Section 2
Plan Overview

The studies of potential water supply and projected water demand that were performed to prepare the WS Plan produced two key findings that have shaped the WS Plan's recommendations. These findings are:

- Future withdrawals (anticipated by 17 independent water utilities within the District) from the Chattahoochee River/Lake Lanier watershed system will exceed the safe yield of this water source by 2030 if current plans are followed.
- Water demands within the District as a whole could exceed District water resources by 2030 without concerted and coordinated efforts by District water users to conserve water and develop new sources.

In response to these two findings, the WS Plan presented in this document proposes the following strategies:

- Reallocation of Lake Lanier and Lake Allatoona for water supply
- Intensification of water conservation efforts
- Construction of at least five planned new reservoirs
- Sharing of water resources within the District to meet local needs
- Reclamation of water by indirect potable reuse through Lake Lanier

The WS Plan is dependent on all five of the strategies listed above to meet water demands over the next three decades, and to provide a small amount of supply in excess of demand to allow for contingencies that may arise over the planning period. Possible contingencies could include faster growth than that anticipated in projections, conservation measures falling short of anticipated demand reductions, or a planned reservoir being unable to receive a permit. To provide the capability within the WS Plan to deal with such contingencies, it is essential that all five of the listed strategies be included in the WS Plan.

With the strategies outlined above, District water supplies will exceed demands by only approximately 10 percent in 2030. This narrow margin of supply over demand shows that the 30-year projected population growth of the District can be accommodated, but only with coordinated planning of water resource use.

Critical Strategies

By 2030, the District will be utilizing almost all of its water resources. Any effort or project that increases those resources also frees up resources elsewhere in the District that can be used by other jurisdictions. Consequently, any effort or project that increases water resources is critical not only to the jurisdiction(s) immediately involved, but also to the other jurisdictions of the District. Table 2-1 summarizes the WS Plan's critical strategies and the corresponding amount of water to be obtained from them.

TABLE 2-1
Added Water Supply or Reduced Demand for 2030 from Critical Strategies

Type of New Source	Amount (AADD-MGD)
Reallocation of Lake Lanier and Lake Allatoona	153
Added Conservation Measures	136
New Reservoirs[1]	114
Water Reclamation through Indirect Potable Reuse[2]	67
Resource Sharing/System Connections[3]	42

1 New reservoirs included are Hickory Log Creek (45 AADD-MGD), Cedar Creek (7 AADD-MGD), Hard Labor Creek (28 AADD-MGD for District use), Tussahaw (26 AADD-MGD), Lake McIntosh (8 AADD-MGD). Other new reservoirs are acceptable within the WS Plan, but among currently planned reservoirs these are furthest along in the permitting process and are considered most likely to be constructed.

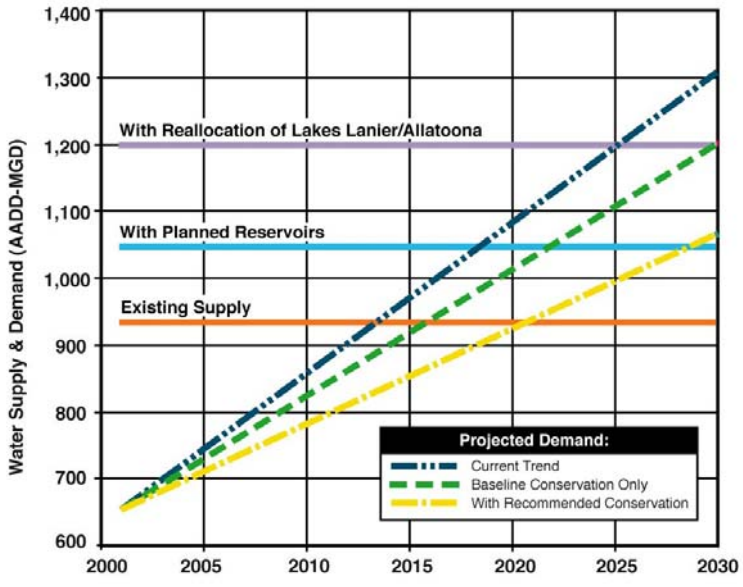
2 Indirect Potable Reuse is calculated as the amount of reclaimed water discharged to Lake Lanier (117 AADD-MGD) minus the amount anticipated in current yield estimates for the Lake (50 AADD-MGD). Reclaimed water contributions from various jurisdictions are described in the Long-term Wastewater Management Plan.

