

Section 2: EXISTING WATER SUPPLY AND TREATMENT CONDITIONS

The Metropolitan North Georgia region developed in the headwaters of six river basins. The Metro Water District withdraws drinking water from the Chattahoochee, Coosa, Flint, Ocmulgee, Oconee and Tallapoosa river basins. The vast majority of the water supply for the Metro Water District, over 99 percent, is from these surface water sources.

Approximately 600 AAD-MGD (average annual day-million gallons per day) of potable water is currently withdrawn and provided to customers within the Metro Water District by publicly-owned water providers through a series of raw water supplies and treatment facilities. The current water withdrawals are based on 2006 local water provider data and reflect the ongoing drought conditions and emergency drought management measures in place in 2006. Currently, interbasin transfers are used in supplying water throughout the Metro Water District; there are water supply and wastewater transfers into and out of every basin in the Metro Water District. Inter-jurisdictional water connections serve as a valuable means of providing emergency and routine water supplies to many water systems in the Metro Water District.

EXISTING WATER SUPPLIES

Existing water supply sources in the Metro Water District were identified through existing permits issued by Georgia EPD, interviews with local water providers, and a literature review of available state, regional and local studies. Within the Metro Water District, including both surface and groundwater, almost 888 AAD-MGD of permitted water supply is available. The Metro Water District relies primarily on surface water from rivers and storage reservoirs as its main source for this water supply. The most significant water supply source for the region is the Chattahoochee River system, which includes Lake Lanier; the Chattahoochee basin accounts for approximately 73 percent of the permitted available water supply in the Metro Water District. Table 2-1 summarizes the surface water supply sources permitted within the Metro Water District.

TABLE 2-1
Existing Municipal Permitted Surface Water Supplies (2006)

Water Supply Source	Owner/Operator Utilizing Source	Permitted Monthly Average Withdrawal (MGD)	
		Supplemental Source	Source at Intake
Chattahoochee River Basin			
Chattahoochee River	Cobb County-Marietta Water Authority		87
	DeKalb County Water System		140
	City of Atlanta Watershed Management		180
	Atlanta - Fulton County Water Resources		90
Lake Lanier	City of Cumming		18
	Forsyth County Water Resources		14
	Gwinnett County Public Utilities		150
	City of Buford		2
	City of Gainesville Public Utilities		30
Bear Creek Reservoir (Note 1)	Douglasville-Douglas County Water and Sewer Authority	6	
Dog River Reservoir	Douglasville-Douglas County Water and Sewer Authority		23
Big Creek	City of Roswell		1.2
Sweetwater Creek (fills Ben Hill Reservoir)	City of East Point		11.5
Cedar Creek Reservoirs	City of Palmetto		0.45
Cedar Creek (B.T. Brown) Reservoir	Coweta County Water and Sewerage Authority		6.7
J.T. Haynes Reservoir	Newnan Utilities (filled by 3 sources)		14
Sandy Brown Creek	Newnan Utilities (fills J.T. Haynes Reservoir only)	8	
Permitted Monthly Average Withdrawal in Chattahoochee River Basin			767.85
Coosa River Basin			
Etowah River	City of Canton		5.45
	City of Cartersville (Note 8)		5
Hollis Q. Latham (Yellow Creek) Reservoir/Etowah River	Cherokee County Water and Sewerage Authority		36
Allatoona Lake	City of Cartersville (Note 8)		18
	Cobb County-Marietta Water Authority		78
Lewis Spring	City of Adairsville		4.1
Bolivar Springs	Bartow County Water System		0.8
Moss Springs	City of Emerson		0.5
Hickory Log Creek Reservoir (Note 2)	City of Canton		-
	Cobb County-Marietta Water Authority		-
Permitted Monthly Average Withdrawal in Coosa River Basin			147.85
Flint River Basin			
Flint River (Note 3)	Clayton County Water Authority (fills J.W. Smith and Shoal Creek Reservoirs)	40	
	Fayette County Water System (fills Lake Horton only)	16	
J.W. Smith and Shoal Creek Reservoirs (Note 4)	Clayton County Water Authority		17
White Oak Creek	Newnan Utilities (fills J.T. Haynes Reservoir only)	7	
Line Creek	Newnan Utilities (fills J.T. Haynes Reservoir only)	12	

