

Chapter 5A: Five-Year Water Resource Development Work Program

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INTRODUCTION

This chapter presents the Five-Year Water Resource Development Work Program, as mandated by state law. Subsection 373.536(6)(a)4, Florida Statutes (F.S.) requires each water management district to prepare an annual Five-Year Water Resource Development Work Program describing the agency's implementation strategy for the water resource development component of each approved regional water supply plan developed or revised under Section 373.0361, F.S. In addition, Section 373.1961(2), F.S., requires each water management district to submit an annual report to the Florida legislature and governor on Alternative Water Supply (AWS) funding (see Chapter 5B of this volume).

Florida water law identifies two types of projects to meet water needs: Water Resource Development projects and Water Supply Development projects. Water Resource Development projects are regional in nature and are primarily the responsibility of the South Florida Water Management District (SFWMD or District). They support water supply development at the local level and are intended to assure the availability of adequate water supplies for all competing uses deemed reasonable and beneficial, and to maintain the functions of natural systems. These projects could include data collection and evaluation; water resource management and protection programs; regional water resource implementation programs; major public works facilities projects to provide for flood control, water storage, and groundwater recharge augmentation; and related technical assistance to local governments and water utilities. Water Supply Development projects are local in nature and are generally the responsibility of local water users, such as utilities, to implement. These projects generally involve public or private facilities for water collection, treatment, and transmission.

The Five-Year Water Resource Development Work Program provides an implementation update of the water resource development component of the District's regional water supply plans. Pursuant to Chapter 373, F.S., regional water supply plans encompass a 20-year planning horizon and are updated every five years. Water resource development is defined in Section 373.019(22), F.S., as the formulation and implementation of regional water resource management strategies, including the collection and evaluation of surface water and groundwater 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, surface and underground water storage, and groundwater recharge augmentation; and related technical assistance to local governments and to government-owned and privately owned water utilities.

PLANNING REGION OVERVIEW

The SFWMD is comprised of four planning areas: the Upper East Coast (UEC), the Kissimmee Basin (KB), the Lower West Coast (LWC), and the Lower East Coast (LEC). Regional water supply plans for these planning areas were completed in 2000, and the five-year updates to these plans have also been completed. The UEC Water Supply Plan was updated in 2004 (2004 UEC Plan Update) and amended in 2006 (2006 UEC Plan Amendment). The 2000 LWC Water Supply Plan was updated in 2006 (2005–2006 LWC Plan Update) and the 2005–2006 updates to the KB and LEC water supply plans were completed in early 2007. The 2005–2006 Water Supply Plan Updates and 2006 UEC Plan Amendment identify Water Resource Development and Water Supply Development projects expected to meet the needs of all reasonable-beneficial uses for the year 2025 during a 1-in-10 year drought event while sustaining the region's water resources and related natural systems. District-wide, the population is projected to total approximately 10.6 million by 2025. This represents a population increase from 2005 through 2025 of approximately 91 percent in the KB Planning Area, 53 percent in the UEC Planning Area, 74 percent in the LWC Planning Area and 31 percent in the LEC Planning Area. Accordingly, raw water demand is anticipated to increase District-wide from 3.4 billion gallons per day (gpd) in 2005 to 4.3 gpd in 2025. Future water source needs of the planning areas will be met primarily through development and funding of AWS projects, which use nontraditional sources.

WATER RESOURCE DEVELOPMENT PROJECTS

The Water Resource Development projects described in this report — drilling and testing, groundwater and wetland monitoring, groundwater and evapotranspiration assessments, District-wide feasibility studies, modeling, comprehensive water conservation, Minimum Flows and Levels (MFLs), and Water Reservations — are primarily District-wide projects. In addition, this report describes regional water resource development projects that are specific to each planning area. Implementation schedules and costs are provided and summarized in **Table 5A-1** and **Table 5A-2**.

Most Water Resource Development projects support and enhance Water Supply Development projects, but do not by themselves yield specific quantities of water. For example, projects such as hydrologic investigations and groundwater monitoring and modeling all provide important information about aquifer characteristics (such as hydraulic properties and water quality), but do not provide water. Information derived from these Water Resource Development projects is used in support of Water Supply Development projects (e.g., in developing an appropriate facility design, identifying safe aquifer yields, evaluating the economic viability of projects, etc.).

District-wide and region-specific Water Resource Development projects are identified in Chapter 6 (Water Resource Development Projects) of the 2005–2006 Plan Updates. Water Resource Development projects specific to the UEC Planning Area are discussed in the 2004 UEC Plan Update and 2006 UEC Plan Amendment.

Projects that provide water supply primarily for the environment are excluded from this report and Chapter 6 of the 2005–2006 Plan Updates and the 2006 UEC Plan Amendment.

Table 5A-1. Implementation schedule and costs for District-wide Water Resource Development projects.

District-wide Water Resource Development Projects	Plan Implementation Schedule and Costs (\$ in thousands)					
	FY2008	FY2009	FY2010	FY2011	FY2012	Total
	\$	\$	\$	\$	\$	\$
Drilling and Testing Est. start date: 1990 Est. finish date: ongoing	77	81	85	89	94	426
Groundwater and ET Assessments Est. start date: 1954 and 2002, respectively Est. finish date: ongoing	251	160	150	0	0	561
Groundwater and Wetland Monitoring Est. start date: 2002 Est. finish date: ongoing	889	934	981	1,030	1,082	4,916
District-wide Feasibility Studies Est. start date: 2001 Est. finish date: ongoing	1,150	750	0	0	0	1,900
Modeling Est. start date: 1998 Est. finish date: ongoing	314	250	200	200	200	1,164
Comprehensive Water Conservation Program Est. start date: 1977 Est. finish date: ongoing	1,589	1,464	1,464	1,464	1,464	7,445
MFLs and Water Reservations Activities Est. start date: 1995 Est. finish date: ongoing	250	220	220	220	220	1,130
Total	4,520	3,859	3,100	3,003	3,060	17,542

Table 5A-2. Implementation schedule and costs for regional Water Resource Development projects.

Regional Water Resource Development Projects	Plan Implementation Schedule and Costs (\$ in thousands)					
	FY2008	FY2009	FY2010	FY2011	FY2012	Total
	\$	\$	\$	\$	\$	\$
Subregional Feasibility Study of Water Supply Integration-St. Lucie County Area Est. start date: 2006 Est. finish date: 2007	25	0	0	0	0	25
Central Florida Aquifer Recharge Feasibility Study Est. start date: 2008 Est. finish date: 2011	0	50	50	0	0	100
Kissimmee Chain of Lakes Management Plan Est. start date: 2004 Est. finish date: 2008	Staff Time	Staff Time	0	0	0	0
Central Florida Water Supply Coordination Est. start date: 2006 Est. finish date: 2008	Staff Time	Staff Time	Staff Time	Staff Time	Staff Time	0
Total	25	50	50	0	0	125

WATER CONSERVATION PROGRAM

The Comprehensive Water Conservation Program, which includes the Water Savings Incentive Program (WaterSIP) and the Mobile Irrigation Laboratory (MIL) Program, encourages water users to make efficient use of water resources through conservation and reuse. In effect, water savings achieved through conservation measures expand current water supplies. Implementation of the WaterSIP and MIL programs are included in this report.

WATER MADE AVAILABLE

The Water Resource Development projects described herein do not directly provide additional water for consumptive use. The District's Comprehensive Water Conservation Program is estimated to result in 2.85 million gallons per day (mgd) of additional available water in FY2008 and 3.0 mgd of additional available water in FY2009. During FY2008–FY2012, the estimated additional water made available through this program is 15 mgd (**Table 5A-3**).