3 Resource sharing and system connections do not create additional water supply, but by distributing water to meet local needs, these measures remove the need to create new sources such as new reservoirs. Planned sharing arrangements include Cobb County – Marietta Water Authority to Fulton County (33 AADD-MGD) and City of Atlanta to Coweta County (9 AADD-MGD).

Meeting 2030 Demands

Currently, the permitted District water supply is approximately 933 million gallons per day on an annual average basis (AADD-MGD). Without the water conservation program proposed in the WS Plan, District demand has been projected to be nearly 1,217 AADD-MGD in 2030. With the WS Plan's conservation program, projected 2030 demand is reduced by 11 percent to approximately 1,081 AADD-MGD, as illustrated in Figure 2-1.

FIGURE 2-1
Projection of Water Supply and Demand



DemandWaterSupply.fh9

Within the WS Plan, the combination of reallocating Lake Lanier and Lake Allatoona, constructing new reservoirs, and reclaiming water through indirect potable reuse will add 334 AADD-MGD of water supply for District use. These additional supplies will bring District water supplies to 1267 AADD-MGD.

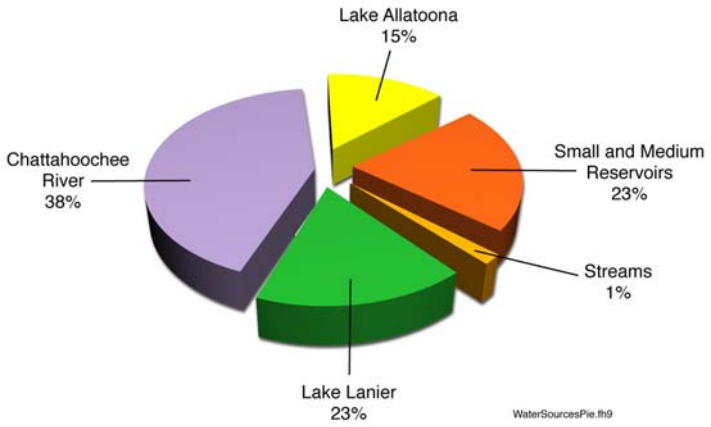
If the recommended conservation program is successfully implemented, the projected Water treatment capacity need for the District in 2030 is 1,729 MGD for the peak day (PDD-MGD). That means that over 572 PDD-MGD of water treatment plant capacity, an increase of 49 percent over today's capacity, needs to be constructed over the next 30 years.

Features of the Plan

The significant features of the recommended WS Plan for 2030 are:

- **Primary water supply sources:** Lake Allatoona and Lake Lanier, and the Chattahoochee River remain the primary water supply sources, providing 76 percent of the District's water supply need. Figure 2-2 shows the percent supplied by each type of water supply source.

FIGURE 2-2
Use of Water Supply Sources in 2030



- **Supply is available through 2030:** With proper management, there is sufficient water supply to meet the District's needs through 2030. What is done until 2030 determines what the District's options will beyond 2030.
- **New reliance on water conservation:** Water conservation is a basic element of the WS Plan, because it reduces demand. This is essential for the District to function within the capability of its water resources. The recommended water conservation program can reduce 2030 demand by an estimated 11 percent.
- **Moving towards a more significant role for reuse:** A small amount of indirect potable reuse is included in the WS Plan. It is expected that indirect potable reuse will increase beyond 2030 to meet increasing demands. Therefore, building public acceptance through public education and demonstrated success will be important between now and 2030.
- **EPD guidance on water allocation limits:** The WS Plan assumes limits provided in guidance from EPD for the Apalachicola-Chattahoochee-Flint (ACF) and Alabama-Coosa-Tallapoosa (ACT) River Basins. Reallocation of storage in Lakes Lanier and Allatoona must be completed to meet these limits. EPD guidance for the ACF basin included a reallocation of water from Lake Lanier/Chattahoochee River Basin of 705 MGD for water supply above Peachtree Creek. The maximum annual average

