Water Resource Development
Work Program—FY 2004

St. Johns River Water Management District
Palatka, Florida
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Contents

FIGURES

TABLES

ACRONYMS

ASR	aquifer storage and recovery
DWSP	District Water Supply Plan
FDEP	Florida Department of Environmental Protection
FF	Florida Forever
FS	*Florida Statutes*
gpd	gallons per day
mgd	million gallons per day
OUC	Orlando Utilities Commission
RAMP	Regional Aquifer Management Project
SFBS	standard format budget submission
SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SWISM&TS	Surface Water Instream Monitoring and Treatability Studies
VWA	Volusian Water Alliance
WAV	Water Authority of Volusia
WRDWP	Water Resource Development Work Program

INTRODUCTION

The St. Johns River Water Management District (SJRWMD) approved its first District Water Supply Plan (DWSP) in April 2000. The DWSP meets the requirements of the water supply planning provisions of Section 373.0361, *Florida Statutes* (*FS*). The DWSP concludes that, in significant portions of SJRWMD's priority water resource caution areas, alternative water supply sources will probably have to be developed to meet future needs while sustaining water quality, wetland and aquatic systems, and existing legal uses. Groundwater alone probably cannot meet all future water supply needs. Development of alternative sources of supply will require cooperation among the water supply utilities together with SJRWMD and the Florida Department of Environmental Protection (FDEP).

The DWSP identifies water resource development projects based on the provisions of Subsection 373.0361(2)(b), *FS*. SJRWMD has developed this annually updated Water Resource Development Work Program (WRDWP) pursuant to the requirements of Subparagraph 373.536(6)(a)4, *FS*, in association with its water supply planning effort. Based on the definition of water resource development included in Subsection 373.019(19), *FS*, SJRWMD considers a water resource development project to be one that contributes to the formulation and implementation of the following regional water resource management strategies:

- 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 control, surface and underground water storage, and groundwater recharge augmentation
- Related technical assistance to local governments and to government-owned and privately owned water utilities

Following is a list of water resource development projects that have been identified by SJRWMD in the DWSP. These projects, including individual phases, are represented in Table 1 where they are cross-referenced to the statutory definitions. SJRWMD recognizes that several of its water resource development projects are described by more than one of the water resource management strategies. This fact is reflected in Table 1.

- Abandoned artesian well plugging program
- Adaptive management project
- Aquifer protection program
- Aquifer storage and recovery feasibility testing
- Central Florida aquifer recharge enhancement program
- Cooperative well retrofit project
- Demineralization concentrate management project

- Facilitation of regional decision-making process
- Feasibility of seawater demineralization projects
- Hydrologic data collection and analysis
- Investigation of areas where domestic self-supply wells are sensitive to water level fluctuation
- Regional aquifer management project
- Surface water instream monitoring and treatability studies
- Wetland augmentation demonstration program

This FY 2003–2004 version of the annually updated WRDWP is intended to augment the DWSP and provide implementation guidance for those water resource development projects identified in the water resource development component of the DWSP. The WRDWP contains a description of each project including a project title, a synopsis of the project, a programming estimate of the cost of the project, an estimate of the quantity of water the project will make available, a timeline for commencement and completion, cross references to the SJRWMD budget and the standard format budget submission (SFBS), and a listing of specific tasks for the project where such tasks have been developed. The projects are organized alphabetically, and each is followed by a summary which presents the ongoing and planned program by year. A portion of the work has been and will continue to be accomplished by SJRWMD staff, while the majority of the work will be accomplished by contract. As we move into the fourth year of the WRDWP, the contract-staff ratio for expenditures has been 70%–30% in 2001, 85%–15% in 2002, and 90%–10% in 2003. We now see a slight shift back to 83%–17% contract-staff ratio in 2004. The original trend to predominantly contract work was due primarily to the addition to the program of a significant Florida Forever (FF) construction component and the removal of some significant staff effort for the hydrologic data collection network, which had been included in the FY 2001 WRDWP. The hydrologic data collection network component was removed because it supports multiple programs throughout SJRWMD, not just the WRDWP. This slight shift back to more staff work is attributed to the elimination of FF construction spending by contract in the Adaptive Management Program and the shift from contract studies and construction to land acquisition. In future years, this becomes much more significant, with the total program contract-staff ratio (FY 2000–FY 2008) at 67%–33%.

A more detailed explanation of the water resource development component and additional information for each project may be found in the DWSP. Table 2 in Appendix A contains a total for of all program elements. Appendix B includes two figures that graphically depict the program composition. Figure 1 shows the program by work category and Figure 2 shows the program by statutory definition.

Table 1. Water resource development projects by *Florida Statute* definition

Project Name	Definition				
	A) Collection and evaluation of surface water and groundwater data	B) Structural and nonstructural programs to protect and manage water resources	C) Development of regional water resource implementation programs	D) Construction, operation, and maintenance of major public works facilities to provide for flood control, surface and underground water storage, and groundwater recharge augmentation	E) Related technical assistance to local governments and to government-owned and privately owned water utilities
Abandoned Artesian Well Plugging Program		●			
Adaptive Management Project, Phase I—Plan Development			●		
Adaptive Management Project, Phase II—Plan Implementation	●	●			●
Aquifer Protection Program—I. Wellhead Protection			●		●
Aquifer Protection Program—II. Recharge Area Protection—Plan Development			●		●
Aquifer Protection Program—III. Recharge Area Protection—Plan Implementation		●			
Aquifer Storage and Recovery Construction and Testing (identified as Aquifer Storage Recovery Feasibility Testing in 2000 DWSP)				●	●
Central Florida Aquifer Recharge Enhancement Program, Phase I—Artificial Recharge Demonstration Projects				●	●
Central Florida Aquifer Recharge Enhancement Program, Phase II—Recharge Enhancement Evaluation and Design					●
Central Florida Aquifer Recharge Enhancement Program, Phase III—Program Implementation				●	