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Water Supply Source	Owner/Operator Utilizing Source	Permitted Monthly Average Withdrawal (MGD)	
		Supplemental Source	Source at Intake
Hutchins' Lake	City of Senoia		0.3
Whitewater Creek	City of Fayetteville		3
Lake Kedron (Note 4)	Fayette County Water System		4.5
Lake Peachtree (Flat Creek) (Note 4)			
Lake Horton	Fayette County Water System		14
Whitewater Creek	Fayette County Water System (fills Lake Horton only)	2	
Lake McIntosh	Fayette County Water System		12.5
Still Branch Creek Reservoir (Note 5)	City of Griffin (will provide water to Pike, Spalding and Coweta Counties)		1.68
Permitted Monthly Average Withdrawal in Flint River Basin			52.98
Ocmulgee River Basin			
W.J. Hooper Reservoir (Little Cotton Indian Creek)	Clayton County Water Authority		20
Blalock Reservoir/Pates Creek	Clayton County Water Authority		10
John Fargason (Walnut Creek) Reservoir	City of McDonough		2.4
S. Howell Gardner (Indian Creek) Reservoir	Henry County Water and Sewerage Authority		8
Rowland (Long Branch) Reservoir	Henry County Water and Sewerage Authority		10
Towaliga River Reservoirs (Strickland and Cole) (Note 1)	Henry County Water and Sewerage Authority	11	
Tussahaw Creek Reservoir	Henry County Water and Sewerage Authority		13
Big Haynes Creek (Randy Poynter Lake)	Rockdale County		22.1
Brown Branch	City of Locust Grove		0.3
Permitted Monthly Average Withdrawal in Ocmulgee River Basin			85.8
Oconee River Basin			
Cedar Creek Reservoir (Note 6)	City of Gainesville		2
North Oconee River (fills Cedar Creek Reservoir only)	City of Gainesville	20	
Permitted Monthly Average Withdrawal in Oconee River Basin			2
Tallapoosa River Basin			
Lake Fashion	City of Villa Rica		1.5
Cowan Lake			
Total Permitted Monthly Average Withdrawal in Tallapoosa River Basin			1.5
Total Permitted Withdrawal in Metro Water District (Note 7)		Monthly average basis	1057.98
		Annual average basis	881.65

Notes:

1. Staggered withdrawal permit to maintain in-stream flows; maintained for emergency use only.
2. Hickory Log Creek construction is complete; reservoir is off-stream storage filled with water pumped from the Etowah River. Water will not be withdrawn from the reservoir but instead from intake facilities downstream.
3. Clayton County Water Authority has a tiered withdrawal permit to maintain in-stream flows.
4. Combined permit limit.
5. Maximum monthly yield is 42 MGD for the entire reservoir. This reservoir is located outside of the District and is owned by the City of Griffin. Reservoir serves Pike and Spalding Counties as well Coweta County. Coweta County currently has a purchase contract for 1.68 MGD of finished water from the City of Griffin which escalates at 0.36 MGD/year for an ultimate 7.5 MGD.
6. Previously known as North Oconee Reservoir. Will be used as a future water supply source.
7. Annual average day equals monthly average day divided by 1.2.
8. The City of Cartersville has two intakes covered under one permit, with a permitted monthly average withdrawal of 23 MGD. Of that permitted amount, up to 18 MGD may be withdrawn from Allatoona Lake on a monthly average basis.

PLANNED RESERVOIRS

In addition to the existing reservoirs presented previously in Table 2-1, there are three reservoirs planned for the Metro Water District in the near future that require 404 permits. These planned reservoirs are far enough along in the permitting process, as State and Federal permits are being sought for these projects. Three additional reservoirs are in early planning stages but anticipated to be constructed by the end of the planning period. It is important to note that although these reservoirs are planned to meet future demands, they will need to secure all necessary state and federal permits prior to operation. Table 2-2 summarizes the planned reservoirs. Yield and size information included in Table 2-2 is based on best available data. Safe yield studies may be needed to confirm the permissible yield.

