SOUTH FLORIDA WATER MANAGEMENT DISTRICT

South Florida Water Management District

Five-Year Water Resource Development Work Program

Fiscal Years 2003 – 2007

March 2003

Water Supply Department
South Florida Water Management District

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ACKNOWLEDGEMENTS

This document provides a description of the progress the South Florida Water Management District has made in implementing the recommendations made in its four regional water supply plans and maps out the direction of project implementation over the next five years. We would like to thank those who contributed to this document. David Gilpin-Hudson and Linda Hoppes were the project managers responsible for producing this document, with assistance from Kate Edgerton. Chris Sweazy, Sharon Fowler, Bonnie Kranzer and Jim Jackson, the project managers for the four regional water supply plans, updated the financial information and provided status updates on the recommendations for the four planning areas. Victor Lopez provided financial projections for the Comprehensive Everglades Restoration Plan. Dawn Rose formatted and edited the document. Angela Farinelli designed and executed the cover. Michelle Pearcy, Division Director, John Mulliken, Deputy Department Director and Ken Ammon, Department Director, of the Water Supply Department provided direction for the development and facilitation of this document. We would like to thank Janet Llewellyn, Deputy Division Director, and Kathleen Greenwood of Florida Department of Environmental Protection (FDEP) for reviewing this document and making recommendations on its improvement.

LIST OF ACRONYMS AND ABBREVIATIONS

ASR	aquifer storage and recovery
AWS	alternative water supply
CERP	Comprehensive Everglades Restoration Plan
CUP	consumptive use permitting
EAA	Everglades Agricultural Area
EFDC	Estuarine Fluid Dynamic Code
FAS	Floridan Aquifer System
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FPL	Florida Power & Light
FPSC	Florida Public Service Commission
FTEs	full-time equivalents
F.S.	Florida Statutes
FY	fiscal year
IAS	Intermediate Aquifer System
KB	Kissimmee Basin
LEC	Lower East Coast
LEC Interim Plan	*Interim Plan for Lower East Coast Regional Water Supply*
LWC	Lower West Coast
MFLs	minimum flows and levels
MGD or mgd	million gallons per day
Miami-Dade WASD	Miami-Dade Water and Sewer Department
MIL	mobile irrigation lab
NEPA	National Environmental Policy Act
NRCS	National Resources Conservation Service
PIR	Project Implementation Report
PPDR	Pilot Project Design Report
RECOVER	Restoration Coordination and Verification
Restudy	*Central and Southern Florida Project Comprehensive Review Study*
RIDS	Regional Irrigation Distribution System
SAS	Surficial Aquifer System
SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SSM	supply side management
SWFWMD	Southwest Florida Water Management District
TBD	to be determined
UEC	Upper East Coast

UIC	underground injection control
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WCA	Water Conservation Area
WRAC	Water Resources Advisory Commission
WRDA 2000	Water Resource Development Act of 2000
WSE	water supply and environmental

INTRODUCTION

The Water Resource Development Act of 2000 requires each water management district to prepare a five-year water resource development work program. This is the fourth such work program produced by the South Florida Water Management District (SFWMD or District), the initial work program document being prepared by the SFWMD for 1999 with updates each year since 2000 (SFWMD, 1999, 2000a, 2002a). The dollar amounts and full-time equivalents (FTEs) presented within this document represent the best estimates of how resources are to be allocated during implementation of the regional water supply plans (RWSPs) over the next five years. These dollars and FTEs are subject to change as water managers reassess SFWMD's needs and priorities during the annual budget process. This document also includes summaries and updates on the implementation of recommendations made in the RWSPs.

The *Upper East Coast (UEC) Water Supply Plan* (SFWMD, 1998a) was the District's first plan completed under the 1997 legislative modifications to Chapter 373, Florida Statutes (F.S.), and the Governor's Executive Order 96-297, discussed in the Legal Basis of Water Supply Planning section of this report. The SFWMD's Governing Board approved the *UEC Water Supply Plan* in February 1998. In April 2000, the Governing Board approved RWSPs for the Kissimmee Basin (KB) and the Lower West Coast (LWC) (SFWMD, 2000b, 2000c). The *Lower East Coast (LEC) Regional Water Supply Plan* (SFWMD, 2000d) was approved in May 2000. Each plan was formulated to reflect the particular needs of one of four regional planning areas within the SFWMD (**Figure 1**). District staff and advisory committees composed of local, state and federal agency staff and representatives from interests and affected organizations in each region developed the recommendations in each plan. This report describes the time frames and costs allocated to implement each plan.

Document Organization

As in previous *Five-Year Water Resource Development Programs,* the water resource development projects recommended by the RWSPs are discussed in sections, which describe Districtwide efforts, as well as specific recommendations for each planning area. Many Districtwide activities are also discussed in the planning area sections, but the costs are included in the Districtwide section total, not the planning area totals.

Because each planning area has unique characteristics, the RWSPs were each structured differently. In this document, the discussions of water resource development recommendations and projects for a particular planning area are organized as they were in each respective plan. The UEC and LWC sections are organized based on water source options. The KB section is organized on the basis of strategies and associated water resource development recommendations, with three strategies for the Orange-Osceola County area and two for the Lake Istokpoga-Indian Prairie Basin. Water resource development recommendations in the LEC section are grouped by the scope, nature and funding sources of the proposed projects.

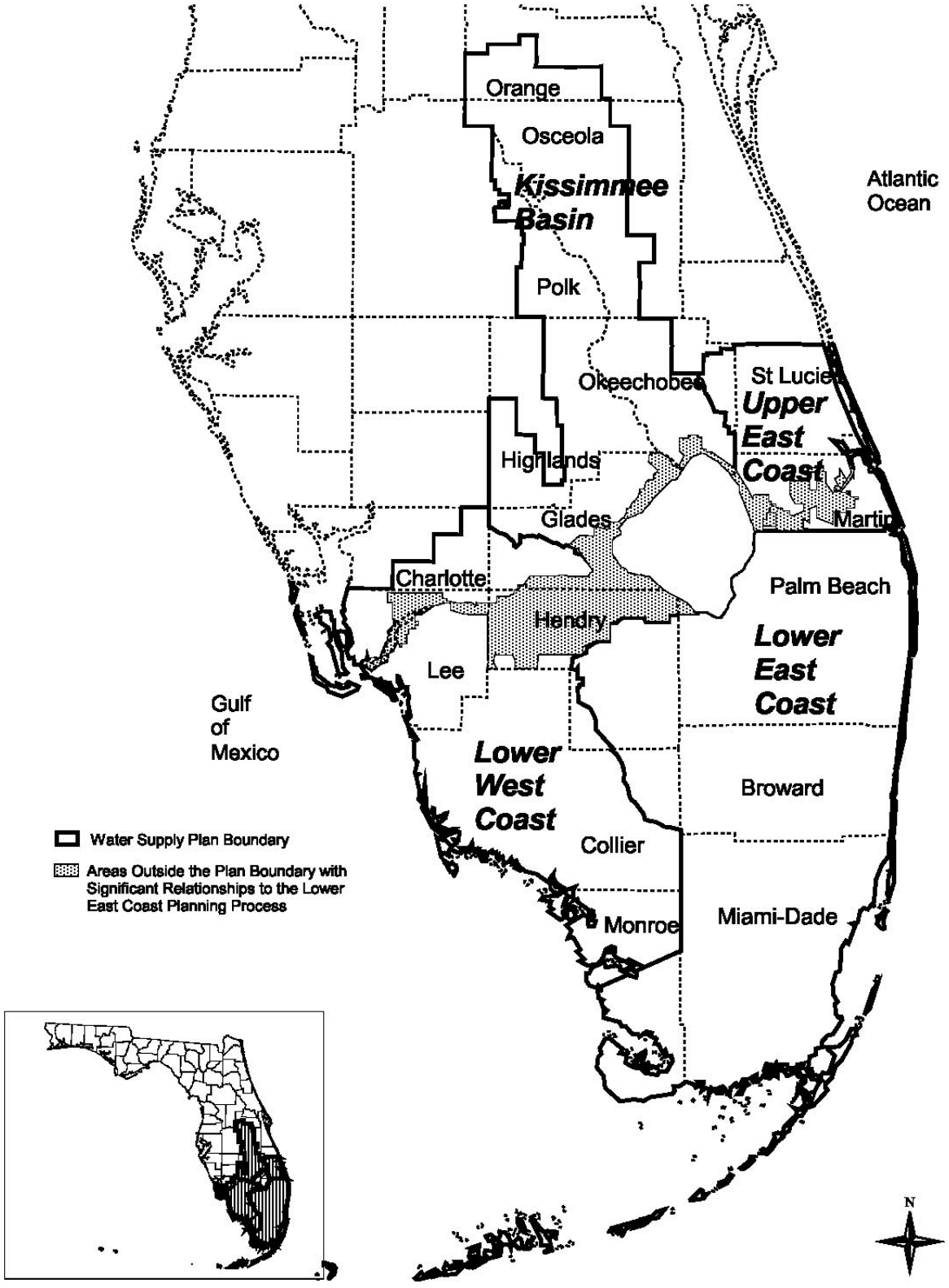

Figure 1. Water Supply Planning Areas within the SFWMD

Each category of recommendations provides a description and general listing of included water resource development projects and activities. Costs to nonfederal entities (primarily the SFWMD), estimates of total SFWMD staff time required in Full Time Equivalents (FTEs) and a funding schedule by fiscal year (FY) are presented in a table at the end of each section. One FTE represents 40 hours per week work effort by one person for a period of 52 weeks. Estimates of the total amounts of water provided by the recommendations are provided (to the extent that these can be determined), along with funding sources and implementing agencies. Water resource development categories and projects are numbered to correspond with the numbered categories and recommendations in each RWSP document. Recommendations from the *Caloosahatchee Water Management Plan* (SFWMD, 2000e) are listed in the LWC section.

A summary of the SFWMD's projected funding needs is provided in the section following the plan sections. Total costs are presented for both the five-year period of FY 2003 through FY 2007 and for the current fiscal year (FY 2003).

Time Frames and Total Costs

The time frames for this *Five-Year Water Resource Development Program* are from the SFWMD's fiscal years beginning October 1, 2002 and ending September 30, 2007. Total costs for this period for all the recommendations or strategies for each individual plan can be found in a table at the end of each section. Many of the Comprehensive Everglades Restoration Plan (CERP) projects and two other activities [(1) water conservation and (2) assessment of the effects of water level drawdowns on wetlands] span the boundaries of multiple planning areas. These projects are discussed in a separate section that precedes the planning area discussions.

In some cases, actual costs shown in this document for FY 2003 year may differ from the published cost figures in the RWSPs. The differences between plan numbers and those in this report can be attributed to the refinement of the planning and development level costs during the budget process, and to the identification of cost-share partners. The costs presented in this work program document are consistent with the FY 2003 budget.

LEGAL BASIS OF WATER SUPPLY PLANNING AND DEVELOPMENT

The Florida Legislature authorizes the SFWMD with managing water use in South Florida. One important task in this charge is planning to meet future water demands. In partial fulfillment of this requirement, the SFWMD has prepared RWSPs. Water supply planning and development activities were first required of the state's water management districts following adoption of the Florida Water Resources Act of 1972 (Chapter 373, F.S.). During the 1997 legislative session, significant amendments were made to the Water Resources Act. The amendments clarified agency responsibilities related to regional water supply planning and development and included many of the provisions of the Governor's Executive Order 96-297. The executive order provides direction to Florida's water management districts in the establishment and implementation of minimum flows and levels (MFLs) and the development of RWSPs where sources are not adequate to meet future demands.

The SFWMD has undertaken a water supply planning and development initiative to ensure prudent management of South Florida's water resources. The SFWMD has committed to an overall water resources goal. This goal is derived from the State Comprehensive Plan [Section 187.201 (7)a, F.S.], which states:

> Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

Statutory mandates for planning and development by the water management districts, in cooperation with the Florida Department of Environmental Protection (FDEP), are found in several sections of Chapter 373, F.S. One of these sections, 373.036(1), F.S., requires the FDEP to develop the Florida Water Plan in cooperation with the water management districts, regional water supply authorities and others. The Florida Water Plan includes, but is not limited to, the following items:

- The programs and activities of the FDEP related to water supply, water quality, flood protection and floodplain management and natural systems
- The water quality standards of the FDEP
- The district water management plans
- Goals, objectives and guidance for the development and review of programs, rules and plans relating to water resources, based on statutory policies and directives [the State Water Policy, renamed the Water Resource Implementation Rule pursuant to section 373.019(20), F.S., shall

serve as this part of the plan (Chapter 62-40, Florida Administrative Code)]

Regional water supply planning and development is mandated under section 373.0361(1), F.S. This statute provides, in part, the following:

> By October 1, 1998, the governing board shall initiate water supply planning for each water supply planning region identified in the district water management plan under section 373.036, where it determines that sources of water are not adequate for the planning period to supply water for all existing and projected reasonable-beneficial uses and to sustain the water resources and related natural systems.

Each regional water supply plan shall be based on at least a 20-year planning and development period and shall include, but not be limited to the following components:

- A water supply development component
- A water resource development component
- A recovery and prevention strategy for addressing attainment and maintenance of MFLs in priority water bodies
- A funding strategy for water resource development projects that shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects
- Consideration of how the options addressed serve the public interest or save costs overall by preventing the loss of natural resources or avoiding greater future public expenditures for water resource development or water supply development (unless adopted by rule, these considerations do not constitute final agency action)
- The technical data and information applicable to the planning area that are contained in the *District Water Management Plan* (DWMP) (SFWMD, 2000f) and necessary to support the RWSPs
- The MFLs established for water resources within the planning area

Under Section 373.0361(5), F.S., the FDEP is mandated to submit an annual report on the status of regional water supply planning and development in each district to the governor and the legislature. The report is to contain a compilation of the estimated costs, potential sources of funding for water resource development and water supply development projects, as identified in the water management district regional water supply plans. It must also contain a description of each district's progress toward achieving its water resource development objectives, including progress toward completion of a five-year water resource development work program.

Section 373.536(6)(a)4., F.S., mandates the preparation of a proposed five-year water resource development work program by each water management district. The work program must describe each district's implementation strategy for the water resource development

component of each approved regional water supply plan developed or revised pursuant to Section 373.0361, F.S. It is required to address all elements of the water resource development components in each district's approved regional water supply plans.

STATUTORY DEFINITION OF WATER RESOURCE DEVELOPMENT AND WATER SUPPLY DEVELOPMENT

The RWSPs recommended the implementation of projects and actions from two categories: water resource development projects and water supply development options. This is in concert with amendments to Chapter 373, F.S. that were passed in 1997. These changes require RWSPs to include a water resource development component and a list or menu of water source options for water supply development that can be chosen by local water users. The statute defines water resource development and water supply development as follows:

> 'Water resource development' means the formulation and implementation of regional water resource management strategies, including the collection and evaluation of surface water and ground water data; structural and nonstructural programs to protect and manage water resources; the development of regional water resource implementation programs; the construction, operation, and maintenance of major public works facilities to provide for flood control, surface and underground water storage, and ground water recharge augmentation; and related technical assistance to local governments and to government-owned and privately owned water utilities.
>
> 'Water supply development' means the planning, design, construction, operation, and maintenance of public or private facilities for water collection, production, treatment, transmission or distribution for sale, resale or end use.

In addition to the legislative definitions described above, the designation of a component as a water resource development project was based on it having the following characteristics:

- Has the opportunity to address more than one resource issue
- Addresses a variety of use classes (e.g., environment, public water supply)
- Protects/enhances resources available for allocation
- Moves water from water surplus areas to water deficit areas
- Has a broad application of technology

The equivalent characteristics that led to designations of projects as water supply development options are as follows:

- Requires localized implementation of technology
- Delivers resources to consumers
- Has regionalized interconnects to consumers

The SFWMD is primarily responsible for the implementation of the water resource development components, which include projects that make additional quantities of water available, as well as projects that have other direct objectives. Local users have primary responsibility for water supply development by choosing the water source options that will best meet their needs.

INFORMATIONAL UPDATE ON RECOMMENDATIONS AND PROJECTS IDENTIFIED IN REGIONAL WATER SUPPLY PLANS

The following sections provide summaries of the results of each of the water supply planning and development efforts in the SFWMD. The Districtwide efforts are presented first, followed by the planning area efforts. The planning area information is presented from north to south, beginning with the Kissimmee Basin.

Districtwide Water Resource Development Efforts

Districtwide programs include the Wetland Drawdown Study, the Comprehensive Water Conservation Program, Mobile Irrigation Labs (MILs), Critical Projects and the CERP. Some water supply plans include recommendations for these programs, but budgeting and funding for these programs is being done on a Districtwide basis. The MILs are part of the Comprehensive Water Conservation Program, however, cost projections have been presented separately in this document; similarly the Critical Projects are part of the CERP, but numbers are presented separately. The schedule and costs to implement the Wetland Drawdown Study, the Comprehensive Water Conservation Program and the MILs over the next five fiscal years are summarized in **Table 1**. The Critical Projects are listed in **Table 2**. The CERP schedule and costs are listed in **Table 3**.

Wetland Drawdown Study

The Wetland Drawdown Study is being used to develop new criteria for the protection of wetlands associated with the Consumptive Use Permitting (CUP) Program. Long-term wetland monitoring sites have been established, monitoring wells and weather stations have been installed, historical aerial photographs have been analyzed, biological inventories have been completed, hydrologic modeling has been completed and an interim technical publication has been completed.

The District is currently in the rule development process having produced a draft rule based on the wetland monitoring data and hydrologic modeling. The rule has been through several public workshops throughout various locations in the District and has been the subject of several issue workshops of the District's Water Resource Advisory Commission (WRAC). Comments from the public and the FDEP have been received and incorporated into the draft rule. The District plans to continue to collect data for this study. This data collection should assist District staff in making decisions regarding permitting actions.

The total cost for FY 2003 is $170,000 and 2 FTEs (**Table 1**). The study is scheduled for completion in FY 2003.

Comprehensive Water Conservation Program

One of the most significant Districtwide projects is the development of the Comprehensive Water Conservation Program. The District expanded its water conservation efforts in 2001 by redirecting staff to a Water Conservation Section within the Water Supply Department. Some tasks included in the scope of the Water Conservation Section are: conservation outreach and education, alternative water supply funding, demand management cooperative funding, water reuse project management, Xeriscape™ promotion, mobile irrigation evaluation laboratory management, water use permit review coordination for water conservation requirements and District conservation rules revisions (40E-2, 40E-21, 40E-24). In addition, the scope of the expanded conservation program is aimed at working with and supporting the activities of water utilities, major water user groups, industry and local governments to achieve demand rate reductions for each type of use. This conservation program incorporates the use of retrofit conservation measures and public education. During the next five years, the SFWMD is planning to spend $3.9 million and 27.5 FTEs to implement the Comprehensive Water Conservation Program (**Table 1**), plus additional expenditures shown for Mobile Irrigation Labs (MILs).

Below are some of the activities that show the progress of the Comprehensive Water Conservation Program during this past fiscal year (FY 2002):

- Provided Alternative Water Supply grants of over $4 million to public and private partners
- Provided demand management grants to local governments totaling $200,000
- Initiated water reuse studies on both the east and west coasts of the District for regional reuse distribution systems
- Initiated an outreach and education campaign
- Continued to operate Mobile Irrigation Labs in 10 District counties
- Developed three rules: 1) water shortage, 2) basis of review for water use and 3) LWC year-round landscape irrigation measures
- Participated in the Statewide Water Conservation Initiative
- Provided guidance and assistance for local governments and utilities in the establishment of comprehensive water conservation programs

For fiscal years 2003 – 2007, the District Water Conservation section staff plans the following activities:

- Plan and coordinate National AWWA Water Conservation workshops in Ft. Lauderdale (February 2003)
- Assist District planners in updating the DWMP and RWSPs, while upgrading and enhancing funding partnerships with local water users and utilities

- Encourage and fund alternative water supply development projects and reuse systems, and expand the Mobile Irrigation Labs programs to include a new lab in Broward County (urban lab)
- Continue the Districtwide outreach and education campaign
- Continue the water conservation educational campaign in the Lower West Coast region to support the year-round conservation Rule 40E-24
- Assist local governments, water utilities, the FDEP, the Florida Public Service Commission (FPSC) and the industry in implementation of the Statewide Water Conservation Initiative, and adoption of comprehensive water conservation based rules and initiatives consistent with Statewide Initiative recommendations
- Provide assistance to water users and suppliers in establishing successful conservation programs and projects that are designed for individual service areas and consumer needs based on water use permits that are up for renewal
- Provide support in developing a comprehensive water conservation manual for voluntary use by water utilities

Mobile Irrigation Labs (MILs). Cost-share funding has been provided for the maintenance and establishment of MILs; these irrigation evaluation services have become an important component in the Districts' Comprehensive Water Conservation Program. The District currently funds seven MILs, including one funded through the Big Cypress Basin. In addition, since 1992 USDA-NRCS has funded (100 percent) an agricultural lab that serves Martin, St. Lucie, and Okeechobee counties. Each MIL completes 110 to 140 evaluations per year and provides irrigation system operators with conservation schedules and operational guidance. Potential benefits of these labs (urban and agricultural) include combined water savings of approximately 3,300 million gallons of water per year, as well as an associated reduction in chemical and fertilizer use and runoff. Collier, Lee, Hendry, Miami-Dade, Palm Beach, Martin, St. Lucie, Glades, Charlotte and Okeechobee counties participate in the Districtwide MIL Program. During the next five years, the SFWMD anticipates spending $2.7 million and 2.5 FTEs on the MILs, in addition to the $3.9 million and 27.5 FTEs for the rest of the Comprehensive Water Conservation Program (**Table 1**).