Table 1—*Continued*

Project Name	Definition				
	A) Collection and evaluation of surface water and groundwater data	B) Structural and nonstructural programs to protect and manage water resources	C) Development of regional water resource implementation programs	D) Construction, operation, and maintenance of major public works facilities to provide for flood control, surface and underground water storage, and groundwater recharge augmentation	E) Related technical assistance to local governments and to government-owned and privately owned water utilities
Cooperative Well Retrofit Project—I. Eliminating the Impact of Seasonal Drawdowns on Existing Legal Domestic Users		●			
Cooperative Well Retrofit Project—II. Avoiding the Construction of Inadequate New Domestic Well Systems		●			●
Demineralization Concentrate Management Project					●
Facilitation of Regional Decision-Making Process			●		
Feasibility of Seawater Demineralization Projects					●
Hydrologic Data Collection and Analysis—Summary of all components	●				
Investigation of Areas Where Domestic Self-Supply Wells Are Sensitive to Water Level Fluctuation					●
Regional Aquifer Management Project		●	●	●	
SWISM&TS—I. Water Quality Monitoring Component	●				
SWISM&TS—II. St. Johns River Water Supply Project					●
Wetland Augmentation Demonstration Program	●	●			●

ABANDONED ARTESIAN WELL PLUGGING PROGRAM

Background

The goal of this program is to assure the continued availability of groundwater resources by detecting, evaluating, and controlling abandoned artesian wells. Uncontrolled or improperly constructed artesian wells (abandoned artesian wells) adversely impact the quantity and quality of water in aquifers or other water bodies. Left unchecked, abandoned wells reduce groundwater levels and contribute to the contamination of both ground and surface water supplies.

Update

SJRWMD has plugged or repaired approximately 100 abandoned artesian wells per year since the current program was established in 1983. Abandoned artesian wells in priority water resource caution areas are given the highest priority for plugging. However, the program is also tasked with locating abandoned artesian wells not in inventory. Additional abandoned wells are detected each year and added to the inventory.

Funding and Additional Information

The program will require continued funding through the planning horizon in order to plug or repair newly inventoried wells. Because SJRWMD anticipates that additional abandoned wells will continue to be detected, funding for continuation of this program of about $6.377 million will be required, including those funds previously expended in FY 2000 through 2003.

Funds to support this program have historically been supplied cooperatively by SJRWMD, individual well owners, and several counties. A description of this cooperative funding effort is included in the *Annual Report on Abandoned Artesian Wells: 1996* (Curtis 1999).

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	>570 mgd
Current water made available:	495 mgd

SJRWMD DWSP page:	124
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	93–95

ABANDONED ARTESIAN WELL PLUGGING PROGRAM

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$2.872	$1.596	$0.240	$0.248	$0.255	$0.263	$0.271
SJ-FF Const.	$2.225	$0.225	$0.400	$0.400	$0.400	$0.400	$0.400
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000
Cooperative	$1.280	$0.405	$0.175	$0.175	$0.175	$0.175	$0.175
Total	$6.377	$2.226	$0.815	$0.823	$0.830	$0.838	$0.846
Disbursements							
Internal	$2.292	$0.952	$0.234	$0.243	$0.280	$0.288	$0.296
Contract	$4.085	$1.274	$0.581	$0.580	$0.550	$0.550	$0.550

ADAPTIVE MANAGEMENT PROJECT

Background

Adaptive management is long-term hydrologic and environmental monitoring as well as hydrologic modeling and analysis, with integration of the results into future water supply planning processes and the consumptive use permitting process. These activities are ongoing but must be coordinated and integrated into a continual process of monitoring, modeling, evaluation, and change, as appropriate.

A major objective of adaptive management is to monitor the resources of concern (aquifers, wetlands, lakes, streams, springs, etc.) to make better-informed water management decisions. SJRWMD will continue to develop and adjust its monitoring plan as necessary, with major focus on the priority water resource caution areas. Monitoring data will continue to be stored in a database to facilitate retrieval and improve usefulness. The data will be used to further calibrate, verify, and enhance SJRWMD's hydrologic and decision models, thereby continually improving the basis for decision-making.

Phase I—Plan Development

Task: Develop the water resources monitoring program to include

- Program goals and objectives
- Parameters to be monitored
- Equipment needs and options
- Monitoring station configurations
- Network spatial distribution
- Monitoring stations siting criteria
- Data collection protocols
- Data analysis protocols
- Database protocols
- Data output formats

Update

The focus of efforts in FY 2003 was to develop an inventory of candidate monitoring sites to improve SJRWMD's monitoring network in east-central Florida. Emphasis was placed on developing a list of potential monitoring sites that could be used to better understand how long-term changes in Floridan aquifer water levels are related to changes in surficial aquifer system water levels, and, in turn, to potential changes in lakes, isolated wetlands, and their associated environments. Field work for this effort was completed in FY 2003. A technical memorandum summarizing the field work and recommendations is anticipated to be complete by December 2003.

Funding and Additional Information

Plan development is currently focused on east-central Florida. The cost for adaptive management project plan development through FY 2003 is approximately $0.249 million. Plan development began in late FY 2000 and is expected to be essentially complete by early FY 2004.

