Georgia Water Planning

Middle Chattahoochee Regional Water Council

Meeting Agenda – August 11, 2020, 2:00 pm

Video Conference Meeting

Meeting Objective:

To have a follow-up discussion on the Council's submitted comments on a proposed amendment to the Metropolitan North Georgia Water Planning District Water Resources Plan concerning Coweta Water and Sewerage Authority

2:00 pm – 2:10 pm	Welcome, Introductions, and Meeting Overview – Steve Davis (Chair), Kristin Rowles (GWPPC)
2:10 pm – 2:40 pm	Discussion of the Council's Comments with Danny Johnson (Metropolitan North Georgia Water Planning District)
2:40 pm – 2:50 pm	Public Comment
2:50 pm – 3:00pm	Next Steps/Meeting Adjournment

Times are approximate.

Please note that Public Comment period may occur earlier or later depending on the amount of time needed for Council discussion. For information about the meeting – including how to access the meeting and receive meeting materials – please contact Kristin Rowles at krowles@h2opolicycenter.org

Georgia Water Planning

Middle Chattahoochee Regional Water Council

May 13, 2020

Chairperson Charlotte Nash
Metropolitan North Georgia Water Planning District
Water Resource Management Plans
229 Peachtree Street N.E.
Atlanta, Georgia 30303
comments@northgeorgiawater.com

Dear Ms. Nash:

The Middle Chattahoochee Regional Water Council (the Council) appreciates the opportunity to review the proposed amendment regarding Coweta County Water and Sewerage Authority to the District's Water Resource Management Plan. I am submitting this letter to you on behalf of the Council during the public comment period on this proposed amendment. The Council held a called virtual meeting to review and approve this letter on May 13.

Regarding the proposed amendment, the Council submits the following comments:

- The projections for wastewater treatment by septic tanks across the planning period appears quite low relative to the experience of neighboring counties, some of which are a part of our water planning region. What is the basis for this projection? One of the high priority management practices in the Middle Chattahoochee Regional Water Plan is focused on the importance of wastewater returns:

  > ***Management Practice WW-1:*** *Encourage use of point source discharges for wastewater treatment effluent disposal for major facilities*

- The Council is concerned about the return of water to the Chattahoochee River and the larger ACF System to support downstream water uses and flows. We encourage the Metro Water District Board to address the need for wastewater infrastructure planning as well as water infrastructure planning in Coweta County as it considers this amendment. Achieving high return rates is a key to sustainability, particularly when the resource is stressed. In areas of more intense development, we recommend that the County require centralized wastewater treatment for new development.

- The projected future per capita water use rate of 60 gpcd seems quite low. It assumes a linear extrapolation of a projected decline of 18.4% over 20 to 25 years to a 50-year

period. However, additional reductions are likely to become more difficult to attain over time. Is a linear assumption valid? If the future water use rates are higher than projected, what will the impacts be to the Chattahoochee river withdrawal by the Coweta County Water and Sewerage Authority?

Over the past several years, the Metro Water District and the Council have increased coordination in regional water planning, and we applaud this joint effort and commitment to working together. We have greatly appreciated the efforts of the District, and Danny Johnson in particular, to coordinate with our Council.

I hope you will address the Council's comments as you consider the proposed plan amendment. If you have any questions about the Council's comments, please contact me. The Middle Chattahoochee Regional Water Council thanks you for your consideration, and we look forward to our continued work together to protect and sustain the water resources of this state.

Sincerely,

Steve Davis, Chair
Middle Chattahoochee Regional Water Council

Metropolitan North Georgia Water Planning District
International Tower | 229 Peachtree St., NE | Suite 100 | Atlanta, GA 30303

Amendment Request Submitted by: Coweta County Water and Sewerage Authority

The Metropolitan North Georgia Water Planning District (the District) received a request from the Coweta County Water and Sewerage Authority (CCWSA) on November 26, 2019 to modify the Water Resource Management Plan.

General Description: CCWSA requests that Appendix B, Coweta County - Water be revised to include an expanded water supply capacity from the Chattahoochee River and the BT Brown Reservoir, an increased capacity for the BT Brown Water Treatment Plant, and a reduction in future water supply needs from Fulton County sources to Coweta County. Additional amendment background and details are provided in the attached letter from CCWSA dated April 9, 2020.

Amendment Categorization: The District's Executive Committee categorized the amendment request as a "major amendment" subject to a 30-day public comment period on December 4, 2019 because the modification to the plan is local in nature but may be objected to by other parties.

Key Points:

- The proposed Chattahoochee River withdrawal was included in the 2017 Water Resource Management Plan, Appendix B – Coweta Water, as a contemplated 10 MGD peak day withdrawal.
- Since 2017, planning and sizing efforts have been completed to determine the potential safe yield of the BT Brown Reservoir given an additional future source supplied from the Chattahoochee River. The proposed amendment reflects the results of those efforts.
- The water supply concept includes a new withdrawal from the Chattahoochee River to fill the existing BT Brown Reservoir, which currently receives inflow from Alexander Creek and pumped inflow from Cedar Creek. The BT Brown Water Treatment Plant would be expanded to withdraw and treat more water from the reservoir to meet the potable water demand in the distribution system. The pumping capacities for the Chattahoochee River and BT Brown Reservoir listed in the Appendix B – Coweta Water, Summary of Planned Sources are complementary and are not additive.
- Because the Chattahoochee River withdrawal pump station will be constructed to accommodate long-term withdrawal needs, CCWSA projected pump capacity needs through 2070 in their amendment request letter. Interim pumping capacities from

the Chattahoochee River and BT Brown Reservoir will be established based on the near-term water supply need approved by Georgia EPD.

- The existing Appendix B - Coweta Water includes 2025 and 2050 water supply needs from Fulton County of 5 MGD and 10 MGD Peak Day, respectively. CCWSA currently has no long-term contract for these flow rates which would come from an interconnection with the City of Atlanta. The planned Coweta County withdrawal would offset this need. Therefore, these future needs for Coweta County from the City of Atlanta (shown as Fulton County) are removed from Appendix B – Fulton Water, Summary of Needs. Additionally, a math error in the Appendix B – Fulton, Summary of Needs table is corrected.
- Given that both sources would come from the Chattahoochee River, there is no net change in long-term planned needs from the river basin.
- The Appendix B – Coweta Wastewater tables are proposed to be modified with this amendment. Coweta 12 Parks WPCP was previously placed in the Chattahoochee Basin in the Phasing Plan but done so in error. The Coweta 12 Parks WPCP is within the Flint Basin, and this adjustment has been made to accurately reflect its facility basin.