Water Conservation Efficiency Goals. To date the District has primarily used utility per capita rates for the purpose of demand projection and has based these rates on raw water withdrawal and permanent resident population. While effective as a projection tool, permanent resident raw water per capita has its limitations in evaluating utility use rates in areas with disparate seasonal and tourist population proportions. The proportion of and inclusion of other use types, such as industrial and commercial water use further compounds the quest for per capita uniformity. The District is currently examining data availability in order to complete a more refined analysis that would account for these differences between utilities and anticipates using these data for further evaluations.

Water Conservation Plans for Regional Water Supply Plans. The District has integrated a water conservation element into each of the four RWSPs. Included in this element for initiation are projects reflecting the Water Conservation Programs for Mobile Irrigation Laboratories, cooperative funding for hardware or technology oriented demand management projects, such as rain switch retrofits, pressure regulation and unbilled water loss. Reuse projects and other non-traditional or alternative water supply projects have been initiated and funded Districtwide. In addition, the District is participating in and monitoring the progress and recommendations of the FDEP led Statewide Water Conservation Initiative for inclusion of final recommendations and actions taken on a statewide basis to support successful water demand management standards and goals by type of water use.

Table 1. Funding for Districtwide, non-CERP Efforts during FY 2003 – FY 2007.

Comprehensive Districtwide Water Resource Development Efforts	Districtwide Implementation Costs ($1,000s and FTEs)											
	FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Conduct a wetland drawdown study	170	2.00	Complete								170[a]	2.00
Develop a comprehensive water conservation program	750	5.50	900	5.50	750	5.50	750	5.50	750	5.50	3,900	27.50
Provide cost-share funding for Mobile Irrigation Labs (MILs)	500	0.50	550	0.50	550	0.50	550	0.50	550	0.50	2,700	2.50
TOTAL	**1,420**	**8.00**	**1,450**	**6.00**	**1,300**	**6.00**	**1,300**	**6.00**	**1,300**	**6.00**	**6,770**	**32.00**

a. Does not include long-term monitoring

Comprehensive Everglades Restoration Plan (CERP)

The SFWMD is the non-federal sponsor of a vast environmental restoration project that is an overhaul of the Central and Southern Florida Project. Although CERP is an environmental restoration plan, some projects within CERP have water resource development benefits. The United States Army Corps of Engineers (USACE) built the original project in the 1950s and 1960s (USACE and SFWMD, 1999). The CERP itself is a 38-year effort with elements in all four planning areas. Most of these elements are scheduled to be complete by 2020. All of the CERP elements in the LEC planning area and some of the elements in the LWC planning area were addressed in those RWSPs, but for the purposes of this document, they are discussed as Districtwide projects.

Included in the CERP are several Critical Projects. Section 528 of the Water Resource Development Act of 1996 authorizes Critical Projects. The purpose of the Critical Project Program was to develop specific water quality related projects that are essential to the restoration of the South Florida natural systems. While these projects are now considered part of the CERP, they are listed separately in **Table 2**.

It should be noted that the Western C-11 project completion date changed from FY 2003 to FY 2004 due to termination of a contractor. This project was redesigned due to

potential flooding impact. The Western C-11 project is expected to be nearly complete at the end of FY 2004 and is reflected in Table 2; however, the project manager estimates 0.10 FTE is needed in FY 2005 to bring this project to completion and closeout.

Table 2. Nonfederal Funding for Critical Projects during FY 2003 – FY 2007

Critical Projects	Districtwide Implementation Costs ($1,000s and FTEs)											
	FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Ten Mile Creek Critical Project	5,980	0.70	4,755	0.83	133	0.23	Complete				10,868	1.76
Tamiami Trail Culverts (West) Critical Project	4,672	0.35	5,924	0.35	0	0.30	Complete				10,596	1.00
Western C-4 Structure Critical Project	11	0.10	Complete								11	0.10
Southern CREW Project Addition	12,191	2.75	1,845	2.00	Complete						14,036	4.75
Lake Trafford Restoration	3,475	1.00	3,093	1.23	0	1.30	0	1.30	Complete		6,568	4.83
Lake Okeechobee Water Retention/Phosphorus Removal	2,991	6.45	3,651	4.34	854	2.15	Complete				7,496	12.90
Western C-11 (S-9) Water Quality	1,260	0.40	2,130	0.20	0	0.10	Complete				3,390	0.90
Critical Restoration Program Controls	36	0.40	29	0.36	0	0.20	Complete				65	.96
TOTAL	**30,616**	**12.15**	**21,427**	**9.31**	**987**	**4.28**	**0**	**1.40**	**Complete**		**53,030**	**27.00**

The remaining CERP components that have activity (funds or FTEs expended) in the FY 2003 to FY 2007 time period are shown in **Table 3**. The tables include the SFWMD cost of each element, with the understanding that each CERP element is a 50-50 cost share with the USACE. Tables include the nonfederal share of the projects' costs with the understanding that there may be local cost sharing for certain projects. More detailed information about each element is available from several sources. Element descriptions are available in the *Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement* (USACE and SFWMD, 1999), referred to as the Restudy, and the *Master Program Management Plan* (USACE and SFWMD, 2000). Schedule information is available in the CERP *Master Implementation Schedule, Update 1.0* (USACE and SFWMD, 2001).

Table 3. Nonfederal Funding for CERP Projects during FY 2003 – FY 2007.

Project Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total FY 2003–FY 2007
Districtwide						
ASR Regional Study	2,224,344	TBD	TBD	TBD	TBD	TBD
Reconnaissance, Feasibility, Planning Studies	3,143,266	1,632,988	672,836	639,607	0	6,088,697
Monitoring, evaluation (RECOVER)	6,755,827	4,952,741	4,933,837	4,914,934	4,914,934	26,472,273
CERP Program Management, Support	35,503,461	18,421,828	16,571,814	18,421,828	17,449,000	106,367,931
Kissimmee Basin						
Lake Okeechobee Watershed	1,214,175	104,969,075	68,347,959	44,197,263	770,912	219,499,384
Lake Istokpoga Regulation Schedule	75,147	8,929	0	0	0	84,076
Lake Okeechobee ASR Pilot	2,419,833	46,154	0	0	0	2,465,987
Upper East Coast						
Indian River Lagoon-South	104,799,775	3,762,967	41,559,332	44,998,848	49,722,091	244,843,013
Lower West Coast						
C-43 Basin Storage Reservoir-Part 1	3,792,050	13,485,058	19,510,287	19,371,671	10,745,818	66,904,884
Caloosahatchee Backpumping and Stormwater Treatment	0	0	191,580	514,800	1,274,062	1,980,442
Big Cypress/L-28 Interceptor Modifications	0	0	153,910	338,857	282,620	775,387
Southern Golden Gates Estates Hydrologic Restoration	804,356	61,069	6,790	0	0	872,215
Caloosahatchee (C-43) River ASR Pilot	1,162,268	172,099	0	0	0	1,334,367
Lower East Coast						
Everglades Agricultural Areas Storage Reservoirs-Phase 1	3,009,869	3,041,231	797,887	0	0	6,848,987
Everglades Agricultural Areas Storage Reservoirs-Phase 2	0	1,154	606,886	902,200	899,885	2,410,125
WCA 3 Decomp & Sheetflow Enhancement-Part 1	1,752,396	504,333	151,347	55,650	13,217	2,476,943
WCA 3 Decomp & Sheetflow Enhancement-Part 2	0	0	0	116,538	967,849	1,084,387
Loxahatchee National Wildlife Refuge Internal Canal Structures	56,500	101,575	335,743	34,712	4,808	533,338
Modify Holey Land Wildlife Management Area Operation Plan	0	16,731	16,731	16,667	16,667	66,796
Modify Rotenberger Wildlife Management Area Operation Plan	0	21,094	33,984	19,922	0	75,000
No. Palm Beach County-Part 1	4,593,444	10,223,320	39,468,886	10,504,715	8,693,731	73,484,096
PBC Agriculture Reserve Reservoir-Part 1	2,390,950	0	8,004,409	199,450	149,500	10,744,309
Broward County Secondary Canal System	362,244	992,686	618,263	175,040	0	2,148,233
Everglades National Park Seepage Management	0	0	0	91,154	790,116	881,270
Biscayne Bay Coastal Wetlands	28,828,454	713,869	13,863,020	41,453,667	41,450,563	126,309,573
C-111 Spreader Canal	787,748	200,531	4,741,530	12,276,210	12,159,372	30,165,391
Florida Keys Tidal Restoration	170,849	40,323	1,662	0	0	212,834
Hillsboro ASR Pilot	435,472	328,202	0	0	0	763,674
Lake Belt In-Ground Technology Pilot	462,861	267,688	295,120	6,923	0	1,032,592

Project Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total FY 2003–FY 2007
Lower East Coast (cont'd)						
L-31N Seepage Management Pilot	1,025,321	56,923	0	0	0	1,082,244
Wastewater Reuse Technology Pilot	403,461	801,833	225,000	1,045,000	0	2,475,294
Acme Basin B Discharge	2,246,519	2,812,322	22,615	0	0	5,081,456
Strazzula Wetlands	396,730	12,147,147	7,350	0	0	12,551,227
Site 1 Impoundment	675,552	66,618	3,763	0	8,367,489	9,113,422
Broward County WPA	43,170,935	10,169,940	182,485	125,137	13,217	53,661,714
C-4 Structure (previously Dade-Broward Levee, C-4 Eastern Structure)	163,663	7,908,084	23,496	0	0	8,095,243
Bird Drive Recharge Area	42,330,826	0	0	91,154	650,477	43,072,457
Flow to NW & Central WCA-3A	63,640	326,192	159,612	158,592	105,185	813,221
TOTAL	**295,221,936**	**198,254,704**	**221,508,134**	**200,670,539**	**159,441,513**	**1,075,096,826**

It should be noted that there are fewer CERP projects in FY 2003 than in FY 2002 due to the reevaluation and regrouping of the project components in the Master Program Management Plan (MPMP). This resulted in 43 projects that the District locally sponsors in addition to seven program level activities. Previously, there had been 68 components, of which the District sponsored 58. The allocations vary from FY 2002 due to the District's more aggressive land acquisition schedule for the CERP.

Accomplishments for nonfederal funding for CERP projects and Critical Projects in FY 2002 were as follows:

- Completed Project Management Plans (PMPs) for several projects including: Everglades Agricultural Area Storage Reservoirs - Phase 1, C-111 Spreader Canal, Water Conservation Area 3 Decompartmentalization and Sheet Flow Enhancement - Part 1, Lake Belt In-Ground Reservoir Technology Pilot, Caloosahatchee River (C-43) Basin Aquifer Storage and Recovery Pilot, Florida Bay & Florida Keys Feasibility Study, Florida Keys Tidal Restoration, North Palm Beach County - Part 1, Biscayne Bay Coastal Wetlands and Wastewater Reuse Technology Pilot
- Completed Feasibility Studies for the Indian River Lagoon, the Water Preserve Areas and construction of the C-4 Critical Restoration project
- Continued acquisition of required real estate for priority CERP projects including major purchases for: the Broward County WPA, Indian River Lagoon, Southern CREW Critical Restoration Project and Bird Drive Recharge Area projects
- Continued implementation of the following projects: the Pilot Project Design Report (PPDR) and Project Implementation Report (PIR) phases of projects with approved PMPs, the RECOVER management plan and the Programmatic Management Plans

- Prepared the second annual report on the CERP implementation

Objectives for nonfederal funding for CERP projects and Critical Projects for FY 2003 are planned and described below:

- Implement 26 CERP projects, seven programmatic activities, seven Critical Restoration projects and four Feasibility Studies within their defined cost, schedule and scope
- Complete PMPs for five projects: Flow to Northwest and Central Water Conservation Area 3A, Loxahatchee National Wildlife Refuge Internal Canal Structures, Lake Istokpoga Regulation Schedule, South Miami-Dade Reuse and Aquifer Storage and Recovery (ASR) Regional Study
- Initiate construction of two stormwater treatment areas (STAs) for the Lake Okeechobee Critical Restoration Project (CRP)
- Complete Watershed Assessment for Lake Okeechobee Watershed Project
- Complete PIR for the Broward County Secondary Canal System Project
- Complete Special PIRs for the Water Preserve Areas and Indian River Lagoon South
- Complete design for the Broward County Water Preserve Areas Project (formerly C-9 Impoundment Project and C-11 Impoundment Project)
- Complete plans and specifications for the Tamiami Trail CRP
- Complete real estate acquisition for two projects: Broward County Water Preserve Areas Project and Southern CREW Critical Restoration Project
- Continue implementing the PPDR and PIR phases of projects with approved PMPs
- Secure congressional authorization for projects recommended in the feasibility studies for Indian River Lagoon and the Water Preserve Areas
- Continue implementing the RECOVER management plan
- Continue implementing the other programmatic areas (Program Management, Program Controls, Public Involvement and Outreach, Environmental and Economic Equity, Data Management and Geodetic Controls)
- Continue implementing the seven Critical Restoration Projects
- Continue implementing the two new feasibility studies (Southwest Florida & Florida Bay and Florida Keys Tidal Restoration)

Districtwide Water Supply Development Efforts

The SFWMD's efforts in water conservation and reuse include projects funded by the Alternative Water Supply (AWS) Funding Program. Though not a component of the water resource development work plan, development of reclaimed water for reuse has been significant. The SFWMD funded a total of $17.3 million in AWS projects between 1997 and 2001, with about 55 percent of these funds spent on reuse projects. For FY 2002, $3.7 million was funded with 27 percent going toward reuse projects, and in FY 2003 of a total $4 million, about 50 percent was committed to reuse projects. Applications for AWS projects have not been received for FY 2004, but it is estimated to be about $6 million, with about 30 to 50 percent of these funds being used for reuse projects.

2000 Kissimmee Basin Water Supply Plan

Plan Organization

An evaluation of the demands and water resources for the Kissimmee Basin (KB) planning area suggests that the ground water supplies may not be sufficient to meet the 2020, 1-in-10 year drought, water supply needs of the planning area. In addition, the SFWMD is required to ensure that it is in compliance with the Seminole Water Rights Compact signed by the Seminole Tribe of Florida, the State of Florida and the SFWMD. The compact entitles the Brighton Seminole Tribe to 15 percent of the total amount of water that can be withdrawn from local SFWMD canals, and access to a fractional share of surface waters from Lake Okeechobee for use on reservation lands within the Lakeshore Perimeter Basin.

In the *Kissimmee Basin (KB) Water Supply Plan* (SFWMD, 2000b), the SFWMD identified 14 recommendations which were developed into seven strategies to construct facilities to provide alternative sources of water. The recommendations are organized in this plan into three groupings: those pertaining to the Orange-Osceola County area, those pertaining to the Lake Istokpoga-Indian Prairie Basin area and related implementation strategies that apply to both areas. An examination of the identified options indicates that these groupings can be further subdivided based upon the approach or strategy that each takes in trying to address possible harm to the resource. Seven strategies were identified in this plan:

Orange-Osceola County Strategies

1. Minimize Floridan aquifer drawdown through recharge
2. Minimize Floridan aquifer drawdown through reduction of demands
3. Optimize use of the Floridan aquifer and develop alternative sources

Lake Istokpoga-Indian Prairie Basin Strategies

4. Develop alternative water resources
5. Develop a water management plan for the Lake Istokpoga-Indian Prairie Basin

Related Strategies

6. Coordination among water management districts
7. Ensure consistency between planning and development and water use permitting both internally and between the water management districts

Information Provided

The summary of each of the seven strategies includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD) and estimates of total SFWMD staff time required in FTEs to

implement the option. The schedule and costs to implement the recommendations in the *KB Water Supply Plan* over the next five fiscal years are summarized in **Table 4** at the end of this section. In addition, estimates are provided (to the extent that can be determined) of the amount of water that will be made available for each recommendation in **Table 5**, also at the end of this section.

Strategies and recommendations are identified by a numbering system that corresponds to that used in the *KB Water Supply Plan*. For each option, a description is provided of changes in the plan scope or implementation that have occurred since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2002a).

Strategies and Recommendations

Orange-Osceola County Area

Strategy 1. Minimize Floridan Aquifer Drawdown through Recharge

Description / Discussion

This strategy involves reducing the amount of projected drawdown on the Floridan aquifer by placing more water into the aquifer to replenish the amount removed. The identified sources for this recharge are reclaimed water and stormwater. To minimize Floridan aquifer drawdown through recharge, wastewater and stormwater reuse, reservoirs, drainage wells and aquifer storage and recovery (ASR) options were investigated. Evaluation of these options requires the utilization of numerical models and the collection of hydrologic information for the construction of these models.

Recommendations

1.1. Develop a regional reclaimed water optimization plan
1.2. Develop stormwater reuse master plans

Total Costs of Projects / Recommendations

The total costs of projects/recommendations associated with minimizing Floridan aquifer drawdown through recharge are approximately $1.055 million, with 3.3 FTEs, for the period from FY 2003 through FY 2007.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

- Regional Reclaimed Water Optimization Plan – SFWMD, United States Geological Survey (USGS) and local governments
- Stormwater reuse master plans – SFWMD and local governments

Implementing Agencies

- Regional Reclaimed Water Optimization Plan – SFWMD, USGS, FDEP and local governments
- Stormwater reuse master plans – SFWMD and local governments

Summary of Changes / Implementation from the Previous Work Program

Develop a Regional Reclaimed Water Optimization Plan. During FY 2001 and FY 2002, the SFWMD implemented four projects toward developing a regional reclaimed water optimization plan for a total of $270,000. These projects included installation of climatic and shallow aquifer monitoring stations and Phase 1 of the Reclaimed Water Injection Pilot Study. Activities proposed for FY 2003 include a continuation of the climate and ground water level monitoring, the continuation of the central Florida lakes monitoring network and Phase 2 of the Reclaimed Water Injection Pilot Study. No new programs are proposed for FY 2003. Total funding proposed for Recommendation 1.1 for FY 2003 is estimated at $695,000 and 2.00 FTEs.

Develop Stormwater Reuse Master Plans. During FY 2002, the SFWMD continued its support of the Artificial Recharge Project and completed implementing Phase 1 of the Drain Well Treatment Pilot Project ($75,895). The stormwater master plan will continue implementation in 2003, but the drain well pilot will only move to Phase 2 with the fulfillment of state funding grants ($750,000 for FY 2003 and 2004).

Strategy 2. Minimize Floridan Aquifer Drawdown through Reduction of Demands

Description / Discussion

Urban and agricultural conservation and reuse can minimize drawdown on the Floridan aquifer. An improved Districtwide Comprehensive Water Conservation Program was recommended and is being implemented. This program will further public education, assist utilities to develop their own customized water conservation programs and establish efficiency goals that are cost-effective and achievable.

Recommendations

2.1. Develop a comprehensive water conservation program

Total Costs of Projects / Recommendations

The total cost of this effort will be divided each year among all four regional water supply planning and development efforts. The Districtwide total costs of projects/recommendations associated with water conservation are presented in **Table 1** in the Districtwide Efforts section.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The SFWMD is funding the development of the Comprehensive Water Conservation Program.

Implementing Agencies

The SFWMD and local governments are implementing the development of the Comprehensive Water Conservation Program.

Summary of Changes / Implementation from the Previous Work Program

Develop a Comprehensive Water Conservation Program. For status on the implementation of the Comprehensive Water Conservation Program, see the Districtwide Water Resource Development Efforts section.

Strategy 3. Optimize Use of the Floridan Aquifer and Develop Alternative Sources

Description/Discussion

Alternative water source options identified in the *KB Water Supply Plan* include reclaimed water, surface water, brackish ground water and additional fresh ground water. Technical and resource-based issues will be evaluated to quantify the availability of surface water resources in the planning and development area. The collection of the necessary hydrologic information and development of models will be performed to accurately identify resource concerns and determine the optimized use of the Floridan aquifer.

Recommendations

3.1. Research and develop alternative water supplies
3.2. Determine the optimized use of the Floridan aquifer

Total Costs of Projects / Recommendations

The total costs of projects/recommendations associated with optimizing the use of the Floridan aquifer and developing alternative water supply sources are approximately $950,000, with 9.7 FTEs, for the period from FY 2003 through FY 2007.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The SFWMD will fund both recommendations, with local governments assisting with recommendation 3.2.

Implementing Agencies

The SFWMD will implement both recommendations, with local governments assisting with the second recommendation.

Summary of Changes / Implementation from the Previous Work Program

Research and Develop Alternative Water Supplies. The SFWMD applied 0.95 FTEs toward implementation of this recommendation during FY 2002. This work included the internal development of a surface water management model for the Kissimmee Upper Chain of Lakes, work on the determination of water availability from Shingle, Boggy and Reedy Creeks and preliminary work on upper lakes minimum flows and levels (MFLs). For FY 2003 through FY 2007, the SFWMD plans to continue work on the development of supplies from the upper chain of lakes and creeks in the northern basin and spend an additional $300,000 and 4.9 FTEs to complete this effort. The project will be completed in FY 2007.