TABLE 2-2
Planned Reservoirs

Reservoir (Note 1)	Owner/Operator Utilizing Resource	Basin	Estimated Size and Yield
Glades Reservoir	Hall County	Chattahoochee	The 733-acre reservoir with an estimated yield of 6.4 MGD will release water to Lake Lanier. Currently in the permitting process.
Bear Creek Reservoir	Proposed South Fulton Water Authority (Note 2)	Chattahoochee	Impoundment on Bear Creek, a tributary of the Chattahoochee River. The permitting process has been initiated with an estimated yield of 15 MGD.
Richland Creek Reservoir	Paulding County	Coosa	A 305-acre reservoir with an estimated yield of 35 MGD is in the permitting process on Richland Creek.
Etowah Reservoir	Fulton County	Coosa	A reservoir is being considered by Fulton County with a proposed 30 MGD yield.
Ocmulgee Reservoir	Henry County Water and Sewer Authority	Ocmulgee	A new reservoir is being considered in the Ocmulgee basin with a proposed 13 MGD yield.
Cedar Creek Reservoir	Gainesville-Hall County	Oconee	The Cedar Creek reservoir is expected to have a yield of 9 MGD and be supplemented with water from the North Oconee River.

Notes:

1. Reservoirs that do not require 404 permits, off-line reservoirs, and reservoirs whose primary purpose is to facilitate water treatment plant operations are not included herein.
2. The service provider for the Bear Creek Reservoir should be resolved through negotiation process or other means before a permit is issued to resolve conflicts with existing service areas.

PLANNED STORAGE

In addition to the reservoirs listed above in Table 2-2, there are two projects planned in the Metro Water District that will provide additional storage, but do not provide additional yield. These storage facilities will help drought-proof and extend existing sources and are listed in Table 2-3.

TABLE 2-3
Planned Storage

Storage	Owner/Operator	Basin	Estimated Size
Coweta County Sandy Creek Reservoir	Coweta County	Chattahoochee	2.7 Billion Gallons
Bellwood Quarry Reservoir	City of Atlanta	Chattahoochee	2.5 Billion Gallons

GROUNDWATER SOURCES

Groundwater sources make up less than one percent of the total available water supply in the Metro Water District due to bedrock geology. Groundwater supplies several small towns and is used as a supplemental source. The development of new groundwater sources will generally be of the type found in Clayton County, where wells supplement the existing surface water supplies rather than being the primary source. Table 2-4 summarizes the groundwater sources utilized for water supply within the Metro Water District.

TABLE 2-4
Existing Permitted Groundwater Supplies

Owner/Operator Utilizing Resource	County	Monthly Average Permitted Withdrawals in MGD (2006)
City of White	Bartow	0.2
City of Ball Ground	Cherokee	0.2
Clayton County Water Authority	Clayton	0.73
City of Senoia	Coweta	-
Coweta County Water & Sewer Department	Coweta	0.5
City of Villa Rica	Douglas	0.125
City of Fayetteville	Fayette	0.94
Fayette County Water System	Fayette	0.83
City of Lawrenceville	Gwinnett	2
City of Flowery Branch	Hall	0.37
City of Hampton	Henry	0.14
City of Locust Grove	Henry	1
City of McDonough	Henry	0.15
City of Stockbridge	Henry	0.52
Total Groundwater Supply (monthly average basis)		7.7
Total Groundwater Supply (AAD-MGD) (Note 1)		6.4

Notes:

1. Annual average day equals monthly average day divided by 1.2.

INTERBASIN TRANSFERS

The water and wastewater systems of the Metro Water District operate as an interdependent service network. Generally speaking, water is moved from areas where it is available to areas where it is needed; likewise, wastewater is moved from water use points to available wastewater treatment facilities. Transfers of water and wastewater occur among municipalities, counties, and basins. Transfers among basins are particularly common within counties that straddle the ridges between two or more basins. This situation applies to 11 of the Metro Water District’s 15 counties.