withdrawal of 705 MGD includes water withdrawals of 280 MGD above Buford Dam and 425 MGD below Buford Dam. Approximately 41 MGD will be allocated for users upstream of the District in the Chattahoochee River Basin, including Lumpkin, White, and Habersham Counties. EPD guidance for the ACT basin has identified target amounts of withdrawals from streams in the basin. The EPD guidance included annual average water withdrawal limits are 200 MGD for Lake Allatoona, 60 MGD for Carters Lake, and 20 MGD for users upstream of the District. Interbasin transfer from the Coosa (Etowah) River Basin is limited to 100 MGD in the year 2020 and beyond.

- **Completion of reservoir sources currently in permitting process:** The following sources, which are a critical part of meeting the District's water supply needs, are in the permitting processes:

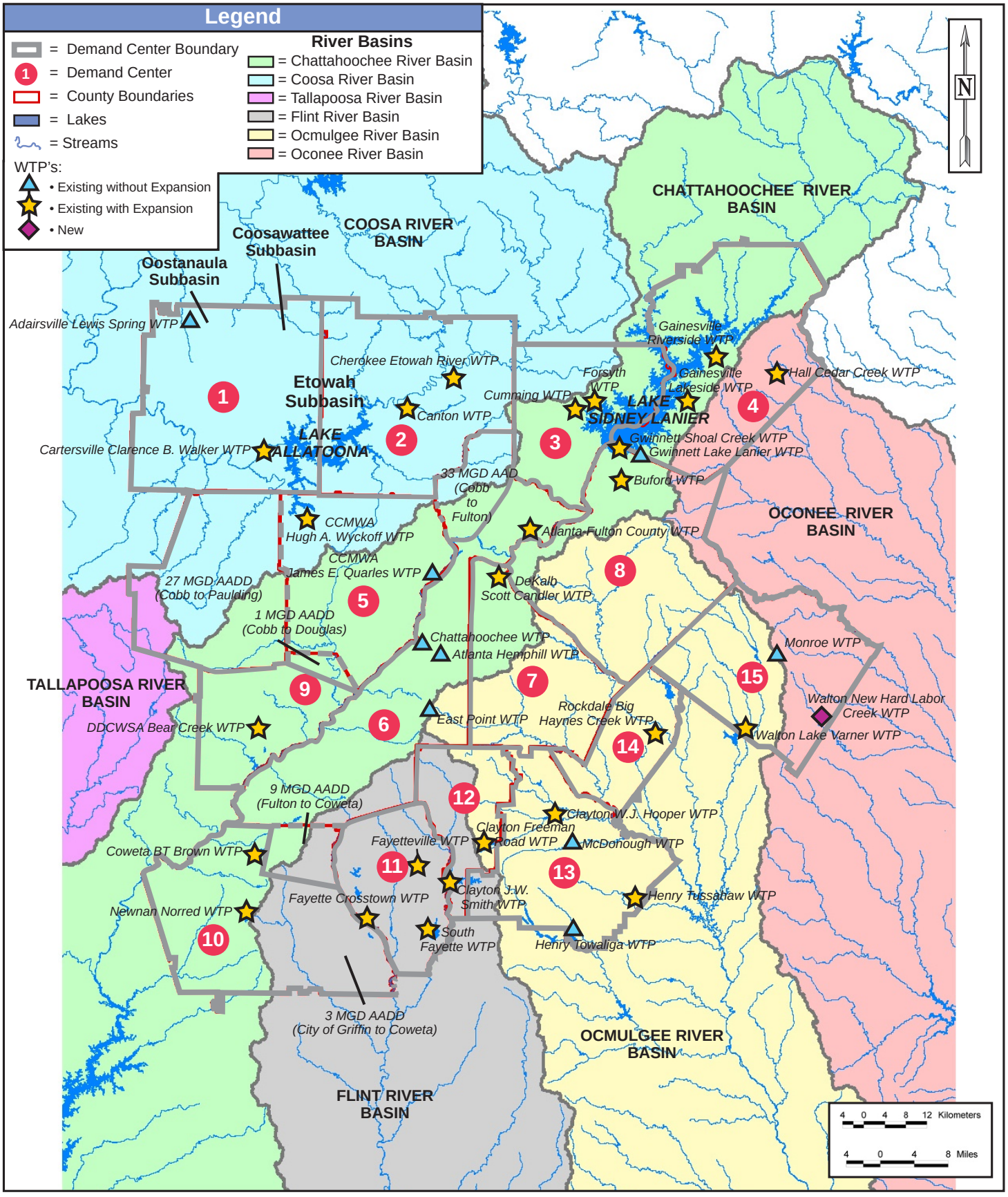
    - Hickory Log Creek Reservoir: Proposed use by Cobb County-Marietta Water Authority and the City of Canton
    - Lake McIntosh: Proposed use by Fayette County
    - Hard Labor Creek Reservoir: Proposed use by Walton County
    - Tussahaw Reservoir: Proposed use by Henry County
    - Cedar Creek Reservoir: Proposed use by Hall County