Determine the Optimized Use of the Floridan Aquifer. The construction of six deep Floridan aquifer wells was initiated in FY 2001 as part of the hydrologic investigations identified under this recommendation. In addition, two additional wells and a testing program were initiated in FY 2002 on the Tibet Butler Preserve property. The total cost of these wells for FY 2001 and FY 2002 totaled $2.9 million and was shared between the KB and LEC planning areas. In addition, efforts were coordinated with the Southwest Florida Water Management District (SWFWMD) and the St. Johns River Water Management District

(SJRWMD) to share information. The SFWMD and the SJRWMD have agreed to use the East Central Florida Model as a basis for future regional water supply planning in Orange, Osceola and Polk counties. Construction will continue on all of these wells in FY 2003 using 2.25 FTEs. Funding for this project is estimated to total $650,000 during FY 2004 and FY 2005 and is expected to be complete in FY 2005 with the use of 4.75 FTEs.

Lake Istokpoga-Indian Prairie Basin

Strategy 4. Develop Alternate Water Resources

Description / Discussion

Alternative water resources, including Lake Okeechobee, the Kissimmee River and additional ground water, will be developed for the KB planning area. The development of a plan was proposed to operate two or more pumps to move water from Lake Okeechobee to the KB planning area. Additionally, as a result of restoration efforts, the *KB Water Supply Plan* proposed investigating the availability of water supplies from the Kissimmee River.

Recommendations

4.1. Develop an operational plan for backpumping from Lake Okeechobee
4.2. Investigate the availability of water from the Kissimmee River

Total Costs of Projects / Recommendations

In FY 2002 the SFWMD initiated development of an operational plan for the southern Indian Prairie Basin. This plan focuses on the development of operational protocol for pumps G207 and G208 that move water from Lake Okeechobee into the southern Indian Prairie Basin below District structures S-70 and S-75. In this plan the District will consider the recently developed water supply and environmental (WSE) and supply side management (SSM) schedules developed for Lake Okeechobee. The use of water from Lake Okeechobee for the Indian Prairie Basin was evaluated during the development of the KB and LEC plans and deemed feasible. In addition, water from the Kissimmee River is also being evaluated for those portions of the river not under restoration. This evaluation of the Kissimmee River will be initiated in FY 2003 and is expected to use 0.5 FTEs. Development of this operational plan is expected to be completed in FY 2003 using 2.5 FTEs.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

These projects will be completed using internal FTE and no funding beyond that FTE has been identified.

Implementing Agencies

The SFWMD resources will be used in implementing this project.

Summary of Changes / Implementation from the Previous Work Program

Develop an Operational Plan for Backpumping from Lake Okeechobee. The use of water from Lake Okeechobee was modeled during the development of the LEC 2020 water supply planning process and the CERP process. Water from Lake Okeechobee backpumping will be limited for use within the southern Indian Prairie Basin, for which an operational plan is being developed. The amount of water will be monitored and will stay within the limits identified during the LEC and CERP processes unless revised limits are otherwise identified.

Investigate the Availability of Water from the Kissimmee River.

The restoration of the Kissimmee River is one of several top priorities of the District and until such time as the success of the restoration is determined, use of water from the Kissimmee River for those portions under restoration will be evaluated on a case-by-case basis. During FY 2003 the District will begin an investigation of water use from the Kissimmee River for areas not under restoration efforts, specifically areas below the S-65E structure. Work on this effort is expected to be completed by FY 2005 using an estimated 0.5 FTEs per year.

Strategy 5. Develop a Water Management Plan for the Lake Istokpoga-Indian Prairie Basin

Description / Discussion

A water management plan needs to be developed for the Lake Istokpoga-Indian Prairie Basin. The plan should evaluate a lifting of the moratorium on use of additional surface water from the Indian Prairie Basin. This would include resolving issues related to the current regulation and minimum operation schedules, and establishing a minimum level for Lake Istokpoga. An operational plan for control structures on the lake and the District canal system must be developed. Also, regional storage needs, such as ASR and a surface water storage basin will need to be evaluated.

Recommendations

5.1. Develop a water management plan for the Lake Istokpoga-Indian Prairie Basin
5.2. Evaluate regional storage

Total Costs of Projects / Recommendations

During FY 2003, 1.5 FTEs have been allocated to the projects/recommendations within this strategy. Beginning in FY 2004 and continuing in FY 2005, these two projects will be associated with the Lake Istokpoga Regulation Schedule Project, which is part of the CERP. The Lake Istokpoga regulation schedule is currently going through the National Environmental Policy Act (NEPA) process and is expected to be completed by FY 2006.

Quantity of Water Potentially Available

See **Table 5** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

These recommendations will be funded through District sources and the CERP. The agencies that may potentially fund the projects are as follows: the SFWMD, the SWFWMD, the FDEP, the USACE and local governments.

Implementing Agencies

- Water management plan development – SFWMD and USACE
- Regional storage evaluation – SFWMD and SWFWMD

Summary of Changes / Implementation from the Previous Work Program

Development of the Water Management Plan. The SFWMD initiated work on the development of the management plan during FY 2002 for the southern Lake Istokpoga – Indian Prairie Basin. During FY 2002 and FY 2003, 1.5 FTEs have been assigned to the development of the water management plan for the southern basin.

The evaluation of the northern Lake Istokpoga – Indian Prairie Basin will begin subsequent to revising the Lake Istokpoga operating schedule. During FY 2003 through FY 2007 the USACE will be evaluating this regulation schedule. A MFL is currently scheduled to be established for Lake Istokpoga by 2004.

Evaluate Regional Storage. No scheduled activities were proposed for this recommendation in the *KB Water Supply Plan* (SFWMD, 2000b) during FY 2002. The SFWMD initiated two studies to examine the fate of organisms that undergo Aquifer Storage and Recovery (ASR) in conjunction with the SWFWMD and the FDEP.

Testing of high volume surface water ASR in the Kissimmee Basin is currently not feasible; however, pilot ASR efforts are being conducted in the LEC Planning Area in conjunction with the CERP. These studies will continue in FY 2003 and will be coordinated with the other agencies.

The *Kissimmee Basin Water Supply Plan* also considers a regional reservoir. While deemed infeasible for uses proposed under the *Kissimmee Basin Water Supply Plan*, there is a regional reservoir proposed north of Lake Okeechobee under the CERP. Efforts to evaluate the utility of such a reservoir will remain under the CERP planning efforts that identifies construction initiatives for 2010.

Related Strategies

Strategy 6. Coordination among Water Management Districts

Description/Discussion

The SFWMD will coordinate with the SJRWMD, the SWFWMD and the FDEP for the purpose of maximizing consistent criteria and approaches concerning the following: resource protection criteria, hydrologic investigations, improved hydrologic modeling, local sources first, MFLs and water shortage declarations.

Recommendations

6.0 Coordinate with the SJRWMD, the SWFWMD and the FDEP

Total Costs of Projects / Recommendations

During FY 2002, $35,000 was allocated toward the East Central Florida Water Supply Initiative sponsored by Orange County and the SJRWMD. In addition, the SFWMD, the SWFWMD and the SJRWMD continue to meet in accordance with the interdistrict memorandum of understanding (MOU), and to cooperate on several construction and exploratory projects. The districts have exchanged water management data, such as water use projections for central Florida and geologic/hydrologic data for coordination on the Eastern Region Ground Water Model. The SFWMD and the SJRWMD began meeting on a MOU to delegate water use permitting authority for certain permits in Orange County. Similar efforts to coordinate with other water management districts are expected to require 1 FTE of SFWMD staff each fiscal year from FY 2003 through FY 2007, for a total of 5 FTEs. Future efforts will involve the continuation of the MOU process and the finalization of the water use permitting delegation agreement, but will focus on cooperative efforts to delineate the timing and extent of water supply concerns in central Florida through the use of ground water modeling.

Quantity of Water Potentially Available

No water will be made available through this recommendation.

Funding Sources

The SFWMD will fund this recommendation.

Implementing Agencies

The SFWMD will implement this recommendation.

Summary of Changes / Implementation from the Previous Work Program

Intergovernmental Coordination. The SFWMD dedicated 1 FTE to interdistrict and interagency efforts during FY 2002. This level of effort is expected to continue through FY 2007.

Strategy 7. Ensure Consistency between Planning and Water Use Permitting

Description / Discussion

Salient portions of the *KB Water Supply Plan* will be incorporated into the Consumptive Use Permitting (CUP) Program through rulemaking.

Recommendations

7.0. Continue rulemaking efforts

Total Costs of Projects / Recommendations

This recommendation has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* section (**Table 10**).

Quantity of Water Potentially Available

No water will be made available through this recommendation.

Funding Sources

The SFWMD will fund this recommendation.

Implementing Agencies

The SFWMD will implement this recommendation.

Summary of Changes / Implementation from the Previous Work Program

Rulemaking. This recommendation has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* section (**Table 10**).

Summary of KB Water Supply Plan Costs and Schedules

Table 4. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *KB Water Supply Plan*

Strategies and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Orange-Osceola County Area													
Strategy 1: Minimize Floridan Aquifer Drawdown through Recharge													
1.1	Develop a regional reclaimed water optimization plan	695	2.00	210	0.45	50	0.35	Complete				955	2.80
1.2	Develop stormwater reuse plans	0	0.20	75	0.20	25	0.10	Complete				100	0.50
	Subtotal	**695**	**2.20**	**285**	**0.65**	**75**	**.45**	**0**	**0.00**	**0**	**0.00**	**1,055**	**3.30**
Strategy 2: Minimize Floridan Aquifer Drawdown through Reduction of Demands													
2.1	Develop a comprehensive water conservation program	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
Strategy 3: Optimize Use of the Floridan Aquifer and Develop Alternative Sources													
3.1	Research and develop alternative water supplies	0	0.95	100	1.00	100	1.00	100	1.00	0	1.00	300	4.95
3.2	Determine the optimized use of the Floridan aquifer	0	2.25	450	1.25	200	1.25	Complete				650	4.75
	Subtotal	**0**	**3.20**	**550**	**2.25**	**300**	**2.25**	**100**	**1.00**	**0**	**1.00**	**950**	**9.70**
Lake Istokpoga-Indian Prairie Basin													
Strategy 4: Develop Alternative Water Resources													
4.1	Develop an operational plan for backpumping from Lake Okeechobee	0	2.50	Complete								0	2.50
4.2	Investigate the availability of water from the Kissimmee River	0	0.50	0	0.50	0	0.50	Complete		Complete		0	1.50
	Subtotal	**0**	**3.00**	**0**	**0.50**	**0**	**0.50**	**0**	**0.00**	**0**	**0.00**	**0**	**4.00**
Strategy 5: Develop a Water Management Plan for the Lake Istokpoga-Indian Prairie Basin													
5.1	Develop a water management plan for the Lake Istokpoga-Indian Prairie Basin	0	1.5	0	2.00	0	2.00	Complete				0	5.50
5.2	Evaluate regional storage	0	1.5	0	2.00	0	2.00					0	5.50
	Subtotal	**0**	**3.00**	**0**	**4.00**	**0**	**4.00**	**0**	**0.00**	**0**	**0.00**	**0**	**11.00**
Related Strategies													
Strategy 6: Coordination among Water Management Districts													
6.1	Coordinate with the SJRWMD, the SWFWMD and the FDEP	0	1.00	0	1.00	0	1.00	0	1.00	0	1.00	0	5.00
	Subtotal	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**5.00**
Strategy 7: Ensure Consistency between Planning and Water Use Permitting													
7.1	Continue rulemaking efforts	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (Table 10).											
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
	TOTAL	**695**	**12.40**	**835**	**8.40**	**375**	**8.20**	**100**	**2.00**	**100**	**2.00**	**2,105**	**33.00**

Summary of the Quantity of Water to Be Made Available by Implementation of the KB Water Supply Plan

Table 5. Water Made Available Through Implementation of the *KB Water Supply Plan* by FY 2003 and by FY 2007

Recommendation		Estimated Water Made Available (MGD)	
		By FY'03	By FY'07
1.1	Develop a Regional Reclaimed Water Optimization Plan	3.5	3.5
1.2	Develop Stormwater Reuse Master Plans	0.0	0.0
2.1	Develop a Comprehensive Water Conservation Program	0.9	4.0
3.1	Research and Develop Alternative Water Supplies	0.0	0.0
3.2	Determine Optimized Use of the Floridan Aquifer	0.0	0.0
4.1	Develop an Operational Plan for Backpumping from Lake Okeechobee	0.0	41.0
4.2	Investigate the Availability of Water from the Kissimmee River	0.0	0.0
5.1	Develop a Water Management Plan for the Lake Istokpoga-Indian Prairie Basin	0.0	15.0
5.2	Evaluate Regional Storage	0.0	0.0
6.0	Interdistrict and FDEP Coordination	0.0	0.0
7.0	Continue Rulemaking Efforts	0.0	0.0
	TOTAL	4.4	63.5

1998 Upper East Coast Water Supply Plan

Plan Organization

Several issues were identified in the *UEC Water Supply Plan* (SFWMD, 1998a) that have largely been addressed since the plan was approved by the Governing Board in February 1998. These issues include surface water availability, Floridan aquifer water quality, freshwater discharges to the St. Lucie Estuary, saltwater intrusion vulnerability and potential cumulative impacts to wetlands. Seven water source options were identified to address these issues:

1. Surface water storage (reservoirs)
2. Aquifer storage and recovery
3. Floridan aquifer
4. Conservation
5. Wastewater reuse
6. Utility interconnects
7. Related implementation strategies

Water resource development recommendations were made for each of these options. Analyses in the plan indicated that expansion of the Surficial Aquifer System (SAS), primarily along the coast, is limited. Development of the options listed above was necessary to meet projected future demands for urban and agricultural water demands.

Information Provided

The summary of each of the seven water resource development options includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD) and estimates of total District staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *UEC Water Supply Plan* over the next five fiscal years are summarized in **Table 6** at the end of this section. In addition, estimates are provided (to the extent that can be determined) of the amount of water that will be made available for each recommendation in **Table 7**, also at the end of this section. By the end of FY 2003, it is estimated that over 34 million gallons per day (mgd) of water will be made available by implementation of the plan.

The water resource development projects are listed to correspond with the options and recommendations in the *UEC Water Supply Plan*. For each option, a description is provided of changes in the plan scope or implementation that have occurred since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2002a) was published.

Water Resource Development Options and Recommendations

The *UEC Water Supply Plan* (FY 1998 – FY 2003) is in its last year with respect to the *Five-Year Water Resource Development Work Program* (FY 2003 – FY 2007). Many of the recommendations in the *UEC Water Supply Plan* will be completed by FY 2003. The exceptions include ongoing programs, such as the Floridan Aquifer Monitoring Program and programs that extend beyond 2003, such as the Ten Mile Creek Critical Restoration Project and the Indian River Lagoon Project. The recommendations reported in this work program will have the text and summary table largely completed in scope.

The *UEC Water Supply Plan* was originally scheduled for update in 2003. However, after meeting with the FDEP and the other water management districts, the deadline was extended to June 2004 so the document will be more consistent with the updates of all of the other regional water supply plans (RWSPs) in the state of Florida.

1. Surface Water Storage

Definition / Discussion

This option involves the capture and storage of excess surface water during rainy periods and subsequent release during drier periods for environmental and human uses. Regionally, surface water storage could be used to attenuate freshwater flows to the St. Lucie Estuary and the Indian River Lagoon during rainy periods and meet minimum flows during drier periods. In addition, these facilities could increase surface water availability for current and projected agricultural uses, and decrease the demand on the Floridan aquifer. This option also includes supporting the improvement of the C-23 Canal.

Recommendations

1.1. Complete the Indian River Lagoon Feasibility Study
1.2. Identify, design and construct other regional attenuation facilities
1.3. Support the design and construction of the Ten Mile Creek Project
1.4. Develop and adopt minimum flows and levels (MFLs) for the St. Lucie Estuary
1.5. Increase storage and conveyance in C canals (C-23 Canal Dredging)

Total Costs of Projects/Recommendations

The Indian River Lagoon Feasibility Study has been incorporated into the larger Indian River Lagoon Project that is part of the CERP (**Table 3**). The Ten Mile Creek Project, a Critical Project, has also been incorporated into the CERP (**Table 2**).

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

- Indian River Lagoon Feasibility Study – SFWMD (50 percent) and USACE (50 percent)
- Ten Mile Creek – SFWMD, St. Lucie County, USACE (50 percent) and other public and private interests (50 percent)
- St. Lucie Estuary MFLs – SFWMD
- C canal capacity – SFWMD

Implementing Agencies

The SFWMD is the sole implementing agency for most of the surface water storage recommended projects. The exceptions are the Indian River Lagoon Feasibility Study and the Ten Mile Creek Critical Restoration Project, which are cooperative efforts with the USACE.

Summary of Changes / Implementation from the Previous Work Program

Indian River Lagoon Feasibility Study. The Indian River Lagoon Feasibility Study is a cost-shared project between the SFWMD and the USACE. The draft report was released in October 2001 and was followed by public workshops. The final report incorporates public and agency comment and was completed in August 2002. After evaluating several alternatives, wetland restoration, stormwater detention reservoirs and stormwater treatment areas (STAs) made up the bulk of the preliminary selected plan. Although there was no congressional authorization in WRDA 2002, District staff is seeking an off-year authorization in 2003 for the Indian River Lagoon Feasibility Study.

Other Regional Attenuation Facilities. The District and the USACE are to determine if additional regional attenuation facilities are needed. This recommendation is ancillary to the Indian River Lagoon South Feasibility Study. The Feasibility Study, which was completed in August 2002, included recommendations for all known storage in the region. Any additional storage needs could be identified through the adaptive management processes including RECOVER.

Ten Mile Creek Critical Restoration Project. The Ten Mile Creek Critical Restoration Project is a cost-share project between the SFWMD, the USACE and local sponsors. It is closely linked to the Indian River Lagoon Feasibility Study for water preserve areas. As of June 2002, the Ten Mile Creek Critical Restoration Project report was at 100 percent detailed design. Between June and September of 2002, the USACE executed a cultural resources survey of the project site. Four sites of archeological significance were

discovered. Bids and construction awards have been placed on hold until the USACE and the SFWMD can successfully negotiate a memorandum of agreement (MOA) with the State Historic Preservation Office in order to mitigate the four sites. After the MOA has been signed, the bids for construction of the project will be released and the project awarded.

Minimum Flows and Levels for the St. Lucie River and Estuary. A final draft of the *Technical Documentation to Support Development of Minimum Flows and Levels for the St. Lucie River and Estuary* was published in March 2002. This report documents the methods and technical criteria used by SFWMD staff to develop MFLs for the river and estuary. The Governing Board approved amendments to rule 40E-8 establishing MFLs for the St. Lucie River and Estuary in September 2002. Research and monitoring will be developed in coordination with the *UEC Water Supply Plan* Update.

Storage and Conveyance in C Canals. This recommendation will be realized under the SFWMD's Canal Conveyance Capacity Program. The Canal Conveyance Capacity Program is a 12-year plan for performing dredging in six canals in the SFWMD, one of which is located in the UEC planning area (C-23 Canal). These canals were prioritized based on technical factors, such as the severity of deposition within the canal, and the likely monetary consequences of flooding. The C-23 Canal is the second canal on the Canal Conveyance Capacity Program priority list and is being dredged in four phases to complete the canal from G-78 to S-48. The portion from G-78 to G-79 is being evaluated for potential dredging, and could become Phase 5.

Phase 1 (8.5 miles) of the dredging project was completed in November 2001. Phase 2 (7.4 miles) was also completed. Phase 3, the remaining 4.5 miles from the eastern end of Phase 2 to the S-97 structure, was budgeted at $650,000 for FY 2002. Final design for Phase 3 is complete. This contract began in the fall of 2002 and is about 50 percent complete. In addition, field surveying for Phase 4, between S-97 and S-48, is complete. There is no funding available for FY 2003 to continue Phase 4. About $800,000 is needed to complete Phase 4.

2. Aquifer Storage and Recovery

Definition / Discussion

Aquifer storage and recovery (ASR) is the underground storage of injected water into an acceptable aquifer during times when water is available, and the subsequent recovery of this water when it is needed. In southeastern Florida, the brackish portions of the Floridan aquifer are typically used.

Recommendations

2.1. Evaluate colocating ASR and surface water storage
2.2. Evaluate canal water quality for surface water ASR
2.3. Evaluate reactivating the Demonstration Project for Lake Okeechobee ASR
2.4. Explore rule changes to facilitate untreated water ASR

2.5. Develop rules to address conflicts with ASR and the Floridan aquifer
2.6. Evaluate injecting excess surface water into the Floridan aquifer for recharge
2.7. Evaluate injecting surface water to increase freshwater head

Total Costs of Projects/Recommendations

All of these recommendations have been incorporated into either the CERP or other planning area recommendations.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

Projects are funded by the SFWMD, except for those that are within the scope of the Indian River Lagoon Feasibility Study, which is cofunded by the SFWMD and the USACE.