Proposed Changes to Appendix B

1) Appendix B – Coweta Water

2) Appendix B – Fulton Water

3) Appendix B – Coweta Wastewater

Current Version

Coweta County - Water

Summary of Planned Sources

Source	Local Water Provider	Current Permitted Withdrawal Monthly Average (MGD)	Planned 2050 Withdrawal (MGD)	
			Monthly (Note 1)	Peak Day
B.T. Brown Reservoir	CCWSA	6.7	7.5	10.0
Chattahoochee River	CCWSA	0	7.5	10.0
J.T. Haynes Reservoir	Newnan	14.0	14.0	18.6
Sandy Brown Creek	Newnan	Fill J.T. Haynes Reservoir only		
White Oak Creek (Flint River)	Newnan			
Line Creek (Flint River)	Newnan			
Hutchins' Lake (Keg Creek)	Senoia	0.3	0.34	0.45
Crystalline Rock Aquifer	CCWSA	0.504	0.504	0.504
Crystalline Rock Aquifer	Senoia	0.233	0.233	0.233
Total Withdrawal (MGD)		**21.7**	**30.0**	**39.8**

Notes:
(1) Monthly average day is 1.2 times annual average day.

Summary of Needs

Water Demands & Capacities	2025 Peak Day (Note 2) (PD–MGD)		2050 Peak Day (Note 2) (PD–MGD)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Coweta County Needs	27.8	25.6	38.0	37.6
Self Supplied	-1.8	-1.8	-1.4	-1.4
From Fulton County (Note 3)	-5.0		-10.0	
From Griffin's Still Branch Reservoir (Note 4)	-5.0		0.0	
Total Projected Demand from Facilities (PD-MGD)	**16.0**	**13.8**	**26.6**	**26.2**
Treatment Capacity (Note 5)	25.2		39.8	
Total Projected Demand from Facilities (AAD-MGD)	**Scenario 1 2025 (AAD-MGD)**	**Scenario 2 2025 (AAD-MGD)**	**Scenario 1 2050 (AAD-MGD)**	**Scenario 2 2050 (AAD-MGD)**
	10.0	8.7	16.6	16.4

Notes:
(2) Peak day is 1.6 times annual average day.
(3) Coweta County Water and Sewer Authority (CCWSA) is seeking a permit from Georgia EPD to have a direct withdrawal from the Chattahoochee River. If that water withdrawal is permitted and constructed, CCWSA would no longer purchase from the City of Atlanta. In either scenario, total withdrawals from the Chattahoochee will not be affected.
(4) The Still Branch Creek Reservoir is located outside of the District and is owned by the City of Griffin in Spalding County. The reservoir serves Pike and Spalding Counties as well as Coweta County. Coweta County has a purchase contract for 3.0 PDD-MGD of finished water (2008) from the City of Griffin which increases to 5.0 PDD-MGD on July 1, 2022.
(5) Scenario 1 is being used for the phasing plan below.

Phasing Plan

Facilities (Note 6)	Existing (2016) Permitted Plant Capacity (PD-MGD)	By 2025 Plant Capacity at End of Period (PD-MGD)	By 2050 Plant Capacity at End of Period (PD-MGD)
Chattahoochee Basin			
Coweta B.T. Brown WTP	6.4	10.0	20.0
Chattahoochee/Flint Basins			
Newnan Hershall Norred WTP	14.0	14.0	18.6
Flint Basin			
Senoia WTP (Note 7)	0.45	0.45	0.45
Groundwater			
Coweta County	0.504	0.504	0.504
Senoia	0.233	0.233	0.233
Total Capacity (PD-MGD)	**21.6**	**25.2**	**39.8**

Notes:
(6) The schedule shown above is intended to be a general guideline to identify general expansion needs. Expansion capacity may be required sooner or later than indicated depending on local population and employment growth, water service extensions and other planning variables. Specific conditions for withdrawal and operation permits will be determined by Georgia EPD.
(7) The City of Senoia has a withdrawal permit with a monthly limit of 0.3 MGD from Hutchin's Lake and a WTP with a total capacity of 0.45 MGD-PD. The City will need to increase their water withdrawal permit in order to fully utilize the plant capacity.

Capital Projects

The B.T. Brown WTP should be expanded to 20 PDD-MGD to fully utilize the yield of B.T. Brown Reservoir.
A water intake pump station and force main to convey water from the Chattahoochee River to the B.T. Brown Reservoir

Non-Capital Programs

The following non-capital programs are specific to Coweta County. These programs are in addition to those that apply to all counties within the Metro Water District.
Maintain interconnections and water supply agreements with City of Atlanta and City of Griffin.

Coweta County - Water

Draft Amendment
4/15/2020

Summary of Planned Sources

Source	Local Water Provider	Current Permitted Withdrawal Monthly Average (MGD)	Planned 2050 Withdrawal (MGD)	
			Monthly (Note 1)	Peak Day
B.T. Brown Reservoir (Note 9, 10, 11)	CCWSA	6.7	22.1	26.9
Chattahoochee River to BT Brown Res. (Note 2, 11)	CCWSA	0	21.3	21.3
J.T. Haynes Reservoir	Newnan	14.0	14.0	18.6
Sandy Brown Creek	Newnan	Fill J.T. Haynes Reservoir only		
White Oak Creek (Flint River)	Newnan			
Line Creek (Flint River)	Newnan			
Hutchins' Lake (Keg Creek)	Senoia	0.3	0.34	0.45
Crystalline Rock Aquifer	CCWSA	0.504	0.504	0.504
Crystalline Rock Aquifer	Senoia	0.233	0.233	0.233
Total Withdrawal (MGD)		**21.7**	**37.1**	**46.7**

Notes:
(1) Monthly average day is 1.2 times annual average day.
(2) The Chattahoochee River pump rate of 21.3 MGD for 2050 is required to help fill the BT Brown Reservoir. This withdrawal is not additive and is thus not included in the Total Withdrawal for Coweta County.

Summary of Needs

Water Demands & Capacities	2025 Peak Day (Note 3) (PD–MGD)		2050 Peak Day (Note 3) (PD–MGD)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Coweta County Needs	27.8	25.6	38.0	37.6
Self Supplied	-1.8	-1.8	-1.4	-1.4
From Fulton County (Note 4)	0.0		0.0	
From Griffin's Still Branch Reservoir (Note 5)	-5.0		0.0	
Total Projected Demand from Facilities (PD-MGD)	**21.0**	**18.8**	**36.6**	**36.2**
Treatment Capacity (Note 6)	32.7		46.7	
Total Projected Demand from Facilities (AAD-MGD)	Scenario 1 2025 (AAD-MGD)	Scenario 2 2025 (AAD-MGD)	Scenario 1 2050 (AAD-MGD)	Scenario 2 2050 (AAD-MGD)
	13.1	11.8	22.9	22.6

Notes:
(3) Peak day is 1.6 times annual average day.
(4) Coweta County Water and Sewer Authority (CCWSA) is seeking a permit from Georgia EPD to have a direct withdrawal from the Chattahoochee River. If that water withdrawal is permitted and constructed, CCWSA would no longer purchase from the City of Atlanta. In either scenario, total withdrawals from the Chattahoochee will not be affected. In the event that a withdrawal permit is obtained, the connection with the City of Atlanta will be maintained for emergency service.
(5) The Still Branch Creek Reservoir is located outside of the District and is owned by the City of Griffin in Spalding County. The reservoir serves Pike and Spalding Counties as well as Coweta County. Coweta County has a purchase contract for 3.0 PDD-MGD of finished water (2008) from the City of Griffin which increases to 5.0 PDD-MGD on July 1, 2022.
(6) Scenario 1 is being used for the phasing plan below.

