
Secure funding to implement water conservation
Agricultural Irrigation
Goal #1 : Research institutions and state agencies, in cooperation with farmers, should enhance their understanding of water use and levels of efficiency of existing agricultural irrigation.
GOAL #2 : Farmers should improve the efficiency of their irrigation systems.
GOAL #3 : Farmers should consider crop varieties, cropping systems and irrigation systems to maximize the efficient use of water on farms.
GOAL #4 : Farmers should minimize water loss from farm ponds, reservoirs and other rainfall collection systems.
Golf Courses
Goal #1: Golf course superintendents or managers should develop and implement a site-specific Best Management Practices (BMPs) plan for turfgrass water conservation.
GOAL #2 : Through a cooperative effort, research institutions and golf-related associations should determine a typical water use range for golf courses in Georgia that accounts for variations in rainfall and other climatic conditions.
GOAL #3 : GCSs, GGCSA and other golf industry groups should help foster a culture of water conservation inside and outside of Georgia's golf industry.
Landscape Irrigation
GOAL #1 : Landscape and irrigation professionals and water providers should educate their customers on proper and efficient landscape water use practices.
GOAL #2 : Landscape and irrigation professionals and professional associations should establish state-wide standards for design, installation and maintenance of Georgia landscapes, landscape irrigation systems, and other systems dealing with landscape water conservation, such as rainwater catchments systems.
GOAL #3: Landscape and irrigation professionals, water providers, and local governments should help water customers reduce summer peak use.

Source: Detailed Guidance for Evaluating Practices to Manage Demands ⁴ (EPD, September 21, 2010)

Table 2: Tier 1 Recommended Water Conservation Practices for the Savannah-Upper Ogeechee Water Planning Region

(Practices addressed in statute and current or upcoming amended rules for non-farm water withdrawal permittees and drinking water providers)

T1 Practice
Applicants for non-farm water withdrawal permits or permit modifications must demonstrate progress toward water conservation goals or water efficiency standards. Water withdrawal permittees and drinking water providers must submit annual reports on non-farm water use that shall include data and information regarding implementation of water conservation plans and progress toward water conservation goals.
Drinking water providers must meet minimum standards and best practices for monitoring and improving the efficiency of public water systems, using a method developed by the International Water Association, and implement in a phased approach a water loss detection program. Providers serving over 10,000 individuals shall conduct water loss audits by March 2012, and those serving greater than 3,300 individuals by March 2013.
All multi-tenant buildings (residential, commercial, and industrial) constructed after July 1, 2012, to enable sub-metering by each tenant. This new requirement does not apply to renovations or rebuilding. The owners of the buildings shall charge for water and wastewater use by tenants and may charge for common area water and wastewater use.
All new construction permitted on or after July 1, 2012, must meet the minimum water flow and performance standards including: Water closets or toilets may not exceed 1.28 gallon per flush; Urinals (and associated flush valves) must use no more than .5 gallons per flush; Lavatory faucets (and aerators) may not exceed 1.5 gallons per minute; and Kitchen faucets (and aerators) may not exceed 2.0 gallons per minute.
Non-farm water withdrawal permittees must submit water conservation plans.
Water use for landscape related purposes is restricted between 10am and 4pm; Water use for non-landscape outdoor purposes is limited to three days a week (determined by customer address).
Public car wash facilities can be certified water efficient if employing water conservation practices.

Source: Detailed Guidance for Evaluating Practices to Manage Demands ⁴ (EPD, September 21, 2010)

Table 3: Tier 2 Recommended Water Conservation Practices for the Savannah-Upper Ogeechee Water Planning Region *(Practices outlined in the SWP, to be addressed in rules and regulations as options for non-farm water withdrawal permit applicants seeking permit expansion or modification.)*