Implementing Agency

Implementing agencies include the SFWMD, the USACE, the FDEP and the United States Environmental Protection Agency (USEPA).

Summary of Changes / Implementation from the Previous Work Program

Evaluation of ASR Recommendations. Four of the seven recommendations made for ASR in the *UEC Water Supply Plan* have been incorporated into the ASR pilot projects being implemented as part of the CERP. The SFWMD is in the planning and development phase of Recommendations 2.1 and 2.2. Reactivating the Demonstration Project for Lake Okeechobee ASR (Recommendation 2.3) is currently not feasible, but has been incorporated into the CERP ASR pilot projects for further evaluation.

Explore Rule Changes to Facilitate Untreated Water ASR. The SFWMD provided technical and legislative support to the FDEP for the sponsorship of Senate Bill 854/House Bill 705 regarding ASR in the 2001 Florida Legislative session. The bill was designed to allow for an exemption to the total coliform drinking water standard for ASR recharge water, provided die-off of these organisms could be demonstrated by the applicant. The bill did not make it into law. In November 2001, the District's Executive Director decided to forgo seeking a variance from existing ASR regulatory criteria and determined that ASR pilot projects will comply with applicable regulatory criteria. This decision may be revisited once results from studies being conducted by the SFWMD, the SWFWMD and the SJWMD regarding pathogen die-off have been completed.

Developing Rules and Evaluating Injecting Water. The remaining three recommendations are being implemented through the recommendations of other water supply plans. Revisions to the SFWMD's Water Use Basis of Review related to Floridan aquifer use and ASR (Recommendation 2.5) will be incorporated into the upcoming rulemaking effort discussed under Recommendation 40 of the *LEC Regional Water Supply Plan*. The evaluation of injecting excess surface water into the Floridan aquifer for recharge has been incorporated into Recommendations 1.2 and 3.1 of the *KB Water Supply Plan*. The evaluation of injecting surface water to increase the freshwater head (Recommendation 2.7) has been incorporated into Recommendation 1 of the *LEC Regional Water Supply Plan*.

3. Floridan Aquifer

Definition / Discussion

The Floridan aquifer is used extensively by citrus growers in the UEC planning area, primarily as a supplemental irrigation source when surface water availability is limited and as a primary source in areas where no surface water is available. During times of drought or other times of scarce surface water, water from the Floridan aquifer is blended with remaining surface water. This blending reduces potential problems associated with water quality due to the brackish nature of Floridan aquifer water. Water quality is critical in maintaining the sustainability of this source. The Floridan aquifer water is nonpotable throughout the UEC planning area and requires desalination or blending prior to potable use. The Fort Pierce Utilities Authority is currently using the Floridan aquifer for blending with SAS water. Martin County Utilities and a number of smaller private coastal facilities use the Floridan aquifer as a primary source. Most of the utilities in the UEC planning area intend to use the Floridan aquifer in the future. The Floridan aquifer has potential for supplying the portion of the projected demands that cannot be met by the Surficial Aquifer System.

Recommendations

3.1. Remove the Floridan aquifer from the MFL priority list
3.2. Develop and implement a Floridan aquifer monitoring network
3.3. Develop incentives for a Floridan aquifer well abandonment program
3.4. Explore desalination concentrate disposal options
3.5. Evaluate recharge areas in Central Florida

Total Costs of Projects/Recommendations

The total remaining costs of projects/recommendations associated with the Floridan aquifer in the UEC are approximately $762,000 with 3.30 FTEs.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

- Floridan aquifer monitoring network – SFWMD, Natural Resources Conservation Service (NRCS) and USGS
- Floridan well abandonment – SFWMD and NRCS

Implementing Agencies

Implementing agencies include the SFWMD, the NRCS and the USGS.

Summary of Changes / Implementation from the Previous Work Program

Remove the Floridan Aquifer from the MFL Priority List. The Floridan aquifer has been removed from the SFWMD's list for establishment of MFL criteria based on the recommendation and analysis associated with the *UEC Water Supply Plan*. The need to include the Floridan aquifer on future MFL priority lists will be reassessed during future updates to this plan.

Develop a Comprehensive Floridan Aquifer Monitoring Network. A monitoring network to collect data and evaluate the relationship between water quality, water levels and water use in the Floridan aquifer was established during FY 2000. The network consists of 31 locations distributed across the UEC planning area that are monitored for water levels and water quality. Ten of the locations, each with one well, are monitored by the SFWMD. The remaining 21 locations, consisting of a total of 58 wells, are monitored under contract by the St. Lucie Soil and Water Conservation District. This effort will continue indefinitely until sufficient data has been collected and evaluated.

As of September 30, 2002, the St. Lucie Soil & Water Conservation District/Natural Resource Conservation Service (SLSWCD/NRCS) continued to collect monthly water use, water quality and continuous (15 minutes) water level data. They also collected more detailed water quality data (chlorides and total dissolved solids) quarterly. Eleven electronic data loggers were installed in selected wells by June 1, 2002. The data loggers collect data every 15 minutes from selected wells in the network. The SLSWCD/NRCS downloads the data monthly and sends it electronically to the District. The District currently collects water level and water quality data from its portion of the network. The data is stored in DBHYDRO, the District's corporate environmental database. The District's contractor (SLSWCD/NRCS) continues to collect quarterly water quality samples from selected wells in the network for chlorides and total dissolved solids. This contractor is in the second year of a three-year contract. Both the District and SLSWCD/NRCS sites have been registered in DBHYDRO.

Develop Floridan Well Abandonment Program. The SFWMD entered into an agreement with the NRCS to share the cost of well plugging and irrigation conversion projects in Martin and St. Lucie counties. The agreement period was from April 1998 through February 2000. In St. Lucie County, 37 wells were closed. Three wells were closed in Martin County. The SFWMD contribution to the program was $75,000, but not all of the funds have been used. About $12,000 remains from this agreement to do similar work. The District is in

the process of continuing this agreement with the NRCS to close two severely eroded wells in St. Lucie County with these remaining funds.

Explore Desalination Concentrate Disposal Options. The SFWMD participated in a workshop with the SJRWMD, the FDEP and the USEPA concerning options for disposal of concentrate from desalination treatment facilities. Potential methods of disposal include deep well injection, surface water discharge and blending with reclaimed water. For deep well injection, reclassifying concentrate to something other than industrial waste was discussed to reduce construction costs. For surface water discharges, the FDEP had indicated a desire to assist applicants in characterizing water quality in receiving bodies and of the concentrate (based on source quality and treatment method), and applying an up front screening level process to identify potential concerns, including toxicity. Reclassifying concentrate to something other than industrial waste was discussed during the 2000 legislative session, but no bill has passed related to this issue.

Evaluate Floridan Aquifer Recharge Areas. This recommendation to evaluate Floridan aquifer recharge areas is being addressed in the implementation of the *Kissimmee Basin Water Supply Plan* (Recommendations 1.1 and 1.2). A major task of this recommendation will be to identify recharge areas in Orange, Osceola and Polk counties in support of recharge optimization modeling. This task began in FY 2001 and is expected to be completed by FY 2005.

4. Conservation

Definition/Discussion

This option requires implementation of water conservation measures that achieve long-term permanent reductions in water use rates. In 1992, the SFWMD amended its water use permitting rules to incorporate specific mandatory water conservation requirements for each use type. Use types include public water suppliers, commercial/industrial users, landscape and golf course users and agricultural users.

Recommendations

4.1. Promote water conservation
4.2. Provide cost-share funding for MILs

Total Costs of Projects / Recommendations

The total costs of the conservation program and the MILs are discussed in the Districtwide Water Resource Development Efforts section.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD and local sponsors will fund the conservation recommendations.

Implementing Agency

The SFWMD and local sponsors will implement the conservation recommendations.

Summary of Changes / Implementation from the Previous Work Program

Promote Water Conservation. The SFWMD established the Comprehensive Water Conservation Program. The program is discussed in more detail in the Districtwide Water Resource Development Efforts section.

Mobile Irrigation Laboratories. The SFWMD began cofunding urban mobile irrigation laboratories (MILs) in January 1994. This provides homeowners, condo associations, golf courses and public buildings and parks with on-site analyses, system evaluations and water quality evaluations of their landscape irrigation systems. The Martin and St. Lucie urban labs were established in 1998 and 2000, respectively. There is also an agricultural lab, established in 1992 that is funded by USDA-NRCS that serves Martin, St. Lucie and Okeechobee counties.

The urban labs educate property owners/operators in irrigation efficiency and system design needs. Each urban MIL completes about 140 evaluations per year, with potential water savings of 50 to 60 million gallons of water per year and an associated reduction in lawn chemicals and fertilizers leaving the site as runoff. The agricultural labs performed 51 evaluations in FY 2001 and saved 1,220 million gallons of water within the year.

5. Wastewater Reuse

Definition / Discussion

Reuse is the application of reclaimed water (highly treated wastewater) for a beneficial purpose. Potential uses of reclaimed water include landscape and agricultural irrigation, ground water recharge, industrial activities and environmental enhancement. Reuse includes irrigation of golf courses and ground water recharge via rapid exfiltration basins in urban Martin County and southern St. Lucie County.

The use of reclaimed water in the UEC planning area has increased by almost 110 percent from 1995 levels to over 7 mgd being reused in the UEC region during 2002. Most new large irrigation needs are being met with reclaimed water where it's available. This trend is projected to continue with the projects either underway or proposed by utilities in the region. Some local governments are also developing mandatory reuse zones, requiring new developments to use reclaimed water as part of their development orders.

Recommendations

5.1. Develop incentives for reuse
5.2. Evaluate reclaimed water system interconnects
5.3. Adopt rules related to wastewater reuse
5.4. Assist with reclaimed water projects involving ground water recharge
5.5. Work with the FDEP on reclaimed water quality standards for ground water recharge

Total Costs of Projects / Recommendations

The total remaining costs of projects/recommendations associated with wastewater reuse are incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD is funding all of the wastewater reuse recommendations. Additionally, the development of additional reuse incentives is being funded through Alternative Water Supply funds.

Implementing Agency

The SFWMD is the implementing agency for all the wastewater reuse recommendations.

Summary of Changes / Implementation from the Previous Work Program

Reuse Coordination. The SFWMD continues its involvement in wastewater reuse at the state level, as well as at the local level. At the state level, the SFWMD has continued its participation on the Statewide Reuse Coordinating Committee, which consists of representatives from the five water management districts, the FDEP, the Department of Health, the Public Service Commission, the Florida Department of Agriculture and several other agencies. This committee coordinates reuse related activities statewide, and develops consistent policies and approaches for encouraging reuse. The SFWMD has also continued to meet with the local FDEP district offices to coordinate reuse activities at the local level, as well as on specific projects.

Reuse Regulations. The SFWMD continues to work with the FDEP to develop project-level understanding of reclaimed water associated with Chapter 62-610, Florida Administrative Code, Reuse of Reclaimed Water and Land Application. Beginning in FY

2003, this activity will be incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan* (SFWMD, 2000d).

Combining Reuse Efforts. Most of the reuse recommendations for the UEC planning area have been or will be incorporated into the recommendations for the same efforts within the LEC planning area. However, it should be noted that although a regional irrigation system is not feasible in Northern Palm Beach County it might be feasible in the Upper East Coast area. Feasibility will be determined on a case-by-case basis. For example, Martin County is currently implementing a plan to regionalize wastewater treatment and reuse through interconnects. The evaluation of the recommendation to interconnect reclaimed water systems has been incorporated into Recommendation 43 and the reuse rule development has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*. Beginning in FY 2003, assisting with reclaimed water projects involving ground water recharge will be incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan*.

6. Utility Interconnects

Definition / Discussion

This option involves the bulk purchase of treated water from neighboring utilities in lieu of expanding an existing withdrawal and/or treatment facility. Also, interconnection of treated and/or raw water distribution systems between utilities can provide a measure of backup water service in the event of disruption of a water source, treatment facility or distribution system. Interconnections could be with utilities outside the UEC planning area or the SFWMD.

Several utilities in Martin and St. Lucie counties have interconnected. These include Martin County Utilities, which has interconnects between most of its treatment plants, and St. Lucie County Utilities, which uses its interconnects to facilitate bulk purchases and transfer of water. It is anticipated that the water treatment plants in the region will continue interconnecting for greater flexibility and fire safety.

Recommendations

6.1. Encourage potable water interconnects

Total Costs of Projects / Recommendations

Any costs for projects/recommendations associated with utility interconnects are budgeted under Recommendation 40 of the *LEC Regional Water Supply Plan* section.

Quantity of Water Potentially Available

See **Table 7** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD and water treatment utilities will fund the utility interconnects recommendation.

Implementing Agency

The SFWMD and water treatment utilities will implement the utility interconnects recommendation.

Summary of Changes / Implementation from the Previous Work Program

Encourage Potable Water Interconnects. This activity has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*.

7. Related Implementation Strategies

Definition / Discussion

The UEC Water Supply Plan Advisory Committee recommended five related strategies to implement the *UEC Water Supply Plan*. Most of these strategies involve incorporating modeling assumptions, used in development of this plan, into the Consumptive Use Permitting (CUP) Program through a subsequent rulemaking effort.

Recommendations

7.1. Incorporate the assumptions and criteria of the *UEC Water Supply Plan* into the CUP Program
7.2. Continue coordination of *UEC Water Supply Plan* implementation
7.3. Continue the Wetland Drawdown Study
7.4. Wetland mitigation should remain in the region
7.5. Fund implementation of the *UEC Water Supply Plan*

Total Costs of Projects / Recommendations

The remaining costs associated with implementing the related implementation strategies of the *UEC Water Supply Plan* are incorporated into either the Districtwide Efforts or the *LEC Regional Water Supply Plan* recommendations.

Quantity of Water Potentially Available

These recommendations will not directly result in any water becoming available.

Funding Source

The SFWMD will fund the implementation recommendations.

Implementing Agency

The SFWMD will implement these recommendations.

Summary of Changes / Implementation from the Previous Work Program

Incorporate the Assumptions and Criteria of the *UEC Water Supply Plan* into the SFWMD's CUP Program. The SFWMD has initiated rulemaking in 26 subject matters in the CUP Program and other components of the SFWMD's overall water responsibilities. White papers and preliminary rule drafts have been developed for several of the subjects. The SFWMD held rulemaking workshops in the UEC planning area during October 2001. The rules were brought to the Governing Board for adoption in March 2002. The proposed irrigation basin rule extends the expiration date for UEC permits to June 2003.

Continue Coordination of *UEC Water Supply Plan* Implementation. As reported last year, coordination of the *UEC Water Supply Plan* (SFWMD, 1998a) implementation with local governments and utilities continues with many activities including comprehensive plan reviews, CUP activities and the Alternative Water Supply (AWS) Funding Program. A memorandum of understanding has been signed with the SJRWMD formalizing our coordination efforts in the areas of water resource investigations, water supply planning and development, water use regulation and water shortage management. The SJRWMD and the SFWMD share information on a regular basis. Coordination of the *UEC Water Supply Plan* implementation with the Indian River Lagoon Feasibility Study and other SFWMD regional planning and development efforts continues through internal forums and utilization of the same District staff.

Continue the Wetland Drawdown Study. Continuation of the Wetland Drawdown Study is a Districtwide project that will be used to develop new criteria for the water drawdown rules. A complete discussion of this project is found in the Districtwide Water Resource Development Efforts section.

Wetland Mitigation in the UEC Planning Area Should Remain in the Region. St. Lucie County continues to move forward with plans to establish a mitigation area within the county. The area under consideration is a 102-acre citrus grove on Sunrise Boulevard, north of Platt's Creek adjacent to the North Fork of the St. Lucie River. A contract was executed in December 1999 to purchase the grove so that it can be transformed back to its original state, which was forested floodplain and marsh. A $1 million grant from the St. Lucie River Issues Team (with $70,000 in matching funds) financed the land purchase in 1999. In 2000, St. Lucie County was awarded a $760,000 grant from the St. Lucie River Issues Team (with $760,000 in matching funds). Design of the mitigation was completed in 2001. Permit applications have been submitted to the SFWMD. The project is expected to be completed in late 2003.

Summary of UEC Water Supply Plan Costs and Schedules

Table 6. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *UEC Water Supply Plan*

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 1: Surface Water Storage													
1.1	Complete the Indian River Lagoon Feasibility Study	Incorporated into the Indian River Lagoon Project, CERP Upper East Coast (**Table 3**)											
1.2	Identify, design and construct other regional attenuation facilities	Ongoing with no funds or FTEs committed at this time											
1.3	Support the design and construction of the Ten Mile Creek Project	See **Table 2** in the Districtwide Water Resource Development Efforts section (Critical Projects)											
1.4	Develop and adopt MFLs for the St. Lucie Estuary	Complete										0	0.00
1.5	Increase storage and conveyance in C canals (C-23 Canal Dredging)	0	0.00	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	0	0.00
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
Water Source Option 2: Aquifer Storage and Recovery													
2.1	Evaluate colocating ASR and surface water storage	Incorporated into the ASR pilot projects listed under CERP (**Table 3**)											
2.2	Evaluate canal water quality for surface water ASR	Incorporated into the ASR pilot projects listed under CERP (**Table 3**)											
2.3	Evaluate reactivating the Demonstration Project for Lake Okeechobee ASR	Currently not feasible; incorporated into the ASR pilot projects for further evaluation listed under CERP (**Table 3**)											
2.4	Explore rule changes to facilitate untreated water ASR	Incorporated into the ASR pilot projects listed under CERP (**Table 3**)											
2.5	Develop rules to address conflicts with ASR and the Floridan aquifer	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**)											
2.6	Evaluate injecting excess surface water into the Floridan aquifer for recharge	Incorporated into Recommendations 1.2 and 3.1 of the *KB Water Supply Plan* (**Table 4**)											
2.7	Evaluate injecting surface water to increase freshwater head	Incorporated into Recommendation 1 of the *LEC Regional Water Supply Plan* (**Table 10)**											
Water Source Option 3: Floridan Aquifer													
3.1	Remove the Floridan aquifer from the MFL priority list	Complete											
3.2	Develop and implement a Floridan aquifer monitoring network	120	0.70	195	0.60	195	0.60	120	0.70	120	0.70	750	3.30
3.3	Develop incentives for a Floridan aquifer well abandonment program	12	0.00	Ongoing with no funds or FTEs committed at this time								12	0.00
3.4	Evaluate desalination concentrate disposal options	Pending FDEP rule changes											
3.5	Evaluate recharge areas in Central Florida	Incorporated into Recommendations 1.1 and 1.2 of the *KB Water Supply Plan* (**Table 4**)											
	Subtotal	**132**	**0.70**	**195**	**0.60**	**195**	**0.60**	**120**	**0.70**	**120**	**0.70**	**762**	**3.30**

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 4: Conservation													
4.1	Promote water conservation	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
4.2	Provide cost-share funding for MILs												
Water Source Option 5: Wastewater Reuse													
5.1	Develop incentives for reuse	Being funded through Alternative Water Supply Grant Funds											
5.2	Evaluate reclaimed water system interconnects	Incorporated into Recommendation 43 of the *LEC Regional Water Supply Plan* (**Table 10**)											
5.3	Adopt rules related to wastewater reuse	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**)											
5.4	Assist with reclaimed water projects involving ground water recharge	Incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan* (**Table 10**)											
5.5	Work with the FDEP on reclaimed water quality standards for ground water recharge	Incorporated into Recommendation 44 of the *LEC Regional Water Supply Plan* (**Table 10**)											
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
Water Source Option 6: Utility Interconnects													
6.1	Encourage potable water interconnects	See Recommendation 40 in the *LEC Regional Water Supply Plan* section (**Table 10**)											
Water Source Option 7: Related Implementation Strategies													
7.1	Incorporate the assumptions and criteria of the *UEC Water Supply Plan* into the CUP Program	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**)											
7.2	Continue coordination of *UEC Water Supply Plan* implementation	Ongoing										0	0.00
7.3	Continue the Wetland Drawdown Study	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
7.4	Wetland mitigation should remain in the region	0	0.00	Complete								0	0.00
7.5	Fund implementation of the *UEC Water Supply Plan*	Ongoing										0	0.00
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
	TOTAL	**132**	**0.70**	**195**	**0.60**	**195**	**0.60**	**120**	**0.70**	**120**	**0.70**	**762**	**3.30**

Summary of the Quantity of Water to Be Made Available by Implementation of the UEC Water Supply Plan

Table 7. Water Made Available Through Implementation of the *UEC Water Supply Plan* by FY 2003 and by FY 2007

	Recommendation	Estimated Water Made Available (MGD)	
		By FY'03	By FY'07
1	**Surface Water Storage**		
1.1	Complete the Indian River Lagoon Restoration Feasibility Study (CERP)	0.0	0.0
1.2	Identify, design and construct other regional attenuation facilities (CERP)	0.0	0.0
1.3	Support the design and construction of the Ten Mile Creek Critical Restoration Project	0.0	0.0
1.4	Develop and adopt MFL criteria for the St. Lucie Estuary	0.0	0.0
1.5	Evaluate increasing storage and conveyance in C-Canals (C-23)	0.0	0.0
2	**Aquifer Storage and Recovery**		
2.1	Evaluate the potential of colocating ASR and surface water storage (CERP)	0.0	0.0
2.2	Evaluate surface water quality for ASR (CERP)	0.0	0.0
2.3	Evaluate the potential of reactivating the Lake Okeechobee ASR Demonstration Project (CERP)	0.0	0.0
2.4	Explore rule changes in the UIC Program	0.0	0.0
2.5	Develop rules to address potential conflicts between ASR and Floridan aquifer use	0.0	0.0
2.6	Evaluate the feasibility of injecting excess surface water into the Floridan aquifer (CERP)	0.0	0.0
2.7	Evaluate injection of excess surface water to increase coastal head (CERP)	0.0	0.0
3	**Floridan Aquifer**		
3.1	Remove Floridan aquifer from the MFL Priority List	0.0	0.0
3.2	Develop a regional Floridan aquifer monitoring network	0.0	0.0
3.3	Develop options for a volunteer well abandonment program	0.0	0.0
3.4	Explore desalination concentrate disposal options	0.0	0.0
3.5	Evaluate Floridan aquifer recharge areas	0.0	0.0
4	**Conservation**		
4.1	Promote water conservation (agricultural irrigation system conversion and urban)	10.68	13.2
4.2	Provide cost share funding for MILs	7.20	8.5
5	**Wastewater Reuse**		
5.1	Develop incentives for reuse	16.32	19.2
5.2	Encourage utilities to evaluate reclaimed water interconnects	0.0	0.0
5.3	Adopt rules implementing wastewater reuse and back-up sources	0.0	0.0
5.4	Provide assistance for reclaimed water projects involving recharge	0.0	0.0
5.5	Develop reclaimed water quality standards for ground water recharge	0.0	0.0
6	**Utility Interconnects**		
6.1	Encourage potable water interconnects between utilities	0.0	0.0
7	**Related Implementation Strategies**	0.0	0.0
7.1	Incorporate the UEC water supply planning criteria into the CUP process	0.0	0.0
7.2	Continue coordination of the *UEC Water Supply Plan* with other agencies and projects	0.0	0.0
7.3	Continue the ongoing Districtwide Wetland Drawdown Study	0.0	0.0
7.4	Maintain wetland mitigation in the UEC planning area within the region	0.0	0.0
7.5	Fund Implementation	0.0	0.0
	TOTAL	**34.22**	**40.9**

2000 Lower West Coast Water Supply Plan

Plan Organization

Water resource development options for the Lower West Coast (LWC) planning area are grouped based on water source options that were identified to address key regional issues:

1. Conservation
2. Ground Water Resources
3. Reclaimed Water
4. Regional Irrigation System
5. Seawater
6. Storage
7. Surface Water
8. Related Implementation Strategies

Information Provided

The summary of each of the eight water resource development options includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD) and estimates of total District staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *LWC Water Supply Plan* over the next five fiscal years are summarized in **Table 8** at the end of this section. In addition, estimates are provided of the amount of water that will be made available (to the extent that can be determined) for each recommendation in **Table 9**, also at the end of this section.