Phasing Plan

Facilities (Note 7)	Existing (2016) Permitted Plant Capacity (PD-MGD)	By 2025 Plant Capacity at End of Period (PD-MGD)	By 2050 Plant Capacity at End of Period (PD-MGD)
Chattahoochee Basin			
Coweta B.T. Brown WTP	6.4	17.5	26.9
Chattahoochee/Flint Basins			
Newnan Hershall Norred WTP	14.0	14.0	18.6
Flint Basin			
Senoia WTP (Note 8)	0.45	0.45	0.45
Groundwater			
Coweta County	0.504	0.504	0.504
Senoia	0.233	0.233	0.233
Total Capacity (PD-MGD)	**21.6**	**32.7**	**46.7**

Notes:
(7) The schedule shown above is intended to be a general guideline to identify general expansion needs. Expansion capacity may be required sooner or later than indicated depending on local population and employment growth, water service extensions and other planning variables. Specific conditions for withdrawal and operation permits will be determined by Georgia EPD.
(8) The City of Senoia has a withdrawal permit with a monthly limit of 0.3 MGD from Hutchin's Lake and a WTP with a total capacity of 0.45 MGD-PD. The City will need to increase their water withdrawal permit in order to fully utilize the plant capacity.

(9) The BT Brown Reservoir and pumping system will be capable of providing 26.9 MGD at 2050. The intake in the Chattahoochee River will have the capacity to pump at a peak rate of 21.3 MGD at 2050. The buildout capacity will be constructed in phases as demands increase."

(10) The withdrawal from the Chattahoochee River is to be pumped into BT Brown Reservoir for storage prior to treatment. The withdrawal from BT Brown Reservoir is taking water previously removed from the Chattahoochee River for treatment.

(11) The withdrawals from the Chattahoochee River and BT Brown are to serve as a replacement for an existing water source from a small tributary of the Chattahoochee River, which has proven its inability as a resilient water source in most recent droughts of record. This proposed Chattahoochee River withdrawal will allow the Authority to supply demands previously served by outside water providers and increase the resilience of its water supply.

Capital Projects

The B.T. Brown WTP should be expanded to 26.9 PDD-MGD by 2050 to fully utilize the yield of B.T. Brown Reservoir.

A water intake pump station and force main to convey water from the Chattahoochee River to the B.T. Brown Reservoir shall be constructed to carry 21.3 MGD by year 2050. The buildout will be conpleted in phases.

Non-Capital Programs

The following non-capital programs are specific to Coweta County. These programs are in addition to those that apply to all counties within the Metro Water District.

Maintain interconnections ~~and water supply agreements~~ with City of Atlanta and City of Griffin.

Fulton County - Water

Current Version

Summary of Planned Sources

Source	Local Water Provider	Current Permitted Withdrawal Monthly Average (MGD)	Planned 2050 Withdrawal (MGD)	
			Monthly (Note 1)	Peak Day
Chattahoochee River	Atlanta/Fulton	90.0	105.0	140.0
	Atlanta	180.0	180.0	240.0
Big Creek	Roswell	2.8	3.8	5.0
Sweetwater Creek	East Point	11.5	11.6	15.5
Cedar Creek Reservoirs	Palmetto	0.45	0.45	0.6
Crystalline Rock Aquifer	College Park	0.167	0.1670	0.1670
Crystalline Rock Aquifer	Roswell	0.167	0.1670	0.1670
Total Withdrawal (MGD)		**285.1**	**301.2**	**401.4**

Notes:
(1) Monthly average day is 1.2 times annual average day.
(2) The Bear Creek Reservoir is currently planned by the proposed South Fulton Municipal Regional Water and Sewer Authority, with an estimated yield of 16.44 AAD-MGD. It would withdraw from the Chattahoochee River below Peachtree Creek. If constructed, it would supplement and offset water supply needs for Fulton County.

Summary of Needs

Water Demands & Capacities	2025 Peak Day (Note 3) (PD–MGD)		2050 Peak Day (Note 3) (PD–MGD)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Fulton County Needs (Note 4)	248.5	266.2	298.2	363.9
Self Supplied	-1.21	-1.21	-1.01	-1.01
To Coweta County	5.00		10.0	
Total Projected Demand from Facilities (PD-MGD)	**252.3**	**270.0**	**307.2**	**372.9**
Treatment Capacity (Note 5)	309.2		401.4	
Total Projected Demand from Facilities (AAD-MGD)	**Scenario 1 2025 (AAD-MGD)**	**Scenario 2 2025 (AAD-MGD)**	**Scenario 1 2050 (AAD-MGD)**	**Scenario 2 2050 (AAD-MGD)**
Notes:	155.3	166.4	186.4	227.4

(3) Peak day is 1.6 times annual average day.
(4) Demand and capacity are based on the combined total demand and capacity for Futon County as a whole. No attempt was made to analyze demand by individual service provider within Fulton County or to consider existing service areas and previous bonding commitments associated with the development of the existing infrastructure.
(5) Scenario 2 is being used for the phasing plan below.

Phasing Plan

Facilities (Note 6)	Existing (2016) Permitted Plant Capacity (PD-MGD)	By 2025 Plant Capacity at End of Period (PD-MGD)	By 2050 Plant Capacity at End of Period (PD-MGD)
Chattahoochee Basin			
Atlanta-Fulton County WTP	90.0	90.0	140.0
Atlanta Hemphill WTP	136.5	136.5	240.0
Atlanta Chattahoochee WTP	64.9	64.9	
Roswell Cecil Wood WTP (Note 7)	3.0	3.0	5.0
East Point WTP	13.9	13.9	15.5
Palmetto WTP	0.6	0.6	0.6
Groundwater			
Roswell	0.167	0.167	0.167
College Park	0.167	0.167	0.167
Total Capacity (PD-MGD)	**309.2**	**309.2**	**401.4**

Notes:
(6) The schedule shown above is intended to be a general guideline to identify general expansion needs. Expansion capacity may be required sooner or later than indicated depending on local population and employment growth, water service extensions and other planning variables. Specific conditions for withdrawal and operation permits will be determined by Georgia EPD.
(7) City of Roswell WTP expansion includes additional yield from Big Creek, offline storage, and augmenting supply with groundwater.