T2 Practices - Municipal
Consider conservation-oriented rate structures and consider informative bills.
Meter all water users.
Adopt a beneficial meter calibration, repair and replacement program.
Adopt a program to collect information on water use by the largest customers.
Adopt a program to collect information on water use by the largest customers.
Support the enforcement current outdoor water use schedule as required by State laws and regulations.
Meter water reuse and report reuse as required.
Consider reuse feasibility studies.
Consider the use of grey water.
Consider programs to replace or retrofit inefficient plumbing fixtures.
Update water conservation plans on a regular basis as required.
T2 Practices - Industrial
Consider facility-specific audits.
Measure all water withdrawals.
Measure or estimate water reuse and report reuse as required.
Consider rain or moisture sensor shut-off devices for irrigation systems.
Irrigate landscapes in compliance with outdoor water use schedule.
Consider reuse feasibility studies.
Consider the use of grey water.
Update water conservation plans on a regular basis.

Source: *Detailed Guidance for Evaluating Practices to Manage Demands*⁴ (EPD, September 21, 2010)

Table 4: Tier 3 Recommended Water Conservation Practices for the Savannah-Upper Ogeechee Water Planning Region (*Basic practices that will not be addressed in rules and regulations**)

T3 Practices - Agricultural
Conduct irrigation audits.
Meter irrigation systems.
Irrigate during time with low evaporation rate.
Inspect pipes and plumbing.
Compile data on cropping and water conservation practices.
Attend Irrigation workshops.
Use rain sensors on irrigation systems.
T3 Practices - Electric Generation
Integrate water conservation into educational programs.
Integrate water supply and water conservation impacts into long-term energy plans.
T3 Practices - Golf Courses
Conduct routine site surveys and system audits.
Develop and implement a Best Management Practices (BMPs) Plan.
Maintain a water use database.
Maintain water conservation logs.
Educate staff, members, and the community about conservation.
Educate the public about golf course water use and conservation efforts.
Offer training for Course Superintendent.

T₃ Practices – Industrial
Consider regular water audits.
Practice dry methods for cleaning and dust control.
Discontinue discretionary use of water.
Consider conservation educational programs.
Determine water use efficiency metrics.
Consider cost-benefit analyses of water conservation practices.
Calculate water use intensity and establish efficiency targets.
T₃ Practices – Landscape
Adapt existing educational programs to include outdoor focus.
Offer continuing education for landscape and irrigation professionals.
Distribute information to high-use customers.
Offer homeowners checklists and certification for sustainable landscapes.
Assess outdoor water use.
Calculate peaking factor.
Distribute information about efficient outdoor water use.
Offer guidance documents for outdoor water uses.
T₃ Practices – Urban and Suburban Areas
Consider an education and outreach program for community residents.
Analyze customer water use data.
Categorize water customers by class.
Calculate average utility-specific per capita residential indoor water use.
Integrate water conservation into existing education curriculum.
Target education and outreach programs to high water users.

T3 Practices – State Agencies
Conduct regular water audits.
Meter and measure all water users.
Conduct regular cost-effectiveness or cost-benefit analysis.
Develop long-term water conservation plans.
Adopt efficiency standards adopted by the GA General Assembly.

Source: *Detailed Guidance for Evaluating Practices to Manage Demands*⁴ (EPD, September 21, 2010)

* Many of these practices are discussed in the "Handbook on Water Use and Conservation" by Amy Vickers (2001) and are described in the Resource Library for the Alliance for Water Efficiency - www.a4we.org.

Table 5: Tier 4 Recommended Water Conservation Practices for the Savannah-Upper Ogeechee Water Planning Region (*“Beyond Basic” practices that will encourage agricultural water demand management in the Ogeechee Basin to avoid potential instream flow shortage during low flow periods*)

T₄ Practices – Agricultural
Encourage Variable Rate Irrigation (VRI) controls
Encourage enhanced center pivot control panels
Encourage end-gun shutoffs with pivots
Encourage low pressure irrigation systems
Consider real-time meters on irrigation systems
Encourage conservation tillage
Control water loss
Encourage subsurface drip irrigation systems
Encourage Installation of rainfall shut-off devices

Source: *Detailed Guidance for Evaluating Practices to Manage Demands*⁴ (EPD, September 21, 2010)