The water resource development projects are listed to correspond with the options and recommendations in the *Lower West Coast Water Supply Plan* (SFWMD, 2000c). For each option, a description is provided of changes in the plan scope or implementation that have occurred since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2002a) was published.

Water Resource Development Options and Recommendations

1. Conservation

Description / Discussion

This option requires implementation of water conservation measures that address demand reduction, including practices that achieve long-term permanent reductions in water use. The SFWMD has amended its water use permitting rules to incorporate specific,

mandatory water conservation requirements for each use type. Use types include public water suppliers, commercial/industrial users, landscape and golf course users and agricultural users. Another conservation measure is the implementation of the Districtwide Comprehensive Water Conservation Program. The costs of this program are being shared among the four planning areas. A more detailed description of this program is provided in the Districtwide Water Resource Development Efforts section.

Mobile irrigation labs (MILs) provide a cost-effective means to promote more efficient use of water among urban and agricultural water users. The SFWMD advocated maintaining the existing three and adding one more MIL in the LWC planning area through identification of dedicated funding sources to replace current District funding.

Recommendations

1.1. Develop a conservation program
1.2. Maintain and add MILs

Total Costs of Projects / Recommendations

The total costs of the Comprehensive Water Conservation Program and MILs are discussed in the Districtwide Water Resource Development Efforts section.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The SFWMD and local sponsors are funding the Comprehensive Water Conservation Program. The MILs have been incorporated into the Comprehensive Water Conservation Program and will be funded by the SFWMD, the NRCS, the USDA and the Florida Department of Agriculture and Consumer Services (FDACS) in FY 2003.

Implementing Agencies

The SFWMD and local sponsors are implementing the Comprehensive Water Conservation Program. The SFWMD, the soil and water conservation districts and the FDACS will implement the MILs.

Summary of Changes / Implementation from the Previous Work Program

Year Round Mandatory Water Conservation Measures. In 2003, the SFWMD adopted year round mandatory water conservation measures for landscape irrigation for all of Lee, Collier and the applicable portions of Charlotte County. The purpose of the mandatory

conservation measures is to ensure the long-term sustainability of the water resources and to increase water use efficiency and curtail wasteful water use practices.

Comprehensive Water Conservation Program. The implementation of the Comprehensive Water Conservation Program is discussed in the Districtwide Water Resource Development Efforts section.

Mobile Irrigation Labs. The SFWMD funds three Mobile Irrigation Labs (MILs) in the LWC, two are urban and one is agricultural. This includes an urban MIL that is funded through the Big Cypress Basin. The MILs have been incorporated into the Comprehensive Water Conservation Program and are discussed in more detail in the Districtwide Water Resource Development Efforts section.

2. Ground Water Resources

Description / Discussion

Three major aquifer systems exist within the LWC planning area. These aquifers are identified as the Surficial Aquifer System (SAS), the Intermediate Aquifer System (IAS) and the Floridan Aquifer System (FAS).

The SAS consists of two aquifers in the LWC planning area: the water table and the lower Tamiami. These aquifers are easily recharged from the surface and are separated by leaky confining units over the majority of the LWC planning area. Wellfields using these aquifers are typically limited by the rate of recharge and water movement in the aquifer, environmental impacts, proximity to contamination sources, saltwater intrusion and other existing legal users in the area.

The IAS consists of five zones of alternating producing and confining units, with the producing zones being the Sandstone and mid-Hawthorn aquifers. Increases in production from the IAS beyond existing demands may be limited in some areas due to potential impacts on existing legal users and the productivity of the aquifer. In some areas, this may require modifications to wellfield configurations and pumping regimes.

The FAS underlies all of Florida. It is the principal source of water in Central Florida, but it only yields nonpotable water throughout most of the LWC planning area. Water must be treated by desalination to produce a potable product. The most productive zones in the FAS in the LWC planning area are the lower Hawthorn, Suwannee and Avon Park aquifers.

Recommendations

2.1.1. Maintain and expand the SAS monitoring program
2.1.2. Incorporate SAS concepts and criteria of the *LWC Water Supply Plan* into the Consumptive Use Permitting (CUP) Program
2.1.3. Develop and utilize SAS models
2.2.1. Maintain and expand the IAS monitoring program

2.2.2 Incorporate IAS concepts and criteria of the *LWC Water Supply Plan* into the CUP Program
2.2.3. Develop and utilize IAS models
2.3.1. Develop a model to evaluate FAS use, acquifer storage and recovery (ASR) storage and water quality
2.3.2. Expand the FAS ground water monitoring network
2.3.3. Develop and recognize FAS data partnerships
2.3.4. Continue government cooperation to explore alternative desalination concentration disposal options

Total Costs of Projects / Recommendations

Incorporation of SAS and IAS concepts into the CUP Program (Recommendations 2.1.2 and 2.2.2) is being implemented through Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**). The development of the model that will be used to evaluate FAS use, ASR storage and water quality (Recommendation 2.3.1) has been incorporated into the ASR Regional Study that is part of the CERP (**Table 3**). The total costs of the remaining projects/recommendations associated with the ground water resources water source option are approximately $1.47 million, with 4.75 FTEs, for the period from FY 2003 through FY 2007.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD and local sponsors will fund these projects.

Implementing Agency

The SFWMD and the USGS will implement these projects.

Summary of Changes / Implementation from the Previous Work Program

Maintain and Expand the SAS and IAS Monitoring Programs. The SFWMD and the USGS have worked cooperatively to improve the coverage of the real time aquifer water level monitor network. Improvements to the non-Floridan ground water monitoring network have taken place over the past few years. Since 2000, real time water level monitoring data network collection platforms were established on 13 existing non-Floridan wells. These wells provide real time data to the USGS for use with their on-line, real time ground water conditions map. In addition, 19 recorders were upgraded with transducers that allow digital recording and 22 wells were converted from monthly tape measurements to recorders. Staff recommends converting 12 existing wells from monthly tape measurements to recorders for inclusion in the USGS network recording system with FY 2003 improvements.

SAS and IAS Concepts and Criteria. The SAS and IAS concepts and criteria used in the *LWC Water Supply Plan* should be incorporated into the District's CUP Program and other components of the District's overall water supply management responsibilities through rulemaking, such as minimum flows and levels (MFLs), coastal saltwater intrusion prevention, wetland protection, aquifer protection from excessive drawdowns, aquifer monitoring and protection from contamination. All the current water use rulemaking activity is being handled as a single effort ("B-list rules").

Develop and Utilize SAS and IAS Models. Finer resolution ground water models for Collier, Lee and Hendry counties are underway. In late 2002, District staff determined that the Regional Simulation Model for the SAS and IAS would be utilized for the LWC. This model is also being developed for the CERP Southwest Florida Feasibility Study. The model has a variable grid and if needed, works in conjunction with additional subregional MIKE SHE models also under development. Modifications to the Regional Simulation Model in 2003 should result in its availability for use in the next *LWC Regional Supply Plan* update.

Develop a Model to Evaluate FAS Use, ASR Storage and Water Quality. Data collection has been initiated for development of a FAS model. Several meetings were held in 2002 to discuss the need for and timing of development of a FAS model. In December 2002, the decision was made to move forward with developing a model to be used in the next LWC Water Supply Plan update in 2005. The direction of the model and its complexity are presently being examined. This FAS modeling effort would be integrated into the CERP ASR FAS study and development would then follow in the 2009 timeframe.

Potentiometric Mapping Project for IAS. A study project to define and delineate the water table, lower Tamiami, Sandstone and Mid-Hawthorn aquifers is underway to provide greater interpretation of the Lower West Coast's regional hydrogeology. The purpose of the study, initiated in late 2001, was to define the hydrogeologic, lithologic, geophysical and other related data pertaining to the LWC aquifers. Other specific objectives of the study include the production of isopach and top of aquifer contour maps for each aquifer along with potentiometric surface maps of each aquifer and a characterization of the aquifer hydrogeologic characteristics. Most of these tasks were completed in 2002, with final deliverables scheduled for 2003.

Expand the FAS Ground Water Monitoring Network. The water quality and water level monitoring network is being enhanced with installation of real time data loggers that will record water levels on an hourly basis. Seven FAS wells were automated and placed on-line in 2002. Documentation of an exploratory drilling and testing program of a LaBelle, Hendry County site was also completed in 2002. Additional data loggers for FAS wells are planned for installation in 2003 and beyond.

Develop and Recognize FAS Data Partnerships. No progress has occurred to date as lack of funding and liability concerns have made this recommendation problematic. Meetings are currently being held on this matter and LWC utilities may participate in a cost-share of FAS modeling.

Continue Government Cooperation to Explore Alternative Desalination Concentration Disposal Options. The SFWMD participated in a workshop with the SJRWMD, the FDEP and the USEPA concerning options for disposal of concentrate from desalination treatment facilities. Potential methods of disposal include deep well injection, surface water discharge and blending with reclaimed water. For deep well injection, reclassifying concentrate to something other than industrial waste was discussed to reduce construction costs. For surface water discharges, the FDEP had indicated a desire to assist applicants in characterizing water quality in receiving bodies and of the concentrate (based on source quality and treatment method), and applying an up front screening level process to identify potential concerns, including toxicity. Reclassifying concentrate to something other than industrial waste was discussed during the 2000 legislative session, but no bill has passed related to this issue.

3. Reclaimed Water

Description / Discussion

Reclaimed water is water that has received at least secondary treatment and basic disinfection and is reused for a beneficial purpose after flowing out of a domestic wastewater treatment facility. Reuse is the application of reclaimed water, in compliance with the FDEP and SFWMD rules, for a beneficial purpose. Potential uses of reclaimed water include landscape and agricultural irrigation, ground water recharge, industrial uses and environmental enhancement. Reclaimed water has played a significant role in meeting the water supply needs of this region and this is expected to continue.

Recommendations

The recommendation listed under the Regional Irrigation System water source option (No. 4 below) employs the use of reclaimed water. The reclaimed water recommendation is discussed below.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Summary of Changes / Implementation from the Previous Work Program

The use of reclaimed water continues to increase in the LWC planning area. From 1999 to 2000 reclaimed water usage increased by 6 mgd to over 63 mgd. Of the 22 wastewater facilities in the planning area, 21 are reclaiming water. Over 90 percent of the treated wastewater is being reused for irrigation of residential lots, golf courses and other green spaces.

4. Regional Irrigation System

Description / Discussion

The construction and operation of a Regional Irrigation Distribution System (RIDS) will enable water to be transferred from areas of surplus to areas of deficit to fulfill urban irrigation needs. This regional system could conserve the fresh ground water sources, while maximizing the use of reclaimed water that would have otherwise been discharged to surface water or deep well injected and lost from the inventory. Storage, primarily through ASR, will be a key component to bridge the gap between the seasonal and geographic relationships of available supplies and demands. This system would make irrigation water available for local supply entities/utilities to withdraw from for distribution to meet their individual needs. This system could have many different configurations, including one large regional system, several subregional systems or a utility-by-utility basis.

Recommendations

4.1. Conduct and implement a regional irrigation system study

Total Costs of Projects / Recommendations

The total cost of conducting and implementing a regional irrigation system study is approximately $15 million with 2.0 FTEs, for the period of FY 2003 through FY 2007.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD, the FDEP, the USEPA, local governments, water users and/or utilities will fund the study.

Implementing Agency

The SFWMD will conduct the study.

Summary of Changes/Implementation from the Previous Work Program

Regional Irrigation System Study. A contract was awarded to conduct a feasibility analysis and master plan for the construction and operation of a regional irrigation distribution system in the urban areas of Lee and Collier counties. The Regional Irrigation Distribution System (RIDS) Project would consist of a distribution system that would make irrigation water available to local supply entities and utilities for distribution to individual users. Several local entities have committed cost-share funding for this project, including the

cities of Cape Coral, Naples and Fort Myers; Lee and Collier counties; Bonita Springs Utilities; Resource Conservation Systems; and Florida Water Services.

Phase 1 of the study was completed in December of 2001 and included: a facilities inventory, a forecast of urban irrigation water demands, delineation of potential urban irrigation water sources, supply and demand analysis, storage and distribution options, cost analysis and funding sources and options. Overall findings showed that a combined future flow of 213 mgd (projections of 348 mgd urban irrigation for Lee and Collier counties by the year 2020) could be provided via reclaimed wastewater from municipal wastewater treatment plants, reclaimed water ASR, surface water, surface water ASR and ground water withdrawals adjacent to surface water sources, such as mining pits. Unit cost ranges from $.67 – $1.03 per 1000 gallons. Both grant and funding options are available. The study determined that individual interlocal agreements on a project-by-project basis would be more manageable by the stakeholders.

The study concluded: "Benefits and incentives for the RIDS program are very positive in terms of additional water resources in a high growth area, such as the Lower West Coast of Florida. Overall, the RIDS optimizes existing reclaimed water supplies, maximizes seasonally available surface water, diversifies supply sources, potentially reduces water shortage declarations, offsets potable water usage for irrigation purposes, reduces wastewater disposal volumes and offsets future potential ground water withdrawals."

Phase 2, to be completed in one year, will further study the preferred alternative form the Master Plan to determine pipeline routes, pipe and pump sizes, specific storage locations, materials, detailed costing, detailed scheduling and a focused funding strategy. Future phases will include Phase 3 – Engineering Design and Phase 4 – Construction.

5. Seawater

Description/Discussion

This option involves using seawater from the Gulf of Mexico as a raw water source. The Gulf of Mexico appears to be an unlimited source of water from a quantity perspective; however, removal of salts is required prior to potable or irrigation uses. A desalination treatment technology would have to be used, such as distillation, reverse osmosis or electrodialysis reversal.

Recommendations

At the time the *LWC Water Supply Plan* was published, it was determined that seawater was a potential source, but was not cost-effective. Therefore, no recommendations were made within the plan for this water source option. Since then, technological improvements have made seawater desalination more affordable. The SFWMD conducted a feasibility study under the *LEC Regional Water Supply Plan* implementation (Recommendation 42 under the Other Water Resource Projects). This feasibility study may also benefit the other planning regions.

Total Costs of Projects / Recommendations

See Recommendation 42 under Other Water Resource Projects in the *LEC Regional Water Supply Plan* section.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Summary of Changes/Implementation from the Previous Work Program

Other Water Resource Projects – Seawater Desalinization. Technological improvements have made seawater desalination more affordable. Colocation with power plants reduces cost by sharing the cost of intake and discharges facilities, providing more desirable sources of water and providing sufficient cooling water discharges to dilute the reverse osmosis concentrate.

The SFWMD hired a consultant to conduct a feasibility study of colocating seawater reverse osmosis treatment systems with power plants. The purpose of the study was to provide order of magnitude cost estimates for representative sites within the SFWMD. Phase 1 of this feasibility study was completed in March 2002. The study recommended two "desirable" technically feasible Florida Power & Light (FPL) sites for a more detailed evaluation and cost analysis, Port Everglades in Broward County and Ft. Myers in Lee County. The SFWMD met with FPL and county officials in the spring and summer of 2002. Lee County and FPL are presently working together to plan for, design and construct the 30-mgd reverse osmosis facility along the Caloosahatchee River.

6. Storage

Description / Discussion

Three types of potential storage options were identified in the *LWC Water Supply Plan*. These types are ASR, regional retention and reservoirs.

Aquifer Storage and Recovery (ASR) is the underground storage of injected water into an acceptable aquifer (typically the FAS in southwestern Florida) during times when water is available and the subsequent recovery of this water during high demand periods. In other words, the aquifer acts as an underground reservoir for the injected water, reducing water loss to evaporation. Current regulations require injected water to meet drinking water standards when the receiving aquifer is classified as a drinking water aquifer, unless an aquifer exemption is obtained from the USEPA. Obtaining an aquifer exemption is a rigorous process and few have been approved. Although the District will forgo seeking a variance until studies regarding pathogen die-off have been completed, the USEPA has indicated that a flexible assessment approach will be applied for systems that meet all drinking water standards except fecal coliform.

Under the regional and local retention option, opportunities are examined to increase water storage through manipulation and modification of the drainage system, while still maintaining an appropriate level of flood protection. Much of the LWC planning area has been drained to support agricultural and urban development. This has resulted in lowered ground water tables that may impact natural systems, as well as water availability in these areas. The analysis in the 1994 *LWC Water Supply Plan* (SFWMD, 1994) concluded that modifying water levels in existing drainage canals and eliminating unnecessary canals can significantly elevate ground water levels in the Big Cypress Basin. Committee members stated that the work completed by the Big Cypress Basin has successfully improved their canal system to increase ground water levels, resulting in less frequent irrigation demands.

The use of reservoirs involves the capture and storage of excess surface water during rainy periods and subsequent release during drier periods for environmental and human uses. Regionally, surface water storage could be used to attenuate freshwater flows to the Caloosahatchee Estuary and other estuarine water bodies during rainy periods and meet minimum flows during drier periods. In addition, these facilities could increase surface water availability for current and projected uses, and decrease the demand on aquifer systems. However, evaporative and seepage losses could significantly affect water availability.

Recommendations

6.1.1. Continue government cooperation to make rule changes to the Underground Injection Control (UIC) Program
6.1.2. Develop CUP Program rules to address the use of the FAS for ASR
6.2.1. Modify regional and local retention systems/operations

Total Costs of Projects/Recommendations

The development of CUP rules to address the use of the FAS for ASR has been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**). The total remaining cost to modify regional and local retention systems/operations is approximately $1.5 million, with 0.3 FTEs, for the period from FY 2003 through FY 2007.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD, local governments and local drainage districts will fund this recommendation.

Implementing Agency

The SFWMD, local governments and local drainage districts will implement this recommendation.

Summary of Changes / Implementation from the Previous Work Program

Government Cooperation to Make Rule Changes to the UIC Program. The District would continue working with other government entities, including the legislature, Congress, USEPA and FDEP, to explore rule changes to the federal and state UIC Program to allow for injection of untreated or partially treated ground water or surface water with aquifer storage and recovery (ASR). The Fate of Microorganisms in Aquifers Study is being conducted in cooperation with the Southwest Florida Water Management District to better understand variables that result in pathogen die-off. Results of this study would provide the scientific basis for any change in existing regulations.