These reservoirs need to be permitted and operational to meet 2030 demands. Only these reservoirs are relied upon in the WS Plan. Other reservoirs, if they prove feasible and can be permitted, should be viewed as consistent with the WS Plan. Examples of such potential reservoirs include the South Fulton Reservoir on Bear Creek in south Fulton and Glades Reservoir in Hall County.

Figure 2-3 and Table 2-2 show the water treatment plants proposed for 2030. Key features of the WS Plan with regard to treatment plants are:

- **Most water treatment plants (WTPs) remain in service:** Additional capacity will be provided, primarily at existing plants. Some standardization of treatment methods may be necessary where jurisdictions mix finished water. Thirty-five WTPs will be required District-wide by 2030 (including 1 new, 25 existing (or under construction) with expansion, 9 existing not needing expansion, and 4 existing to be phased-out).
- **Changes in areas served by existing plants:** The current service areas of several WTPs in the District will need to be reconfigured by 2030. The service area transitions will span the 30-year planning period.
- **Water system interconnections:** Interconnections of water systems will be advanced to increase water system reliability and security, as well as to support projected water demand growth.
- **Refined local water supply plans:** Local jurisdictions will be required to refine their water supply and conservation plans to maintain consistency with the WS Plan.

Demand centers are identified by numbers in Figure 2-3 and on Tables 2-2.



Metropolitan North Georgia Water Planning District

Demand Centers
District Water Plan

Date: September 2003
Scale: As Shown
Job No.: 2317.001

Figure 2-3

2317_001_Maps_ES-6W/2-3_p2.fh9

The demand centers match treatment plant(s) with the demands they serve, but the demand centers do not indicate which utility(ies) will operate the system within the demand center. Local planning with inter-jurisdictional cooperation will be required to determine service area boundaries and operations for each facility.