Currently, interbasin transfers are a key element in supplying water throughout the Metro Water District; there are water supply and wastewater transfers into and out of every basin in the Metro Water District. The majority of water interbasin transfers are from the Chattahoochee River Basin. Residents in the Ocmulgee River Basin currently rely heavily on the Chattahoochee River Basin for water supply. For example, raw water is withdrawn from the Chattahoochee River Basin and is treated by DeKalb and Gwinnett Counties for distribution to areas both inside and outside of the Chattahoochee Basin. Smaller quantities are also exported from the Chattahoochee River Basin to the Flint, Coosa, and Oconee River Basins. Water is also transferred from Allatoona Lake (Coosa River Basin) to the Chattahoochee River Basin. Table 2-5 summarizes the existing water and wastewater interbasin transfers in the Metro Water District.

TABLE 2-5
Summary of Existing Interbasin Transfers

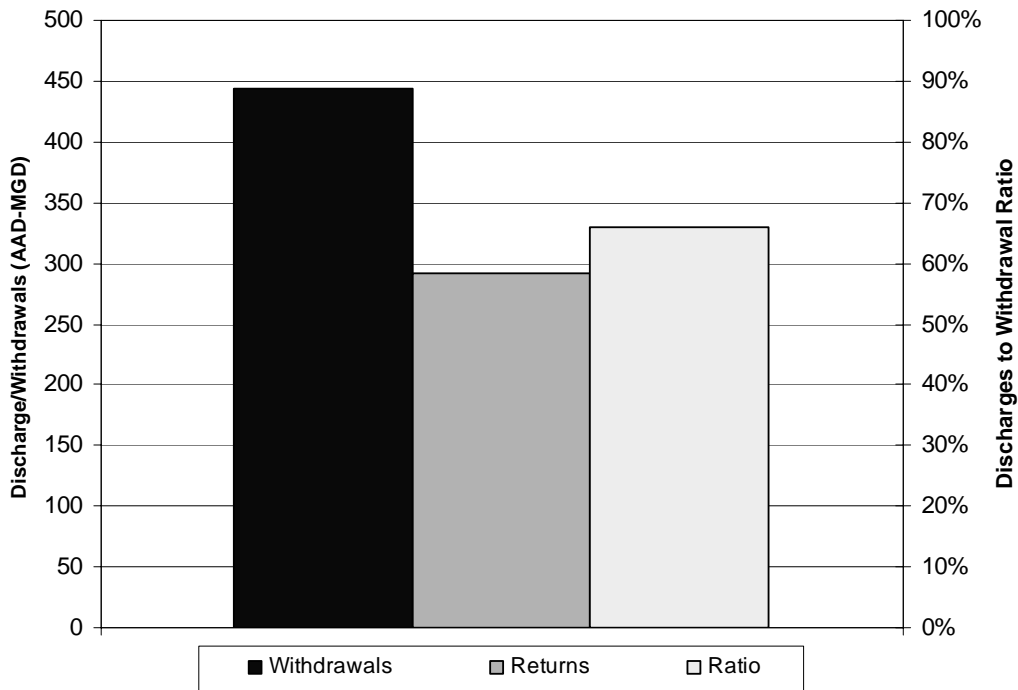
Water Supply		
Water Supply Basin	Receiving Basin	Transfer (AAD-MGD)
Chattahoochee	Flint	9
Chattahoochee	Ocmulgee	127
Chattahoochee	Oconee	11
Coosa	Chattahoochee	13
Ocmulgee	Flint	5
Wastewater Returns		
Basin Generated	Basin Discharge	Transfer (AAD-MGD)
Coosa	Chattahoochee	1
Flint	Chattahoochee	11
Flint	Ocmulgee	10
Ocmulgee	Chattahoochee	27
Oconee	Chattahoochee	3
Net Interbasin Transfer		
Source Basin	Receiving Basin	Net Transfer (AAD-MGD)
Chattahoochee	Ocmulgee	100
Chattahoochee	Oconee	7
Coosa	Chattahoochee	14
Flint	Chattahoochee	2
Flint	Ocmulgee	5

Note: Transfers estimated based on 2006 actual withdrawals and discharges.