Capital Projects

Future expansion should be concentrated at the Atlanta-Fulton County WTP because the intake is located at an upstream location and has an off-line reservoir that improves its reliability.
The City of Atlanta should provide 10 PDD-MGD of water to Coweta County.
The infrastructure to provide water to Fayette and Clayton Counties on a peak emergency basis should be maintained and expanded as necessary.

Non-Capital Programs

The following non-capital programs are specific to Fulton County. These programs are in addition to those that apply to all counties within the Metro Water District.
Maintain interconnections and water supply agreements with Clayton, Fayette, Coweta, DeKalb, Cobb, Forsyth, and Gwinnett Counties.
Evaluate required improvements to accommodate routine sale of 10 PDD-MGD to Coweta County.

Fulton County - Water

Draft Amendment
15-Apr-20

Summary of Planned Sources

Source	Local Water Provider	Current Permitted Withdrawal Monthly Average (MGD)	Planned 2050 Withdrawal (MGD)	
			Monthly (Note 1)	Peak Day
Chattahoochee River	Atlanta/Fulton	90.0	105.0	140.0
	Atlanta	180.0	180.0	240.0
Big Creek	Roswell	2.8	3.8	5.0
Sweetwater Creek	East Point	11.5	11.6	15.5
Cedar Creek Reservoirs	Palmetto	0.45	0.45	0.6
Crystalline Rock Aquifer	College Park	0.167	0.1670	0.1670
Crystalline Rock Aquifer	Roswell	0.167	0.1670	0.1670
Total Withdrawal (MGD)		**285.1**	**301.2**	**401.4**

Notes:
(1) Monthly average day is 1.2 times annual average day.
(2) The Bear Creek Reservoir is currently planned by the proposed South Fulton Municipal Regional Water and Sewer Authority, with an estimated yield of 16.44 AAD-MGD. It would withdraw from the Chattahoochee River below Peachtree Creek. If constructed, it would supplement and offset water supply needs for Fulton County.

Summary of Needs

Water Demands & Capacities	2025 Peak Day (Note 3) (PD–MGD)		2050 Peak Day (Note 3) (PD–MGD)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Fulton County Needs (Note 4)	248.5	266.2	298.2	363.9
Self Supplied	-1.21	-1.21	-1.01	-1.01
~~To Coweta County~~	~~5.00~~		~~10.0~~	
Total Projected Demand from Facilities (PD-MGD)	**247.3**	**265.0**	**297.2**	**362.9**
Treatment Capacity (Note 5)	309.2		401.4	
Total Projected Demand from Facilities (AAD-MGD)	**Scenario 1 2025 (AAD-MGD)**	**Scenario 2 2025 (AAD-MGD)**	**Scenario 1 2050 (AAD-MGD)**	**Scenario 2 2050 (AAD-MGD)**
Notes:	154.6	165.6	185.8	226.8

(3) Peak day is 1.6 times annual average day.
(4) Demand and capacity are based on the combined total demand and capacity for Futon County as a whole. No attempt was made to analyze demand by individual service provider within Fulton County or to consider existing service areas and previous bonding commitments associated with the development of the existing infrastructure.
(5) Scenario 2 is being used for the phasing plan below.

Phasing Plan

Facilities (Note 6)	Existing (2016) Permitted Plant Capacity (PD-MGD)	By 2025 Plant Capacity at End of Period (PD-MGD)	By 2050 Plant Capacity at End of Period (PD-MGD)
Chattahoochee Basin			
Atlanta-Fulton County WTP	90.0	90.0	140.0
Atlanta Hemphill WTP	136.5	136.5	240.0
Atlanta Chattahoochee WTP	64.9	64.9	
Roswell Cecil Wood WTP (Note 7)	3.0	3.0	5.0
East Point WTP	13.9	13.9	15.5
Palmetto WTP	0.6	0.6	0.6
Groundwater			
Roswell	0.167	0.167	0.167
College Park	0.167	0.167	0.167
Total Capacity (PD-MGD)	**309.2**	**309.2**	**401.4**

Notes:
(6) The schedule shown above is intended to be a general guideline to identify general expansion needs. Expansion capacity may be required sooner or later than indicated depending on local population and employment growth, water service extensions and other planning variables. Specific conditions for withdrawal and operation permits will be determined by Georgia EPD.
(7) City of Roswell WTP expansion includes additional yield from Big Creek, offline storage, and augmenting supply with groundwater.

Capital Projects

Future expansion should be concentrated at the Atlanta-Fulton County WTP because the intake is located at an upstream location and has an off-line reservoir that improves its reliability.
~~The City of Atlanta should provide 10 PDD-MGD of water to Coweta County.~~
The infrastructure to provide water to Fayette and Clayton Counties on a peak emergency basis should be maintained and expanded as necessary.

Non-Capital Programs

The following non-capital programs are specific to Fulton County. These programs are in addition to those that apply to all counties within the Metro Water District.
Maintain interconnections ~~and water supply agreements~~ with Clayton, Fayette, Coweta, DeKalb, Cobb, Forsyth, and Gwinnett Counties.
~~Evaluate required improvements to accommodate routine sale of 10 PDD-MGD to Coweta County.~~

Coweta County - Wastewater

Current Version

Summary of Needs

Wastewater Flows & Capacities	2025 Maximum Month Average Daily Flow (MMF–MGD)		2050 Maximum Month Average Daily Flow (MMF–MGD)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Coweta County Sewered Needs	9.2	8.4	13.5	13.4
Total Projected Sewered Flow to Plants	**9.2**	**8.4**	**13.5**	**13.4**
Septic Flows (AAD-MGD)	5.0	4.7	6.5	6.4

Capital Projects

Additional capacity will be provided by expanding the existing Coweta County and Newnan facilities and by the construction of new Coweta County, Grantville, Senoia, and Sharpsburg facilities. If opportunities become available, the following options may be exercised:

Option for Senoia to decommission the current LAS and send flow to future facilities.

Explore opportunities for beneficial effluent reuse with permits for wet weather discharge.

Basin Considerations

Coweta Shenandoah WPCP, Senoia LAS and the proposed Sharpsburg and Senoia WPCPs are located in the Flint Basin. All other Coweta facilities are located in the Chattahoochee Basin.