Table 5A-3. Estimate of water to be made available by the Conservation Program.

Conservation Program	FY2008	FY2009	FY2010	FY2011	FY2012	Total
WaterSIP	1.0	1.0	1.0	1.0	1.0	5.00
Mobil Irrigation Laboratories	2.0	2.0	2.0	2.0	2.0	10.00
Total (mgd)	3.0	3.0	3.0	3.0	3.0	15.00

FUNDING

The SFWMD has allocated \$4.5 million in FY2008 for Water Resource Development projects. During the FY2008–FY2012 time frame, the SFWMD anticipates spending \$17.6 million on Water Resource Development projects (the total amount of **Table 5A-1** and **Table 5A-2**). These allocations include \$1.58 million in funding for the Comprehensive Water Conservation Program during FY2008 and \$7.4 million for FY2008–FY2012.

The funding described herein does not include projects associated with the Comprehensive Everglades Restoration Plan (CERP) or Everglades Restoration Accelerated Program (Acceler8). For a full discussion of CERP and Acceler8 projects, see Volume I, Chapter 7A of the 2008 *South Florida Environmental Report*.

The funding allocation for FY2007 and projected for FY2007–FY2011 was greater than the current funding allocation for FY2008 and projected for FY2008–FY2012. Funding for primarily environmental projects, such as capital improvement projects in the Big Cypress Basin, Aquifer Storage and Recovery (ASR), and projects not identified in Chapter 6 of the 2005–2006 Plan Updates and 2006 UEC Plan Amendment are not included in this report.

The District's Water Supply Department, for budget purposes, is divided into seven structural elements. In order to better match up the budgeted projects within this document to the actual budget spreadsheets, this document is laid out to follow the Water Supply Department's structural elements with associated projects for each element. Crosswalk tables that match up Water Supply Plans, Water Resource Development projects, and funding; and internal order numbers, program elements, and report sections are found in **Table 5A-4** and **Table 5A-5**, respectively. The Water Supply Department's structural elements are as follows:

- **Planning (Da)** [includes Regional Coordination (Da01) and Local Coordination (Da02)]
- **Implementation Projects (Db)** [Implementation (Db01)]
- **Rulemaking (Dc)** [includes Minimum Flows and Levels (Dc01), Initial Water Reservations (Dc02), Project Reservations (Dc03), and Lake Okeechobee Water Shortage Management (Dc04)]
- **Conservation (Dd)** [includes Conservation (Dd01), Water Savings Incentive Program (Dd02), and Mobile Irrigation Labs (Dd03)]
- **Alternative Water Supply (De)** [includes Pre-2006 Alternative Water Supply (De00), Alternative Water Supply (SB444) (De01), Alternative Water Supply (non-SB444)(De02), and Alternative Water Supply (non-SB444)(De03)]
- **Resource Evaluation (Df)** [includes Hydrogeology (Df01) and Modeling (Df02)]
- **Program Support (Dz)** [Program Support (Dz00)]

MEETING WATER SUPPLY NEEDS FOR A 1-IN-10 YEAR DROUGHT EVENT

The goal of the regional water supply plans is to ensure an adequate supply of water to meet the needs of all existing and future reasonable-beneficial uses and to protect natural systems from harm during a 1-in-10 year drought event. Through the SFWMD's Water Shortage Plan, the District implements its water shortage authority by restricting consumptive uses based on the concept of shared adversity between users and water resources (Chapter 40E-21, Florida Administrative Code). Under this plan, different levels or phases of water shortage restrictions with varying levels of severity are imposed relative to the severity of drought conditions. The four phases of current water shortage restrictions are based on progressively increasing resource impacts, leading up to serious harm. Under the District's plan, Phase I and II water shortages primarily reduce water use through conservation measures and minor use restrictions, such as restrictions on or temporary elimination of car washing and lawn watering. Phases III and IV, however, require the use of cutbacks associated with some level of economic impact to the users, such as the potential for crop damage due to agricultural irrigation restrictions.

Table 5A-4. Crosswalk for Water Supply plans, Water Resource Development projects, and report sections.

Supply Plan	Recommended Projects	Status	Report Section	Coverage Area
2004 UEC	Aquifer Storage and Recovery	ongoing	N/A (CERP Project)	District-wide
2004 UEC	Mobile Irrigation Labs	ongoing	Water Conservation Program	District-wide
2004 UEC	Water Conservation Rulemaking	ongoing	Water Conservation Program	District-wide
2004 UEC	Water Savings Incentive Program	ongoing	Water Conservation Program	District-wide
2004 UEC	Water Conservation Outreach and Education	ongoing	Water Conservation Program	District-wide
2004 UEC	Comprehensive Regional Floridan Aquifer Monitoring Well Network	ongoing	Groundwater and Wetland Monitoring	District-wide
2004 UEC	Floridan Aquifer density-Dependent Flow Model	ongoing	Modeling	District-wide
2004 UEC	Floridan Aquifer Exploratory Well Program	ongoing	Drilling and Testing Program	District-wide
2004 UEC	Floridan Aquifer Tracer Test	on hold	Drilling and Testing Program	District-wide
2004 UEC	Floridan Aquifer Well Inventory	ongoing	Groundwater and Wetland Monitoring	District-wide
2004 UEC	Reclaimed Water Interconnects	ongoing	N/A (no current projects)	District-wide
2004 UEC	Efficient Use of Reclaimed Water	ongoing	N/A (no current projects)	District-wide
2004 UEC	Mandatory Reuse Zones	ongoing	N/A (no current projects)	District-wide
2004 UEC	Northern Palm Beach County Comprehensive Water Management Plan	ongoing	N/A (CERP Project)	Regional
2004 UEC	CERP North Palm Beach County Project Part 1	ongoing	N/A (CERP Project)	Regional
2004 UEC	Loxahatchee River Restoration Plan	ongoing	N/A (CERP Project)	Regional
2004 UEC	Initial Reservation for Northwest Fork of Loxahatchee River	ongoing	MFL and Reservation Activities	Regional
2004 UEC	Review MFL for Northwest Fork of Loxahatchee River	ongoing	MFL and Reservation Activities	Regional
2004 UEC	Establish MFLs for Northwest Fork of Lox. River Tributaries	ongoing	MFL and Reservation Activities	Regional

Table 5A-4. Continued.

Supply Plan	Recommended Projects	Status	Report Section	Coverage Area
2004 UEC	Ten Mile Creek	complete	N/A (CERP Project)	Basin-specific
2004 UEC	CERP Indian River Lagoon - South	ongoing	N/A (CERP Project)	Basin-specific
2004 UEC	C-25 to C-52 Basin Connectivity Study	ongoing	District-wide Feasibility Studies	District-wide
2004 UEC	Surficial Aquifer Modeling	ongoing	Modeling	District-wide
2004 UEC	Coordinate UEC Water Supply Plan with Other Efforts	ongoing	N/A (no current projects)	Basin-specific
2004 UEC	Coordinate Land Use and Water Supply Planning	ongoing	N/A (no current projects)	District-wide
2004 UEC	Alternative Water Supply Program	ongoing	Alternative Water Supply	District-wide
2006 UEC	Sub-Regional Feasibility Study of Water Supply Integration for St. Lucie County	ongoing	Regional Water Resource Development Project	Regional
2006 KB	Floridan Aquifer Exploratory Well Program	ongoing	Drilling and Testing Program	District-wide
2006 KB	Surficial Aquifer Well Pairing Network	ongoing	Groundwater and Wetlands Monitoring	Regional
2006 KB	Wetlands Monitoring Network	ongoing	Groundwater and Wetlands Monitoring	District-wide
2006 KB	USGS Water Quality Module	ongoing	Groundwater and ET Assessments	District-wide
2006 KB	ET Measurement Project	ongoing	Groundwater and ET Assessments	District-wide
2006 KB	Comprehensive Water Conservation Program	ongoing	Water Conservation Program	District-wide
2006 KB	Water Savings Incentive Program	ongoing	Water Conservation Program	District-wide
2006 KB	Mobile Irrigation Lab	ongoing	Water Conservation Program	District-wide
2006 KB	Water User and Supply Cost Relationship Study	ongoing	District-wide Feasibility Studies	District-wide
2006 KB	Lower Kissimmee Basin Model Upgrade	ongoing	Modeling	Regional

Table 5A-4. Continued.

