

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Approximately 600 AAD-MGD (average annual day-million gallons per day) of potable water is currently withdrawn and provided to customers within the Metro Water District by publicly-owned water providers through a series of raw water supplies and treatment facilities.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

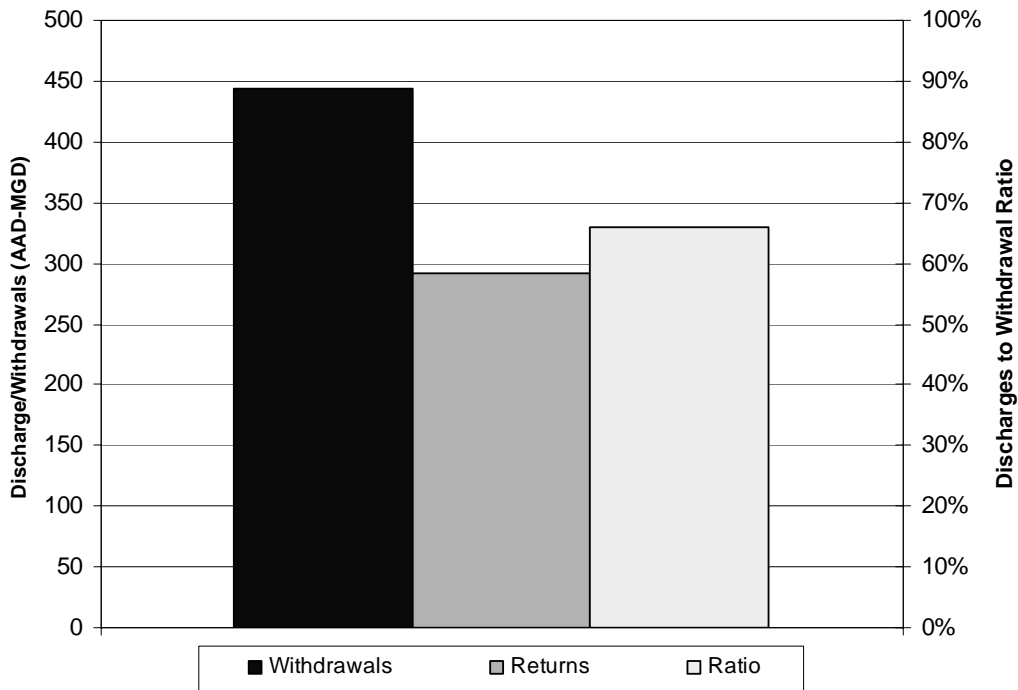
| Water Supply | | |
|--------------------------------|------------------------|-------------------------------|
| Water Supply Basin | Receiving Basin | Transfer (AAD-MGD) |
| Chattahoochee | Flint | 9 |
| Chattahoochee | Ocmulgee | 127 |
| Chattahoochee | Oconee | 11 |
| Coosa | Chattahoochee | 13 |
| 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.