Cooperative funds source:	N/A
Implementing agency:	SJRWMD
Potential water made available:	N/A
Current water made available:	N/A

SJRWMD DWSP page:	125
SFBS reference:	2.2.1
FY 2003–2004 budget page:	Prior year

Phase I—Plan Development

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	Total for Period	2000- 2003	2004	2005	2006	2007	2008
Source							
SJ-Ad Valorem	$0.249	$0.249					
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$0.249	$0.249					
Disbursements							
Internal	$0.000	$0.000					
Contract	$0.249	$0.249					

Phase II—Plan Implementation

Background

Implementation of the adaptive management project will reduce uncertainty in managing the water resources in SJRWMD. Reduced uncertainty should lead to better decision-making in water supply planning and consumptive use permitting. The following tasks are proposed for plan implementation:

- Construct and begin monitoring recommended additional monitoring sites in east-central Florida. Access agreements are anticipated to begin in FY 2004 with construction beginning in FY 2005.
- Develop additional integrated long-term monitoring plans for other regions of SJRWMD as prioritized in the DWSP. It is anticipated that specific recommendations for additional monitoring will develop in conjunction with the District Water Supply Assessment and the DWSP.
- Provide increased accessibility to SJRWMD hydrologic data to SJRWMD and external data users. Development of an external web portal to SJRWMD data may start as early as FY 2004.

Update

Dedicated project funds for construction of the new monitoring facilities for east-central Florida are not available in FY 2004; therefore, it appears that construction of these monitoring facilities will not begin until FY 2005 at the earliest. However, SJRWMD has budgeted approximately $25,000 in ad valorem funds in FY 2004 for plan implementation. It is anticipated these funds will be used to provide increased accessibility to SJRWMD data.

Florida Forever Discussion: SJRWMD had previously proposed the use of FF funds to construct monitoring wells and purchase small tracts of land, where necessary, to install regional monitoring stations. However, during FY 2003, SJRWMD was advised by FDEP that this project does not meet the eligibility criteria for use of FF funds. SJRWMD currently is not planning to use FF funds for this project.

Funding and Additional Information

SJRWMD now estimates that implementation will cost approximately $2.436 million including design, startup, and operation through FY 2008. Water supply utilities are already sharing in implementation costs in the form of drilling and maintaining monitoring wells and collection and reporting of consumptive use permit compliance data. Because no formal SJRWMD records are maintained on the cost to utilities of these efforts, utility cooperative funding is not shown in the fund stream.

Cooperative funds source:	Utilities
Implementing agency:	SJRWMD
Potential water made available:	N/A
Current water made available:	0 mgd

SJRWMD DWSP page:	125
SFBS reference:	2.2.1
FY 2003–2004 budget page:	76

Phase II—Plan Implementation

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$2.436	$0.138	$0.142	$0.498	$0.524	$0.552	$0.581
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$2.436	$0.138	$0.142	$0.498	$0.524	$0.552	$0.581
Disbursements							
Internal	$0.652	$0.005	$0.117	$0.123	$0.129	$0.136	$0.142
Contract	$1.783	$0.133	$0.025	$0.375	$0.395	$0.416	$0.439

AQUIFER PROTECTION PROGRAM

Aquifer systems in SJRWMD provide important sources of water supply and are prone to contamination and potential reductions in recharge from overlying activities on the land surface. Therefore, these aquifers should be protected to ensure their continued availability as water supply sources. This program presently comprises the following three elements, described in further detail below.

- Wellhead Protection
- Recharge Area Protection—Plan Development
- Recharge Area Protection—Plan Implementation

I. Wellhead Protection

Background

Florida's wellhead protection program is one element of aquifer protection (sometimes referred to as source protection). This program was developed in Florida in response to the requirements of Section 1428 of the Safe Drinking Water Act. In wellhead protection zones, local governments limit or restrict land uses that have a high potential for contaminant release. Because wellhead protection is implemented at the local level, there are a variety of techniques used to identify the wellhead protection zones (areas around wellheads to be protected). Some techniques are technically rigorous, but many utilize a nominal 200-foot radius around the wellhead without regard to hydrologic conditions. The popular use of a 200-foot zone provides limited protection of the surficial aquifer in areas with high permeability sandy soils and limited protection of the Floridan aquifer in areas where confining beds are thin or absent. Upon request from a local government, SJRWMD assists in the determination of the area around a well that should be protected and how to protect it through local government regulations.

Update

Specific estimates of the amount of water to be made available as a result of this program have not been made by SJRWMD. However, this program has the potential of ensuring the availability of all existing and future groundwater supplies in SJRWMD.

Funding and Additional Information

SJRWMD estimates the cost to be about $0.542 million for the planning horizon, including monies expended in FY 2000 through FY 2003.

Cooperative funds source:	None
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	0 mgd

SJRWMD DWSP page:	127
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	28-29

I. **Wellhead Protection**

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000-2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.542	$0.201	$0.062	$0.065	$0.068	$0.071	$0.075
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$0.542	$0.201	$0.062	$0.065	$0.068	$0.071	$0.075
Disbursements							
Internal	$0.542	$0.201	$0.062	$0.065	$0.068	$0.071	$0.075
Contract	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000

II. Recharge Area Protection—Plan Development

Background

SJRWMD has developed an Aquifer Protection Plan that identifies strategies for achieving aquifer protection goals. The plan was be developed cooperatively with FDEP and local governments to identify and implement strategies to protect surficial aquifers, the Floridan aquifer in areas where confining beds are thin or absent, and associated recharge areas. The following strategies were included in the plan development by SJRWMD through cooperation with local governments:

- Investigate specific strategies to retain and use storm water and reclaimed water to reduce existing or potential loss of recharge and to potentially make more water available for potable or irrigation supply.
- Identify strategic land acquisitions to implement recharge strategies and include as a priority for land acquisition.
- Continue the wellhead protection technical assistance program to provide timely delineations and implementation assistance to local governments.
- Continue a coordinated outreach program to inform local governments of the aquifer protection technical assistance available from SJRWMD.
- Delineate surficial aquifer recharge areas and significant recharge areas as a basis for protective regulations by local governments.
- Consider incorporating recharge standards and criteria for important recharge areas into SJRWMD's surface water and stormwater rules.

