

## EXECUTIVE SUMMARY

The Metropolitan North Georgia Water Planning District (Metro Water District) was created by the Georgia General Assembly in 2001 (O.C.G.A. §12-5-572) to serve as the water planning organization for the greater metropolitan Atlanta area. The Metro Water District's purpose is to establish policy, create plans and promote intergovernmental coordination of water issues in the District from a regional perspective.

The Metro Water District includes 15 counties (Bartow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Fulton, Forsyth, Gwinnett, Hall, Henry, Paulding, and Rockdale counties) as well as 91 municipalities partially or fully within these counties. The Metro Water District also has seven authorities which provide water, sewer and/or stormwater services. The Metro Water District's plans and policies work to protect water resources in the Chattahoochee, Coosa, Flint, Ocmulgee, Oconee and Tallapoosa River Basins.

With the adoption of the Georgia State-wide Water Management Plan by the Georgia General Assembly in 2008, the Metro Water District is now one of eleven regional water planning councils in the state, and will continue to work within the integrated framework of state water resources planning.

The Metro Water District enabling legislation mandated the development of three long-term regional plans to address the water resources challenges:

- Water Supply and Water Conservation Management Plan
- Wastewater Management Plan
- Watershed Management Plan.

The first plans were completed and adopted in 2003 and have been actively implemented by local jurisdictions in the Metro Water District. This document serves as the first update to the original Water Supply and Water Conservation Management Plan and details strategies and recommendations for both effective water supply and water conservation. It includes specific tasks and milestones for implementing these recommendations for local governments as well as regional and state agencies.

## THE PLAN UPDATE PROCESS

The Metro Water District utilized an integrated planning effort similar to that used to develop the original plans in order to build consensus for long-term regional water resources management solutions. The Metro Water District water resources plans are the result of a collaborative effort between the Metro Water District's local jurisdictions, the Georgia Environmental Protection Division (Georgia EPD), and numerous stakeholders.

As envisioned by the Metro Water District's enabling legislation, the planning process includes the Metro Water District Governing Board, a Technical Coordinating Committee (TCC), six Basin Advisory Councils (BAC), Georgia EPD, planning staff from the Atlanta Regional Commission and technical consulting firms.

### INTEGRATION OF PLANNING EFFORTS

The Metro Water District also prepared two other plans which together with the Water Supply and Water Conservation Management Plan represent an integrated and holistic approach to water resources planning and management. The **Watershed Management Plan** details strategies and recommendations for both effective watershed and stormwater management and water quality protection. It includes specific tasks and milestones for implementing these recommendations for local governments as well as regional and state agencies. The **Wastewater Management Plan** sets forth strategies for comprehensive wastewater management efforts to meet future needs across the Metro Water District. The plan outlines a long-term implementation schedule for public wastewater treatment. It also provides for comprehensive wastewater planning to establish future sewer service areas and calls for more intensive management of privately owned septic systems.

### KEY CHANGES TO THE PLAN

In this plan update, there are a number of changes from the 2003 Water Supply and Water Conservation Management Plan, as amended, including a reorganization of the document. The most notable organizational change involved providing simple implementation summaries for each measure that have more background and implementation guidance than were included in the 2003 document.

Additionally, key elements of updating the 2003 Water Supply and Water Conservation Management Plan include a review and update of water conservation measures, water demand forecasts, existing and potential water sources, extension of the planning horizon to 2035 and ensuring compatibility with the State-wide Water Management Plan. As a result of the review of water conservation measures, three of the measures from the 2003 Water Supply and Water Conservation Management Plan, as amended have been enhanced and two new measures have been added to the Water Conservation Program and are described in Section 5.

### EXISTING WATER SUPPLY AND TREATMENT FACILITIES

Water supply service and management throughout the Metro Water District is provided by over 50 individual water providers. Water management includes supply, treatment, distribution, interconnections, and the interaction of these infrastructure systems with the natural systems.

### EXISTING WATER SUPPLIES

The Metro Water District relies primarily on surface water from rivers and storage reservoirs as its main source of water supply. In fact, surface water provides over 99 percent of the water supply in the District. Within the Metro Water District, almost 888 AAD-MGD (average annual day-million gallons per day) of permitted water supply (surface and groundwater) is available. The Chattahoochee basin accounts for approximately 73 percent of the permitted available water supply in the Metro Water District. A summary of existing permitted monthly average available water supply by basin is presented in Table ES-1.