Supply Plan	Recommended Projects	Status	Report Section	Coverage Area
2006 KB	Upper Kissimmee Basin Transient Groundwater Model	ongoing	Modeling	Regional
2006 KB	Floridan Aquifer System Groundwater Model and Database Development	ongoing	Modeling	District-wide
2006 KB	MFL Activities	ongoing	MFL and Reservation Activities	District-wide
2006 KB	Reservation Activities	ongoing	MFL and Reservation Activities	District-wide
2006 KB	Central Florida Aquifer Recharge Feasibility Study	ongoing	Regional Water Resource Development Project	Basin-specific
2006 KB	Modeling for Kissimmee Chain of Lakes Management Plan	ongoing	Regional Water Resource Development Project	Basin- specific
2006 KB	Central Florida Coordination Area Action Plan	ongoing	Regional Water Resource Development Project	Basin- specific
2006 LWC	Floridan Aquifer Exploratory Well Program	ongoing	Drilling and Testing Program	District-wide
2006 LWC	Groundwater Monitoring	ongoing	Groundwater and Wetlands Monitoring	District-wide
2006 LWC	Wetlands Monitoring Network	ongoing	Groundwater and Wetlands Monitoring	District-wide
2006 LWC	USGS Water Quality Module	ongoing	Groundwater and ET Assessments	District-wide
2006 LWC	ET Measurement Project	ongoing	Groundwater and ET Assessments	District-wide
2006 LWC	Comprehensive Water Conservation Program	ongoing	Water Conservation Program	District-wide
2006 LWC	Water Savings Incentive Program	ongoing	Water Conservation Program	District-wide
2006 LWC	Mobile Irrigation Lab	ongoing	Water Conservation Program	District-wide
2006 LWC	Water User and Supply Cost Relationships	ongoing	District-wide Feasibility Studies	District-wide

Table 5A-4. Continued.

Supply Plan	Recommended Projects	Status	Report Section	Coverage Area
2006 LWC	Co-Located Desalination Feasibility Study	complete	District-wide Feasibility Studies (completed in FY2007)	District-wide
2006 LWC	Modeling for Minimum Flows and Levels (MFLs)	complete	N/A (completed in FY2006)	District-wide
2006 LWC	Modeling for Regional Irrigation Distribution System	on-hold	N/A (currently unfunded)	District-wide
2006 LWC	Surficial, Intermediate, and Floridan Aquifer Model Development	ongoing	Modeling	District-wide
2006 LWC	MFL Activities	ongoing	MFL and Reservation Activities	District-wide
2006 LWC	Reservation Activities	ongoing	MFL and Reservation Activities	District-wide
2006 LEC	Floridan Aquifer Exploratory Well Program	ongoing	Drilling and Testing Program	District-wide
2006 LEC	Groundwater Monitoring	ongoing	Groundwater and Wetlands Monitoring	District-wide
2006 LEC	Wetlands Monitoring Network	ongoing	Groundwater and Wetlands Monitoring	District-wide
2006 LEC	USGS Water Quality Module	ongoing	Groundwater and ET Assessments	District-wide
2006 LEC	ET Measurement Project	ongoing	Groundwater and ET Assessments	District-wide
2006 LEC	Comprehensive Water Conservation Program	ongoing	Water Conservation Program	District-wide
2006 LEC	Water Savings Incentive Program	ongoing	Water Conservation Program	District-wide
2006 LEC	Mobile Irrigation Lab	ongoing	Water Conservation Program	District-wide
2006 LEC	Water User and Supply Cost Relationships	ongoing	District-wide Feasibility Studies	District-wide

Table 5A-4. Continued.

Supply Plan	Recommended Projects	Status	Report Section	Coverage Area
2006 LEC	Reuse Feasibility Study	ongoing	District-wide Feasibility Studies	Districtwide
2006 LEC	Groundwater Replenishment via Canal Recharge Augmentation Study	ongoing	District-wide Feasibility Studies	District-wide
2006 LEC	Modeling for Minimum Flows and Levels (MFLs)	ongoing	Modeling	District-wide
2006 LEC	Floridan Aquifer System Model and Database Development	ongoing	Modeling	District-wide
2006 LEC	MFL Activities	ongoing	MFL and Reservation Activities	District-wide
2006 LEC	Reservation Activities	ongoing	MFL and Reservation Activities	District-wide

USGS – U.S. Geological Survey

Table 5A-5. Crosswalk for FY2008 budget, Water Resource Development projects, and report sections.

Budget Line Item	Internal Order	Program Element	Sub-program Element	Amount	Project	Report Section
23566	Db010000	Implementation	Implementation	\$100,000	CFCA Baseline Wetland Inventory	MFL and Water Reservation Activities
24498	Db010001	Implementation	Implementation	\$300,000	LWDD C-51 Pump Replacement	District-wide Feasibility Studies
24803	Db010002	Implementation	Implementation	\$250,000	C-25 Reconnection Study	District-wide Feasibility Studies
23587	Db010003	Implementation	Implementation	\$200,000	Upper Kissimmee Basin Regional Water Supply Feasibility Study - Phase 2	District-wide Feasibility Studies
24495	Db010004	Implementation	Implementation	\$200,000	Upper Kissimmee Basin Regional Water Supply Feasibility Study - Phase 2	District-wide Feasibility Studies
23595	Db010005	Implementation	Implementation	\$200,000	L-40 Funding	District-wide Feasibility Studies
23593	Db010006	Implementation	Implementation	\$25,000	St. Lucie County Water Supply Integration	Regional Water Resource Development Project
24584	Dc010001	Rulemaking	MFLs	\$100,000	Rookery Bay MFL Investigations	MFL and Water Reservation Activities
24698	Dc010002	Rulemaking	MFLs	\$50,000	Biscayne Bay MFL Peer Review	MFL and Water Reservation Activities
24696	Dd010001	Conservation	Conservation	\$125,000	Year-Round Irrigation Outreach	Comprehensive Water Conservation
24753	Dd010002	Conservation	Conservation	\$100,000	Florida Automated Weather Network	Comprehensive Water Conservation
23596	Dd020000	Conservation	WaterSIP	\$400,000	WaterSIP	Comprehensive Water Conservation

Table 5A-5. Continued.

Budget Line Item	Internal Order	Program Element	Sub-program Element	Amount	Project	Report Section
18559	Dd03ATCV	Conservation	MIL	\$55,000	Mobile Irrigation Lab Big Cypress Basin	Comprehensive Water Conservation
23604	Dd030000	Conservation	MIL	\$4,000	MIL North Miami Beach	Comprehensive Water Conservation
23607	Dd030000	Conservation	MIL	\$4,000	MIL Cape Coral	Comprehensive Water Conservation
23605	Dd030000	Conservation	MIL	\$12,000	MIL North Miami Beach	Comprehensive Water Conservation
23609	Dd030000	Conservation	MIL	\$12,000	MIL Cape Coral	Comprehensive Water Conservation
23601	Dd030000	Conservation	MIL	\$12,500	MIL East Central Florida Resource Conservation & Development Corp	Comprehensive Water Conservation
23603	Dd030000	Conservation	MIL	\$37,500	MIL East Central Florida Resource Conservation & Development Corp	Comprehensive Water Conservation
23599	Dd030000	Conservation	MIL	\$94,975	District-wide Mobile Irrigation Lab Contract	Comprehensive Water Conservation
24754	Dd030000	Conservation	MIL	\$342,400	Mobile Irrigation Lab - Agricultural	Comprehensive Water Conservation
24894	Dd030000	Conservation	MIL	\$390,000	Mobile Irrigation Lab - Urban	Comprehensive Water Conservation
24467	Df010001	Resource Evaluation	Hydrogeology	\$3,000	Data Validation - Regional FAS Monitor Well Network	Groundwater and Wetland Monitoring

Table 5A-5. Continued.