TABLE 2-2
Summary of Recommended Water Supply Sources and Water Treatment Facilities

Demand Center No. (See Map)	Where Water Goes			Where Water Comes From			
	County Areas in Demand Center	County Demands (AADD-MGD)	County Demands (PDD-MGD)	Water Treatment Plants & Sources	Proposed 2030 Withdrawal (AADD-MGD)	2005 Plant Capacity (PDD-MGD)	Proposed 2030 Capacity (PDD-MGD)
1	Bartow	43	69	Adairsville WTP/Lewis Spring	3	5	5
				Cartersville and/or Bartow WTPs/Lake Allatoona	40	27	64
	Total	43	69	Total	43	32	69
2	Cherokee	40	64	Canton WTP/Etowah River and Hickory Log Creek Reservoir	11	0	18
				CCWSA Etowah River WTP/Etowah River and Yellow Creek Reservoir	29	27	46
	Total	40	64	Total	40	27	64
3	Forsyth	57	91	Cumming WTP/Lake Lanier	57	18	91
				Forsyth WTP/Lake Lanier		14	
	Total	57	91	Total	57	32	91
4	Hall	49	78	Gainesville Riverside WTP/Lake Lanier	42	25	67
				Gainesville Lakeside WTP/Lake Lanier		10	
				Hall Cedar Creek WTP/Cedar Creek Impoundment	7	3	11
	Total	49	78	Total	49	38	78
5	Cobb	113	181	CCMWA Wyckoff WTP/Lake Allatoona	120	72	191
	Douglas	1	1	CCMWA Quarles WTP/Chattahoochee River	54	87	87
	Fulton	33	53				
	Paulding	27	43				
	Total	174	278	Total	174	159	278
6	Fulton	221	354	Atlanta-Fulton Co. WTP/Chattahoochee River	96	90	155
	Coweta	9	15	Atlanta Chattahoochee WTP/Chattahoochee River	41	65	65
				Atlanta Hemphill WTP/Chattahoochee River	85	137	137
				East Point WTP/Sweetwater Creek	8	12	12
	Total	230	369	Total	230	304	369
7	DeKalb	128	205	DeKalb Scott Candler WTP/Chattahoochee River	128	150	205
	Total	128	205	Total	128	150	205
8	Gwinnett	165	264	Gwinnett Lake Lanier WTP/Lake Lanier	94	150	150
				Gwinnett Shoal Creek WTP/Lake Lanier	68	75	110
				Buford WTP/Lake Lanier	3	2	4
	Total	165	264	Total	165	227	264

Demand Center No. (See Map)	Where Water Goes			Where Water Goes			
	County Areas in Demand Center	County Demands (AADD-MGD)	County Demands (PDD-MGD)	County Areas in Demand Center	Proposed 2030 Withdrawal (AADD-MGD)	2005 Plant Capacity (PDD-MGD)	Proposed 2030 Capacity (PDD-MGD)
9	Douglas	23	37	DDCWSA Bear Creek WTP/Dog River and Bear Creek Reservoirs	23	16	37
	Total	23	37	Total	23	16	37
10	Coweta	20	31	Newnan H. Norred WTP/JT Haynes Reservoir	11	12	17
				Coweta BT Brown WTP/Cedar Creek Reservoir	6	7	10
				Purchase from City of Griffin	3	0	4
	Total	20	31	Total	20	19	31
11	Fayette	25	40	Fayette Crosstown WTP/Existing and Lake McIntosh	22	14	35
				Fayette South WTP/Existing Sources		6	
				Fayetteville WTP	3	3	5
	Total	25	40	Total	25	23	40
12	Clayton	42	67	Clayton JW Smith WTP/JW Smith and Shoal Creek Reservoirs	42	12	67
				Clayton WJ Hooper WTP/WJ Hooper Reservoir		20	
				Clayton Freeman Road WTP/Blalock Reservoir		10	
	Total	42	67	Total	42	42	67
13	Henry	41	66	Henry Towaliga WTP/Towaliga Reservoir and Other Sources	40	24	64
				Henry Tussahaw WTP/Tussahaw Reservoir		26	
				McDonough WTP/J. Fargason Reservoir	1	2	2
	Total	41	66	Total	41	52	66
14	Rockdale	25	40	Rockdale Big Haynes Creek WTP/Big Haynes Creek (Randy Poynter Lake)	25	22	40
	Total	25	40	Total	25	22	40
15	Walton	19	30	Monroe WTP/JT Briscoe Reservoir	5	10	10[1]
				Walton/Newton Lake Varner WTP/Cornish Creek Reservoir	5	4	8
				Walton New Hard Labor Creek WTP/Hard Labor Creek Reservoir	9	-	14
	Total	19	30	Total	19	14	32[1]
DISTRICT TOTAL		**1,081**	**1,729**		**1,081**	**1,157**	**1,731[1]**

[1] At the Monroe WTP, the WTP capacity is greater than the demand in 2030. The 2 PDD-MGD of additional capacity will be available for use beyond 2030.