TABLE ES-1

Metro Water District Percent Permitted Monthly Average Available Water Supply by Basin

Source Basin	Percent Permitted Monthly Average Available Water Supply
Chattahoochee	72.6 %
Coosa	14.0 %
Flint	5.0 %
Ocmulgee	8.1 %
Oconee	0.2 %
Tallapoosa	0.1 %

**EXISTING WATER TREATMENT FACILITIES**

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 supply.

**EXISTING WATER SUPPLY 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.

**EXISTING INTERBASIN TRANSFERS**

Interbasin 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. Interbasin transfers are a key and necessary element in supplying water throughout the Metro Water District; there are water supply and wastewater transfers into and out of every basin. Table ES-2 summarizes the existing water and wastewater interbasin transfers in the Metro Water District.

TABLE ES-2

Summary of Existing Net Interbasin Transfers

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.

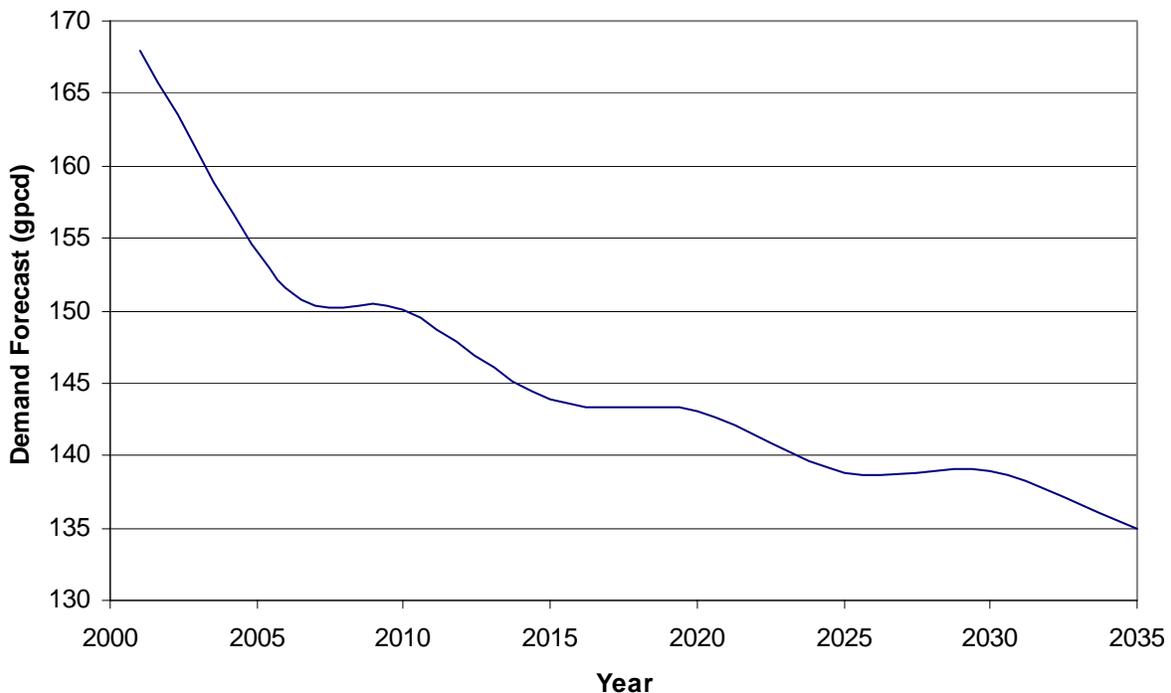
## WATER DEMAND FORECASTS

The “Demand Side Management Least Cost Planning Decision Support System” (DSS) computer model developed by Maddaus Water Management, which was used for the 2003 Plan, was updated and used to forecast water demands and assess water conservation measures. The model uses current water production and billing data provided by most local water providers, along with population and employment forecasts, to estimate water demands through 2035. The model provides water use for each county by water use sector (single-family, multi-family, commercial, industrial, institutional), splits usage into indoor and outdoor components and further subdivides indoor use into major end uses (toilets, faucets, etc.). The level of detail increases the accuracy of both the forecasts as well as the anticipated benefits of the water conservation program, because the demand and savings are based on the specific aspects of water use within that county. For example, the replacement of old toilets will conserve more water in a county with older housing stock than in a county with newer housing stock.