Budget Line Item	Internal Order	Program Element	Sub-program Element	Amount	Project	Report Section
24470	Df010001	Resource Evaluation	Hydrogeology	\$10,000	FAS and SAS Sampling Equipment	Groundwater and Wetland Monitoring
24487	Df010001	Resource Evaluation	Hydrogeology	\$10,000	Regional Floridan Groundwater Analysis	Groundwater and Wetland Monitoring
24488	Df010001	Resource Evaluation	Hydrogeology	\$13,985	E-UEC Floridan Water Quality Sampling	Groundwater and Wetland Monitoring
24473	Df010000	Resource Evaluation	Hydrogeology	\$20,000	Geophysical Log Analysis - FAS Wells	Drilling and Testing
24475	Df010003	Resource Evaluation	Hydrogeology	\$25,000	Groundwater Project Inventory	Drilling and Testing
24476	Df010001	Resource Evaluation	Hydrogeology	\$30,000	Kissimmee Basin Wetland Monitoring	Groundwater and Wetland Monitoring
24480	Df010000	Resource Evaluation	Hydrogeology	\$31,517	APT Support	Drilling and Testing
24477	Df010001	Resource Evaluation	Hydrogeology	\$34,000	ECFT Water Quality Data Model Support	Groundwater and Wetland Monitoring
24489	Df010001	Resource Evaluation	Hydrogeology	\$36,158	USGS Kiss Basin Floridan Aquifer	Groundwater and Wetland Monitoring
24479	Df010001	Resource Evaluation	Hydrogeology	\$45,000	Stage Recorders for Lakes - ECFT Model	Groundwater and Wetland Monitoring
24490	Df010001	Resource Evaluation	Hydrogeology	\$45,000	Wetland Monitoring Data Loggers	Groundwater and Wetland Monitoring

Table 5A-5. Continued.

Budget Line Item	Internal Order	Program Element	Sub-program Element	Amount	Project	Report Section
24478	Df010001	Resource Evaluation	Hydrogeology	\$49,800	Monthly Groundwater Level Tape-Down Network	Groundwater and Wetland Monitoring
24481	Df010002	Resource Evaluation	Hydrogeology	\$56,000	USGS Highlands County Hydrologic and Water Quality	Groundwater and ET Assessments
24482	Df010001	Resource Evaluation	Hydrogeology	\$60,000	FAS Density Stratification Study	Groundwater and Wetland Monitoring
24493	Df010001	Resource Evaluation	Hydrogeology	\$62,400	Regional Groundwater Recorder (USGS)	Groundwater and Wetland Monitoring
24483	Df010001	Resource Evaluation	Hydrogeology	\$63,280	UEC FAS - St. Lucie Water Level Monitoring	Groundwater and Wetland Monitoring
24491	Df010001	Resource Evaluation	Hydrogeology	\$75,000	Regional Groundwater Recorder Maintenance	Groundwater and Wetland Monitoring
24484	Df010000	Resource Evaluation	Hydrogeology	\$96,564	USGS Hydro SAS PBC	Groundwater and ET Assessments
24485	Df010002	Resource Evaluation	Hydrogeology	\$98,374	USGS Measurement ET in S. Florida	Groundwater and ET Assessments
24492	Df010001	Resource Evaluation	Hydrogeology	\$351,848	FTL - USGS Groundwater Monitoring	Groundwater and Wetland Monitoring
24273	Df020000	Resource Evaluation	Modeling	\$12,000	Cluster/Server (RESM)	Modeling
24207	Df020000	Resource Evaluation	Modeling	\$15,000	Sunblade (Water Supply)	Modeling

Table 5A-5. Continued.

Budget Line Item	Internal Order	Program Element	Sub-program Element	Amount	Project	Report Section
24276	Df020000	Resource Evaluation	Modeling	\$20,000	Server Licenses (RESM)	Modeling
24275	Df020000	Resource Evaluation	Modeling	\$25,000	Pre/Post Processing Server (RESM)	Modeling
24274	Df020000	Resource Evaluation	Modeling	\$40,000	Modeling Cluster (RESM)	Modeling
24697	Df020000	Resource Evaluation	Modeling	\$50,000	LWC Model Peer Review	Modeling
24206	Df020000	Resource Evaluation	Modeling	\$150,000	NAS 1 TB (Water Supply)	Modeling

Legend:

APT – Aquifer Performance Test
 CFCA – Central Florida Coordination Area
 ECFT – East Central Florida Transient
 FAS – Floridan Aquifer System
 FTL – Fort Lauderdale

LWDD – Lake Worth Drainage District
 MIL – Mobile Irrigation Laboratory
 NAS – Network Area Storage
 RESM – Regional Evaluation and Subregional Modeling
 SAS – Surficial Aquifer System

DISTRICT-WIDE WATER RESOURCE DEVELOPMENT PROJECTS

The following provides project descriptions of the District-wide Water Resource Development efforts funded by the District's Water Supply Department, by structural element, for FY2008. Additional information including the implementing entities, activities proposed for FY2008, estimated completion dates, and funding sources is presented in each project summary.

Planning (Da)

There are no District-wide water resource development projects currently planned or budgeted for the Water Supply Department's planning element.

Implementation Projects (Db)

District-Wide Feasibility Studies (Db01 and Db02)

The SFWMD is performing feasibility studies to determine the viability of water resource development options in order to increase water supply through water resource alternatives. This effort involves collecting and analyzing data and modeling.

Implementing entity: SFWMD in partnership with local water utilities

Estimate of quantity of water produced by project: Projects are not designed to make water available.

Completed implementation activities:

- *Water Supply Cost Estimation Study (LEC Planning Area)*. Phase I of this project developed engineering cost estimation relationships for evaluating water supply alternatives for the District's four planning areas. The effort included options using groundwater, surface water, seawater, ASR, and reclaimed water for reuse. Phase I was completed in February 2007 with a recommendation to perform Phase II additional cost estimates for plant capacities of 1 and 3 mgd, the Actiflo Process in a wastewater treatment plant, granular filters, and chlorine disinfection. Phase II will be completed by December 2007.
- *Advanced Wastewater Pilot Projects in Broward County (LEC Planning Area)*. Two pilot projects in Broward County, one each in Sunrise and Plantation, are being implemented. The Sunrise pilot project began in April 2007 and will evaluate the effect of discharging highly treated reclaimed water into a groundwater body and the cost-effectiveness of a full-scale implementation of the project. The pilot will determine if the membrane bioreactor technology in combination with additional treatment can achieve the high level of nutrient removal required for groundwater recharge. The project is expected to conclude in FY2008.