Phasing Plan

Facilities (Notes 1, 2, 3)	Existing (2016)	By 2025	By 2050
	Permitted Plant Capacity (MMF-MGD)	Plant Capacity at End of Period (MMF-MGD)	Plant Capacity at End of Period (MMF-MGD)
Chattahoochee Basin			
Coweta Arnco WPCP	0.1	3.76	7.6
Coweta Arnall/Sargent WPCP	0.06		
Coweta Decentralized Systems			
Coweta Bridgeport WPCP			
Coweta 12 Parks WPCP			
Grantville Colley Street LAS (Note 6)	0.15	0.78	0.78
Grantville Ponds (Notes 5, 6)	0.13		
Grantville Yellow Jacket Creek WPCP (Notes 5, 6)			
Grantville New River WPCP (Notes 5, 6)			
Newnan Mineral Springs WPCP	0.75	6.5	10
Newnan Wahoo Creek WPCP	3		
Flint Basin			
Senoia LAS (Note 6)	0.49	3.3	7.5
Sharpsburg WPCP (Notes 4, 6)			
Senoia Southeast WPCP (Note 6)			
Coweta Shenandoah WPCP	2	4	6
Total Capacity (MMF-MGD)	**6.7**	**18.3**	**31.9**
Sewered Needs (Note 7)		**9.2**	**13.5**

Notes:

1) The schedule shown is intended to be a general guideline to identify general capacity needs. While the expansion capacities are intended to be in operation before the end of the period shown, exact timing of expansions should be determined by local wastewater master plans.

2) Max Month Flow (MMF) is 1.25 times the Average Annual Daily Flow (AAD).

3) When applying to Georgia EPD for wasteload allocations or wastewater discharge permits, individual jurisdictions are responsible for documenting that the request is consistent with this plan and that the plant capacities specified above are not exceeded.

4) Sharpsburg WPCP is expected to have an initial capacity of 0.3 MGD by 2025. 0.15 MGD will be to LAS; an additional 0.15 MGD will either be to the LAS or new point source discharge.

5) Benefits of decommissioning these facilities will be investigated in the 2016 to 2025 time period.

6) Proposed capacity is to be shared between these facilities as determined by joint local wastewater master planning.

7) The higher of Scenario 1 and Scenario 2 sewered flow forecasts is depicted.

Non-Capital Programs

The following non-capital programs are specific to Coweta County. These programs are in addition to those that apply to all counties within the Metro Water District.

- Undertake a joint planning study comprised of the county and local cities to develop a comprehensive, strategic plan for managing wastewater. The study should determine how to best utilize existing and proposed city and county treatment facilities to serve the whole area.
- Develop multi-jurisdiction agreements among the county and cities, as needed.
- Develop multi-jurisdictional agreements between the county, City of Senoia, Fayette County and Peachtree City, as needed, for regional plan.
- Develop options for large industrial sites to be served by the County in the future.

Coweta County - Wastewater

Draft Amendment
15-Apr-20

Summary of Needs

Wastewater Flows & Capacities	2025 Maximum Month Average Daily Flow (MMF–MGD)		2050 Maximum Month Average Daily Flow (MMF–MGD)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Coweta County Sewered Needs	9.2	8.4	13.5	13.4
Total Projected Sewered Flow to Plants	**9.2**	**8.4**	**13.5**	**13.4**
Septic Flows (AAD-MGD)	5.0	4.7	6.5	6.4

Capital Projects

Additional capacity will be provided by expanding the existing Coweta County and Newnan facilities and by the construction of new Coweta County, Grantville, Senoia, and Sharpsburg facilities. If opportunities become available, the following options may be exercised:
Option for Senoia to decommission the current LAS and send flow to future facilities.

Explore opportunities for beneficial effluent reuse with permits for wet weather discharge.

Basin Considerations

Coweta Shenandoah WPCP, Senoia LAS and the proposed Sharpsburg and Senoia WPCPs are located in the Flint Basin. All other Coweta facilities are located in the Chattahoochee Basin.

Phasing Plan

Facilities (Notes 1, 2, 3)	Existing (2016)	By 2025	By 2050
	Permitted Plant Capacity (MMF-MGD)	Plant Capacity at End of Period (MMF-MGD)	Plant Capacity at End of Period (MMF-MGD)
Chattahoochee Basin			
Coweta Arnco WPCP	0.1	3.76	7.6
Coweta Arnall/Sargent WPCP	0.06		
Coweta Decentralized Systems			
Coweta Bridgeport WPCP			
~~Coweta 12 Parks WPCP~~			
Grantville Colley Street LAS (Note 6)	0.15	0.78	0.78
Grantville Ponds (Notes 5, 6)	0.12		
Grantville Yellow Jacket Creek WPCP (Notes 5, 6)			
Grantville New River WPCP (Notes 5, 6)			
Newnan Mineral Springs WPCP	0.75	6.5	10
Newnan Wahoo Creek WPCP	3		
Flint Basin			
Senoia LAS (Note 6)	0.49	3.3	7.5
Sharpsburg WPCP (Notes 4, 6)			
Senoia Southeast WPCP (Note 6)			
Coweta Crossroads LAS	0.23	4	6
Coweta Shenandoah WPCP	2		
Coweta 12 Parks WPCP			
Total Capacity (MMF-MGD)	**6.9**	**18.3**	**31.9**
Sewered Needs (Note 7)		**9.2**	**13.5**

Notes:

1) The schedule shown is intended to be a general guideline to identify general capacity needs. While the expansion capacities are intended to be in operation before the end of the period shown, exact timing of expansions should be determined by local wastewater master plans.

2) Maximum Month Average Daily Flow (MMF) is 1.25 times the Average Annual Daily Flow (AAD).

3) When applying to Georgia EPD for wasteload allocations or wastewater discharge permits, individual jurisdictions are responsible for documenting that the request is consistent with this plan and that the plant capacities specified above are not exceeded unless such exceedance has been approved through the Metro Water District's plan amendment.

4) Sharpsburg WPCP is expected to have an initial capacity of 0.3 MGD by 2025. 0.15 MGD will be to LAS; an additional 0.15 MGD will either be to the LAS or new point source discharge.

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- Develop options for large industrial sites to be served by the County in the future.

Amendment Request Letter from Integrated Science & Engineering on behalf of Coweta County Water & Sewerage Authority

INTEGRATED Science & Engineering

April 9, 2020

Katherine Zitsch
Director
Metropolitan North Georgia Water Planning District
229 Peachtree Street
Atlanta, GA 30303

Re: Coweta County Long Term Water Supply - MNGWPD Plan Amendment Request

Dear Ms. Zitsch:

Integrated Science and Engineering (ISE) respectfully submits this letter on behalf of Coweta County Water and Sewerage Authority (Authority) to formally request an amendment to the Metropolitan North Georgia Water Planning District Water Resource Management Plan (District Plan) adopted in June 2017.

Background and Summary

The Authority is requesting an amendment to the 2017 District Plan and its Appendices to indicate a 2050 planned monthly and peak day withdrawal from the Chattahoochee River of 21.3 Million Gallons per Day (MGD). The withdrawal is currently shown in Appendix B at 10 MGD peak day and 7.5 MGD monthly for the year 2050 for Coweta County. The amount currently shown is in addition to other sources that will be discontinued over the next 20 years as part of this amendment request. A 50 year planning effort is underway by the Authority and among the objectives are 1) for the Authority to provide for Coweta County's own water supply needs and 2) to achieve resiliency in drought conditions from its supply sources.