Table 6: Estimated Demand Reduction from High Efficiency Plumbing Fixtures for the Savannah-Upper Ogeechee Water Planning Region

Estimated Demand Reduction (AAD-MGD) from High Efficiency Plumbing Fixtures					
	2010	2020	2030	2040	2050
Municipal Water Demand					
Initial Forecast ¹	92.3	104.9	118.5	130.7	143.1
Estimated Savings ²	0.00	0.4	1.3	2.5	4.2
Revised Forecast ²	92.3	104.5	117.2	128.2	138.9
Municipal Wastewater Generation					
Initial Forecast ¹	85.9	97.6	110.4	121.9	133.6
Estimated Savings ²	0.0	0.4	1.2	2.3	3.8
Revised Forecast ²	85.9	97.2	109.2	119.6	129.8
Notes:					
1. Based on existing plumbing fixtures using 1.6 gallons per flush (gpf).					
2. Based on replacement of existing plumbing with 1.28 gpf, as required by Water Stewardship Act (SB 370).					

Savannah-Upper Ogeechee Regional Water Plan

Summary of Comments Received During Public Comment Period That Require Council Consideration

No	Comment Author	Comment	Notes/Potential Comment Response
1	Edward Kozinsky 156 Herndon Road Waynesboro, GA 30830	The SAVANNAH UPPER OGEECHEE RECOMMENDED WATER PLAN is far too optimistic. The conclusions in section 3.2.3 that groundwater is adequate is wrong. Although the water withdrawal permit process claims to protect against 'negative impacts', the current level of groundwater usage is already impacting stream flows. Five springs have dried up within a mile of my home in Burke county. As a result there is little or no flow into the Waynesboro lake other than stormwater. Further south, near Sardis, Beaver Dam creek, which use to flow continuously from springs, is essentially stagnant in dry months. Any plan which says current usage is not in violation of the requirements is a lie. The situation appears to be rapidly deteriorating. While the plan projects modest growth in irrigation usage, the number of center pivots I see from the road has doubling in the last year. Any plan built on these lies is doomed to failure. A halt to new irrigation permits is needed and a phaseout begun to restore springs and streamflows.	No real modifications to plan required. Comment is of a general nature and is focused on EPD water permitting requirements. (this could be a well casing issue that we should discuss)
2	Georgia Farm Bureau (Zippy Duvall, President)	<p>The letter includes discussion of already existing economic incentive for conservation in business decisions (i.e., farmers don't want to buy water if they don't really need to). In addition, the issue of property rights is brought up with respect to water use (excerpt: "<u>Landowners have a reasonable right, above the rights of other citizens, to use water located on their private property.</u>"). The letter also emphasizes that the need for additional supply is just as important as conservation in meeting the water needs of Georgians. Also discussed is how expensive it is to establish groundwater systems (related to recommendations that groundwater be used rather than surface water) and that it is not a feasible solution on all properties. They support incentives and cost-share opportunities to assist farmers with voluntary transitions. Farm Bureau supports the installation of meters on agricultural wells in order to obtain data on actual water use in agricultural operations and appreciates the current cost-sharing available for conservation practices. In addition, they support the recommendation of several councils that studies be done to determine whether agriculture water use is actually 100% consumptive. Full text of comments specific to SUO are provided below:</p> <p><i>On page 7-5, the Savannah-Upper Ogeechee recommends