Modify Regional and Local Retention Systems/Operations. The SFWMD has provided funding to two regional retention projects: the Cape Coral/Gator Slough/Reuse System Enhancement Project and the East County Water Control District Aquifer Recharge Project. The Cape Coral/Gator Slough/Reuse System Enhancement Project will provide an additional 19 mgd of water for their reuse system. This project has been extended for the bid process in 2003. The East Water Control District Aquifer Recharge Project will raise water levels in a 9,000-acre watershed. Delays in funding have slowed this project. Work in the Big Cypress Basin (per the 5-year work plan) has also been accomplished, including structure replacements for Golden Gate #1 and Faka Union #5 structures. Design work has been completed for the CR 951 canal structure, the Corkscrew Canal Weir #1 and the Henderson Creek Diversion pump system preliminary design.

7. Surface Water

Description / Discussion

This option involves the use of surface water as a supply source. Surface water bodies in the LWC planning area include lakes, canals and rivers. Lake Trafford and Lake Hicpochee are the two largest lakes within the LWC planning area, but neither is considered a good source of water supply. The Caloosahatchee River Basin and the associated flows from Lake Okeechobee form the largest source of surface water in the LWC planning area. *The Caloosahatchee Water Management Plan* (SFWMD, 2000e) addressed most of the surface water needs in the LWC planning area.

Recommendations

7.1. Develop a Caloosahatchee River ASR pilot project
7.2. Implement the C-43 Storage Project
7.3. Complete the Southwest Florida Study
7.4. Establish MFLs for the Caloosahatchee River and Estuary

7.5. Implement well abandonment programs
7.6. Analyze saltwater influence
7.7. Continue government cooperation to make rule changes to the UIC Program
7.8. Evaluate the environmental needs of the Southwest Florida Study

Total Costs of Projects/Recommendations

The Caloosahatchee River ASR Pilot Project, the C-43 Storage Project and the Southwest Florida Study have been incorporated into the CERP (**Table 3**). The well abandonment programs have been incorporated into Recommendation 3.3 of the *UEC Water Supply Plan* (**Table 5**). No other costs are associated with the surface water option.

Quantity of Water Potentially Available

See **Table 9** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Source

The SFWMD and the USACE will cost-share Recommendation 7.1, 7.2 and 7.3 as part of the CERP. Landowners and local government will fund well abandonment programs. The SFWMD will fund the analysis of saltwater influence.

Implementing Agency

The SFWMD and the USACE will implement Recommendation 7.1, 7.2 and 7.3 as part of the CERP. Landowners and local government will implement well abandonment programs. The SFWMD will implement the analysis of saltwater influence.

Summary of Changes / Implementation from the Previous Work Program

Caloosahatchee River ASR Pilot Project. The SFWMD developed a Project Management Plan for the Caloosahatchee River ASR Pilot Project. The purpose of a Project Management Plan was to establish the scope, define a schedule and determine the costs associated with conducting the project. The draft plan was completed on September 2001. ASR wells are proposed in order to maximize the benefits associated with the Caloosahatchee River Storage Reservoir. A pilot project for these wells is needed to identify the most suitable sites for the ASR wells in the vicinity of the reservoir and to determine the optimum configuration of those wells. The pilot project will provide information regarding the characteristics of the aquifer system within the Caloosahatchee River Basin, as well as determine the hydrogeological and geotechnical characteristics of the upper Floridan aquifer. The pilot project will also determine the specific water quality characteristics of waters to be injected, the specific water quality characteristics and the amount of water recovered from the aquifer and the water quality characteristics of water within the receiving aquifer.

C-43 Storage Project. The C-43 Storage Project has been divided into two initiatives: the C-43 Storage Reservoir and the C-43 ASR Project. A Project Management Plan for the C-43 Storage Reservoir was completed in February 2002. The C-43 ASR Project schedule has been postponed for a start date of 2009. A project implementation report is now underway, with the draft scheduled for completion by November 2003.

This project is the first part of the C-43 Basin Storage Reservoir and ASR component. The project includes an above ground reservoir with a total storage capacity of approximately 160,000 acre-feet located in the C-43 Basin in Hendry, Glades or Lee counties. The initial design of the reservoir assumed 20,000 acres with water levels fluctuating up to 8 feet above grade. The final size, depth and configuration of this facility will be determined through more detailed planning and design. The purpose of the project is to capture C-43 Basin runoff and releases from Lake Okeechobee. The reservoir will be designed to provide environmental water supply deliveries to the Caloosahatchee Estuary and to reduce salinity and nutrient impacts of runoff to the estuary.

Establishment of MFLs for the Caloosahatchee River and Estuary. This recommendation is to establish MFLs for the Caloosahatchee River and Estuary by December 2000 in accordance with Section 373.042, F.S. The MFL rules for the Caloosahatchee River and the LWC aquifers became effective in September 2001. A Caloosahatchee MFL update report has been prepared.

Government Cooperation to Make Rule Changes to the UIC Program. The District would continue working with other government entities, including the legislature, Congress, USEPA and FDEP, to explore rule changes to the federal and state UIC Program to allow for injection of untreated or partially treated ground water or surface water with aquifer storage and recovery (ASR). The Fate of Microorganisms in Aquifers Study is being conducted in cooperation with the Southwest Florida Water Management District to better understand variables that result in pathogen die-off. Results of this study would provide the scientific basis for any change in existing regulations.

Southwest Florida Study. The SFWMD and the USACE approved a Project Management Plan for the Southwest Florida Feasibility Study in January 2002. The purpose of a Project Management Plan was to establish the scope, define a schedule and determine the costs associated with conducting the Southwest Florida Feasibility Study. The purpose of the study is to look at issues raised by the CERP that need to be addressed in the LWC, particularly issues related to the Caloosahatchee River Basin. The CERP recommended increasing water storage in the Caloosahatchee River Basin by 160,000 acre-feet and the use of ASR to ensure adequate water supply. This provides additional water storage capacity that prevents damage to the Caloosahatchee Estuary during high stormwater events and a water supply source during times of drought, while greatly reducing the dependence on Lake Okeechobee for water supply. The Restudy determined that Southwest Florida needed a comprehensive look at all the water issues it faces, not only those pertaining to the CERP. Other hydrologic watersheds in the region have not been studied in a comprehensive fashion. Hence the feasibility is one of the recommendations of the Restudy and is to be performed to address all the watersheds of Southwest Florida.

8. Related Implementation Strategies

Description / Discussion

This section includes those recommended efforts that could not be associated with a specific source option, or apply to several of the options. In general, these recommendations promote consistency by incorporating the concepts and guidelines used as criteria in the *LWC Water Supply Plan* into the District's water management programs through rulemaking or other implementation processes.

Recommendations

8.1.1. Incorporate criteria of the *LWC Water Supply Plan* into the CUP Program
8.1.2. Establish MFLs for the Caloosahatchee River and Estuary and the LWC aquifer systems
8.2. Cooperate with other government entities to accomplish changes in ASR and desalination disposal regulations
8.3. Continue the Wetland Drawdown Study and use knowledge in the rulemaking process
8.4. Make ground water models, data and other relative information referenced in the *LWC Water Supply Plan* available to the public

Total Costs of Projects / Recommendations

The costs of incorporating criteria into the CUP Program have been incorporated into Recommendation 40 of the *LEC Regional Water Supply* Plan (**Table 10**). The cost of the Wetland Drawdown Study is discussed in the Districtwide Water Resource Development Efforts section. No other costs are associated with the related implementation strategies recommended in the *LWC Water Supply Plan*.

Quantity of Water Potentially Available

These recommendations will not directly result in any water becoming available.

Funding Source

The SFWMD will fund the related implementation strategies.

Implementing Agency

The SFWMD will implement these strategies.

Summary of Changes / Implementation from the Previous Work Program

Incorporation of Criteria into the CUP Program. The SFWMD has initiated rulemaking in 26 subject matters to incorporate salient portions of all of the water supply

plans into the CUP Program and other components of the District's overall water supply management responsibilities. White papers and preliminary rule drafts have been developed for several of the subjects.

Establishment of MFLs for the Caloosahatchee River and Estuary and LWC Aquifer System. The MFLs for the Caloosahatchee River and Estuary and LWC aquifer system (except for the water table aquifer and the Floridan aquifer) were adopted by the District's Governing Board in March 2001 and became effective in September 2001.

Cooperate with Other Government Entities to Accomplish Changes in ASR and Desalination Disposal Regulations. The SFWMD provided technical and legislative support to the FDEP for the sponsorship of Senate Bill 854/House Bill 705 regarding ASR in the 2001 Florida Legislative session. The bill was designed to allow for an exemption to the total coliform drinking water standard for ASR recharge water, provided the applicant can demonstrate die-off of these organisms. The bill did not make it into law. In November 2001, the Executive Director decided to forgo seeking a variance from existing ASR regulatory criteria and determined that ASR pilot projects will comply with applicable regulatory criteria. This decision may be revisited once results from studies being conducted by the SFWMD, the SWFWMD and the SJRWMD regarding pathogen die-off have been completed.

Summary of LWC Water Supply Plan Costs and Schedules

Table 8. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *LWC Water Supply Plan*

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 1: Conservation													
1.1	Develop a conservation program	See Districtwide Water Resource Development Efforts section (**Table 1**)											
1.2	Maintain and add MILs												
Water Source Option 2: Ground Water Resources													
2.1.1	Maintain and expand the SAS monitoring program	120	0.75	60	0.25	60	0.25	153	0.00	153	0.00	546	1.25
2.1.2	Incorporate SAS concepts and criteria into the CUP Program	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**)											
2.1.3	Develop and utilize SAS models	Incorporated into Recommendation 2.2.3											
2.2.1	Maintain and expand the IAS monitoring program	50	0.20	50	0.20	50	0.20	273	0.00	273	0.00	696	.60
2.2.2	Incorporate IAS concepts and criteria into the CUP Program	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**).											
2.2.3	Develop and utilize IAS models	50	0.20	50	0.20	TBD	0.00	TBD	0.00	TBD	0.00	100	.40
2.3.1	Develop a model to evaluate FAS use, ASR storage and water quality	Incorporated into the ASR Regional Study listed under CERP (**Table 3**)											
2.3.2	Expand the FAS ground water monitoring network	26	0.50	26	0.50	26	0.50	26	0.50	26	0.50	130	2.5
2.3.3	Develop and recognize FAS data partnerships	Ongoing with no funds or FTEs committed at this time											
2.3.4	Continue government cooperation to explore alternative desalination concentration disposal options	Pending FDEP rule changes											
	Subtotal	**246**	**1.65**	**186**	**1.15**	**136**	**0.95**	**452**	**0.50**	**452**	**0.50**	**1472**	**4.75**
Water Source Option 3: Reclaimed Water													
		See Recommendation 4.1											
Water Source Option 4: Regional Irrigation System													
4.1	Conduct and implement a regional irrigation system study	0.00	0.25	200	0.25	0.00	0.50	300	0.50	1,000	0.50	1,500	2.0
	Subtotal	**0.00**	**0.25**	**200**	**0.25**	**0.00**	**0.50**	**300**	**0.50**	**1,000**	**0.50**	**1,500**	**2.00**
Water Source Option 5: Seawater													
		See Recommendation 42 of the *LEC Regional Water Supply Plan* (**Table 10)**											
Water Source Option 6: Storage													
6.1.1	Continue government cooperation to make rule changes to the UIC Program	Incorporated into ASR Pilot Projects listed under CERP (**Table 3**)											
6.1.2	Develop CUP Program rules to address the use of the FAS for ASR	Incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan* (**Table 10**)											
6.2.1	Modify regional and local retention systems/operations	300	0.10	300	0.10	300	0.10	300	0.00	300	0.00	1,500	0.30
	Subtotal	**300**	**0.10**	**300**	**0.10**	**300**	**0.10**	**300**	**0.00**	**300**	**0.00**	**1,500**	**0.30**

Water Source Options and Recommendations		Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Water Source Option 7: Surface Water													
7.1	Develop a Caloosahatchee River ASR pilot project	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
7.2	Implement the C-43 Storage Project												
7.3	Complete the Southwest Florida Study												
7.4	Establish MFLs for the Caloosahatchee River and Estuary	Complete											
7.5	Implement well abandonment programs	See Recommendation 3.3 in the *UEC Water Supply Plan* section (**Table 6**)											
7.6	Analyze saltwater influence	Incorporated into Recommendation 2.1.1											
7.7	Continue government cooperation to make rule changes to the UIC Program	Incorporated into ASR Pilot Projects listed under CERP (**Table 3**)											
7.8	Evaluate the environmental needs of the Southwest Florida Study	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
Water Source Option 8: Related Implementation Strategies													
8.1.1	Incorporate criteria into the CUP Program	See Recommendation 40 in the *LEC Regional Water Supply Plan* section (**Table 10**)											
8.1.2	Establish MFLs for the Caloosahatchee River and Estuary and the LWC aquifer systems	Complete											
8.2	Cooperate with other government entities to accomplish changes in ASR and desalination disposal regulations	Incorporated into ASR Pilot Projects listed under CERP (**Table 3**)											
8.3	Continue the Wetland Drawdown Study and use knowledge in the rulemaking process	See Districtwide Water Resource Development Efforts section (**Table 1**)											
8.4	Make ground water models, data and other relative information referenced in the *LWC Water Supply Plan* available to the public	Ongoing											
	Subtotal	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**
	TOTAL	**546**	**2.00**	**686**	**1.50**	**436**	**1.55**	**1,052**	**1.00**	**1,752**	**1.00**	**4,472**	**7.05**

Summary of the Quantity of Water to Be Made Available by Implementation of the LWC Water Supply Plan

Table 9. Water Made Available Through Implementation of the *LWC Water Supply Plan* by FY 2003 and by FY 2007

	Recommendation	Estimated Water Made Available (MGD)	
		By FY'03	By FY'07
1	**Water Conservation Program**		
1.1	Water Conservation Program	1.3	5.0
1.2	MILs	4.3	21.3
2	**Ground Water Resources**		
2.1.1	SAS Monitoring	0.0	0.0
2.1.2	SAS Rulemaking	0.0	0.0
2.1.3	SAS Modeling	0.0	0.0
2.2.1	IAS Monitoring	0.0	0.0
2.2.2	IAS Rulemaking	0.0	0.0
2.2.3	IAS Modeling	0.0	0.0
2.3.1	FAS Model Development	0.0	0.0
2.3.2	FAS Monitoring	0.0	0.0
2.3.3	FAS Data Partnerships	0.0	0.0
2.3.4	FAS Government Cooperation	0.0	0.0
3	**Reclaimed Water**	63.0	71.5
4	**Regional Irrigation System**		
4.1	Regional Irrigation System Study	0.0	0.0
5	**Seawater**	0.0	0.0
6	**Storage**		
6.1.1	ASR Water Quality	0.0	0.0
6.1.2	ASR Rulemaking	0.0	0.0
6.2.1	Regional and Local Retention	0.0	54.0
6.3	Reservoirs	see 7.2	see 7.2
7	**Surface Water**		
7.1	CWMP - Caloosahatchee River ASR Pilot Project	see 7.2	see 7.2
7.2	CWMP - C-43 Storage Project	0.0	0.0
7.3	CWMP - Southwest Florida Study	0.0	0.0
7.4	CWMP - Minimum Flows and Levels	0.0	0.0
7.5	CWMP - Well Abandonment Program	0.0	0.0
7.6	CWMP - Saltwater Influence	0.0	0.0
7.7	CWMP - Permitting Issues Associated with ASRs	0.0	0.0
7.8	Southwest Florida Study	0.0	0.0
8.0	**Related Implementation Strategies**		
8.1.1	Districtwide Rulemaking	0.0	0.0
8.1.2	Minimum Flows and Levels	0.0	0.0
8.2	Government Cooperation	0.0	0.0
8.3	Wetlands Drawdown Study	0.0	0.0
8.4	Public Information	0.0	0.0
	TOTAL	**68.6**	**151.80**

2000 Lower East Coast Regional Water Supply Plan

Plan Organization

Water resource development options for the Lower East Coast (LEC) planning area are grouped by the scope and nature of the recommended projects as follows:

1. Ongoing projects from the *Interim Plan for Lower East Coast Regional Water Supply* (LEC Interim Plan) (SFWMD, 1998b)
2. Other federal, state and SFWMD projects
3. The CERP projects
4. Recommendations to the CERP resulting from analysis performed during the LEC regional water supply planning and development process
5. Recommendations to the CERP from the *Caloosahatchee Water Management Plan* (SFWMD, 2000e)
6. Operational recommendations resulting from LEC water supply planning and development process analysis
7. Consumptive Use Permitting (CUP) Program and resource protection projects
8. Other water resource development projects

Information Provided

The summary of each category of recommendations includes a description, a list of recommendations, funding sources, implementing agencies, costs to nonfederal entities (primarily the SFWMD) and estimates of total SFWMD staff time required in FTEs to implement the option. The schedule and costs to implement the recommendations in the *LEC Regional Water Supply Plan* (SFWMD, 2000d) over the next five fiscal years are summarized in **Table 10** at the end of this section. In addition, estimates are provided (to the extent that can be determined) of the amount of water that will be made available for each recommendation in **Table 11**, also at the end of this section.

The water resource development projects are listed to correspond with the numbered recommendations in the *LEC Regional Water Supply Plan*. For each option, a description is provided of changes in the plan scope or implementation that have occurred during the past year since the last *Five-Year Water Resource Development Work Program* report (SFWMD, 2002a) was published.

Water Resource Development Options and Recommendations

Ongoing Projects from the LEC Interim Plan

Definition / Discussion

Significant water supply planning and development projects were initiated with the completion of the LEC Interim Plan, accepted by the Governing Board in March 1998. A number of these projects involve capital expenditures on the part of the SFWMD or its partners, and must be continued to completion. The majority of these projects will be concluded prior to the next update of the LEC regional water supply plan and the five-year projections reflect this fact.

Recommendations

1. Improve regional saltwater intrusion management
2. Refine the Floridan Aquifer System (FAS) Ground Water Model
3. Develop a Northern Palm Beach County comprehensive water management plan
4. Construct and operate the Eastern Hillsboro Regional Aquifer Storage and Recovery (ASR) Pilot Project
5. Construct and operate the Hillsboro (Site 1) Reservoir Pilot Project
6. Establish Lake Worth Lagoon minimum/maximum flow targets
7. Develop and implement a northern Broward secondary canals recharge network
8. Implement a design study for an interconnected water supply system in southeastern Broward County
9. Evaluate urban environmental enhancement in Broward County
10. Construct the Miami-Dade Water and Sewer Department (WASD) Utility ASR
11. Establish Biscayne Bay minimum and maximum flow targets

Total Costs of Projects / Recommendations

The SFWMD cost of implementing these recommendations for the five-year period from 2003 to 2007 is contained in **Table 10**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

- Regional saltwater intrusion management – SFWMD and USGS with local cost sharing by counties
- FAS Ground Water Model – USACE, USGS, SFWMD, water users and local utilities

- Northern Palm Beach County Comprehensive Water Management Plan – City of West Palm Beach, Indian Trail Improvement District, Palm Beach County, SFWMD, CERP and other federal sources
- Eastern Hillsboro Regional ASR Pilot Project – Palm Beach County and SFWMD
- Hillsboro (Site 1) Reservoir Pilot Project – SFWMD
- Lake Worth Lagoon minimum/maximum flow targets – Palm Beach County, USACE and SFWMD
- Northern Broward Secondary Canals Recharge Network – Broward County, City of Fort Lauderdale and SFWMD
- Southeast Broward County Interconnected Water Supply System – the cities of Hallandale Beach, Hollywood and Dania Beach; Broward County; SFWMD; and the Seminole Tribe
- Broward County urban environmental enhancement – Broward County and SFWMD
- Miami-Dade WASD Utility ASR – Miami-Dade WASD, SFWMD and USEPA
- Biscayne Bay minimum and maximum flow targets – Florida Forever Act, National Ocean and Atmosphere Administration, USGS, CERP and specific appropriation funds from the Florida Legislature

Implementing Agencies

- Regional saltwater intrusion management – SFWMD
- FAS Ground Water Model – SFWMD
- Northern Palm Beach County Comprehensive Water Management Plan – City of West Palm Beach, Indian Trail Improvement District and SFWMD
- Eastern Hillsboro Regional ASR Pilot Project – Palm Beach County
- Hillsboro (Site 1) Reservoir Pilot Project – SFWMD
- Lake Worth Lagoon minimum/maximum flow targets – Palm Beach County and SFWMD
- Northern Broward Secondary Canals Recharge Network – Broward County, City of Fort Lauderdale, SFWMD and other local governments
- Southeast Broward County Interconnected Water Supply System – Cities of Hallandale Beach, Hollywood and Dania Beach; Broward County; SFWMD; and the Seminole Tribe
- Broward County urban environmental enhancement – Broward County and SFWMD
- Miami-Dade WASD Utility ASR – Miami-Dade WASD

- Biscayne Bay minimum and maximum flow targets – SFWMD, Miami-Dade County Department of Environmental Resource Management and USACE

Summary of Changes / Implementation from the Previous Work Program

Improve Regional Saltwater Intrusion Management. Improvements to the regional saltwater intrusion management program continued in FY 2002. During FY 2002, a new saltwater intrusion mapping technique utilizing the Internet was under development. This mapping technique taps frequently updated ground water quality data integrated in one database, which integrates USGS and District regulatory data. This integrated database was also developed in FY 2002. A Broward County density dependent, saltwater intrusion model was developed by USGS and is currently in peer review.