Notes: Water treatment plant (WTP), average annual daily demand (AADD), peak daily demand (PDD), million gallons per day (MGD), Cherokee County Water and Sewer Authority (CCWSA), Cobb County-Marietta Water Authority (CCMWA), Douglasville-Douglas County Water and Sewer Authority (DDCWSA); where proposed 2030 capacity is allocated to more than one plant, it is to be shared between them, as determined by joint local water supply management planning.

Water Conservation Program

Section 8 of this document describes the recommended water conservation program for the District. This program consists of 11 conservation measures, as follows:

- Establish conservation pricing by all District utilities;
- Enact legislation to require plumbing retrofits on home re-sales;
- Enact legislation to require low-flush urinals for new industrial, commercial and institutional buildings;
- Enact legislation to require rain sensor shut-off switches on new irrigation systems;
- Require sub-unit meters in new multi-family buildings;
- Assess and reduce water system leakage;
- Conduct residential water audits;
- Distribute low-flow retrofit kits to residential users;
- Conduct commercial water audits;
- Implement education and public awareness plan; and
- Establish review and oversight of water conservation implementation and performance.

Together, these conservation measures have been projected to reduce District 2030 water demands by 136 AADD-MGD. This is an 11 percent reduction from projected demands without the conservation measures. The 11 measures were selected based upon an evaluation process that is described in Section 5. The implementation of each of the 11 measures is discussed in detail in Section 8.

Water Supply Facilities

Section 9 presents the highlights of the WS Plan for water supply facilities, while Appendix B presents more detailed facilities plans for each county in the District. The highlights of the facilities Plan presented in Section 9 include:

- Support reallocation of Lake Lanier and Lake Allatoona for water supply;
- Support permitting and construction of at least five new water supply reservoirs;
- Construct two new system connections and maintain one existing system connection to allow water resource sharing;
- Construct a new water treatment plant in Walton County;
- Expand 25 existing water treatment plants;
- Retire 4 existing water treatment plants; and
- Return reclaimed water to Lake Lanier by Forsyth, Gwinnett, and Hall Counties for future indirect potable reuse.

The implementation of each of these highlights is discussed in detail in Section 9.

Water System Interconnections

Section 10 describes WS Plan recommendations regarding system interconnections that will provide reliable emergency standby water sources throughout the District. Three action items are presented and described for the interconnection program. These are:

- Set interconnection reliability targets;
- Establish sample water sharing agreements; and
- Develop or update local emergency water plans.

An analysis of interconnection requirements between District counties was performed based on providing a minimum of 35 percent of AADD in an emergency. Preliminary recommendations are reviewed in Section 10 for specific 2030 interconnections.

Local Planning Recommendations

Section 11 describes the local planning effort required in the WS Plan. Local plans are needed to address local needs and site-specific issues, to refine and improve the WS Plan, and to demonstrate consistency with the WS Plan. Two action items are presented to describe the implementation of the local planning effort. These are:

- Develop local water management plans; and
- Review local plans for consistency with the WS Plan.