EXISTING CHATTAHOOCHEE BASIN RETURN FLOWS

As the Chattahoochee River and Lake Lanier account for approximately 73 percent of the permitted available water supply in the Metro Water District, returning flow to this basin is an important element of this Water Supply and Water Conservation Management Plan. Currently, approximately 66% of the water withdrawn from the Chattahoochee basin is returned to the basin.

FIGURE 2-1
Chattahoochee Basin Withdrawals and Discharges for 2006



EXISTING WATER TREATMENT FACILITIES

Water supply and treatment is provided for the Metro Water District by various public local water providers. The structure of these local water providers differs across the Metro Water District; however, the majority are city or county-operated water and/or wastewater providers. A few third-party providers exist that provide water for a conglomerate of entities. An example of this is the Cobb County-Marietta Water Authority, which was created by the Georgia legislature to serve as a regional wholesaler of water. This Authority treats and distributes potable water for wholesale purchase by municipalities within Cobb County, as well as in neighboring cities and counties.

The Metro Water District currently has 38 existing publicly-owned surface water treatment plants, ranging in permitted capacity of less than 1 MGD to 150 PD-MGD (peak day - million gallons per day), providing a combined permitted treatment capacity of 1,135 PD-MGD. The permitted treatment capacity of 1,135 PD-MGD or 710 AAD-MGD treats water from the 882 AAD-MGD of permitted surface supply.

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The Metro Water District's 38 surface water treatment plants range in age and condition. Additionally, the source water quality for these treatment plants varies widely. The vast majority of the water treatment plants utilize conventional treatment with chemical coagulation, flocculation, sedimentation, filtration, and disinfection. Some water treatment plants in the Metro Water District currently utilize or are investigating advanced treatment technologies such as ozonation, ultraviolet (UV) disinfection, and membrane filtration. Regulatory treatment standards continue to become more stringent, requiring treatment plants to continually assess and optimize treatment for continued compliance.

Groundwater accounts for less than 1 percent of the water supply within the Metro Water District, and typically only requires disinfection prior to distribution to customers. The City of Lawrenceville owns and operates the only groundwater treatment plant in the Metro Water District that applies additional treatment for removal of radon, iron and manganese to a groundwater-only source.

Table 2-6 summarizes the existing surface water treatment plants in the Metro Water District, including capacities.

TABLE 2-6
Existing Surface Water Treatment Plants

County	WTP	Entity	Source Stream/ Reservoir	2006 WTP Permitted Capacity (PD-MGD) (Note 1)
Bartow	Lewis Spring WTP	City of Adairsville	Lewis Spring (Note 2)	4
	Clarence B. Walker WTP	City of Cartersville	Allatoona Lake	27
	Emerson WTP	City of Emerson	Moss Spring (Note 2)	0.5
	Bartow County WTP	Bartow County	Bolivar Springs	0.8
Cherokee	Canton WTP	City of Canton	Etowah River	5.45
	Etowah River WTP	Cherokee County Water and Sewerage Authority	Yellow Creek Reservoir and Etowah River	38
Clayton	Terry R. Hicks WTP	Clayton County Water Authority	Blalock Reservoir	10
	W.J. Hooper WTP		W.J. Hooper Reservoir	20
	J.W. Smith WTP		J.W. Smith Reservoir	12
Cobb	James E. Quarles WTP	Cobb County-Marietta Water Authority	Chattahoochee River	86
	Hugh A. Wyckoff WTP		Allatoona Lake	72
Coweta	B.T. Brown WTP	Coweta County	Cedar Creek (B.T. Brown) Reservoir	7.7
	Hershall Norred WTP	City of Newnan	J.T. Haynes Reservoir	14
	Senoia WTP	City of Senoia	Hutchins' Lake	0.45
DeKalb	Scott Candler WTP	DeKalb County	Chattahoochee River	128