the council will look for ways to "Develop drought management plan and implement instream flow protection measures, "and to "Incorporate drought management into new agricultural withdrawal permits. "We wonder what is meant by these statements. Farm Bureau would applaud council support for a program similar to the Flint River Drought Protection Act. Under this Act, landowners voluntarily submit bids to receive compensation from the state to forego their right to irrigate crops. Farm Bureau supports programs that provide incentives for farmers, who so choose, to temporarily suspend their rights in order to render a benefit to the general public.</i></p>	Modification to plan not necessary. Council could consider adding clarification to the referenced statements.
3	Georgia Industry Environmental Coalition (GIEC) (Gregory L. Jones, Vice Chair and Tammy R. Wyles, Chair) submitted online by Deborah Phillips	<p>The entire comment package, including attachment and figures, submitted by the Georgia Industry Environmental Coalition can be viewed at http://www.giec.org/WaterWorkgroupActivities.shtml. In summary, the GEIC is concerned about the assumptions made in the water quality modeling,</p> <p>The only comment that could be related directly to the SUO plan is one regarding the assumptions of septic tank consumptive use. They state that the 100% consumptive use assumed in development of the draft plans is not correct.</p>	<p>Most concerns need to be addressed by EPD who should provide direction to the Councils if any modifications to the plan are required.</p> <p>Little data exists on what actual septic tank return percentages are. However, because the timeframe of the streamflow gaps is during the "worst-case" scenarios of drought, return from septic tanks would be essentially nonexistent. Any water that may be returned to replenish stream flow during critical dry times of the year would likely be used by plants/evapotranspiration before it could reach the stream.</p>
4	Georgia Power	<p>Georgia Power provided comments of a general nature related to energy forecasting and water use. A summary of those comments is as follows:</p> <ul style="list-style-type: none"> - although plans recognize that statewide energy use is projected to increase from current levels through 2050, the plans do not consistently anticipate such need for water at the regional level past 2020. - plans anticipate future short-term energy production consumptive use declines due to more water efficient technology improvements, but do not recognize that competing regulatory and policy requirements may increase consumption over time - recommendation that plans include clear language stating the plans should not be used to alter the permitting standards and the EPD develop a consistent policy on this issue - plans do not fully recognize the requirement that permittees follow the water conservation and drought contingency plans they developed as part of the permitting process; concern is that 2 layers of requirements that essentially overlap will exist - recommendation that permitted rather than actual water use continue to be the basis for assessments - EPD should clarify the future role of water planning councils and how the future plans will be coordinated - EPD should ensure that plans use the same definition of key terms (i.e. gap, assimilative capacity, consumptive use) - plans should acknowledge that only Tier 1 demand management practices are mandatory at this time 	Most concerns need to be addressed by EPD who should provide direction to the Councils if any modifications to the plan are required.