Update

The draft plan was prepared by Barnes, Ferland and Associates, Inc. in FY 2003. Staff is currently reviewing the draft plan. Part II, Plan Implementation, is described on the following pages.

Funding and Additional Information

The current contract amount is $284,850. Specific estimates of the amount of water to be made available as a result of this program have not been made by SJRWMD. However, this program has the potential of ensuring the availability of all existing and future groundwater supplies in SJRWMD. In 1999, water use in SJRWMD was 979.5 million gallons per day (mgd), of which 531 mgd was public supply.

Cooperative funds source:	None
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	Unknown

SJRWMD DWSP page:	128
SFBS reference:	2.2.1
FY 2003–2004 budget page:	Prior year

II. Recharge Area Protection—Plan Development

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000-2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.285	$0.285					
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000		Element Complete				
Cooperative	$0.000						
Total	$0.285	$0.285					
Disbursements							
Internal	$0.000	$0.000					
Contract	$0.285	$0.285					

III. Recharge Area Protection—Plan Implementation

Background

A schedule and estimate of costs for implementation of this aquifer and recharge protection plan is pending executive-level acceptance of the developed plan. SJRWMD has identified implementation strategies for achieving its aquifer protection goal. These strategies include the following categories:

- Regulatory changes—If data collection and analyses so indicate, strengthen FAC 40C-42, FAC 40C-4; encourage and assist in development and adoption of local government regulations over and above those of SJRWMD

- Natural area preservation—Encourage and support local governments development of Land Use Controls and Comprehensive Plan revisions that provide aquifer protection; cooperate with local government land acquisition activities.
- Artificial recharge projects—Identify, implement, and maintain artificial recharge projects that maintain or enhance groundwater recharge quantity or quality; continue the Central Florida Aquifer Recharge Enhancement project; continue artificial recharge projects identified in the Regional Aquifer Management Project.
- Groundwater quality protection—Convene interagency work groups to consider groundwater protection improvements; identify groundwater monitoring requirements related to reclaimed water use; identify best management practices and develop strategies for their implementation.
- Data collection and analysis—Develop a data collection and analysis system to quantify land development impacts and effectiveness of current regulations; improve Floridan aquifer mapping; integrate interactive model information into regulatory reviews.
- Intergovernmental coordination—Coordinate with other governmental agencies to accomplish activities described above.
- Public involvement and awareness measures—Develop and implement public involvement and awareness measures designed to build support for regulatory and other aquifer protection efforts and to encourage valuable voluntary protection efforts. Continue a coordinated outreach program to inform local governments of the aquifer protection technical assistance available from SJRWMD.
- Technical assistance program—Continue the wellhead protection technical assistance program to provide timely delineations and implementation assistance to local governments.

Potential funding sources for land acquisition to increase recharge include SJRWMD, FF, the federal fund for alternative water supply development, local governments, and privately owned utilities. The funding level required for land acquisition cannot be determined at this time.

Update

No plan implementation work is anticipated until the Recharge Area Protection Plan receives executive-level acceptance and approval to go forward with all or selected implementation strategies. Extensive coordination with the U.S. Environmental Protection Agency (EPA), FDEP, Department of Community Affairs, and local governments is anticipated, depending on the strategies selected for implementation.

Funding and Additional Information

SJRWMD anticipates that plan implementation will begin in FY 2005 and estimates the cost to be about $9.000 million through FY 2008, not including land acquisition. Specific estimates of the amount of water to be made available as a result of this program have not been made by SJRWMD.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	Unknown

SJRWMD DWSP page:	128
SFBS reference:	2.2.1
FY 2003–2004 budget page:	Future

III. Recharge Area Protection—Plan Implementation

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000-2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$2.000	$0.000	$0.000	$0.500	$0.500	$0.500	$0.500
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$5.000	$0.000	$0.000	$0.000	$0.000	$0.000	$5.000
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$2.000	$0.000	$0.000	$0.500	$0.500	$0.500	$0.500
Total	$9.000	$0.000	$0.000	$1.000	$1.000	$1.000	$6.000
Disbursements							
Internal	$1.600	$0.000	$0.000	$0.400	$0.400	$0.400	$0.400
Contract	$7.400	$0.000	$0.000	$0.600	$0.600	$0.600	$5.600

AQUIFER STORAGE AND RECOVERY CONSTRUCTION AND TESTING

Background

Aquifer storage and recovery (ASR) construction and testing with treated water is necessary to assure that this storage and recovery technique can be used successfully at locations where ASR has not traditionally been used. Therefore, performance of this project is critical to the development of ASR systems that may be associated with future water supply development projects in such locations. ASR of water treated to primary and secondary drinking water standards and treated to reclaimed standards are the primary storage methods planned for surface water source development projects. Both of these uses for ASR are permitable under current rules and regulations. **No special legislation or rule variances will be necessary to implement these projects.** Effective ASR could make economically feasible the use of multiple surface water sources that may yield up to 308 mgd of additional resource.

Therefore, SJRWMD proposes pursuing ASR construction and testing projects for water treated to drinking water standards and reclaimed water standards to test the feasibility of this technique as a means of managing the availability of water.

Update

SJRWMD has awarded work order-based contracts for this construction and testing. Each phase or component of each potential ASR project will be accomplished as a single work order. Each work order will yield data that will facilitate a feasibility go/no-go decision by SJRWMD staff. This approach, summarized in the Aquifer Storage and Recovery Construction and Testing Demonstration Program Plan, dated April 2003, will limit liability for each ASR project and maximize the use of available funds.

Projects will be accomplished with SJRWMD ad valorem and FF funds and cooperator funding in the form of significant in-kind services. Presently, seven projects are under consideration with adequate funding projected available for one additional project. Each potential cooperator has an immediate need for ASR in a location where SJRWMD desires to construct and test ASR wells.