The Plantation pilot testing began in FY2006 and was ongoing during FY2007. The project implements the recommendations of the Canal Recharge Feasibility Study of 2006 by the advanced treatment of secondary treated effluent to acceptable water

- quality standards before discharge to East Holloway Canal surface water. A final report on the project is due by March 2008.
- Water Desalination Feasibility Study (LEC and LWC Planning Areas). The feasibility study for co-locating seawater desalination facilities with coastal electric power plants was completed in December 2006. Three top-ranked Florida Power and Light (FPL) sites were chosen and planning-level cost estimates provided. They are: Fort Myers (10 mgd at \$91 million or \$4.7 per 1,000 gallons), Fort Lauderdale (20 mgd at \$148 million or \$3.88 per 1,000 gallons) and Port Everglades (35 mgd at \$276 million or \$4.16 per 1,000 gallons). The study concluded that desalination is technically feasible, offering a drought-proof and high quality source of potable water. The cost is \$4 to \$5 per 1,000 gallons depending on plant size and local factors. Site-specific economic and environmental factors must still be determined at a pilot scale to assess overall feasibility relative to other alternatives.
 - C-25 St. Johns Marsh Connectivity Study (UEC Planning Area). The current feasibility study is a continuation of the 2006 Phase I Study, which the SFWMD and the St. Johns River Water Management District (SJRWMD) co-sponsored to evaluate the benefits of restoring a hydraulic connection between basins along the C-25 canal bordering the two districts. The final report concluded that an annual average freshwater volume in excess of 200,000 acre-feet currently discharged to the Indian River Lagoon could be available for diversion and storage for beneficial future use.
 - Phase II of the study is intended to identify partners and potential users, model, and provide alternative combinations of existing and future storage to optimize beneficial use of available water. The consultant shall provide a cost estimate of the project, project delivery method, and outline financing opportunities. The project is expected to be completed in FY2008.
 - L-40 Conveyance Study (LEC Planning Area). The L-40 Conveyance Study is ongoing and continues to investigate possible water delivery from Lake Okeechobee to the Lake Worth Drainage District and Hillsboro Canal while protecting Water Conservation Area 1, which overlaps the Arthur R. Marshall Loxahatchee Wildlife Refuge. The study evaluation criteria includes land availability, permit ability, National Environmental Protection Act coordination, constructability, existing infrastructures, and total estimated costs including costs associated with design, construction, operation, and maintenance. The goal is to propose a conveyance system that would have minimal impacts on the ecological resources of the Refuge. Work completed in FY2007 includes the final report on Technical Memorandum I: Existing Information Review Technical Memorandum.
 - Upper Kissimmee Basin Regional Water Supply Feasibility Study Phase I (Kissimmee Basin Planning Area). Phase I of the project is a feasibility study on the “water of opportunity” to assist in developing a new water source to serve customers in the Central Florida region. The study will continue to evaluate technical, environmental, regulatory, and economic issues associated with using water from the Upper Kissimmee Basin for possible operation of a regional water supply facility to serve interested customers in Central Florida. Depending on the Phase I results, more detailed evaluations may be implemented in subsequent phases to finalize design configurations for facilities and related infrastructure. A project report with recommendations is expected in March 2008.

- Lake Worth Drainage District (LWDD) Pump Replacement – C-51 Canal (LEC Planning Area). This is cooperative project between the District and Lake Worth Drainage District (LWDD) for installing and operating temporary pumps at Control No. 2 near the C-51 canal. The project's goal is to achieve flexibility in delivering water to LWDD from Lake Okeechobee through multiple routes to meet dry season demands, reduce Everglades water quality concerns, and provide a reliable and efficient supply of surface water.

Activities proposed for FY2008:

- Water Supply Cost Estimation Study. Complete Phase II Study in LEC.
- Advanced Wastewater Pilot Projects in Broward County. Complete the pilot reuse studies in Plantation and Sunrise.
- Desalination Initiatives. Continue to work with consultants and utilities to encourage the implementation of desalination facilities.
- C-25 St. Johns Marsh Connectivity Study. (Db010002, \$250,000) Complete Phase II study.
- L-40 Conveyance Study. (Db010005, \$200,000) Complete Phase I Study and provide recommendations.
- Upper Kissimmee Basin Regional Study – Phase I. (Db010003 and Db010004, \$400,000) Continue Phase II if needed.
- Lake Worth Drainage District Pump Replacement – C-51 Canal. (Db010001, \$300,000) If an agreement is reached, design and installation will proceed in FY2008.

Estimated completion dates:

- Water Supply Cost Estimation Study: December 2007
- Advanced Wastewater Pilot Projects in Broward County: March 2008
- Desalination Initiatives: ongoing
- C-25 St. Johns Marsh Connectivity Study: September 2008
- L-40 Conveyance Study: September 2008
- Upper Kissimmee Basin Regional Study – Phase I: March 2008
- LWDD Pump Replacement – C-51 Canal: September 2008

Funding sources: SFWMD cost-share with local water utilities

Cost per thousand gallons: Feasibility study projects are not designed to make water available.

Total money to date:

- Water Supply Cost Estimation Study: FY2007 – \$200,000
- Advanced Wastewater Studies and Pilot Projects: FY2007 – \$775,000
- Desalination Initiatives: FY2002–FY2007 – \$435,000

- C-25 St. Johns Marsh Connectivity Study: FY2006–FY2007 – \$25,000
- L-40 Conveyance Study: FY2007 – \$300,000
- Upper Kissimmee Basin Regional Study: FY2007 – \$200,000
- LWDD Pump Replacement – C-51 Canal: FY2007 – \$225,000

Total project cost: \$4,060,000 through FY2012

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	1,150	750	0	0	0	1,900

Rulemaking (Dc)

MFL and Water Reservation Activities (Dc01–Dc05)

MFLs are being developed pursuant to the requirements contained within the Water Resources Act and Sections 373.042 and 373.0421, F.S., as part of a comprehensive water resources management approach to assure the sustainability of South Florida’s water resources. As part of the process of establishing and maintaining MFLs, the SFWMD is developing and implementing an electronic tracking system to determine whether MFL criteria are being met. Other efforts include producing documents and conducting scientific and peer reviews. Additional information about MFLs is presented in Chapter 3 of this volume.

The Governing Board has authorized rule development to establish a reservation of water for the St. Lucie Estuary in accordance with Section 373.223(4) F.S., for water identified for the protection of fish and wildlife as outlined in the CERP Indian River Lagoon–South Project Implementation Report (PIR), dated March 2004. In order for the District and the U.S. Army Corp of Engineers (USACE) to enter into a Project Cooperation Agreement to construct the reservoirs, stormwater treatment areas and water diversion projects outlined in the PIR, the District has selected its water reservation authority to quantify both existing water and future project water needed to protect fish and wildlife resources.

Implementing entity: SFWMD

Estimate of quantity of water produced by project:

- Water Reservation projects will reserve quantities of water consistent with the PIR. MFLs define the flow or level below which significant harm would occur to the water body, which helps in determining the amount of water that may be available to meet other reasonable-beneficial needs. MFL projects are not designed to make water available.

Completed implementation activities:

- MFLs have been adopted for Florida Bay, the Everglades, Biscayne Aquifer, Lake Okeechobee, Caloosahatchee River and Estuary, Lower West Coast aquifers, St. Lucie River and Estuary, Northwest Fork of the Loxahatchee River, and Lake Istokpoga.

Activities proposed for FY2008:

- Continue monitoring previously established MFLs.
- Complete a draft water reservation technical document for the Indian River Lagoon (St. Lucie Estuary), conduct scientific peer review, conduct rule development workshops, and request Governing Board adoption of rule.
- Complete scientific peer review of the available science to support regulation of consumptive water use in the Biscayne Bay watershed, including MFLs and Water Reservations. Recommended approach and technical criteria will be determined based upon the peer-review results (Dc010002, \$50,000).
- Complete initial investigations of MFL criteria applicable to Rookery Bay (Dc010001, \$100,000).
- Complete initial investigation of MFL criteria applicable to the Kissimmee River and the upper Kissimmee basin including lakes and wetlands.
- Continue baseline wetland monitoring in the Central Florida Coordination Area in anticipation of MFL and Reservation activities (Db010000, \$100,000).