Floridan Aquifer System Ground Water Model. Campbell data loggers have been installed at seven existing FAS sites in the LEC planning area. Access agreements to install additional data loggers at six utilities with test well sites, with injection wells in Broward County (C-13, Oakland Park) and in Miami-Dade County (Krome Ave, NW Miami Dade) were initiated. Access to four utility sites was secured in FY 2002, including three under management by Miami-Dade WASD and one by the Town of Palm Beach. Recorders are scheduled for deployment at those four sites by December 2002. In addition, several Floridan wells were sampled for major ions and stable isotopes to improve our understanding of the flow system in anticipation of building a model. Documentation of an exploratory Floridan aquifer drill and test site was also finalized as WS-5: *Floridan Aquifer System Test Well Program at Lake Lytal Park, West Palm Beach*. A similar draft publication of a Floridan test site on the *C-13 Canal in Oakland Park, Broward County* was also developed and is scheduled for completion in FY 2003. These documents will be referenced to build the model.

Northern Palm Beach County Comprehensive Water Management Plan. The SFWMD's Governing Board accepted the *Northern Palm Beach County Comprehensive Water Management Plan* (SFWMD, 2002b) in May of 2002. In 2002, the redesign of the Loxahatchee Slough Structure (G-160) was completed and a joint permit application for G-160 was submitted to the FDEP and the USACE. The G-160 permit was issued in March 2003. In addition, widening of the M Canal continues with completion targeted for August 2003. The costs for FY 2003 reflect design changes for the G-160, Loxahatchee Slough structure, and the updating of two-year old cost estimates for G-160's conceptual design. The resulting design for the G-160 was larger than anticipated in the Northern Plan, therefore, the associated costs also increased. In addition, detailed design revealed costs not known at the time of Northern Plan development. Construction for the G-160, Loxahatchee Slough structure is anticipated to begin in March 2003 and is scheduled for completion nine months after the commencement of construction. Design for the G-161, Northlake Blvd. Structure has started. Construction is anticipated to begin in late 2003 or early 2004. Siting analysis and design for a Control 2 Pump Station to replace the current facility on the M Canal is scheduled for completion in 2004. Widening of the M Canal by the City of West Palm Beach continues to take place.

Eastern Hillsboro Regional ASR Pilot Project. This is being implemented as part of the CERP. Construction of the Hillsboro Regional ASR Pilot Project was completed in 2002. Testing will continue through 2004.

Hillsboro (Site 1) Reservoir Pilot Project. With the acceleration of the schedule for the CERP Site 1 full-scale impoundment, and the current schedule for the pilot impoundment via the CERP Hillsboro ASR Pilot Project, the necessity for the pilot impoundment was questioned. Accordingly, the USACE/SFWMD management eliminated the pilot impoundment project, as data from the pilot impoundment would not be available in time to aid design for the full-scale impoundment.

Lake Worth Lagoon Minimum/Maximum Flow Targets. The Lake Worth Lagoon Study is being conducted to develop a model that will provide a greater understanding of the circulation patterns within the lagoon and predict the response of the system to different quantities and duration of discharges from the major water control structures. The public was presented with study results in 2002. Staff has been trained to use the new Lake Worth Lagoon Estuarine Fluid Dynamic Code (EFDC) Hydrodynamic/Salinity model. Palm Beach County staff is conducting a more detailed bathymetric survey of the lagoon that will greatly increase the accuracy of the model. The resulting data set will be input into the model in early 2003.

Broward County Water Resource Development Projects. The Broward County Water Resource Development Projects (Recommendations 7 and 9 from the LEC RWSP) consist of the Northern Broward Secondary Canals Recharge Network and the Broward County Urban Environmental Enhancement. Implementation of these recommendations has been contracted to the Broward County Department of Planning and Environmental Protection. The recommendations have been integrated into the Broward County Countywide Integrated Water Resource Plan. Construction drawings are being prepared for the necessary secondary canal infrastructure including canal interconnections, pumps and storage areas.

Southeast Broward County Interconnected Water Supply System. During 2002 consumptive use permits were issued for Broward County and Hollywood utilities. Implementation of this recommendation (Recommendation 8 from the LEC RWSP) is proceeding.

Miami-Dade Water and Sewer Department Utility ASR. Twenty-five mgd of ASR capacity has been constructed, but only 15 mgd of that capacity is allowed for operation. The Miami-Dade WASD is working with the FDEP to obtain an operational permit. The Miami-Dade WASD is currently researching the location of an additional 10 mgd in the vicinity of the Northwest Wellfield.

Biscayne Bay Minimum and Maximum Flow Targets. An initial version of the Biscayne Bay hydrodynamic model has been validated. Improvements are continuing to be made, and will continue as part of the CERP Biscayne Bay Coastal Wetlands Project. The changes being contemplated will be consistent with those needs anticipated for development of minimum flows and levels (MFLs). The USGS ground water model has been published.

The University of Miami completed the ecological model for Biscayne Bay. The completion of these tools will enable scenarios of varying freshwater inflows to be evaluated, resulting in recommendations for a salinity regime for Biscayne Bay.

Other Federal, State or SFWMD Projects

Definition / Discussion

Two groups of projects have been included in this category. The first group (Recommendation 12) includes those Critical Projects in the LEC planning area that the SFWMD sponsors locally. The Critical Project Program was authorized by the United States Congress under the Water Resource Development Act of 1996 to expeditiously implement restoration projects that are deemed critical to the restoration of the South Florida ecosystem. The second group (Recommendations 13 through 16) is SFWMD-initiated projects that reflect recommendations developed in the *Caloosahatchee Water Management Plan* (SFWMD, 2000e) and a recommendation regarding MILs that supports similar recommendations in other SFWMD water supply plans.

Recommendations

12. Implement Critical Projects
13. Implement well abandonment programs
14. Investigate saltwater influence at S-79 (Caloosahatchee Basin)
15. Cooperate with other government entities to resolve permitting issues associated with ASR systems and reclaimed water and reuse
16. Maintain and add MILs

Total Costs of Projects / Recommendations

The Critical Projects and the MILs are discussed in the Districtwide Water Resource Development section. The costs for these activities are listed in **Table 2** and **Table 1**, respectively. The SFWMD cost of implementing the remaining recommendations for the five-year period from 2003 to 2007 is contained in **Table 10**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

- Critical Projects – SFWMD and state and federal government
- Well abandonment programs – No new sources have been identified; former sources included landowners, local government and water resource development

- Saltwater influence at S-79 – USACE and local governments
- Permitting issues associated with ASR systems and reclaimed water and reuse – SFWMD and FDEP
- Maintain and add MILs – SFWMD, FDEP, USDA, NRCS, Soil and Water Conversation District user fees and utilities

Implementing Agencies

- Critical Projects – SFWMD and USACE
- Well abandonment programs – SFWMD
- Saltwater influence at S-79 – SFWMD
- Permitting issues associated with ASR systems and reclaimed water and reuse – SFWMD, FDEP and USEPA
- Maintain and add MILs – USDA, NRCS, FDACS, FDEP, Soil and Water Conversation District user fees and utilities

Summary of Changes / Implementation from the Previous Work Program

Critical Projects. Manatee barriers and C-4 culverts and have been installed. The S-9A pump station is nearing completion. S-381 spillway is being redesigned. **Table 2** in the Districtwide Water Resource Development Efforts section summarizes the nonfederal costs of the Critical Projects over the next five fiscal years.

Well Abandonment Program. The Well Abandonment Program was discontinued in 1991. No efforts were made to continue the program for the Caloosahatchee Basin in FY 2002. The program's former "Data Flex" DOS database is being replaced by the new Well Inventory Lithologic and Geophysical Hydrologic Maintenance Application (WILMA) database, which should be fully active by the end of FY 2003. The WILMA database will include historic information about wells that have been plugged, location coordinates, plugging costs and geophysical logs that have been digitized. Some water quality data values, such as chloride and total dissolved solids, will be included.

Saltwater Influence at S-79 (Caloosahatchee Basin). Saline water has been a recurring problem for the potable water intakes in the Caloosahatchee River. The potable water intakes are located approximately one mile upstream of the S-79 Structure. During extended periods of low flow, the chloride content of the shallow water increases well beyond the recommended limit of 250 milligrams per liter for drinking water. The District will coordinate additional analysis of the saltwater influence problem at the S-79 Structure. This recommendation involves staff support and coordination only. This recommendation is linked to the *LWC Water Supply Plan* Recommendation 7.6. When saltwater intrudes up the Caloosahatchee River to the potable water intakes, releases of water from Lake Okeechobee are made through Structure S-77.

Mobile Irrigation Labs. In FY 2002, $162,000 was spent in the LEC planning area on two MILs: an agricultural lab in Miami-Dade County and an urban lab in Palm Beach County. The MILs have been incorporated into the Comprehensive Water Conservation Program that is discussed in the Districtwide Water Resource Development Efforts section (**Table 1**). An additional urban lab is planned to start-up in Broward County in FY 2003.

Comprehensive Everglades Restoration Plan Projects

Definition / Discussion

The keys to Everglades restoration, as determined in *the Central and Southern Florida Project Comprehensive Review Study* (USACE and SFWMD, 1999) (Restudy), are to increase the amount of water available, ensure adequate water quality and reconnect the parts of the system that have interrupted historical drainage patterns. One component of this effort is to annually regain, for beneficial use, about two million acre-feet of excess water that is currently being discharged to tide for flood control. The recommendations made within the Restudy (i.e., structural and operational modifications) are being further refined and will be implemented in the CERP. Analyses completed as part of the *LEC Regional Water Supply Plan* confirmed that the Restudy projects scheduled for completion by 2020 are extremely beneficial for meeting MFLs and natural system restoration targets. Benefits include reducing high water flows to estuaries and providing water to meet urban and agricultural demands throughout the LEC planning area. Many of the proposed projects have significant water resource benefits that need to be considered in this plan.

The CERP is considered in its entirety as one component of the *LEC Regional Water Supply Plan*'s program of water resource development projects. Completion of the CERP projects that affect the LEC and Caloosahatchee planning areas by 2020, and timely implementation according to the schedule in the Restudy are crucial to meeting the objectives of the *LEC Regional Water Supply Plan*. The plan identified 63 CERP projects in the LEC planning area. Details of these projects along with estimates of funding requirements can be found in the *LEC Regional Water Supply Plan*, the *Caloosahatchee Water Management Plan* and the Restudy documentation. Any changes to scheduling of the plan will be consistent with the five-year update of the *LEC Regional Water Supply Plan*.

Although the primary purpose of the CERP is to provide environmental restoration for the Everglades, an ancillary benefit is that more water will also be available to meet urban and agricultural needs. The combination of CERP Projects within the LEC planning area was designed to provide sufficient water to meet projected environmental, urban and agricultural water needs in the LEC planning area for the next 20 years.

Recommendations

17. Implement CERP projects that affect the LEC planning area and the Caloosahatchee Basin

Total Costs of Projects / Recommendations

A listing of individual CERP components in the various SFWMD planning regions and their costs is provided in **Table 3** in the Districtwide Water Resource Development Efforts section.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The federal government will fund 50 percent of the cost of CERP projects, and the remaining 50 percent will be funded by the SFWMD and the State of Florida. The Miccosukee Indian Tribe, the Seminole Indian Tribe and Miami-Dade County may also provide funding.

Implementing Agencies

The SFWMD, the State of Florida and the USACE will implement the projects. Other local sponsors are also involved, including the Miccosukee Indian Tribe, the Seminole Indian Tribe and Miami-Dade County.

Summary of Changes / Implementation from the Previous Work Program

Implement CERP projects that affect the LEC planning area and the Caloosahatchee Basin. Implementation information on CERP projects is available in the CERP *Master Implementation Schedule, Update 1.0* (USACE and SFWMD, 2001). Monthly progress reports for each CERP project are posted on the Internet at http://www.evergladesplan.org.

Recommendations to the CERP from *the LEC Regional Water Supply Plan*

Definition / Discussion

The *LEC Regional Water Supply Plan* analyses indicated that refinement of some of the CERP projects might improve their performance. The *LEC Regional Water Supply Plan* recommends that these modifications be analyzed and incorporated into the planning and design of CERP projects during the project implementation reporting process, and the restoration coordination and verification (RECOVER) process, and into any operational changes for these features.

Recommendations

18. Determine the most effective method to provide water for C-51 backpumping without affecting the location of S-155A
19. Restore or improve hydropatterns within Water Conservation Area (WCA) 2B
20. Conduct more detailed planning and design studies to determine final sizes, depths and configurations of the Everglades Agricultural Area (EAA) Storage Reservoirs
21. Develop an operating schedule for the L-8 Basin Project that can optimize the use of stored ASR water to meet EAA demands
22. Optimize the operation of the C-51 Regional Ground Water Project's ASR features
23. The West Miami-Dade Reuse Feasibility Study should reevaluate the volume of reuse water needed, consider other uses of reclaimed water and analyze alternative sources
24. Implement and periodically update the water supply and environmental (WSE) regulation schedule for Lake Okeechobee
25. Identify seepage barrier locations in the Lake Belt Storage Area Project and coordinate with the mining industry to protect the barriers
26. Develop and implement rain-driven operations for WCAs 2B, 3A, 3B and Everglades National Park by 2005 and for WCA 2A by 2010
27. Change selective coastal wellfield locations and operations as soon as possible

Total Costs of Projects / Recommendations

These analyses, design improvements and changes to management practices may be implemented at minimal cost to the SFWMD, as they will be conducted and incorporated as part of the USACE and the SFWMD detailed design process and the development of project implementation reports for CERP components. The CERP components are addressed under Recommendation 17 and listed in **Table 3** in the Districtwide Water Resource Development section.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The SFWMD and the USACE will provide most of the funding for the recommended projects.

Implementing Agencies

The SFWMD and the USACE will implement most of the recommended projects.

Summary of Changes / Implementation from the Previous Work Program

Relocation of S-155A. This analysis will be conducted as part of the CERP North Palm Beach County Project Implementation Report.

Restore or improve hydropatterns within WCA 2B. The RECOVER team has not yet made any recommendations that can be implemented in the LEC planning process.

Conduct more detailed planning and design studies to determine final sizes, depths and configurations of the Everglades Agricultural Area (EAA) Storage Reservoirs. The EAA Storage Reservoir CERP Project Management Plan has been approved and the Project Implementation Report (PIR) is currently underway. Analysis will be done during the PIR.

Optimize the use of stored L-8 Basin Project ASR water to meet EAA demands. This analysis will be conducted during the North Palm Beach County CERP Project Part 2 that is scheduled to begin in 2009. During 2002, efforts were directed toward preparing the Project Management Plan for Part 1, the non-ASR components.

Optimize the operation of the C-51 Regional Ground Water Project's ASR features. This analysis will be conducted during the North Palm Beach County CERP Project Part 2 that is scheduled to begin in 2009. During 2002, efforts were directed toward preparing the Project Management Plan for Part 1, the non-ASR components.

The West Miami-Dade Reuse Feasibility Study should reevaluate the volume of reuse water needed, consider other uses of reclaimed water and analyze alternative sources. The CERP Reuse Feasibility Study began in 2002.

Implementation of the WSE Regulation Schedule for Lake Okeechobee. The SFWMD and the USACE adopted the WSE schedule in July 2000.

Identify seepage barrier locations in the Lake Belt Storage Area Project and coordinate with the mining industry to protect the barriers. The CERP Lake Belt Pilot Project began in 2002 to provide information for the full CERP Lake Belt Storage Project that is scheduled to start in 2011.

Everglades Rain-Driven Operations. In FY 2002, the SFWMD issued a request for proposals and selected a contractor to develop the rainfall-driven formulas based upon the statement of work that had been developed and approved by the SFWMD and Everglades National Park staff.

Change Coastal Wellfield Operations. The identified utilities are evaluated for alternate wellfield locations and operation schedules as part of the CUP process applications. This occurs on a continual basis.

Recommendations to the CERP from the *Caloosahatchee Water Management Plan*

Definition / Discussion

The modeling conducted as part of the *Caloosahatchee Water Management Plan* (SFWMD, 2000e) and incorporated into the *LEC Regional Water Supply Plan* used revised Caloosahatchee Basin hydrology and demands from those used in the Restudy. This assessment showed higher demands and lower runoff from the basin, and consequently that less water was available to be backpumped into Lake Okeechobee for storage. The *Caloosahatchee Water Management Plan* identified the need for additional storage within the basin using a regional optimization approach. It was determined that underground storage (ASR systems) must be able to tolerate extended withdrawals of 220 mgd and that at least 220,000 acre-feet of aboveground storage (reservoirs plus other storage options) was needed.

Recommendations

28. Develop a Caloosahatchee River ASR pilot project
29. Implement the C-43 Storage Project
30. Complete the Southwest Florida Study

Total Costs of Projects / Recommendations

These projects have been incorporated into the CERP. Costs are listed in **Table 3**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The SFWMD and the USACE will provide most of the funding for the recommended projects.

Implementing Agencies

The SFWMD and the USACE will implement the recommended projects.

Summary of Changes/Implementation from the Previous Work Program

The summaries for these three recommendations are discussed in the Surface Water (water source option 7) subsection in the 2000 Lower West Coast Water Supply Plan section of this work plan.

Operational Recommendations

Definition / Discussion

Changes in the operation of the Central and Southern Florida Project are needed to accommodate the future construction of proposed major water resource development features. Revised systemwide operational protocols will also be required to assure that projected water supply plan performance targets are met and expected benefits are achieved. A process to periodically review and recommend potential short-term deviations to the systemwide operational protocols is needed. This process must consider variations in weather and hydrologic conditions and identify opportunities for short-term operational deviations that will offset, to some extent, possible impacts of such events. Some measure of operational flexibility is needed that incorporates public input and the District's Governing Board approval prior to implementation. Changes must be consistent with the Water Resource Development Act of 2000's (WRDA 2000) requirement of existing and legal reservation.

Over the last six years, extreme wet periods have resulted in abnormally high Lake Okeechobee levels and the loss of littoral zone vegetation communities. A drought period or drawdown of Lake Okeechobee would provide a number of ecological benefits, but may also promote torpedo grass and melaleuca expansion in the littoral zone. To address this issue, a vegetation management plan is needed to help manage torpedo grass and melaleuca expansion within Lake Okeechobee.

Recommendations

31. Develop systemwide operational protocols and a periodic operational deviation process
32. Develop periodic operational flexibility
33. Develop a Lake Okeechobee vegetation management plan

Total Costs of Projects / Recommendations

The cost to the SFWMD of implementing these recommendations for the five-year period from 2003 to 2007 is contained in **Table 10**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

The SFWMD, the USACE and the FDEP will fund operational protocols and flexibility. The SFWMD, the FDEP and the USACE are funding the development of a Lake Okeechobee vegetation management plan. Funding for the vegetation management will also

be coordinated with the State of Florida's fire permitting agency (Division of Forestry, FDACS).

Implementing Agencies

Operational protocols and flexibility will be implemented by the SFWMD. The SFWMD, the FDEP and the USACE will implement Lake Okeechobee vegetation management.

Summary of Changes / Implementation from the Previous Work Program

Develop operational protocols and flexibility. In 2002 the SFWMD Governing Board approved the "Adaptive Protocols for Lake Okeechobee Operations" document in cooperation with the USACE and the FDEP. Adoption of adaptive protocols for other areas may be limited due to concerns about the "savings clause" contained in the Water Resources Development Act of 2000.

Lake Okeechobee Vegetation Management Plan. In FY 2002, the FDEP committed $1,000,000 for torpedo grass control. Once the initial, five-year management effort is completed in 2005, maintenance efforts will continue.

A Melaleuca and Brazilian Pepper Control Program was also conducted by ground and aerial application techniques to effectively contain and progressively reduce exotic plant populations within the lake's littoral zone. The program consisted primarily of a ground-based herbicide application, with some aerial application within the western littoral area. Ground crews completed melaleuca, Brazilian pepper and Australian pine treatment along the eastern side of the lake, from the Port Mayaca lock to the City of Belle Glade.

The USACE continues to manage the traditional aquatic weed treatment program in Lake Okeechobee, spending approximately $600,000 to $800,000 annually. The USACE maintains an Interagency *Lake Okeechobee Vegetation Management Plan* that defines agreed upon methods for vegetation management on the lake.

Consumptive Use Permitting and Resource Protection Projects

Definition / Discussion

Implementation of the *LEC Regional Water Supply Plan* through CUP and resource protection actions will take place consistent with Florida law, utilizing the assurances framework developed by the Governor's Commission for a Sustainable South Florida and included in the CERP and further defined through WRDA 2000. Rulemaking to implement the regulatory recommendations of the plan will constitute a significant effort during the next several years. Rulemaking will include water reservations and numerous CUP criteria, some of which are interrelated and cumulatively define the availability of water for consumptive uses and water resource protection. It is recommended in the *LEC Regional Water Supply*

Plan that certain rulemaking efforts be grouped in phases to allow for cumulative analysis of their water resource and consumptive use implications.

Another goal of the rulemaking schedule is to adopt rules as the technical information becomes available. Initial rulemaking has proceeded for concepts that have been sufficiently identified and evaluated, such as establishment of MFLs for the Everglades, Lake Okeechobee, the Biscayne Aquifer and the Caloosahatchee River. These were established in September 2000.