Florida Forever Discussion: SJRWMD proposes the use of FF funds to cooperatively fund the construction and testing of these ASR wells. This use of FF funds is consistent with the following subparagraphs of the *Florida Statutes*:

> 259.03(6)—It increases the amount of water available to meet the needs of natural systems and the citizens of the state by enhancing or restoring aquifer recharge, facilitating the capture and storage of excess flows in surface waters, and promoting reuse.
>
> 259.105(3)—The budget for this project falls within the prescribed percentage distribution limits of this subparagraph.
>
> 259.105(4)(d)—This project is one component of a regional water supply plan that will help ensure that sufficient quantities of water are available to meet the current and future needs of natural systems and the citizens of the state, as measured by:
>
> > The quantity of water made available through the water resource development component of a district water supply plan for which a water management district is responsible.

259.105(6)—No significant harm is predicted as a result of the project; the project will comply with all applicable permitting requirements; and the project is consistent with the District's regional water supply plan.

Funding and Additional Information

The following table summarizes the programmed estimated SJRWMD and cooperator costs for planned projects, excluding studies funded through ad valorem funds and land acquisition.

ASR Project	District Share (Florida Forever)	Cooperator Capital Share	Cooperator In-Kind Share	Total
Volusia Potable	$1,783,000	$85,000	$375,000	$2,243,000
Seminole Potable	$2,188,000	$84,000	$1,139,000	$3,411,000
Cocoa Reclaimed	$960,000	$255,000	$320,000	$1,535,000
Orange Potable	$2,384,000	$110,000	$1,211,000	$3,705,000
Sanford Potable	$1,499,000	$49,000	$800,000	$2,348,000
DeLand Potable	$1,647,940	$85,000	$788,760	$2,521,700
Ormond Beach Potable	$1,438,880	$85,000	$800,000	$2,323,880
Future Cooperator(s)	$1,170,180	$107,571	$776,251	$2,054,002
Totals	$13,071,000	$860,571	$6,210,011	$20,141,582

SJRWMD estimates that total project costs will be about $27.218 million, beginning in FY 2002 and continuing through FY 2007. Fund sources for this construction and testing effort include public supply utilities, FF, and ad valorem, and possibly the federal government's fund for alternative water supply development. The ASR construction and testing project has the potential of making additional water available during critical-need periods; this is a critical component to the success of surface water supply development projects due to the seasonal variability of quality and quantity in surface water bodies in SJRWMD.

The reader will note that the availability of FF funding for construction of ASR wells affords SJRWMD the opportunity to accomplish construction and testing on the scale needed, rather than on a budget limited by ad valorem funds.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	308 mgd
Current water made available:	0 mgd

SJRWMD DWSP page:	129
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	75–76

AQUIFER STORAGE AND RECOVERY CONSTRUCTION AND TESTING

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$1.076	$0.705	$0.171	$0.100	$0.100	$0.000	
SJ-FF Const.	$13.071	$1.232	$7.739	$4.100	$0.000	$0.000	
SJ-FF Land Acq.	$6.000	$0.000	$1.000	$2.000	$3.000	$0.000	
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$7.071	$3.000	$1.500	$1.000	$1.000	$0.571	
Total	$27.218	$4.937	$10.409	$7.200	$4.100	$0.571	
Disbursements							
Internal	$6.011	$0.000	$1.011	$2.000	$3.000	$0.000	
Contract	$21.207	$4.937	$9.399	$5.200	$1.100	$0.571	

Element Complete

CENTRAL FLORIDA AQUIFER RECHARGE ENHANCEMENT PROGRAM

Providing additional aquifer recharge in central Florida could significantly increase available fresh groundwater supplies and thereby reduce or delay the need for development of alternative water supplies.

Aquifer recharge could be increased by enhancing natural recharge or by providing artificial recharge, including infiltration basins or recharge wells. Recharge enhancement can be integrated with stormwater management systems to provide needed drainage and flood control as well as increased water supply.

The purpose of the Central Florida Aquifer Recharge Enhancement Program is to increase the sustainable fresh groundwater supply by maximizing local recharge to the Floridan aquifer.

The Central Florida Aquifer Recharge Enhancement Program will proceed in three main phases outlined on the following pages.

- Phase I—Artificial Recharge Demonstration Projects
- Phase II—Recharge Enhancement Evaluation and Design
- Phase III—Program Implementation

Phase I—Artificial Recharge Demonstration Projects

Background

SJRWMD performed a preliminary assessment of the aquifer recharge characteristics of existing recharge wells in central Florida. Aquifer recharge provided by existing wells is between 39 mgd and 52 mgd, and the opportunity exists to significantly increase the current recharge rate to further supplement groundwater supplies.

However, the major issue preventing additional use of direct recharge wells is the potential for bacterial and other contamination of the aquifer using lake water or treated storm water as the source of recharge. The purpose of this program is to demonstrate the use of recharge wells for net aquifer improvement, which may include increasing recharge volume without increasing aquifer contamination or decreasing aquifer contamination while preserving existing recharge rates. The demonstration program will focus on the following elements:

- Determine the fate of bacteria and other contaminants in the Floridan aquifer
- Determine the effectiveness of passive stormwater treatment for reducing bacteria and other contaminants
- Determine the effectiveness and cost feasibility of physically reducing bacteria in lake water recharge

SJRWMD hopes to evaluate passive treatment options for existing street drainage wells. Also, for lake drainage wells, systems such as disk filtration and disinfection using ultraviolet light will be considered.

Update

The preliminary investigation portion of this project is already complete, with background sampling performed in lake and urban recharge wells. The City of Orlando urban drainage well project preliminary investigation portion is expected to conclude in late FY 2003, followed in FY 2004 by installation of treatment systems and further monitoring. The City of Altamonte Springs preliminary investigation was postponed until FY 2004 due to funding constraints and is now budgeted with the project recommencing in early FY 2004.