With implementation of the enhanced water conservation program, the projected water demand is estimated to be 1,011 MGD on an average annual daily demand basis. Figure ES-1 shows that this Plan update provides a 20% reduction in per capita demand from 2001 to 2035. The starting point of 168 gallons per capita per day (gpcd) reflects billing data for 2001 collected for the 2003 Plan. The 2006 data shows a 151 gpcd, used in the Plan update. The end point reflects the benefit of the conservation program in the Plan update.

FIGURE ES-1

Metro Water District Overall Per Capita\* Water Use Trends (2001 – 2035)



\* Overall per capita = total water demand supplied by public water systems in the Metro Water District divided by the Metro Water District's population.

## **WATER CONSERVATION ANALYSIS**

Water conservation was considered first in the planning process, prior to looking at new or expanded sources. The water conservation analysis used the DSS computer model to maximize the cost-benefit of the updated water conservation program. The updated water conservation program expands the existing Metro Water District program to further enhance water conservation into the future. The program resulted from an extensive analysis of the current program, evaluation of new methods and measures, and stakeholder involvement.

An important step in updating the water conservation program was the review and screening of additional potential water conservation measures. A list of 45 potential water conservation measures were identified and evaluated. Each potential conservation measure was ranked against three qualitative criteria: technology / market maturity, service area match, and customer acceptance / equity. The screening process resulted in a short-list of new potential water conservation measures. The selected measures that could be evaluated quantitatively for water savings were modeled and ranked based on the cost of the water saved (cost / million gallons saved).

Combinations of the best individual water conservation measures were then placed in several different “Option Packages” or programs. Three water conservation packages were identified for the Metro Water District, each with varying degrees of water savings and costs. The existing adopted water conservation measures provided the backbone for each of these packages. Package A was composed of the 10 existing water conservation measures to provide a benchmark for the analyses. Package B was composed of Package A plus 2 new water conservation measures and 3 revised existing measures. Package C is comprised of all evaluated water conservation measures.

Water Conservation Program B was selected as the recommended program. This aggressive water conservation program will achieve significant savings (88 MGD) in addition to the savings (60 MGD) that will occur through the natural replacement of less efficient plumbing fixtures. Implementation of Program B realizes the majority of the water savings available while Program C requires spending 5% more (or \$19M) to gain just 4 MGD of additional water savings. Implementing the measures in Program B provides additional water conservation benefits on the foundation provided by the existing measures without exceeding the number of measures that a local water provider can realistically implement.

## **WATER CONSERVATION PROGRAM**

Water conservation is a critical element in meeting the water supply needs within the Metro Water District. When fully implemented, these water conservation measures will reduce the Metro Water District’s water demand by the end of the planning period. Much progress related to water conservation has been achieved since the adoption of the 2003 Water Supply and Water Conservation Management Plan. The Metro Water District’s plan has been instrumental in making water conservation a priority in north Georgia. The Metro Water District is the only major metropolitan area in the country with more than 100 jurisdictions that is implementing such a comprehensive long-term water conservation program that is required and enforced. Tiered water conservation rates have been put in place throughout the Metro Water District. All of the largest water systems have implemented programs to reduce system water loss. Toilet rebate programs are in place and ahead of schedule. The water conservation

measures in this Plan update include and go beyond the measures in the 2003 Plan. This update includes:

- The 10 water conservation measures from the 2003 plan
  - Conservation pricing
  - Replace older, inefficient plumbing fixtures
  - Pre-rinse spray valve retrofit education program
  - Rain sensor shut-off switches on new irrigation systems
  - Sub-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
- 3 of those 10 water conservation measures are strengthened
  - Irrigation meter pricing at 200 percent of the first tier rate
  - 1.28 gpf toilet rebate program only by 2014
  - Minimum local education requirements and optional toolbox of examples is provided.
- 2 new water conservation measures are added
  - Install 1.28 gpf toilets and low flow urinals in government buildings
  - Require new car washes to recycle water.