No	Comment Author	Comment	Notes/Potential Comment Response
5	Georgia Water Alliance (Katie Kirkpatrick)	<p>GWA provides recommendations that are all related to general issues that EPD must address or provide guidance to the councils. These issues include use of the plan in EPD permitting, use of unimpaired flows, reconstitution of the councils, benchmark establishment, and incorporation of plans into one document. These may require potential revisions to all plans. Specifics of recommendations are below.</p> <p>1) EPD should clearly state in each regional plan the following: "This regional water development and conservation plan shall be used to guide permitting decisions by the Georgia Environmental Protection Division but should not be considered as legally binding when developing water withdrawal and discharge permits. The Division retains the legal authority to issue permits that are consistent with state law and that consider, but may not fully conform with, this regional plan."</p> <p>2) Each water resource assessment and regional water plan should contain a clear discussion on the use of unimpaired flows and the use of the assessment. This discussion should definitively state that the assessment is for general planning purposes only and is not to be used for permitting decisions.</p> <p>3) Each regional water council should be reconstituted. Each regional water plan should include an implementation strategy with funding sources identified. These sources should not rely solely on local governments but a mix of local, state, federal and private dollars. Human capital must also be assessed and immediate action items should be included.</p> <p>4) Each regional plan should establish reasonable benchmarks by which progress can be measured. The basin plans should also offer a reasonable glide path to closing all modeled gaps, over time, to assure both water quantity and water quality for downstream users.</p> <p>5) Publish a strategy for integrating the 11 regional water plans into one document. A rationale should also be developed demonstrating that the plans have met the long-term water needs of Georgia. In conclusion, Georgia must remain a competitive state and remain open for business. Perception by our peers and critics is that Georgia is out of water. These plans are a critical link to demonstrating that Georgia is taking proactive steps to ensure adequate water resources for our water future.</p>	<p>If councils are to address these comments resulting in revisions to the plans, EPD should provide direction that is consistent between councils.</p> <p>The only comment that the council may consider without EPD direction is No. 4 regarding benchmarks. The process that was followed during development of the Plan considered development of benchmarks that would be a reasonable measure of the chosen management practices.</p>
6	Georgia Water Coalition	<p>The general concerns and recommendations contained in the letter are as follows:</p> <ul style="list-style-type: none"> - including at least one public meeting solely for the purpose of presenting information, soliciting and answering public queries and accepting public comments. - clarification of the plan's legal effect by future legislation that empowers regional councils to issue binding policies - water planning that follows river basin boundaries, not geopolitical boundaries <p>Timing and Quality of Information Provided to Regional Water Councils:</p> <ul style="list-style-type: none"> - Information provided to the regional water councils was poorly organized, both as to the content of that information and the time at which it was shared with the councils. - concern that information was provided to councils too late in the game; of particular example was the thermoelectric power plants use data - concern that EPD, either directly or through its contractors, has inserted management option recommendations into regional plans that were never supported by council members - concern that only "worst-case" energy water use was utilized in process; should include other scenarios that reflect water conserving energy options - concern that only high growth population projections were included; should include a range of growth contingencies, not just the high-growth scenario - concern that municipal water forecasts improperly assume that water consumption must increase as population increases. should incorporate aggressive water efficiency in order to secure water supply for new residents, as well as to augment stream flows - concerns with the selection of the planning nodes being arbitrary - concern with use of current minimum instream flow policy without analysis for other scenarios - concern that reservoir management was assumed to provide protection from problems with adequate flows when reservoir management is driven by too many other factors to assume this to be the case - concern with groundwater modeling assumptions and results - concern that interstate considerations were not fully incorporated into plans 	<p>No modifications to the plan are necessary. Commenter charges that EPD forced particular management practices into the plans, which was not the case. If responses to public comments are compiled, response to this would be statement only and not included in the plan itself.</p>
7	NC Department of Environment & Natural Resources (Jeff Manning)	<p>Comments specifically related to SUO plan are as follows:</p> <p>* There is mention of collaboration with SC DHEC but no mention of NC DENR coordination. This is understood because of the small portion of the watersheds within NC. However, there are some impairments in the Hiwassee in NC that flow into GA, so we could work together to address these impairments.</p> <p>* There's a 2 mile impaired segment of the Little Tennessee River flowing into NC from the GA line. We would be interested in collaborating with GA to to address activities that may be contributing to these impairments.</p>	<p>Comments are of a general nature that do not require modifications to the plan; rather, they would require direct agency coordination between NCDENR and EPD.</p>