Florida Forever Discussion: SJRWMD proposes the use of FF funds cooperatively, to purchase and install passive and active stormwater treatment systems in order to complete this project. This use of FF funds is consistent with the following subparagraphs of the *Florida Statutes*:

> 259.03(6)—It increases the amount of water available to meet the needs of natural systems and the citizens of the state by enhancing and restoring aquifer recharge and facilitating the capture and storage of excess flows in surface waters.
>
> 259.105(3)—The budget for this project falls within the prescribed percentage distribution limits of this subparagraph.
>
> 259.105(4)(d)—This project is one component of a regional water supply plan that will help ensure that sufficient quantities of water are available to meet the current and future needs of natural systems and the citizens of the state, as measured by:
>
> > The quantity of water made available through the water resource development component of a district water supply plan for which a water management district is responsible.
>
> 259.105(6)—No significant harm is predicted as a result of the project; the project will comply with all applicable permitting requirements; and the project is consistent with the District's regional water supply plan.

Funding and Additional Information

This project is a cooperative effort with the South Florida Water Management District (SFWMD), Altamonte Springs, and the City of Orlando. The estimated total cost of the program, including the investigation, is expected to be $5.591 million.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	50 mgd
Current water made available:	0 mgd

SJRWMD DWSP page:	131
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	77–78

Phase I—Artificial Recharge Demonstration Projects

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	Total for Period	2000- 2003	2004	2005	2006	2007	2008
Source							
SJ-Ad Valorem	$2.335	$0.785	$0.945	$0.605	$0.000		
SJ-FF Const.	$1.639	$0.080	$0.259	$0.650	$0.650		
SJ-FF Land Acq.	$0.000						
SFWMD	$0.110	$0.110	$0.000	$0.000	$0.000		
SWFWMD	$0.000						
Cooperative	$1.508	$0.020	$0.138	$0.700	$0.650		
Total	$5.591	$0.995	$1.341	$1.955	$1.300		
Disbursements							
Internal	$0.000	$0.000	$0.000	$0.000	$0.000		
Contract	$5.591	$0.995	$1.166	$1.945	$1.485		

Element Complete

Phase II—Recharge Enhancement Evaluation and Design

Background

Concurrent with the performance of Phase I work, SJRWMD proposes evaluations of the feasibility of other artificial recharge enhancement approaches such as the placement of storm water and reclaimed water in rapid infiltration basins and naturally occurring closed depressions in upland recharge areas. Upon completion of the Phase I demonstration projects and these evaluations, recharge water treatment requirements, costs, and hydrologic design requirements will be better defined. This information, along with local stormwater management and flood control needs, can be used to design an integrated central Florida aquifer recharge system. This system should meet water supply, stormwater management, and aquifer protection needs, and will contribute to integrated regional water resource management.

It is estimated that these evaluations will be performed cooperatively with local governments and will require about five years to complete. SFWMD will fund a similar project evaluating more advanced treatment technologies and both districts are coordinating efforts to eliminate duplication.

Update

An agreement between SJRWMD and Orange County providing for the development of a central-Florida aquifer recharge enhancement plan for Orange County was signed. Work began pursuant to this agreement and includes methods for evaluation of hydrologic impacts throughout the east-central Florida area, not just impacts within Orange County. Public works agencies and utilities throughout the county were briefed on the study and will provide suggestions for candidate projects.

To complement the work on the Artificial Recharge Demonstration project, a project to do a comprehensive inventory of the recharge wells in Orange County was completed, managed by SFWMD, with a contribution from SFWMD of $40,000 and $20,000 each from SJRWMD and

Orange County. Added to the program for FY 2004 are two efforts. The first is a cooperatively funded study (with the City of Sanford, the City of Lake Mary, and Seminole County) to enhance and extend the reuse systems in northern Seminole County. The second is a cooperatively funded recharge evaluation effort with Orange County to better define and prioritize projects based on recharge effectiveness as determined using improved hydrological modeling tools.

Funding and Additional Information

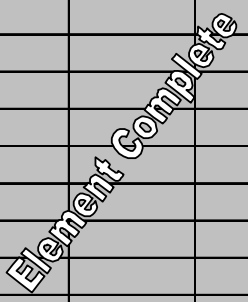
The estimated quantity of water made available by this effort has not been determined. This work effort is concentrated in Orange County and Seminole County and is being performed cooperatively and cost-shared by those counties. The current estimate to complete this work through the FY 2005 planning horizon is $1.280 million.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	0 mgd

SJRWMD DWSP page:	133
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	77–78

Phase II—Recharge Enhancement Evaluation and Design

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.595	$0.245	$0.225	$0.125			
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.040	$0.040	$0.000	$0.000			
SWFWMD	$0.000						
Cooperative	$0.645	$0.345	$0.175	$0.125			
Total	$1.280	$0.630	$0.400	$0.250			
Disbursements							
Internal	$0.000	$0.000	$0.000	$0.000			
Contract	$1.280	$0.630	$0.400	$0.250			



Phase III—Program Implementation

Background

The scope of the Central Florida Aquifer Recharge Enhancement Program can be determined only after completion of Phases I and II. However, it is likely that it will require the cooperative efforts of SJRWMD, SFWMD, FDEP, EPA, local water supply utilities, and local stormwater management agencies. Priorities will need to be established and detailed design, construction, and monitoring will follow.

Update

The program is beginning to take shape as the first part of Phase II work nears completion. The funds approved for FY 2004 include $0.125 million to assist in the design of projects that may use FF funds for construction. Also included in FY 2004 is $0.500 million for systems to store and recharge reclaimed water. This money is being considered for a reclaimed-water ground storage tank at the Apopka Northwest Recreation Center. Also included is $2.0 million in FY 2004 and an additional $24.5 million from FY 2005 to FY 2008 to acquire lands for recharge as they are identified.