The recommended contents of the local plans are discussed in Section 10. Local plans will address :

- Water Supply, Conservation, and Reuse Management
- Water Treatment Facilities
- Distribution System and Interconnections Facilities

Flexibility Recommendations

Section 12 describes the flexibility of the WS Plan. This section identifies two processes whereby the WS Plan can be changed or refined. These are the development of local plans and the updating of the WS Plan every 5 years. The degree to which the WS Plan can be changed while remaining consistent with the goal of serving District 2030 water demands with available and anticipated resources is described in terms of 6 essential elements of the WS Plan. These are:

- Reallocation of Lake Lanier and Lake Allatoona for water supply
- Intensification of water conservation efforts
- Construction of at least 5 new reservoirs
- Sharing of water resources within the District to meet local needs
- Reclamation of water by indirect potable reuse through Lake Lanier
- Interconnection of District systems to provide reliability for emergencies

To illustrate the recommended level of flexibility with regard to each of these essential elements, specific examples of possible WS Plan changes are discussed in Section 12.

Regulatory Recommendations

Permitting decisions and approvals will be facilitated by a WS Plan. The WS Plan will furnish regulating agencies with necessary background information for determining the regional implications of permitting decisions.

Section 13 recommends three regulatory actions:

- Develop a Regional Section 404 permit for the District
- Streamline EPD permitting for District projects
- Allocate water withdrawals according to the WS Plan.

Each of these action items is intended to make the permitting process quicker and more predictable for District jurisdictions. Implementation details are provided in Section 13.

Governance Recommendations

Section 14 presents governance recommendations that will assist District jurisdictions with moving beyond coordination of activities, toward engaging in active collaboration. The WS Plan includes provisions to address governance issues associated with the greater degree of inter-jurisdictional collaboration that will be required. Many jurisdictions already work together to manage water supply. Their successful experience can benefit jurisdictions that will need to develop new agreements. Several provisions included in the WS Plan are:

- Model inter-jurisdictional agreements
- Fair share funding formula framework
- Level of service assurances
- Formal system of dispute resolution
- Increased state role
- Process for modifying the WS Plan
- Publicity and rewards for successful partnerships

Funding

Funding of the WS Plan involves the cost of the proposed capital improvements, as well as the cost of the other programs included in the WS Plan. These are estimated to be in the range of $26 billion spread over the next 30 years, as summarized in Table 2-3.

TABLE 2-3
Estimated Costs for District Water Supply and Conservation Plan for 2003 to 2030

Item	Projected Costs by Time Period			
	2001 to 2010 ($ billion)	2011 to 2020 ($ billion)	2021 to 2030 ($billion)	Total for 30 Years ($ billion)
Infrastructure				
Reservoirs	$ 0.2	0	0	$ 0.2
Treatment Facilities	$ 0.6	$ 0.5	$ 0.8	$ 1.9
Distribution System	$ 2.5	$ 2.5	$ 2.5	$ 7.5
Treatment O&M	$ 1.0	$ 1.4	$ 1.9	$ 4.3
Distribution System O&M	$ 3.2	$ 4.1	$ 5.0	$ 12.3
Programmatic and Policy Measures	$ 0.1	$ 0.1	$ 0.1	$ 0.3
Total	**$ 7.6**	**$ 8.6**	**$ 10.3**	**$ 26.5**

Funding of these costs will come from traditional sources, such as revenue bonds for capital improvements, and from innovative sources, such as possible gap funding through Georgia Environmental Facilities Authority (GEFA) or federal funding. The costs will largely be borne by the users of water supply services within the District.

The District's funding will largely come from the members, although state and federal grant money could support some of its operations.

Education and Public Awareness

As part of the WS Plan, SB 130 requires the development of an Education and Public Awareness (E&PA) Program that will outline measures the District can implement to raise public awareness of water supply and water conservation management issues and educate target groups that have some level of influence over water management. The provisions include the following:

- Raising public awareness of water supply and conservation issues among 75 to 90 percent of the District's population by 2006;
- Educating the public and identified target groups in order to increase awareness and encourage behavioral changes; and
- Coordinating with existing agencies and governmental entities to maximize the visibility of the District and its message.

Integration with Other District Plans

The solutions included in the WS Plan are integrated with the District's other two concurrent planning activities, the Long-term Wastewater Management Plan and the District-wide Watershed Management Plan. All three plans function together to provide solutions to the water resources issues in the District.