No	Comment Author	Comment	Notes/Potential Comment Response
8	Lawrence E. McSwain (Larry) 35 Glengarry Chase Covington GA 30014 770-786-3221 HOME 678-410-9728 CELL	Mr. McSwain provides comments that relate to the protection of instream flows (EPD-funded studies to develop protective instream flow policy/protect flows downstream of new reservoirs), inclusion of aggressive watershed practices (reduction of nonpoint source pollution, TMDL implementation), inclusion of conservation practices as first priority for closing gaps, ensuring reservoir site selection matches locations of need, and concern for the selection of nodes and data used for resource assessments.	No modifications to the plan are necessary. Several of the comments call on EPD for action.
9	Southern Alliance for Clean Energy (Sara Barczak, Program Director and Rita Kilpatrick, Georgia Policy Director)	<p>Most comments provided are of a general nature and not specifically related to SUO. Recommendations include revisions to the baseline energy scenario in EPD's Energy Forecasting TM and incorporation of a water-conserving scenario that incorporates energy efficiency. Specific comments related to SUO include questions about the discussion in Section 4 regarding the Public Service Commission's role in utility energy planning. In addition, the comments explain that the utility resource plans and forecasts are not made public. The specific comment is provided below for reference.</p> <p>Some of the draft regional water plans draw erroneous conclusions about state agency roles in utility energy planning that need correction. For example, the Savannah Upper-Ogeechee Water Planning Council states in its initial plan that "As part of a planning process regulated by the Georgia Public Service Commission (PSC), Georgia Power and other power companies develop energy forecasts every 3 years for a 10-year planning period as part of their integrated public resource plan. The Savannah Upper-Ogeechee Water Planning Council believes that, while the current forecast is sufficient for this planning effort, updates to the Regional Water Plans should incorporate data from future PSC public resource plans." It is not correct that the PSC regulates a planning process for other power companies beyond Georgia Power. This poses a serious informational gap in statewide energy forecasting for the state and the regional water councils. Contrary to the Savannah Upper-Ogeechee Water Planning Council's belief, no updates for the electric membership corporations (EMCs) and municipal electric companies in Georgia will be possible through PSC reviewed utility resource plans because no such oversight exists for those utilities.</p>	EPD has already provided language to clarify this for inclusion in the plan. Beyond including this language, the Council should consider it in revising the wording of the recommendation that future PSC planning updates should be used in future regional planning forecasting.
10	The Nature Conservancy – Georgia Chapter (Shelly Lakly, PhD., Executive Director)	<p>Recommendations offered by the Nature Conservancy were primarily directed to EPD and their use of the regional water plans and do not suggest any revisions to the current regional plans. These included validation of the resource assessments, stream ecology studies, revision of interim instream flow guidelines, funding of future studies based on plan recommendations. Comments that may require revisions to the plans include the following:</p> <ul style="list-style-type: none"> - All regional water planning councils should include in their plans the implementation of at least Tier 3 water conservation management practices. - All regional water planning councils should include in their plans the maximization of returning clean water to streams and rivers before constructing water supply reservoirs. - All regional water planning councils should include in their plans a specific analysis of how they followed the statewide water management plan's comprehensive water supply reservoir policy. <p>NOTE: one recommendation was for all plans to include a recommendation in the SUO plan: "Evaluate minimum instream flow and unimpaired flow assumptions in the Surface Water Availability Resource Assessment. Consider pilot site-specific instream flow studies in the "X" basin (at locations predicted to have instream flow shortage). In combination with a low flow monitoring program and an agricultural use metering program, confirm the magnitude and frequency of predicted gaps. Update Surface Water Availability and Surface Water Quality Resource Assessment models based on the results of the studies for future Regional Water Plan update."</p>	Recommendations were primarily directed to EPD policy and its use of the regional water plans, and do not suggest any revisions to the current regional plans.