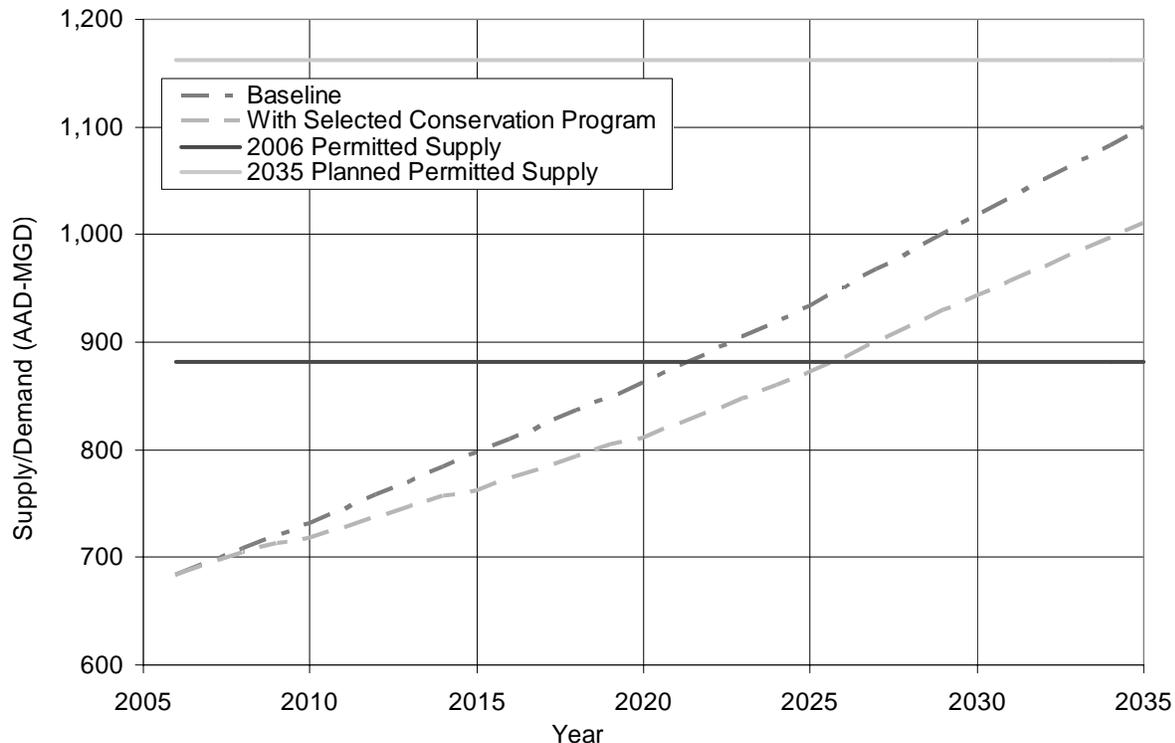
## WATER SUPPLY SOURCES

By 2035, the Metro Water District's water demands with the aggressive water conservation program will approach 1,011 AAD-MGD. The current permitted surface water supply is 882 AAD-MGD; therefore, to meet the projected future water supply needs in the Metro Water District through 2035 additional water supply sources will be needed. The future water supply alternatives to meet 2035 demands include existing water supply sources and reservoirs, expansions of existing sources, and potential new water supply sources. It is important to note that the benefits of the water conservation program were considered prior to consideration of additional water supply sources.

On an average annual basis, the anticipated 2035 permitted surface water supply is 1,140 AAD-MGD. Figure ES-2 shows graphically that the water supplies identified will meet 2035 forecasted demands.

Groundwater use makes up less than 1% of the public water supplies for the Metro Water District, due to bedrock geology. Over the 2035 planning horizon, it is expected that the percentage of groundwater use will remain about constant. For planning purposes, groundwater supply sources have been factored into the water supply plan as a source for small towns and as a supplemental source.

**FIGURE ES-2**  
**Metro Water District Water Demand and Supply**



## WATER SUPPLY FACILITIES

In order to maintain reliable water supply within the Metro Water District, the following action items are needed to further maximize existing sources, secure additional water supply sources and build additional treatment capacity.