As a supplement to its own sources, the Authority currently purchases finished water from Newnan Utilities and the City of Griffin. These two sources, amounting to a maximum of 11.5 MGD by 2022 will become emergency interconnections only by 2039. Additionally, a permitted withdrawal of 4.9 MGD from a small tributary of the Chattahoochee River named Cedar Creek, has proven over the years to be unreliable in drought conditions and will be discontinued in favor of the proposed main stem withdrawal from the Chattahoochee River. The 50-year planning effort by the Authority indicates an anticipated withdrawal of 47.4 MGD by the year 2070. We estimate that the proposed main stem withdrawal from the Chattahoochee River will be implemented in approximately 3 to 4 phases over 50 years. The phasing plan will be refined and finalized as additional planning and engineering efforts are completed. As shown herein, the proposed Chattahoochee River withdrawal will allow the Authority to independently and reliably

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serve the citizens of Coweta County for many years to come. Presented below is supporting data and computations for the proposed withdrawal including population projections, per capita water usage rate forecasts, an economic development buffer, and a safe yield analysis.

Demand Projections

To develop a 50-year projected demand, we chose to use a base per capita usage rate developed by the Atlanta Regional Commission (ARC) shown in Table 4-1 of the District Plan. We also selected ARC population projection data from the District Plan for demand computations as it is the most conservative of the sources considered. The population data was compared to 2012-2057 Governor's Office of Planning and Budget (OPB) projections used in the District Plan, 2018-2063 OPB projections, 2015 ARC projections, and draft 2019 ARC projections. Again, while the ARC population projections from the District Plan result in conservative demand projections, potentially higher than what may actually be experienced, reliance on this demand projection provides greater drought resiliency for the Authority. The conservative demand projection will also provide some leeway for non-revenue water. Non-revenue water rates are shown in American Water Works Association (AWWA) Water Loss Audits from 2016, 2017 and 2018 at 4.2%, 9.2%, and 7.1%, respectively.

ISE used four parameters to develop the projected demand: existing homes, future homes, an economic development buffer, and a peaking factor. The demand is further segregated by residential and non-residential sectors so as to highlight trends unique to each sector. The following equation was used to project future water demands. The peaking factor is not applied to the economic development buffer; industrial demands are expected to remain steady throughout seasonal changes, and are therefore not peaked.

Projected Future Water Demand = [*Residential Demand + Non-Residential Demand]* × $Peaking\ Factor + Economic\ Devlopment\ Buffer$

where

Residential Demand = (Existing Homes @ 57 gpcd) + (Future Homes @ 36 gpcd)

and

Non-Residential Demand = (Existing Population @ 38 gpcd) + (Additional Future Population @ 24 gpcd)

Note: gpcd is gallons per capita per day

Table 4-4 of the current MNGWPD Plan was used to determine the total per capita use rate, inclusive of residential and non-residential demand, of 95 gpcd. In order to project demand for

residential and non-residential users, past billing records were used to determine the consumption of each sector. It was found that residential consumption accounted for approximately 60% of all water used over the course of a year, while non-residential consumption accounted for approximately 40%. The per capita rate determined from the billing records favorably compares with the rate shown in Table 4-4. Applying the 60/40 ratio to the 95 gpcd total use rate produced an existing residential use rate of *57 gpcd* and an existing non-residential use rate of *38 gpcd*.

In order to estimate future use rates, accounting for improved efficiencies and more stringent plumbing codes, the *Residential End Uses of Water, Version 2 Executive Report* published by the Water Research Foundation was reviewed and selected for establishing a baseline future residential rate. The report substantiates data suggesting an 18.2% reduction in residential consumption within the coming years. Based on data shown in the report, it is anticipated that this reduction can be expected in the next 20 to 25 years. In order to account for improved efficiencies over the 50 year planning horizon, the reduction rate of 18.2% was doubled to a 36.4% reduction. This reduction was applied to the existing residential per capita rate, producing a future residential per capita rate of *36 gpcd*. The 60/40 split of user class was applied, producing a future non-residential per capita rate of *24 gpcd*. These rates combined produce a total future per capita rate of 60 gpcd.

The number of existing homes was determined using 2010 Census data for Coweta County and the cities of Newnan and Senoia. Existing homes were assigned a per capita rate of *57 gpcd* to reflect current residential use rates and dated plumbing codes and fixtures. A per capita rate of 38 gpcd was used for the existing population to reflect current non-residential use rates. Future homes, derived from the ARC population projections extended to the year 2070, were assigned a per capita rate of *36 gpcd* to reflect modern plumbing codes and water conserving fixtures. A per capita rate of 24 gpcd is used for the future population to account for future non-residential demand. In order to project demand for the Authority's service area only, the Carl Vinson Institute of Government at the University of Georgia (CVI) was commissioned to provide population projections for the cities of Newnan and Senoia, as these cities both have independent water supplies. The populations projected by CVI were subtracted from the ARC county level projections to net the population to be served by the Authority. The persons per household for Coweta County from the United States Census Bureau was then used to determine the number of homes from the given population. Please see the table below for residential per capita rates.

Table 1: Residential Per Capita Usage Rates

	2010 (Existing)	2040	2050	2070
Coweta County Population[1]	127,317	235,587	256,038	321,499
Population of Newnan and Senoia[2]	36,346	70,733	79,564	100,273
Population Served by CCWSA	90,971	164,854	176,474	221,226
Number of Homes (2.72 Persons per Home)[3]	33,445	60,608	64,880	81,333
Residential Per Capita Rate (gpcd)	57	47.6	46.8	44.6
Total Residential Demand (MGD)	5.2	**7.9**	**8.3**	**9.9**

[1]Extended from ARC 2050 projections used in the 2017 District Plan
[2]From Carl Vinson Institute of Government at the University of Georgia
[3]Using persons per household, 2013-2017, from US Census Bureau for Coweta County

Table 2: Non-Residential Demands

	2010 (Existing)	2040	2050	2070
Coweta County Population[1]	127,317	235,587	256,038	321,499
Population of Newnan and Senoia[2]	36,346	70,733	79,564	100,273
Population Served by CCWSA	90,971	164,854	176,474	221,226
Non-Residential Per Capita Rate (gpcd)	38	31.7	31.2	29.8
Total Non-Residential Demand (MGD)	3.5	5.2	5.5	6.6

Monthly demand factors were determined from three years' past billing data from the Authority, between October 2016 and September 2019. These are presented in Table 2 for each month. As shown, the maximum monthly peaking factor is 1.17. This factor was applied to the projected residential and non-residential flows, resulting in a 2070 peak month demand of 19.3 MGD. A daily peaking factor was determined from past water system operating data. The daily peaking factor was determined to be 1.51, producing a 2070 peak day demand of 24.9 MGD.