Recommendations

34. Implement water reservations
35. Establish Biscayne Bay, Florida Bay, St. Lucie Estuary and the southern coastal Biscayne aquifer MFLs
36. Develop and implement MFL criteria for the Rockland Marl Marsh
37. Establish MFLs for Florida Bay
38. Develop and implement MFL recovery strategies
39. Establish MFL Monitoring Systems
40. Implement CUP, rulemaking and resource protection projects

Total Costs of Projects / Recommendations

The SFWMD cost of implementing these recommendations for the five-year period from 2003 to 2007 is contained in **Table 10**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

Funding for all of the CUP and resource protection projects will be provided by the SFWMD.

Implementing Agencies

The SFWMD will establish a water resources policy consistent with the WRDA 2000 and will implement water reservations and CUP rulemaking projects. It will also establish MFLs and recovery strategies and perform associated monitoring. The SFWMD and Everglades National Park will develop MFLs for Florida Bay.

Summary of Changes / Implementation from the Previous Work Program

Water Reservations. The planning process for developing water reservations is being developed in partnership between the USACE, the SFWMD, other agencies and the public. A white paper was drafted and is presently under review.

Establish MFLs for Priority Water Bodies and Monitor for Compliance. Recommendations 35 through 39 require the establishment of MFL criteria, development and implementation of recovery strategies and the establishment of a system for monitoring MFLs. MFLs have been adopted for the Everglades, Lake Okeechobee and the Biscayne Aquifer, the Caloosahatchee River and Estuary and the St. Lucie River and Estuary. The District Governing Board adopted the Loxahatchee River MFL Rule 40E-8 in February 2003. Each MFL technical document includes a description of recovery and prevention strategies.

Monitoring efforts are underway in those water bodies that have established MFLs. A monitoring plan is presently being initiated in the Loxahatchee River.

Research efforts are continuing in Florida Bay and Biscayne Bay to investigate the effects of freshwater flow on resources, to provide the basis to establish MFLs for these estuaries. A modeling study is underway to support the development of MFL technical criteria for the southern Biscayne aquifer.

CUP, Rulemaking and Resource Protection Projects. The CUP, rulemaking and resource protection projects recommended in all of the regional water supply plans (RWSPs) have been incorporated into Recommendation 40 of the *LEC Regional Water Supply Plan*. Since most of the permitting, rulemaking and resource protection issues originate in the LEC planning area, the funding is allocated under the LEC. The SFWMD has initiated numerous rulemaking efforts consistent with the RWSPs. The "A List" rules became effective in August 2002. Workshops and public meetings on the "B List" rule modifications are expected to continue through FY 2003.

Other Water Resource Projects

Definition / Discussion

The final group of water resource development projects recommended in the *LEC Regional Water Supply Plan* is Other Water Resource Projects. This category contains five recommendations that did not fit into the other seven groups. One recommendation is to develop a Districtwide Comprehensive Water Conservation Program, which was also recommended in the other RWSPs. The remaining recommendations are for evaluation and feasibility projects identified during the LEC regional water supply and integrated water management planning and development processes. These feasibility projects will be completed and used in the formulation of the next update of the plan, to be completed by 2005.

Recommendations

41. Develop a comprehensive water conservation program
42. Conduct a seawater reverse osmosis treatment facilities feasibility study
43. Conduct a feasibility study for a reclaimed water system in northern Palm Beach County
44. Conduct an indirect aquifer recharge feasibility study
45. Conduct an evaluation of high volume surface water ASR testing in Taylor Creek

Total Costs of Projects / Recommendations

The costs of developing the Comprehensive Water Conservation Program are discussed in the Districtwide Water Resource Development Efforts section (**Table 1**). The evaluation of high volume surface water ASR testing in Taylor Creek has been incorporated into the CERP ASR pilot projects listed in **Table 3**. The District cost of implementing the remaining recommendations for the five-year period from 2003 to 2007 is contained in **Table 10**.

Quantity of Water Potentially Available

See **Table 11** for the quantity of water potentially available by FY 2003 and by FY 2007.

Funding Sources

Funding for the Comprehensive Water Conservation Program, the reverse osmosis treatment feasibility study and the evaluation of ASR in Taylor Creek will be provided by the SFWMD. The SFWMD, water users and local utilities will fund the Feasibility Study for a Northern Palm Beach County Reclaimed Water System. Funding for the Indirect Aquifer Recharge Project may be obtained from the SFWMD, counties or local utilities.

Implementing Agencies

Most of these projects will be implemented by the SFWMD. Interested public water utilities may also participate in the reverse osmosis project. The FDEP, the SFWMD, counties or local utilities may participate in implementation of an indirect aquifer recharge project

Summary of Changes / Implementation from the Previous Work Program

Comprehensive Water Conservation Program. In FY 2002, the SFWMD Water Supply Department created the Water Conservation Section. This section coordinates and manages several supply and demand management programs, including Mobile Irrigation Labs, Water Reuse, Alternative Water Supply Cooperative Funding, Water Demand Conservation Funding, and Outreach and Education. Two of the seven MILs that the District

funds are in the LEC. The Districtwide Comprehensive Water Conservation Program is discussed in the Districtwide Water Resource Development Efforts section of this document. An additional urban MIL is planned for start-up in Broward County during FY 2003.

Seawater Reverse Osmosis Treatment Facilities. The Seawater Reverse Osmosis Treatment Facility Feasibility Study was completed in May 2002. The preliminary cost from the study indicates an approximate cost of $3.40 per 1,000 gallons supplied for coastal seawater desalination without the benefits of colocation with a suitable power plant. The study evaluated 23 sites. Two sites, Fort Myers in Lee County and Port Everglades in Broward County, were considered highly desirable and technically feasible. These sites were recommended for more detailed evaluation and cost analysis.

Based on the study, the capital cost of the colocated facility at Fort Myers would be $17.3 million, yielding a unit cost of $1.33 per 1,000 gallons for a 10-mgd facility. The capital cost of the 25-mgd facility would be $35.5 million, yielding a unit cost of $1.16 per 1,000 gallons. The estimated capital cost of the colocated facility at Port Everglades was $37.6 million, yielding a unit cost of $2.40 per 1,000 gallons for a 10-mgd facility. The corresponding estimated capital cost of a 25-mgd facility was $78.6 million, yielding a unit cost of $2.14 per 1,000 gallons.

Reclaimed Water System in Northern Palm Beach County. In FY 2001, the SFWMD hired a consultant to conduct a master plan study of the feasibility of construction and operation of a reclaimed water system in northern Palm Beach County. The nine-month study included the quantification of existing and future (2020) irrigation demands in the study area, quantifying availability of local sources and determining the unmet needs. The study evaluated different treatment and transmission options, institutional frameworks and funding options. Local entities contributed $55,000 toward this project.

In FY 2002, the study was completed and it was determined that a regional system was not feasible. Rather than a regional reclaimed water system, the study recommended that the existing utilities be responsible for developing a reclaimed water system within their service areas.

Indirect Aquifer Recharge. District staff met with FDEP Secretary Struhs and others and agreed to form a partnership to explore the Indirect Aquifer Recharge concept. Several meetings have been held between District and FDEP staff and management to work on an agreeable process and approach, however, agreement has not yet been reached. The FDEP and the SFWMD will continue working together to determine a process and approach to further explore Indirect Aquifer Recharge.

High Volume Surface Water ASR Testing in Taylor Creek. The testing of high volume surface water ASR in Taylor Creek is currently not feasible. The testing has been incorporated into the CERP ASR pilot projects for further evaluation.

Summary of LEC Regional Water Supply Plan Costs and Schedules

Table 10. Summary of Estimated Schedule and SFWMD Costs for Water Resource Development Recommendations in the *LEC Regional Water Supply Plan*

	Water Source Options and Recommendations	Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
Ongoing Projects from the LEC Interim Plan													
1	Improve regional saltwater intrusion management	189	0.30	163.5	0.30	163.5	0.30	163.5	0.30	163.5	0.30	843	1.50
2	Refine the FAS Ground Water Model	19	0.40	99.5	0.40	99.5	0.40	99.5	0.40	99.5	0.40	417	2.00
3	Develop a northern Palm Beach County comprehensive water management plan	4,000	2.00	1,500	2.00	1,500	2.00	1,500	2.00	1,500	2.00	10,000	10.00
4	Construct and operate the Eastern Hillsboro Regional ASR Pilot Project	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
5	Construct and operate the Hillsboro (Site 1) Reservoir Pilot Project	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
6	Establish Lake Worth Lagoon minimum/maximum flow targets	0	0.60	Complete								0	0.60
7-9	Implement the Broward County water resource development projects	300	0.20	500	0.20	500	0.20	Complete				1,300	0.60
10	Construct the Miami-Dade WASD Utility ASR	0	0.00	1,500	0.20	1,500	0.20	1,500	0.20	1,500	0.2	6,000	0.80
11	Establish Biscayne Bay minimum and maximum flow targets	See Recommendations 34 through 40											
	Subtotal	**4,508**	**3.50**	**3,763**	**3.10**	**3,763**	**3.10**	**3,263**	**2.9**	**3,263**	**2.90**	**18,560**	**15.50**
Other Federal, State or SFWMD Projects													
12	Implement Critical Projects	See the Districtwide Water Resource Development Efforts section (**Table 2**)											
13	Implement well abandonment programs	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
14	Investigate saltwater influence at S-79	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
15	Permitting issues associated with ASR systems and reclaimed water and reuse	0	1.00	0	1.00	0	1.00	0	1.00	0	1.00	0	5.00
16	Maintain and add MILs	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
	Subtotal	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**1.00**	**0**	**5.00**
Comprehensive Everglades Restoration Plan Projects													
17	Implement CERP projects that affect the LEC planning area and the Caloosahatchee Basin	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
Recommendations to CERP from the *LEC Regional Water Supply Plan*													
18	C-51 backpumping/location of S-155A	No additional costs beyond those listed under CERP (**Table 3**) in the Districtwide Water Resource Development Effort section											
19	Restore or improve hydropatterns within WCA-2B												
20	EAA Storage Reservoirs design study												

	Water Source Options and Recommendations	Plan Implementation Costs ($1,000s and FTEs)											
		FY 2003		FY 2004		FY 2005		FY 2006		FY 2007		Total Cost FY 2003–FY 2007	
		$	FTE	$	FTE	$	FTE	$	FTE	$	FTE	$	FTE
21	L-8 Basin Project operating schedule												
22	C-51 Regional Ground Water Project's ASR	No additional costs beyond those listed under CERP (**Table 3**) in the Districtwide Water Resource Development Effort section											
23	West Miami-Dade Reuse Feasibility Study												
24	Implement and update the WSE regulation schedule for Lake Okeechobee												
25	Lake Belt Storage Area Project seepage barrier protection												
26	Develop and implement rain-driven operations												
27	Change coastal wellfield operations	No additional costs beyond permitting staffing											
Recommendations to CERP from the *Caloosahatchee Water Management Plan*													
28	Develop a Caloosahatchee River ASR pilot project	See CERP subsection (**Table 3**) of the Districtwide Water Resource Development Efforts section											
29	Implement the C-43 Storage Project												
30	Complete the Southwest Florida Study												
Operational Recommendations													
31	Develop systemwide operational protocols and a periodic operational deviation process	0	1.00	0	1.00	0	1.00	0	1.00	0	1.00	0	5.00
32	Develop periodic operational flexibility	0	1.00	0	1.00	0	1.00	0	1.00	0	1.00	0	5.00
33	Develop a Lake Okeechobee vegetation management plan	150	0.20	150	0.20	150	0.20	150	0.20	150	0.20	750	1.00
	Subtotal	**150**	**2.20**	**150**	**2.20**	**150**	**2.20**	**150**	**2.20**	**150**	**2.20**	**750**	**11.00**
Consumptive Use Permitting and Resource Protection Projects													
34	Implement water reservations	0	4.00	0	4.00	0	4.00	0	4.00	0	4.00	0	20.00
35-39	Establish MFLs for priority water bodies and monitor for compliance	182	5.00	3,750	5.00	3,150	5.00	200	5.00	200	5.00	7,482	25.00
40	Implement CUP, rulemaking and resource protection projects	0	5.00	0	5.00	0	5.00	0	5.00	0	5.00	0	25.00
	Subtotal	**182**	**14.00**	**3,750**	**14.00**	**3,150**	**14.00**	**200**	**14.00**	**200**	**14.00**	**7,482**	**70.00**
Other Water Resource Projects													
41	Develop a comprehensive water conservation program	See the Districtwide Water Resource Development Efforts section (**Table 1**)											
42	Conduct a seawater reverse osmosis treatment facilities feasibility study	190	0.40	100	0.40	100	0.40	100	0.40	100	0.40	590	2.00
43	Develop a reclaimed water system in northern Palm Beach County	83	1.20	Completed								83	1.20
44	Conduct an indirect aquifer recharge feasibility study	0	0.0	250	0.50	250	0.50	250	0.50	250	0.50	1,000	2.00
45	Conduct an evaluation of high volume surface water ASR testing in Taylor Creek	Incorporated into the ASR pilot projects for further evaluation listed under CERP (**Table 3**)											
	Subtotal	**273**	**1.60**	**350**	**0.90**	**350**	**0.90**	**350**	**0.90**	**350**	**0.90**	**1,673**	**5.20**
	TOTAL	**5,113**	**22.30**	**8,013**	**21.20**	**7,413**	**21.20**	**3,963**	**21.00**	**3,963**	**21.0**	**28,465**	**106.70**

Summary of the Quantity of Water to Be Made Available by Implementation of the LEC Regional Water Supply Plan

Table 11. Water Made Available Through Implementation of the *LEC Regional Water Supply Plan* by FY 2003 and by FY 2007

	Recommendation	Estimated Water Made Available (MGD)	
		By FY'03	By FY'07
	Ongoing Projects from the LEC Interim Plan		
1	Regional Saltwater Intrusion Management	0.0	0.0
2	FAS Ground Water Model	0.0	0.0
3	Northern Palm Beach County Comprehensive Water Management Plan	0.0	0.0
4	Eastern Hillsboro Regional ASR Pilot Project	0.0	5.0
5	Hillsboro (Site 1) Impoundment Pilot Project	0.0	0.0
6	Lake Worth Lagoon Minimum/Maximum Flow Targets	0.0	0.0
7	Northern Broward County Secondary Canals Recharge Network	0.0	0.0
8	Southeast Broward County Interconnected Water Supply System	0.0	0.0
9	Broward County Urban Environmental Enhancement	0.0	0.0
10	Miami-Dade Water and Sewer Department Utility ASR Project	15.0	35.0
11	Biscayne Bay Minimum/Maximum Flow Targets	0.0	0.0
	Other Federal, State or District Projects		
12	Critical Projects	0.0	61.0
13	Well Abandonment Program (from CWMP)	0.0	0.0
14	Saltwater Influence at S-79 (from CWMP)	0.0	0.0
15	Permitting Issues Associated with ASR Systems and Reuse of Reclaimed Water	0.0	0.0
16	Mobile Irrigation Labs	7.6	11.6
	CERP Projects		
17	CERP Projects that Affect the LEC Planning Area and the Caloosahatchee River Basin	0.0	0.0
18	S-155A	0.0	0.0
19	Everglades Hydropatterns within WCA-3-B	0.0	0.0
20	Everglades Agricultural Area Storage Reservoirs	0.0	0.0
21	L-8 Project	0.0	0.0
22	C-51 Regional Ground Water Projects ASR Facilities	0.0	0.0
23	West Miami-Dade Reuse Feasibility	0.0	0.0
24	Lake Okeechobee Regulation Schedule	0.0	0.0
25	Lake Belt Storage Area Projects	0.0	0.0
26	Everglades Rain-Driven Operations	0.0	0.0
27	Change Coastal Wellfield Operations	0.0	0.0
28	Caloosahatchee River ASR Pilot Project	0.0	0.0
29	C-43 Basin Storage Reservoir and ASR Project	0.0	0.0
30	Southwest Florida Study	0.0	0.0
	Operational Projects		
31	Systemwide Operational Protocols	0.0	0.0
32	Periodic Operational Flexibility	0.0	0.0
33	Lake Okeechobee Vegetation Management Plan	0.0	0.0
	Consumptive Use Permitting and Resource Protection Projects		
34	Water Reservations	0.0	0.0
35	Establish MFLs	0.0	0.0
36	MFL Criteria for Rockland Marl Marsh	0.0	0.0
37	MFLs for Florida Bay	0.0	0.0
38	MFL Recovery Strategies	0.0	0.0
39	MFL Monitoring Systems	0.0	0.0
40	Consumptive Use Permitting, Rulemaking and Resource Protection Projects	0.0	0.0
	Other Projects		
41	Comprehensive Water Conservation Program	9.7	32.5
42	Seawater Reverse Osmosis Treatment Facilities	0.0	0.0
43	Reclaimed Water System in Northern Palm Beach County	0.0	0.0
44	Indirect Aquifer Recharge	0.0	0.0
45	High Volume Surface Water ASR Testing in Taylor Creek	0.0	0.0
	TOTAL	**32.3**	**145.1**

REGIONAL WATER SUPPLY PLAN COSTS

The following table (**Table 12**) summarizes each of the regional water supply plan estimated costs for fiscal years 2003 – 2007 and provides a total estimated cost for all the water supply planning areas for fiscal years 2003 – 2007.

Summary of Regional Water Supply Plan Costs

Table 12. Regional non-FTEs Water Resource Department Costs FY 2003 – 2007

Region	Plan Implementation Costs ($1,000s)					
	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total FY 2003 - 2007
Kissimmee Basin	695	835	375	100	100	2,105
Upper East Coast	132	195	195	120	120	762
Lower West Coast	546	686	436	1,052	1,752	4,472
Lower East Coast	5,113	8,013	7,413	3,963	3,963	28,465
Total	**6,486**	**9,729**	**8,419**	**5,235**	**5,935**	**35,804**

The District has 23 budgetary programs. Through the Water Management Planning and Implementation Program (Program D), the District develops and implements RWSPs and establishes Minimum Flows and Levels for surface and ground water systems. Program D balances water needs of the environment with the demands of urban and agricultural users. Regional water supply plans reflect a 20-year planning horizon. Central to this program is the implementation of water resource development projects and water supply development projects identified in the RWSPs. The District is primarily responsible for water resource development. Local governments, water users and water utilities are primarily responsible for implementing water supply development. In FY 2002, the District spent $8,067,055 and encumbered $13,162,635 for contracts in Program D. This does not include District staff costs.

Through the planning and implementation process, Program D activities are coordinated with the Comprehensive Everglades Restoration Plan (Program P) and among other District programs. The CERP is a framework and guide to restore, protect and preserve the water resources of central and southern Florida, including the Everglades. Principal features of the plan are the creation of approximately 217,000 acres of new reservoirs and wetlands-based water treatment areas. These features vastly increase storage and water supply for the natural systems, as well as for urban and agricultural needs, while maintaining current Central and Southern Florida Flood Control Project purposes. In FY 2002, the District spent $189,323,352 through Program P. This does not include District staff costs.

FUNDING NEEDS

During FY 2003 through FY 2007, it is estimated that the implementation of the RWSPs and the CERP will cost the SFWMD $1,170.8 million. The projected cost is distributed as follows:

- Districtwide non-CERP projects – $6.8 million with 32.00 FTEs
- CERP Projects, including Critical Projects – $1,128.1 million
- *KB Water Supply Plan* – $2.1 million with 33.00 FTEs
- *UEC Water Supply Plan* – $0.8 million with 3.30 FTEs
- *LWC Water Supply Plan* – $4.5 million and 7.05 FTEs
- *LEC Regional Water Supply Plan* – $28.5 million with 106.70 FTEs

For the current fiscal year, FY 2003, the total SFWMD budget for water resource development projects and the CERP is $333.6 million. The cost is distributed as follows:

- Districtwide non-CERP projects – $1.4 million and 8.00 FTEs
- CERP projects, including Critical Projects – $325.8 million
- *KB Water Supply Plan* – $0.7 million with 12.40 FTEs
- *UEC Water Supply Plan* – $0.1 million with 0.70 FTEs
- *LWC Water Supply Plan* – $0.5 million with 2.00 FTEs
- *LEC Regional Water Supply Plan* – $5.1 million with 22.30 FTEs

The costs do not include District staff costs. The time frames for implementation of the water supply plans vary. Some plans with few capital projects may be implemented fairly quickly. Other plans, such as the *LEC Regional Water Supply Plan*, have many large capital projects and will take longer.

While the SFWMD will move forward with implementing the plans, timing could change based on available funding for FY 2004 through FY 2007, and the specific projects could be refined or changed based on preliminary feasibility studies or results of pilot projects. As mentioned in the Introduction, costs of implementation for FY 2003 correspond with the proposed budget for that year, and may be different from estimates in the actual plans.

SOURCES OF FUNDING

The SFWMD is under statutory requirement to implement the RWSPs (Section 373.0361, F.S.), yet the District's budget is a limiting factor. The District uses funds from ad valorem sources, as well as federal and state grants to fund water resource development projects. Local sponsors are being sought, and projects with local cost-share or sponsorship will be prioritized.

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