- Construct three water supply reservoirs that are in the planning stages plus continue to investigate three additional water supply reservoirs needed within the planning horizon.
- Construct two new storage facilities to drought proof and extend existing supply sources.
- Construct 6 new water treatment plants and expand 28 existing water treatment plants based on the phased approach provided in Appendix B.

In 2035, the planned treatment capacity in the Metro Water District is 1,726 PD-MGD or 1,079 AAD-MGD from a total of 44 publicly-owned surface water treatment plants.

Table ES-3 provides the future interbasin transfers, based on 2035 demand forecasts and the facilities planned to meet the forecasted demand. Future planned water supplies aim to minimize interbasin transfers. The net interbasin transfer shows the total interbasin transfer based on expected permitted withdrawals and discharges.

**TABLE ES-3**  
**Summary of 2035 Net Interbasin Transfers**

Source Basin	Receiving Basin	Net Transfer (AAD-MGD)
Chattahoochee	Flint	7
Chattahoochee	Ocmulgee	97
Chattahoochee	Oconee	6
Coosa	Chattahoochee	32
Coosa	Tallapoosa	2
Flint	Ocmulgee	2

## WATER REUSE

There are several types of reuse that may be used in the Metro Water District to extend supplies or replace potential new water sources with reuse water. The plan outlines the different types of water reuse as well a discussion of existing and future applications in the Metro Water District identified to meet the 10% reuse planning standard identified by Georgia EPD.

Non-potable and indirect potable reuse are both currently practiced in the Metro Water District and are expected to sustain water supplies into the future. Indirect potable reuse is highly encouraged, where appropriate. Non-potable reuse is acceptable depending on each local community’s consumptive use challenges, when it offsets an existing potable water supply.

Long-term sustainability of the resource can be achieved through returning reclaimed water to Lake Lanier and Allatoona Lake. The cities and counties that withdraw water from Lake Lanier for drinking water supply should maximize the return of reclaimed water to the Lake. Summing both planned and incidental indirect potable reuse, communities currently plan to return over 100 AAD-MGD to Lake Lanier and approximately 36 AAD-MGD to Allatoona Lake as outlined in the Wastewater Management Plan within the 2035 planning horizon.

## LOCAL PLANNING RECOMMENDATIONS

This Water Supply and Water Conservation Management Plan is regional in breadth, looking holistically at regional issues. The action items in this Plan are intended to be refined at the local level by the affected local water providers through local water master plans. Local water master plans, at a minimum, must conform to the goals of the Metro Water District’s Water Supply and Water Conservation Management Plan to ensure that customer service goals are cost-effectively met with a long-term regional perspective.

Other local planning recommendations include developing local emergency water plans, taking necessary steps to protect source water supplies and developing a water system asset management program.

## **WATER SUPPLY ISSUES**

Lake Lanier and Allatoona Lake have played a key role in assuring an adequate water supply for the Metro Water District since their construction by the U.S. Army Corps of Engineers (Corps) in the 1950s. These federal reservoirs are multi-purpose projects that store water for multiple purposes: hydropower production, flood control, navigation, water supply, water quality, recreation and navigation. Although the Corps controls the storage in these reservoirs, the water in the State of Georgia is allocated and managed among users by the State of Georgia.

This Plan assumes that the federal reservoirs will continue to operate to meet water supply needs within the Metro Water District consistent with the guidance about future yield expectations provided by Georgia EPD. After reviewing alternatives to the use of the federal reservoirs, *the Water District has concluded that there are no alternatives to the Chattahoochee River and the Etowah River as major water supply sources for north Georgia.*

It should be noted that expectations regarding water supply available from the operation of Lake Lanier and Allatoona Lake assume operation of these Corps reservoirs based on a balanced operation of the projects for all purposes. Recent changes in Corps operations of these Lakes beginning in 2006 represent a dramatic change and are of concern. In addition, the operation of the federal reservoirs is the subject of litigation of which the outcome is uncertain. Nonetheless, the Metro Water District trusts that the Corps will eventually develop Water Control Plans for the ACF and the ACT that provide a balanced approach for all the users of each system.

Other issues affecting the Metro Water District include: minimizing consumptive uses (water reuse, septic systems, land application systems, and interbasin transfers), reservoir storage reliability, regulation of small water withdrawals, instream flow protection policy, drought planning, impacts of climate change on water resources, surface water and groundwater treatment standards, chemicals of concern, and sedimentation of stream and river intakes.