Table 3: Monthly Demand Factors

Month	Demand Factor
January	0.85
February	0.98
March	0.84
April	0.88
May	0.97
June	1.14
July	1.10
August	1.08
September	1.17*
October	1.10
November	1.05
December	0.86

The final parameter to determine the projected future water demand is the economic development buffer. An industrial water use rate of 1,500 gpd/acre was estimated based on several past requests at a large planned industrial development and a large existing industrial development within the County. A large planned industrial development named Bridgeport has attracted several potential industries that required ample water supply. The requests have ranged from 1,127 to 3,268 gpd/acre. The demand rate of a large existing industrial park within Coweta County was also determined using billing records. The rate was found to be 1,300 gpd/acre, accounting for greenspace, roadways, and other unused space within the industrial park. The Land Development Handbook, Second Edition, by the Dewberry Companies, recommends a design flow for industrial developments in the range of 600 gpd/acre to 10,000 gpd/acre. A design rate of 1,500 gpd/acre was selected as an acceptable average of the current industrial usage rates, requested rates, and cited rates. Using this rate applied to areas planned for industrial development in the Coweta County 2016-2036 Comprehensive Plan, in addition to known current industries which will increase their water demand, an Economic Development Buffer of 10.1 MGD was calculated, as shown below in Table 4.

Table 4: Economic Development Buffer

Industry	Acreage	Flow (MGD)
Planned Industrial Development Within County	4,600	6.9
Future Capacity of Existing Industries	--	3.2
Total Economic Development Buffer	--	**10.1**

The Economic Development Buffer of 10.1 MGD applies to the end of the 50 year planning horizon, 2070. In order to develop intermittent demand projections, the Economic Development Buffer was prorated from 0 MGD in the year 2020 to 10.1 MGD in the year 2070.

Table 5: Projected Flow Demands

Demand Type	2025 Demand (MGD)	2040 Demand (MGD)	2050 Demand (MGD)	2070 Demand (MGD)
Residential Demand	6.5	7.9	8.3	9.9
Non-Residential Demand	4.4	5.2	5.5	6.6
Economic Development Buffer	1.0	4.0	6.0	10.1
Annual Average Demand	11.9	17.1	19.8	26.5
Monthly Average Demand	13.7	19.3	22.1	29.3
Peak Day Demand	17.5	23.8	26.9	34.9

Water Sources

Three sources currently provide for the Authority's supply needs: Newnan Utilities, City of Griffin, and the Authority's own BT Brown Water Treatment Plant. Contractual agreements exist with minimum purchase requirements from Newnan Utilities and the City of Griffin. The Authority also has two existing emergency connections with the City of Atlanta water system. The table below summarizes the Authority's contractual agreements.

Table 6: Contractual Agreements for Water Supply

Supplier	Effective Date	Minimum (MGD)	Maximum (MGD)
Griffin	Present - 2022	3	4.5
	2022 – 2049[1]	5	7.5
Newnan Utilities	Present - 2021	2.4	4
	2021 - 2022	1.8	4
	2022 - 2029	1.25	4

[1]The Authority has an early exit option in the purchase contract of 2039.

As Authority's demand continues to increase over the years, the Authority's ability to meet the growing demand through its own source will become imperative, as will the need to achieve resiliency in drought conditions. This will be accomplished in a phased manor as the external sources are phased in to emergency connections only. The supply infrastructure from Newnan Utilities and the City of Griffin are hydraulically limited, and these two jurisdictions must provide for their own growing needs over the coming years. An initial expansion to the B.T. Brown Water Treatment Plant is anticipated accordingly, and it is our opinion based on methodology described above and shown in Table 5, that the 2025 peak day demand will be 17.5 MGD. We recommend that the Phasing Plan shown in Appendix B be modified accordingly. By

the year 2050, additional expansions at the B.T. Brown Water Treatment Plant will be considered, as will other alternatives including a new water treatment plant and additional storage alternatives, and we are recommending that plant capacity(s) at 26.9 MGD be shown for the year 2050 in the Phasing Plan of Appendix B.

Safe Yield

The existing BT Brown Reservoir will be used for raw water storage for the proposed increase in supply from the Chattahoochee River. A safe yield analysis was performed by AECOM to determine the Chattahoochee River withdrawal rate needed to achieve a safe yield of 26.5 MGD from the BT Brown Reservoir. The safe yield in this case is defined as a water balance analysis that accounts for all inflows (precipitation over reservoir water surface, natural stream flows into the reservoir, pumped flows into the reservoir), and outflows (evaporation from reservoir water surface, required flow release below the dam/instream flow protection threshold (IFPT), and withdrawals).

The safe yield analysis model developed by AECOM uses a water balance concept to calculate the change in storage on a daily basis. The change in storage at the end of the day is equal to inflows minus outflows.

*End of Day Storage = Beginning of Day Storage + Tributary Inflow + Precipitation + Pumping from Chattahoochee – Evaporation – IFPT Reservoir Release – Water Withdrawal*Monthly Demand Factor – Spill (if any)*

AECOM constructed a spreadsheet-based model to estimate the safe yield based on available historical daily streamflow that covers the recent records of drought (2007-2008), and to estimate the amount of pumping required from the Chattahoochee River on a daily basis to support the water supply safe yield. The analysis included the following parameters and assumptions:

- Daily simulation based on available historical hydrologic (streamflow) and meteorological data (precipitation and evaporation).
- IFPT below the proposed river intake based on Georgia Environmental Protection Division (EPD) reviewed and approved methodology incorporating the M7Q10 of the unimpaired flow for the Chattahoochee River from the Peachtree Creek confluence to the Whitesburg USGS gage location (data provided by EPD, October 2018) and the existing IFPT at Peachtree Creek.
- Seasonal demand fluctuations incorporated by including monthly demand factors in the safe yield model. The monthly factors were calculated based on water billing records provided by the Authority for the period of October 2016 to September 2019 (3 years). See Table 3 for monthly demand factors.

To support a projected annual average safe yield of 26.5 MGD from BT Brown Reservoir, the maximum daily pumping rate required from the Chattahoochee River in the year 2070 is 47.4 MGD. In order to support the water demands of Coweta County for the 50-year planning horizon, the Authority plans to apply for a withdrawal permit with the Georgia EPD for 47.4 MGD from the Chattahoochee River, as well as a new withdrawal permit from BT Brown Reservoir. The Authority requests that the District Plan be amended as shown in Table 7 to reflect this desire.