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County	WTP	Entity	Source Stream/ Reservoir	2006 WTP Permitted Capacity (PD-MGD) (Note 1)
Douglas	Bear Creek WTP	Douglasville-Douglas County Water and Sewer Authority	Bear Creek Reservoir	16.36
			Dog River Reservoir	
	Franklin Smith WTP	City of Villa Rica	Lake Fashion, Cowan Lake	1.5
Fayette	Crosstown WTP	Fayette County	Lake Horton, Lake Kedron, Lake Peachtree, groundwater	13.5
	South Fayette WTP			6.2
	Fayetteville WTP	City of Fayetteville	Whitewater Creek	3
Forsyth	Cumming WTP	City of Cumming	Lake Lanier	24
	Forsyth County WTP	Forsyth County	Lake Lanier	13.9
Fulton	Atlanta-Fulton County WTP	Atlanta-Fulton County Water Resources Comm.	Chattahoochee River	90
	Hemphill WTP	City of Atlanta	Chattahoochee River	136.5
	Chattahoochee WTP			64.9
	Roswell Cecil Wood WTP	City of Roswell	Big Creek	1.2
	East Point WTP	City of East Point	Sweetwater Creek	13.9
	Palmetto WTP	City of Palmetto	Cedar Creek	0.6
Gwinnett	Lake Lanier WTP	Gwinnett County Public Utilities	Lake Lanier	150
	Shoal Creek WTP			75
	Buford WTP	City of Buford	Lake Lanier	2
Hall	Lakeside WTP	City of Gainesville	Lake Lanier	10
	Riverside WTP			25
Henry	Towaliga River WTP	Henry County Water and Sewerage Authority	S. Howell Gardner (Indian Creek) and Rowland Reservoirs	24
	Tussahaw WTP		Tussahaw Creek Reservoir	13
	McDonough WTP	City of McDonough	John Fargason (Walnut Creek) Reservoir	2.28
	Locust Grove WTP	City of Locust Grove	Brown Branch	0.45
Rockdale	Big Haynes Creek WTP	Rockdale County	Big Haynes Creek (Randy Poynter Lake)	22.1
Total Metro Water District Treatment Capacity (PD-MGD)				1135.29
Total Metro Water District Treatment Capacity (AAD-MGD)				709.56

Notes:

1. WTP capacity is on a permitted peak day basis.
2. Lewis and Moss Springs are groundwater under the influence of surface water and therefore classified as a surface water WTP.
3. Annual average day equals monthly average day divided by 1.6.

EXISTING INTERCONNECTIONS

All of the counties within the Metro Water District maintain interconnections with at least one other county for either routine or emergency water sale. Some of these interconnections originally served as a primary water supply source before the water system in the receiving county was adequately developed. These connections are now kept for emergency uses.

Interconnections with other water systems provide a valuable means of increasing water system reliability. If water systems are interconnected, finished water supply can readily be available in the event of a major water system failure. These connections can function on an emergency-only basis, as a peaking supply, or they can provide major or sole sources of water supply for some water systems.

NON-MUNICIPAL PERMITTED WITHDRAWALS

This regional plan focuses on municipal water supply, however, given the limitations of water supply it is important recognize other water users in the region. Non-municipal permitted withdrawals sum to 1,859.34 PD-MGD and 1,399.47 MGD on a monthly average basis. Table 2-7 provides a list of non-municipal permitted withdrawals by basin. Non-municipal permitted water withdrawals are approximately double the municipal permitted water supply. The largest non-municipal permitted withdrawals are associated with power generation in the Chattahoochee basin. Non-municipal water permittees will have water conservation programs under the Comprehensive State-wide Water Management Plan and be responsible for submitting progress reports over the next planning period.

TABLE 2-7
Non-municipal Permitted Withdrawals

Basin	Peak Day Permitted Withdrawal (MGD)		Monthly Average Permitted Withdrawal (MGD)	
	Power Generation	Other *	Power Generation	Other*
Chattahoochee	1,114	9.58	1,094	6.65
Coosa	520	21.4	85	19.5
Flint	-	-	-	-
Ocmulgee	194	-	194	-
Oconee	-	0.36	-	0.32
Tallapoosa	-	-	-	-
Total	1,828	31.34	1,373	26.47

* Other uses include industrial demand and golf course irrigation.