## **STATE AND REGIONAL POLICY RECOMMENDATIONS**

State and regional policy recommendations are provided to further implementation of water supply and water conservation management in the Metro Water District. These recommendations are intended for state and regional agencies, and require no action on the part of local governments. Policy recommendations include:

- Metro Water District should facilitate ongoing discussions on post-2035 water supply planning.
- Georgia EPD and the Georgia Environmental Facilities Authority (GEFA) should continue to financially support the construction of needed water supply sources through GEFA and other Federal and State funding sources.
- Georgia EPD should consolidate the permit cycles for water withdrawal permits and water treatment facility permits. Georgia EPD should also work to consolidate and standardize reporting to enable reports be simplified to meet multiple requirements.
- Through Georgia legislation, the State plumbing code should be adjusted to reflect market maturity for higher efficiency fixtures.
- Georgia EPD should study and make recommendations to the Georgia General Assembly on requiring all withdrawals in the Metro Water District to adhere to the same drought restrictions

as those on public water supplies and requiring permits for less than 100,000 gpd within the Metro Water District.

- Georgia Department of Community Affairs (Georgia DCA) should consider updating the new Comprehensive Land Use Plan review audit checklist as needed to encourage coordination between land use planning and water supply planning. Georgia DCA should also review and support source water supply watershed protection as outlined in the Part V Environmental Planning Criteria.
- The Metro Water District should continue working with the Technical Coordinating Committee (TCC) and if necessary a working sub-committee of the TCC to collect data and measure progress of the regional water conservation program.

## EDUCATION AND PUBLIC AWARENESS

Education and public awareness is essential to effective water resources management. This Plan includes a detailed education and awareness program specifically designed to:

- Raise public awareness of water issues and needs to foster support for solutions;
- Educate the public and other identified target groups in order to increase awareness and encourage behavioral changes; and
- Coordinate with other public as well as private entities to maximize the visibility of the Metro Water District and its messages.

The Metro Water District education and public awareness program is comprised of two elements: a regional program managed by the Metro Water District staff; and education activities undertaken by local governments. The Metro Water District provides a regional education and public awareness program and develops mass media content and educational tools, including a comprehensive website, brochures and presentation materials. The local governments' role in education and public awareness is to reach out to specific groups in their community, provide educational materials and share knowledge of subject matters with the public by undertaking specific education and outreach activities.

## PLAN IMPLEMENTATION

The Water Supply and Water Conservation Management Plan provides implementation guidance and schedules for the management measures and actions included in the Plan. Local water providers have a high level of accountability for implementing the Water Supply and Water Conservation Management Plan's measures through the Georgia EPD audit process. Georgia EPD auditors conduct a thorough review of the local programs and procedures to determine consistency with the Metro Water District Water Supply and Water Conservation Management Plan. Communities must substantially comply with the Metro Water District plan provisions in order to modify or obtain new water withdrawal permits, wasteload allocations, GEFA loan funding, or the renewal of MS4 stormwater permits. Overall, this system has worked well to ensure implementation of the provisions of all three Metro Water District water resources plans.

## IMPLEMENTATION FUNDING

Successful implementation of the water supply and water conservation action items located in this plan requires adequate funding. Local governments should develop a stable funding mechanism that will

provide for complete implementation. There is only one appropriate primary funding method available to local governments, water rates. In addition, there are a number of secondary sources of funding, including the local government's general appropriations, loans, bonds, service fees, and grants. A blend of funding mechanisms is recommended for most local governments.

### FUTURE PLAN EVALUATION

The Metro Water District enabling legislation identifies the need to periodically assess regional progress toward implementation of the specific actions identified in the Water Supply and Water Conservation Management Plan and toward meeting the long-term goal of comprehensive water resources management. The aggressive conservation program and action items provide the framework for evaluating implementation of this Plan. The future evaluation includes annual surveys completed by the Metro Water District that will track progress.

There are two types of plan reviews and updates: annual reviews and plan updates that occur every five years. The reviews and updates are an important component of an adaptive management approach for all three of the Metro Water District's long-term management Plans (water supply and conservation, wastewater, and watershed).

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