Table 7: Summary of Planned Sources

Water Supply Source	2017 District Plan Appendix B - Planned 2050 Withdrawal (MGD)		District Plan Amendment Request - Planned 2050 Withdrawal (MGD)		EPD Withdrawal Application - Planned 2070 Withdrawal (MGD)	
	Monthly	Peak Day	Monthly	Peak Day	Monthly	Peak Day
Chattahoochee River	7.5	10	21.3	21.3	47.4	47.4
BT Brown Reservoir	7.5	10	22.1	26.9	29.3	34.9

Wastewater

The Authority currently operates a centralized sewer system to collect and treat wastewater from a portion of its customer base. The largest treatment plant is currently permitted to discharge 2 MGD within the Flint River basin, while the other small treatment plants discharge within the Chattahoochee River basin (as shown in the current allocation of wastewater discharges in Appendix B). As the projected County population growth and resulting water demand increase occurs, so will the need for additional wastewater collection and treatment capacity. The Authority's centralized sewer system will be expanded to accommodate the increased demand, returning a portion of the withdrawn water to surface waters within the County.

Please let me know if you need further clarification or additional information to support this request, and please do not hesitate to contact the undersigned accordingly.

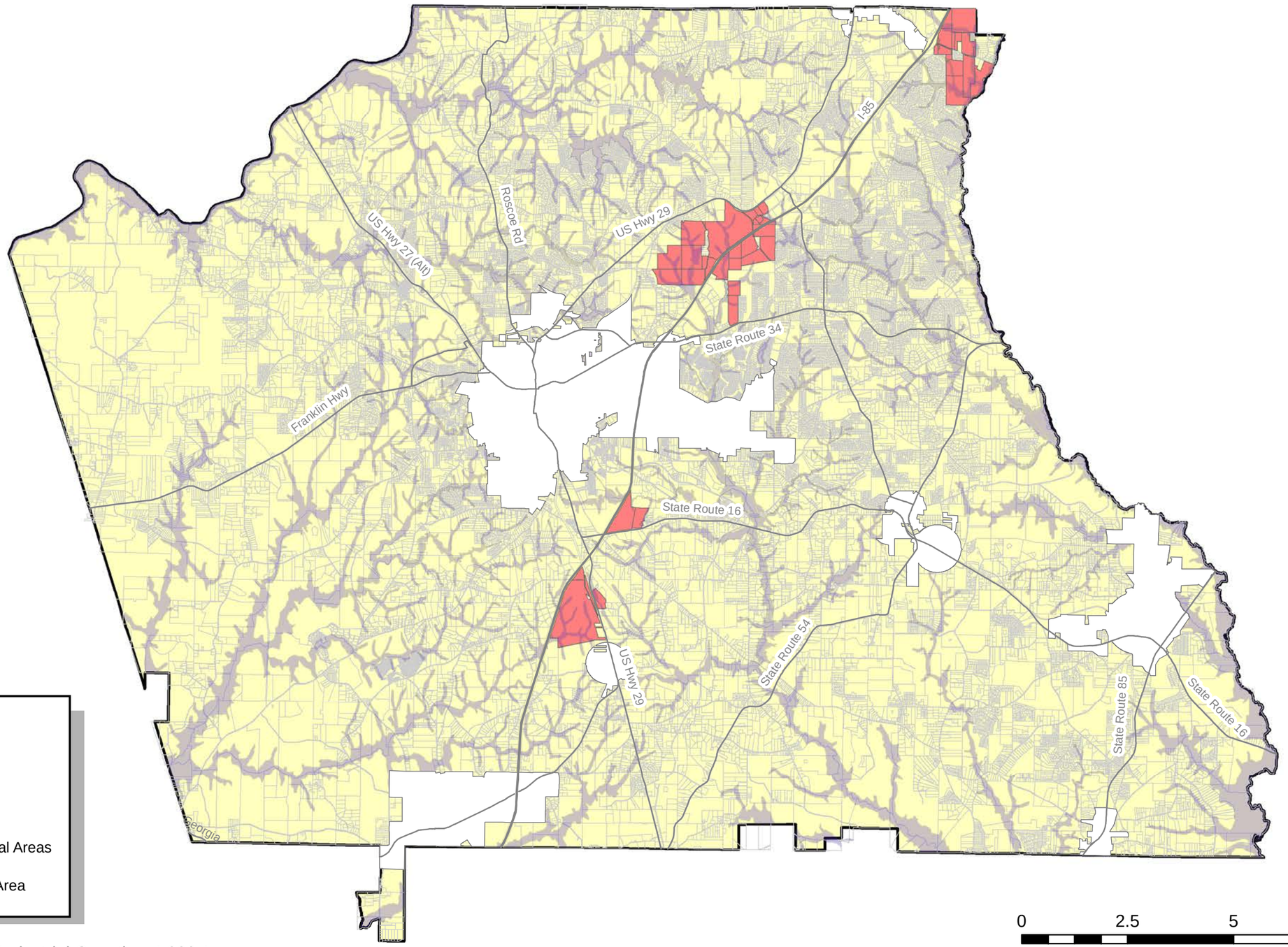
Kind regards,

INTEGRATED SCIENCE & ENGINEERING, INC.

L.H. (Dan) Davis, Jr, PE
Project Principal Engineer

CC: Jay Boren, Coweta Water and Sewerage Authority
Tai Yi Su, AECOM
Bennett Weinstein, Step Forward Strategies, LLC
Attachments: Coweta County Projected Industrial Development Map
Coweta County Future Development Map

Coweta County Projected Industrial Development Map



Legend

- Municipalities
- Floodplain
- Projected Industrial Areas
- CCWSA Service Area

* Total Area of Projected Industrial Growth = 4,600 Acres

0 2.5 5 7.5 10 Miles

1 inch = 2.5 miles

COWETA COUNTY

Future Development Map

Roscoe Crossroads
Palmetto
Sargent
Madras Crossroads
Greenton Crossroads
Thomas Crossroads
Fischer Crossroads
Arnco
Welcome Crossroads
Vineyard Crossroads
Newnan
Handy Crossroads
Willis Crossroads
Stewart Crossroads
Lake McIntosh
East Newnan
Hunter Crossroads
Sharpsburg
Raymond Crossroads
Turin
Powers Crossroads
Stephen's Crossroads
Senoia
Moreland
Blackjack Crossroads
Grantville
Haralson
Corinth Crossroads

0 2.5 5 Miles

Coweta County 2016-2036 Comprehensive Plan

- Planned Interchange
- Planned Roadway
- Crossroads Service Center
- Mill Village
- Interstate Gateway
- Runway Protection Zone
- Commercial Corridor
- Neighborhood Institutional and Service Corridor

Future Land Use

- Employment Center - Commercial/Office
- Employment Center - Industrial
- Infill Neighborhood Low Density
- Infill Neighborhood Medium Density
- Transportation/ Communication/Utilities
- Lakeside Residential
- Conservation
- Rural Conservation
- Interstate
- Ramp
- State Highway
- County Road
- Road
- River/Stream
- Transmission Easement
- Brown's Mill Battlefield
- Lake/Pond
- Cedar Creek Zoning District Boundary
- Chattahoochee Bend State Park
- City Boundary
- County Boundary