No	Comment Author	Comment	Notes/Potential Comment Response
11	U.S. Department of Interior (Sandy Tucker)	<p>The recommendations contained in the letter are summarized as follows:</p> <ul style="list-style-type: none"> - that each plan be modified to clearly state that the monthly 7Q10 was used merely for planning purposes, and that minimum-allowable flows in most of Georgia's rivers and streams will be determined on a case-by-case basis, with assistance from Federal and State agencies and other interested stakeholders, to ensure protection of aquatic resources and stream habitats. Basin plans should be revised to incorporate an estimate of actual demands and shortfalls based on a local scale and flow levels that sustain water quality, quantity, instream and floodplain habitat, and the broad array of goods and services that Georgia's water bodies provide. - the councils meet with scientists (i.e., DNR - Nongame, UGA, USGS) who work in these basins to develop water management practices that will protect natural resources. - the plans clearly identify the reservoirs and how they were considered in the water supply/gap analysis; also include a calculation of water savings from conservation measures' implementation, and use this (not pre-water conservation estimates) for gap identification including timing/frequency - evaluate effects of large-scale interbasin transfer, which can significantly reduce water supply in downstream reaches of the donor basin and affect ecosystems -incorporate management practices to reduce the amount of sediment transported into drinking water reservoirs - include evaluation of the effects of upstream activities on downstream water users - include drought contingency planning and that water demands be adjusted based on occasional drought conditions. - incorporate the realities of new reservoir construction and base needs on local information rather than the coarse overview of water supply shortfalls utilized for the draft plans. If further review indicates only extra storage will meet needs, we recommend, in priority order, evaluation of (1) existing farm ponds, amenity lakes, quarries or other impoundments as a water resource for smaller, infrequent shortages; (2) expansion of existing impoundments; and, as a last resort, (3) construction of new reservoirs. - require implementation of education programs to inform the public of the need for water conservation in their communities and how they can be a part of that conservation. - all the basin plans be modified to incorporate an awareness of the interrelationship of surface water, ground water and water quality. 	<p>A majority of the comments are advocating for revisions to the plan that would either require changes to existing EPD law/rules, or major expansion of existing studies, and therefore would be more appropriate for future updates of the plan because of the time required for completion of the plans.</p> <p>No significant revisions to plan required.</p>
12	Upper Chattahoochee Riverkeeper (on behalf of several organizations, including Savannah Riverkeeper)	<p>The Upper Chattahoochee Riverkeeper provided comments that were not specific to any one plan but applied to all of them only because the comments related to the resource assessments. Major areas of comment include lack of integration among and deficiencies of the resource assessments, population projections, economic growth projections and the responsibilities of the Governor's Office of Planning and Budget.</p>	<p>No revisions to plan. Comment apply to resource assessments and population projections.</p>
13	Harris Little	<p>I continue to be concerned that all the enforcement of any rules that may be written as a result of this plan will be brought to bear on local governments, while local governments are responsible for withdrawals and discharges of water most do a great job of returning water back to the streams that is of higher quality than is in the stream. Because of this, governments that do a good job managing water and waste-water should be encouraged to use water not penalized for that use. While conservation is something that people should make a personal decision whether to do or not do, it (conservation) should not be the linchpin of our water planning. Increasing treatment capacity and doing everything possible to encourage interconnections between systems is by far the the better way to insure we all have adequate drinking water supplies.</p> <p>There needs to be more examination of exactly how much water we have compared to what we use. All uses of water, whatever they may be, are a collective drop in the bucket compared to what we have available to us. Georgia gets a huge amount of rain, even in drought years, we get in the 30 inch per year range. Let the public know this, tell them how much water we have. 99% of people have no clue.</p> <p>Further effort must be made in regards to how the Corps of Engineers manages the federal reservoirs inside and on our state borders. Drinking water and other public uses must be the first priority. Work with our legislative delegation in Washington to make these changes. We have more than enough storage of water in this state, use what we have. Building more little "buckets" (reservoirs) is a colossal waste of time and money. People need to get off this fear of transferring water where you need it. Water is just a natural resource, like wood, natural gas, and others. Nobody cares where the wood that built your house comes from, or where the natural gas you cook or heat with originates, why this concern over water. If Atlanta needs the water we have, treat it and sell it to them, they have the money and we have the water. Thank God we can't hem up the air we breathe, some folks would want to stop the wind from blowing. One last point on transfers, water transfers happen and have been happening since the earth started. You'll notice I don't call them inter-basin transfers because there is only one basin, all water flows to the oceans and all the oceans are connected. These natural water transfers are commonly called rain. Surely nobody thinks the water that falls on Georgia evaporated from Georgia?</p> <p>Lets start thinking more regionally when it comes to water supply, and I don't mean basin regionally.</p> <p>I'm thankful that these resources have been studied and concern has been placed on water supply, I hope the people involved began to realize that we have an abundant supply of water, and maybe they understand that we need more aggressive plans to use what we have and encourage interconnections and regional cooperation.</p>	<p>No revisions to plan. Comments are of a general nature.</p>