Estimated completion date:

- Complete assessment of MFLs as a result of the drought of 2007 by September 30, 2008.
- Complete draft water reservations technical document for the Indian River Lagoon by March 31, 2008; conduct peer review of the draft technical document by April 30, 2008; complete rule development by September 30, 2008, with Governing Board rule adoption anticipated in October 2008.
- Complete Biscayne Bay science peer review by December 31, 2007.
- Complete investigations of MFL criteria for Rookery Bay, Kissimmee River, and Kissimmee basin lakes and wetlands by September 30, 2008.

Funding sources: SFWMD

Cost per thousand gallons: Cannot be estimated prior to completion of projects

Total money spent to date: FY2007 – \$140,000

Total project cost: ongoing

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	20012	Total
Dollars (\$1,000)	250	220	220	220	220	1,130

Conservation (Dd)

Comprehensive Water Conservation Program

The SFWMD's overall water conservation goal is to prevent and reduce wasteful, uneconomical, impractical, or unreasonable uses of water resources. In addition to improving efficiency of water use, the statewide Water Conservation Program, known as "Conserve Florida," provides information and tools to improve water conservation through the development of utility-specific, goal-based water conservation programs. To better promote the conservation goal, the SFWMD funds grants and cost-share programs. These programs encourage water users to make more efficient use of water resources through conservation and reuse.

Through the Water Savings Incentive Program (WaterSIP), the SFWMD provides matching funds of up to \$50,000 to water providers, such as utilities and homeowners associations, for water-saving technologies. These technologies include low-flow plumbing fixtures, rain sensors, fire hydrant flushing devices and other hardware. The Mobile Irrigation Laboratory (MIL) Program consists of specialized equipment in vans designed to conduct efficiency audits of agricultural and urban irrigation systems. The MILs are operated by the Soil and Water Conservation Districts, a subdivision of the State of Florida created under Chapter 582, Florida Statutes, and provide recommendations to water users who implement the water-saving recommendations. The University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) operates the Florida Automated Weather Network (FAWN), which is a statewide research and data project with operations aimed at reducing agricultural irrigation during droughts and freezes. The Water Conservation Program is a comprehensive demand management effort aimed at reducing water use in each sector to the lowest level feasible.

Implementing entity:

- WaterSIP Program: SFWMD
- MIL Program: SFWMD, Florida Department of Agriculture and Consumer Services (FDACS), and the Soil and Water Conservation Districts
- Water Conservation Program: SFWMD (new initiative for FY2008)
- Florida Automated Weather Network: SFWMD, UF/IFAS, FDACS, and other water management districts.

Estimate of quantity of water produced by project:

- WaterSIP Program. During FY2002–FY2007, 45 projects cumulatively saved 2.5 mgd of water; and in FY2007, 0.34 mgd of water was saved. For FY2008, 17 proposed projects are anticipated to save 0.85 mgd of water, and 5.0 mgd is expected to be conserved for FY2008–FY2012.
- MIL Program. From the MIL Program's inception in FY1989 through FY2007, an estimated 107 mgd has been saved. In FY2007, an estimated 1.1 mgd was saved, and for FY2008, an estimated 2.0 mgd will be saved. The estimated quantity of water to be saved by the MIL Program during FY2008–FY2012 is 10 mgd.
- Water Conservation Program. This is a new initiative for FY2008, thus no water has been saved or produced.

- Florida Automated Weather Network. The university calculates all estimates of water savings on a statewide basis.

Completed implementation activities:

- WaterSIP Program. Funded 55 projects District-wide for FY2002–FY2007
- MIL Program. 14 operational MILs District-wide, 11 cost-shared by the District
- Water Conservation Program. This is a new initiative for FY2008.
- Florida Automated Weather Network. Funded research for FY2004–FY2007

Activities proposed for FY2008:

- WaterSIP Program. Seventeen projects will receive funding in FY2008 (Dd020000, \$400,000).
- MIL Program. Provide an additional agricultural lab in the UEC Planning Area and one in the LEC Planning Area (Dd030000, \$964,375).
- Water Conservation Program. Hold initial conservation summit, devise conservation plan, and develop partnership with all water-user organizations and industries. Submit final plan to Governing Board for adoption in spring of FY2008 (Dd010001, \$125,000).
- Florida Automated Weather Network. Expand FAWN database access to urban irrigation systems (Dd010002, \$100,000).

Estimated completion date: ongoing

Funding sources:

- WaterSIP Program. SFWMD, utilities, homeowners associations, and other project partners
- MIL Program. SFWMD, Big Cypress Basin Board, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Florida Department of Agriculture and Consumer Services, Soil and Water Conservation Districts, and county and local governments
- Water Conservation Program. SFWMD
- Florida Automated Weather Network. SFWMD, UF/IFAS, FDACS, and other water management districts.

Cost per thousand gallons:

- Showerhead retrofit, \$.06/1,000 gallons; toilet retrofit, \$.25/1,000 gallons; rain sensor installation, \$1.07/1,000 gallons
- Low-volume spray valves in restaurants, \$.21/1,000 gallons
- Showerhead and faucet retrofit in hotels/motels, \$.08/1,000 gallons
- MILs programmatic cost for agriculture, \$.38/1,000 gallons; programmatic cost for urban, \$2.38/1,000 gallons

Total money spent to date: FY2002–FY2007 – \$6,798,932 (includes the Conservation Program, \$1,315,000; WaterSIP Program, \$1,932,044; and MIL Program, \$3,551,888)

Total project cost: ongoing

Proposed expenditures: Comprehensive Water Conservation Program including WaterSIP, MIL and FAWN programs

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	1,589	1,464	1,464	1,464	1,464	7,445

Alternative Water Supply (De)

A full description of Alternative Water Supply-related projects and associated funding is contained in the District's Alternative Water Supply Annual Report, prepared pursuant to Section 373.1961(2), F.S. (see Chapter 5B of this volume).

Resource Evaluation (Df)

Drilling and Testing Program (Df01)

A District-wide Drilling and Testing Program is providing an improved understanding of the geology and hydrology of the aquifers in South Florida as new exploratory/test wells are constructed. This improved understanding has translated into more accurate groundwater models and better decisions regarding issuance of new consumptive use permits. Full documentation of each well site (including locations, well construction details, geophysical logging, and aquifer testing data) is provided in SFWMD technical publications and has been loaded into the District's hydrometeorologic database (DBHYDRO).

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- *Floridan Aquifer System.* In FY2007, the SFWMD began construction of a Floridan Aquifer test production core well in the LEC planning Area (at the Alligator Alley site in west-central Broward County). The SFWMD will use this test production well to gather hydrogeologic parameters for different zones within the aquifer.
- *Surficial Aquifer System (SAS).* Drilled and tested 12 surficial aquifer sites in the LEC Planning Area.
- *Biscayne Bay.* Collected data from seepage meters in Biscayne Bay.

Activities proposed for FY2008:

- Complete the construction and testing of the Floridan Aquifer test production well at the Alligator Alley site.

- No funding has been allocated in the FY2008 budget for any new drilling and testing sites. It is hoped that the projected funding will become available in the FY2009 budget, so that these very important projects may be continued.
- Continue collection of data from seepage meters in Biscayne Bay through October 2007.
- Review geophysical log analyses of Floridan Aquifer wells (Df010000, \$20,000).
- Conduct groundwater project inventory (Df010000, \$25,000).
- Continue Aquifer Performance Testing as required (Df010000, \$31,517).