Florida Forever Discussion: SJRWMD proposes the use of FF funds cooperatively to purchase larger tracts of land and perform the construction necessary to complete regionally significant recharge enhancement projects as identified through Phase II of this program. This use of FF funds is consistent with the following subparagraphs of the *Florida Statutes*:

> 259.03(6)—It increases the amount of water available to meet the needs of natural systems and the citizens of the state by enhancing or restoring aquifer recharge, facilitating the capture and storage of excess flows in surface waters, and promoting reuse.
>
> 259.105(3)—The budget for this project falls within the prescribed percentage distribution limits of this subparagraph.
>
> 259.105(4)(d)—This project is one component of a regional water supply plan that will help ensure that sufficient quantities of water are available to meet the current and future needs of natural systems and the citizens of the state, as measured by:
>
> > The quantity of water made available through the water resource development component of a district water supply plan for which a water management district is responsible; and possibly
> >
> > The number of acres acquired of groundwater recharge areas critical to springs, sinks, aquifers, other natural systems, or water supply.
>
> 259.105(6)—No significant harm is predicted as a result of the project; the project will comply with all applicable permitting requirements; and the project is consistent with the District's regional water supply plan.

Funding and Additional Information

SJRWMD will begin the implementation phase in FY 2004 and anticipates the need for approximately $43.250 million over the planning period for both land acquisition and construction if Phases I and II result in identification of feasible projects. The estimated quantity of water made available by this effort has not been determined.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	0 mgd

SJRWMD DWSP page:	134
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	77–78

Phase III—Recharge Enhancement Program Implementation

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.125	$0.000	$0.125	$0.000	$0.000	$0.000	$0.000
SJ-FF Const.	$15.500	$0.000	$0.500	$1.500	$4.500	$4.500	$4.500
SJ-FF Land Acq.	$27.000	$0.000	$2.500	$5.000	$6.500	$6.500	$6.500
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.625	$0.000	$0.625	$0.000	$0.000	$0.000	$0.000
Total	$43.250	$0.000	$3.750	$6.500	$11.000	$11.000	$11.000
Disbursements							
Internal	$26.500	$0.000	$1.000	$6.000	$6.500	$6.500	$6.500
Contract	$16.750	$0.000	$1.750	$1.500	$4.500	$4.500	$4.500

COOPERATIVE WELL RETROFIT PROJECT

The *Water 2020* Water Supply Planning Area IV work group has developed a proposed solution to deal with existing and potential future interference problems in southwestern St. Johns County and eastern Putnam County. The proposed solution, if successfully implemented, will eliminate interference with existing legal domestic users and will avoid the construction of new domestic well systems that are inadequate for producing water during the peak irrigation period. The two-pronged solution developed is described as follows:

I. Eliminating Impact of Seasonal Drawdowns on Existing Legal Domestic Users

Background

Each loss-of-flow complaint will be investigated to verify that loss of flow is directly attributable to the drawdown and not to a well system construction, operation, or maintenance problem. If the loss of flow is clearly due to drawdown, the well system will be repaired and the cost will be shared by SJRWMD and involved water users. This cooperative approach is appropriate, considering the large number of consumptive use permittees whose withdrawals contribute to the interference with existing legal uses. Specific details regarding the cost-share split and other administrative details have yet to be finalized.

Update

None at this time.

Funding and Additional Information

The funding needed to resolve this water supply issue is modest. A repair of this type typically involves adding a pump between the well and the aerator and/or increasing the length of drop pipe in the well. This type of repair is estimated to cost between $400 and $500 per well. It is estimated that there are fewer than 50 wells in the work group area that are subject to loss of flow during seasonal drawdown events. Estimated maximum capital cost to resolve the existing problem is $25,000. Funds are not shown in the budget and will be transferred to this project as necessary. This project is expected to impact the continued availability of about 12,500 gallons per day of existing domestic self-supply in Work Group Area IV.

Cooperative funds source:	Various	SJRWMD DWSP page:	134
Implementing agency:	SJRWMD	SFBS reference:	2.2.1
Potential water made available:	12,500 gpd	FY 2003–2004 budget page:	N/A
Current water made available:	0 gpd		

I. **Eliminating Impact of Seasonal Drawdowns on Existing Legal Domestic Users**

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.000						
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000
Disbursements							
Internal	$0.000						
Contract	$0.000						

II. Avoiding the Construction of Inadequate New Domestic Well Systems

Background

SJRWMD has worked with St. Johns County and Putnam County to get county ordinances and well construction procedures in place to ensure that new domestic well installations are capable of producing water during the seasonal drawdown events.

St. Johns County did not have a well construction ordinance in place to address this water supply issue. SJRWMD, supported by the Northeast Florida Growers Exchange, worked with county staff and made a presentation to the St. Johns County Commission regarding the need for this type of ordinance. SJRWMD provided the county with draft language for a well construction ordinance. However, the St. Johns County Commission decided not to adopt the ordinance. Instead, the commission instructed its staff to distribute information concerning appropriate well construction and pumping equipment with each well construction permit issued.

Putnam County had a well construction ordinance, but it did not apply to all areas of the county subject to seasonal drawdowns due to crop irrigation. SJRWMD worked with county staff to revise the ordinance to include all affected areas. The county commission approved the revised ordinance.

Update

This effort was completed at a cost of approximately $10,000 and is shown for informational purposes only. The St. Johns County informational program has been successful to date, according to county staff.