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14	Jack Gleason (Concerned Citizen)	<p>1. In the interest of procuring a real implementation of "Change" with regard to substantially IMPROVING the States otherwise negatively impacted Streams and Rivers -- this for insufficient Stormwater Management Practices implemented of Development Interests activities occurring within it over the last decade specifically -- the ACF must be designated a "Regionally Important Resource" (RIR) immediately! Otherwise dissolve the DCA as an important-fassad of State Regulatory Bureaucracy.</p> <p>2. In the interest of procuring a higher level of both Quality and Sustainability, All of the entire REGIONS "Stormwater Management Plans" need to incorporate more comprehensive protective measures taken with regard to Future Development occurring within both "Small" Water supply Watersheds and "Minor" Aquifer Recharge Zones/Groundwater Recharge Areas (ARZ/GRA) -- especially when occurring upon BOTH -- by determining prudent and enforceable (Maximum Percentage Allowable) Impervious Surface Coverage (ISC), and Maximum Allowable Percentage-Change of Water Temperature of Discharge (WTD), while very well too, increasing by at least 25% the specifications regarding "Sedimentation" and Time/Volume release of Stormwater from ALL SOURCES within those particularly Environmentally Sensitive (Water supply Watersheds and ARZ/GRA) Impact-Components.</p> <p>3. Impose strict Implementation and Enforcement (I&E) of both existing (a.) Un-disturbed Riparian Corridor Vegetative and (b.) Impervious Surface Coverage Buffers, and (c.) include protections being extended toward true "Lay-of-the-land" Ephemeral Streams specifically existing within "Small" Water supply Watersheds, ARZ/GRA, and other geological features contributive to the "Top of the Watershed".</p> <p>In consideration of both today's and Our Future "Landscape" with regard to procuring a Sustainable Water supply for the Region I strongly believe that implementation of these considerations only make Common Sense and can be implemented by the simple universal change of "Should" to "Shall" as it exists within current ordinance nomenclature.</p>	No revisions to plan. Comments apply more to current EPD regulations and local ordinance language.
15	Larry Walker (Council Member)	<p>I was a member of the Savannah Upper Ogeechee Council. I think our plan became much too technical as the process evolved. I believe that by far the most important contributions of the Council are in the Goals, and by far the most important one of those is regarding inter-basin transfers.</p> <p>No other factor, now or in the future, will or could have as much bearing on this watershed as inter-basin transfers. If nothing else is said or done regarding this effort, it should be remembered that this Council raised a flag of concern about inter-basin transfers, especially those that might be done to feed an insatiable appetite for water by a water wasting society in metro Atlanta.</p>	No revisions to plan. Comment only.
16	Michael Massey	<p>Disappointment – Plenty of good data gathering and documenting in sections 1-5 but: It is another well documented work of suggestions, guidelines and benchmarks for monitoring. I am not sure WHO or WHAT AGENCY will grab this and move forward with it. There are no strong legislative recommendations. Perhaps they have recognized that they have little strength to go forward with a hard recommendation. The final paragraph on page 8-5 says it all: The Council requests to form a permanent Savannah and Ogeechee water planning organization as the conduit for bringing together all stakeholders and assisting the State with implementation of water resource goals in the entire basin. One third of the current Water Planning Council will be grandfathered on the permanent organization. The discussions on this new organization are in the very initial stage. The Council recommends that any plan amendments be reviewed and approved by EPD until a future organization is formed. Any meetings conducted to review and approve future plan amendments should invite stakeholders and allow for general public input.</p> <p>MY REVIEW: It certainly does little to provide a feeling that there will be major accomplishments resulting from this list of proposals. This is a disappointing end (at this point) for a lot of hard work. Little accomplishments in the pipeline.</p>	No revisions to plan. Comment only.
17	Sam Booher	<p>Mr. Booher states he attended all of the Regional meeting and several Joint Regional meetings since 2008 and was pleased with his experience. One of his concerns is that the planned energy projects were not mentioned in the plans and/or considered in the assessments and could therefore make the results irrelevant. In addition, he is concerned that water conservation measures and interbasin transfers were not included in the recommendations to the state in the plan.</p> <p>Mr. Booher recommends that Buford Dam be raised, that Georgia must not implement water management plans that impact downstream communities of future economic growth through Interbasin Transfers, that future Regional Councils need upfront information from Southern Company on specific locations, size, and planned water consumption of future power plants being considered and that Georgia should focus on aggressive water conservation measures which will provide water at a cost less than the expensive options currently being considered.</p>	No revisions to plan. Comments are of a general nature and most apply to future plan updates.