Estimated completion date: ongoing

Funding sources: SFWMD

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2000–FY2007 – \$12,500,000

Total project cost: ongoing

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	77	81	85	89	94	426

Groundwater and Evapotranspiration Assessments (Df01)

A number of specialized hydrogeologic studies were completed by the U.S. Geological Survey (USGS) in cooperation with the SFWMD. The information learned from these studies is needed to enhance the understanding of aquifers and evapotranspiration rates across the District. Typically, each project requires several years of focused effort by USGS professionals, giving a continuity and focus unique to the USGS. Some projects have the cooperation of other water management districts or other governmental agencies. The USGS reports, maps, and data are peer-reviewed and highly respected in the industry, making them valuable references for groundwater modeling and environmental assessments, as well as policy and decision making.

Implementing entity: SFWMD and USGS

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- Hydrology of Polk County report was completed in FY2007. Twenty-two USGS groundwater assessments, including ET studies, have been completed during the FY2002–FY2007 five-year period.
- Five ET stations were installed and made operational in Big Cypress Preserve in FY2007.

- Completed three boreholes for the Palm Beach County Project.

Activities proposed for FY2008:

- Continue the hydrogeology of Palm Beach County study and continue the Highlands County hydrogeologic study (Df010000, \$56,000).
- Continue operation and data collection from five ET sites in Big Cypress Preserve (Df010000, \$194,938).

Estimated completion date: ongoing

Funding sources: SFWMD and USGS

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2000–FY2007 – \$2,250,000

Total project cost: ongoing

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	251	160	150	0	0	561

Groundwater and Wetland Monitoring (Df01)

Well construction and monitoring efforts provide information about geology, aquifer characteristics, and water-level conditions to aid the SFWMD in the development of groundwater models, assessing groundwater conditions, and management of this resource. The District maintains extensive groundwater monitoring networks and partners with the USGS to provide additional support and funding for ongoing monitoring. To better understand the hydrologic systems that support wetlands, the District maintains its network of groundwater and wetland monitoring sites. Data are archived in the District's DBHYDRO database. Data from sites monitored by the USGS are published by the USGS annually.

Implementing entity: SFWMD and USGS

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- Monitoring the District's groundwater monitoring network (including the additional 83 key recorders) for the water level and water quality of all the aquifers is ongoing.
- Completed water quality sampling and analysis in the Kissimmee Basin in FY2007 and incorporated data into the DBHYDRO database.

Activities proposed for FY2008:

- Continue the same level of groundwater monitoring as in previous year (including the Kissimmee Basin) (Df010001, \$781,471).
- Install four additional lake stage recorders and continue water quality monitoring (Df010000, \$45,000).
- Continue data validation efforts (Df010000, \$3,000).
- Evaluate density stratification effects in Floridan wells (Df100000, \$60,000).

Estimated completion date:

- The lake-stage recorders will be completed in FY2008, water level and water quality monitoring is an ongoing effort in cooperation with the USGS.

Funding sources: SFWMD and USGS

Total cost: ongoing

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: FY2000–FY2007 – \$5,300,000

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	889	934	981	1,030	1,082	4,916

Modeling (Df02)

The Water Supply Department is currently undertaking the four modeling efforts described below. Hardware, software, and licensing costs for FY2008 total \$262,000, which has been evenly distributed across the four models for reporting purposes [i.e., \$66,000 (rounded number) toward each modeling project].

Lower East Coast Subregional Groundwater Model and Database Development

In the Lower East Coast Planning Area, the District is using groundwater flow models to quantitatively assess the Surficial Aquifer System along the eastern coast of Florida. The model was developed and peer-reviewed in FY2006. During model development, peer review and subsequent application of the tool, data gaps were identified in Palm Beach County, primarily in the Everglades Agricultural Area. A cooperative project was initiated between the USGS and the District to begin to fill the data gaps. This process was initiated in FY2006 and is expected to be completed in FY2009.

Implementing entity: SFWMD and USGS

Estimate of quantity of water produced by project: Project is not designed to make water available, but to evaluate potential future sources of water.

Completed implementation activities:

- The Lower East Coast Planning Area portion of the model area was completed and peer-reviewed in FY2006. Continued hydrogeologic investigations in western Palm Beach County and updated the model as new information became available.

Activities proposed for FY2008:

- Continue hydrogeologic investigations in western Palm Beach County and update the model when new information becomes available (Df020000, \$66,000).

Estimated completion date:

- Further refinement of the model for the Lower East Coast Planning Area is scheduled to be completed in FY2009.

Funding sources: SFWMD and USGS

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: Lower East Coast Subregional western Palm Beach County Update, \$150,000.

Total project cost: Lower East Coast Subregional Model western Palm Beach County Update, \$300,000. Database development is ongoing.

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	66	50	0	0	0	116

East Coast Floridan Aquifer Groundwater Model and Database Development

In the Lower East Coast Planning Area, the District is using density-dependent models to quantitatively assess the Floridan Aquifer System (FAS) along the eastern coast of Florida. Phase I modeling of this effort was completed in FY2006. As new Floridan exploratory wells and water supply wells are drilled, assessment of aquifer capacity will evolve by updating the database and models. Additionally, data from the existing monitor well networks are being processed, analyzed, and brought into the model. Water quality sampling will continue in conjunction with the new exploratory wells installed within the Lower East Coast Planning Area. Phase II expands the model to include the Upper East Coast Planning Area and also aims to improve the model calibration in the Lower East Coast Planning Area. This process was initiated in FY2007 and is expected to be completed in FY2008.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to make water available, but to evaluate potential future sources of water.

Completed implementation activities:

- The Lower East Coast Planning Area portion of the model area was completed in FY2006; the Upper East Coast Planning Area began in FY2007.

Activities proposed for FY2008:

- Expand and complete model including model documentation to include the Upper East Coast Planning Area; continue database development and water quality sampling (Df020000, \$66,000).

Estimated completion date:

- The Upper East Coast Planning Area portion of the model area and further refinement of the model for the Lower East Coast Planning Area is scheduled to be completed in FY2008.

Funding sources: SFWMD

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: Floridan Model, \$150,000. Database development, \$600,000

Total project cost: Floridan Model, \$300,000. Database development is ongoing.

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	66	150	150	150	150	666

Kissimmee Basin Groundwater Model and Database Development

In the Kissimmee Basin Planning Area, the District is using groundwater flow models to quantitatively assess the Surficial and Floridan Aquifer Systems to help determine potential water availability for future uses. The model was developed and peer-reviewed in FY2007. During model development, peer review, and subsequent application of the tool, data gaps were identified. The primary data gaps are being addressed at this time by the monitoring of additional stage recorders in four key lakes and additional water quality testing. This process was initiated in FY2006 and is expected to be ongoing.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to make water available but to evaluate potential future sources of water.

Completed implementation activities:

- The Kissimmee Basin Planning Area portion of the model area was completed in FY2007.

Activities proposed for FY2008:

- Continue modeling effort (Df020000, \$66,000).

Estimated completion date: ongoing

Funding sources: SFWMD and USGS

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: \$105,000

Total project cost: Database development is ongoing.

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	66	50	50	50	50	266

Lower West Coast Floridan Model Peer Review

In the Lower West Coast Planning Area, the District is using groundwater and density-dependent flow models to quantitatively assess the Surficial, Intermediate, and Floridan Aquifer Systems to help determine potential water availability for future uses. Model development and documentation was completed FY2007. The Water Supply Department has already conducted peer review of the Lower East Coast Subregional Model in FY2006 and peer review of the East Central Florida Transient Model in FY2007. Peer review of the Lower West Coast Floridan Model completes the peer-review process for the main planning regions in the District.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to make water available but to evaluate potential future sources of water.

Completed implementation activities:

- The Lower West Coast Planning Area portion of the model area was completed in FY2007.

Activities proposed for FY2008:

- Complete peer review of the Lower West Coast Floridan Model (Df020000, \$50,000).
- Continue Model Development (Df020000, \$66,000).

Estimated completion date: 2008

Funding sources: SFWMD

Cost per thousand gallons: Project is not designed to make water available.

Total money spent to date: \$0

Total project cost: \$80,000

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	116	0	0	0	0	116

Program Support (Dz)

There are no District-wide water resource development efforts currently planned for the program support element.

REGIONAL WATER RESOURCE DEVELOPMENT PROJECTS

The following are project descriptions of region-specific water resource development efforts funded by the SFWMD Water Supply Department for FY2008. Additional information such as the implementing entities, activities proposed for FY2008, estimated completion dates, and funding sources is included in each project summary.

Subregional Feasibility Study of Water Supply Integration for St. Lucie County Area (UEC Planning Area)

A utility regionalization task force was established in 2006 to initiate and evaluate a study to develop an operating agreement between the entities. Task force members represent the city of Fort Pierce, St. Lucie County, and the Fort Pierce Utility Authority. Phase I was completed in FY2006 and included information gathering that lead to the Subregional Feasibility Study of Water Supply Integration for St. Lucie County. Phase II was completed in FY2007 and consisted of the development of a conceptual master plan for water systems integration and development of an institutional framework for merging utility systems in northern St. Lucie County. The District is supporting and funding Phase III for the continued facilitation services to assist with the development, administration, legal and financial framework for the implementation of cooperative water and wastewater projects between St. Lucie County and Fort Pierce. The facilitation services will provide the task force with a framework that could be used for a cooperative agreement between these entities.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to produce water.

Completed implementation activities:

- Phase I – Initial engineering feasibility report is completed.
- Phase II – Conceptual master plan for planning and construction of water projects is completed.

Activities proposed for FY2008:

- Phase III (Db010007, \$25,000) – Facilitation services to assist with the development, administration, legal and financial framework for the implementation of cooperative water and wastewater projects between St. Lucie County and Fort Pierce

Estimated completion date: September 2008

Funding sources: SFWMD

Cost per thousand gallons: Not applicable

Total money spent to date: \$98,900

Total project cost: \$123,900

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	25	0	0	0	0	124

Central Florida Aquifer Recharge Feasibility Study

Part of the effort in studying the Kissimmee Chain of Lakes supply availability is a feasibility assessment of how best to use the available water from the system. The availability of supply from the Chain of Lakes and Shingle, Boggy, and Reedy creeks is projected to be highly variable. As such, surface water from these systems may, in part, be a product of opportunity rather than a consistent daily alternative source. While this makes direct use more difficult, it offers opportunities to use surface water for aquifer recharge to offset some of the projected groundwater withdrawal impacts during periods of high availability. Because the western portions of Central Florida are high recharge areas to the Floridan Aquifer, rapid infiltration basins may be a feasible means of using surface water from these sources for implementing aquifer recharge. Similar studies have been completed in Orange County for the use of reclaimed water for aquifer recharge. An effort is proposed to expand this study into parts of Osceola, Polk, and Lake counties to determine opportunities for aquifer recharge.

Implementing entity: SFWMD

Estimate of quantity of water produced by project: Project is not designed to make water directly available.

Completed implementation activities: Not applicable

Activities proposed for FY2008:

The priority of work tasks in the project plan for the Central Florida Recharge Project have been reorganized to allow for the determination of surface water availability in the Kissimmee Chain of Lakes and Kissimmee River to be performed first. This determination of water availability is directly related to efforts of the Kissimmee River Chain of Lakes Management Plan and the recently identified Northern Everglades Project. Efforts to determine this surface water availability have been delayed due to modeling complications and the parallel effort to develop an alternate management protocol for Lake Okeechobee. Total cost of the project has been reduced, as related projects are now incurring a portion of the previously anticipated work effort.

Estimated completion date: FY2011

Funding sources: SFWMD

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: \$0

Total project cost: \$100,000

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	0	50	50	0	0	100

Kissimmee Chain of Lakes Management Plan

A resolution in the 2000 Kissimmee Basin Water Supply Plan directed the District to work with other agencies to develop a plan for improving the health and stability of the Kissimmee Chain of Lakes. Development of the Kissimmee Chain of Lakes Long-Term Management Plan requires an extensive modeling effort to estimate the performance of the many competing uses for the Chain of Lakes and the Kissimmee River.

The Kissimmee Basin Hydrologic, Modeling and Operations Study is an initiative to construct an advanced hydrologic/hydraulic model to be used to simulate alternative structure operation criteria to meet identified objectives. The study is constrained to evaluating modifications of the existing control infrastructure limitations in an effort to improve operations. The purpose of the study is to find a means of operating the Kissimmee Basin system to achieve a more acceptable balance among flood control, water supply, aquatic plant management, navigation, water quality, and natural resource management, while continuing to address impacts to downstream systems including Lake Okeechobee and the Caloosahatchee and St. Lucie estuary discharges. Another aspect of this effort involves evaluating the lakes and their tributaries to better understand superior alternatives of available water use in the system.

Implementing entity: SFWMD, with state and local government support

Estimate of quantity of water produced by project: Project is not designed to make water available.

Completed implementation activities:

- Completed public participation in the development of performance measures in 2007 and completed year 2000 baseline conditions for the Okeechobee-Kissimmee model construction/calibration.

Activities proposed for FY2008:

- Complete development of an integrated surface water/groundwater model using MIKE SHE/11 software; continue public outreach, and begin screening of operational guidelines on lakes in the Kissimmee Chain of Lakes and River.

Estimated completion date: FY2009

Funding sources: SFWMD and other state governmental agencies

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: FY2003–FY2008 – \$1,815,257

Total project cost: \$1,815,257 through FY2012

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	Staff Time	Staff Time	0	0	0	0

Central Florida Water Supply Coordination Initiative

Hydrologic groundwater basins do not follow water management district boundaries; therefore, coordination among the SFWMD, SJRWMD, and Southwest Florida Water Management District (SWFWMD) is critical to the water supply planning process. This is particularly true in the region of Orange, Osceola, Polk, southern Lake, and eastern Brevard counties. Efforts to continue and improve this coordination in the areas of planning, permitting, and assessment tool development are important to the uniform implementation of water resource projects across the three districts. These districts have reached agreement on a set of guiding principles to help direct these coordination efforts in the future, and have committed to developing a work plan of tasks that will address inconsistencies in the areas of water supply planning, permitting, and assessment tool development. The effort includes coordination and joint funding of water supply alternatives needed for the region.

Implementing entity: SFWMD, SJRWMD, and SWFWMD

Estimate of quantity of water produced by project: Project is not designed to make water directly available.

Completed implementation activities:

- Completed development of a revised Memorandum of Understanding/Memorandum of Agreement between the three districts, outlining planning and regulatory activities

Activities proposed for FY2008:

- Continue to hold coordination meetings.
- Complete first phase of 40E-2 Rule amendments.
- Complete Central Florida Alternative Water Supply project list and estimates of total supply demands.

Estimated completion date: FY2009 for first phase, and a continuing effort thereafter

Funding sources: SFWMD

Cost per thousand gallons: Project is not designed to make water directly available.

Total money spent to date: \$0

Total project cost: Staff time only

Proposed expenditures:

Cost	FY2008	FY2009	FY2010	FY2011	FY2012	Total
Dollars (\$1,000)	Staff time	Staff time				