Funding and Additional Information

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	Unknown

SJRWMD DWSP page:	135
SFBS reference:	1.3
FY 2003–2004 budget page:	Prior year

II. Avoiding the Construction of Inadequate New Domestic Well Systems

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.005	$0.005					
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000		Element Complete				
Cooperative	$0.005	$0.005					
Total	$0.010	$0.010					
Disbursements							
Internal	$0.010	$0.010					
Contract	$0.000	$0.000					

DEMINERALIZATION CONCENTRATE MANAGEMENT PROJECT

Background

SJRWMD has identified brackish groundwater and surface water as potential significant sources of supply to meet projected 2020 demands. The use of this brackish water will require management of the waste concentrate that is a byproduct of the demineralization process. Available management options include placement in deep injection wells, discharge to surface waters, land spreading, discharge to wastewater treatment facilities, and so forth. Implementation of these management options is subject to FDEP regulatory requirements; these regulatory requirements are based on federal guidelines administered by EPA. The history of the permitting of demineralization concentrate discharges in SJRWMD indicates the need to develop acceptable management strategies for demineralization concentrate discharge that can be dependably utilized by public supply utilities and other water users. This should be a cooperative effort with FDEP and EPA. SJRWMD proposes to proactively work to develop these management strategies through the following actions:

- Develop acceptable management strategies for demineralization concentrate discharge that can be dependably utilized by public supply utilities and other water users with a reasonable expectation of permitability. This should be accomplished through a cooperative effort with FDEP, EPA, public supply utilities, and other affected parties.
- Identify any required technical studies, data collection, or analysis needed to formulate management strategies and monitor the effectiveness of management strategies. This should be accomplished through a cooperative effort with FDEP, EPA, public supply utilities, and other affected parties.

Update

This work was performed contractually by Reiss Environmental, Inc. The Demineralization Concentrate Management Plan development was completed in September 2003. Additional investigations identified in the plan are programmed to start during FY 2004 and include cooperative work with the National Oceanic and Atmospheric Administration (NOAA) and support for rulemaking related to demineralization concentrate management. The NOAA work is expected to involve investigating the viability of off-shore concentrate disposal options that include consideration of mixing and dilution models and relating results to current permitting rules.

Funding and Additional Information

SJRWMD began this Demineralized Concentrate Management Plan development effort in FY 2001 and it was completed in FY 2003 at a cost of $0.303 million. The additional NOAA investigations and FDEP rulemaking support, potentially beginning in FY 2004, are expected to cost approximately $1.5 million for a total program cost of $1.803 million through FY 2008. Specific estimates of the amount of water to be made available as a result of this project, if any, have not been made by SJRWMD.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	Unknown

SJRWMD DWSP page:	136
SFBS reference:	2.2.1
FY 2003–2004 budget page:	84

DEMINERALIZATION CONCENTRATE MANAGEMENT PROJECT

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$1.303	$0.303	$0.250	$0.125	$0.125	$0.250	$0.250
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.500	$0.000	$0.000	$0.000	$0.000	$0.250	$0.250
Total	$1.803	$0.303	$0.250	$0.125	$0.125	$0.500	$0.500
Disbursements							
Internal	$0.100	$0.000	$0.000	$0.000	$0.000	$0.050	$0.050
Contract	$1.703	$0.303	$0.250	$0.125	$0.125	$0.450	$0.450

FACILITATION OF REGIONAL DECISION-MAKING PROCESS

Background

In Work Group Areas I and II, there may be inadequate locally available fresh groundwater to meet projected 2020 demands. This combination of some fresh groundwater, but not enough locally available, and the considerably higher cost of development of alternative sources, such as surface water and brackish groundwater, sets the stage for competition for the less expensive additional groundwater. A regional decision-making process is recommended as a means of avoiding unnecessary and costly competition for the water resource.

SJRWMD will strive to maximize decision-oriented discussions between major water users, particularly public supply utilities. SJRWMD intends to proactively implement this regional decision-making process through the following tasks:

- Coordinate with the work groups to develop a plan and schedule for the decision-making process.
- Provide a facilitator for the process at SJRWMD's expense.
- Provide SJRWMD staff and consultant expertise to support the process at SJRWMD's expense.
- Develop a document that describes the decision-making process and the decisions achieved through the process.
- Amend and update the DWSP as necessary to incorporate sustainable water source options selected by water supply utilities that are consistent with this DWSP.

This regional decision-making process has not been designed specifically for the purpose of creating any particular form of intergovernmental or institutional structure. Rather, the process seeks to encourage forms of cooperation which are mutually beneficial to all participants.

Update

In 2001, SJRWMD facilitated three water supply planning subgroups in central Florida: (1) the Seminole County subgroup, (2) the north Lake County/south Marion County subgroup, and (3) the south Lake County, Orange County, Osceola County, and Polk County subgroup. Based on this subgroup process, SJRWMD's consultant recommended that the discussions concerning water supply in central Florida be elevated to the elected official level. In 2001, SJRWMD entered into an agreement with the Orlando Utilities Commission (OUC) for development of an integrated resource plan, which was submitted to SJRWMD in the fall of 2002 by OUC who performed this work cooperatively with the City of Orlando.

In response to its consultant's recommendation that the facilitated water supply planning process be elevated to the elected official level, in 2002, SJRWMD also participated in funding a facilitation effort initiated by the chairman of the Orange County Commission. Phase I of this East-Central Florida Water Supply Planning Initiative (Initiative) brought together elected officials from a 10-county region in east-central Florida to discuss and begin planning for regional solutions to projected fresh groundwater shortages. Facilitated by the Florida Conflict Resolution Consortium, the participants published the East-Central Florida Water Agenda, which contains a summary of the facilitated process and identifies issues and recommendations

developed by the group. The group agreed that it should move to a second phase, working cooperatively to implement the recommendations.

Phase II of the Initiative began in November of 2002. Subregional groups were rearranged from what they were in Phase I in order to bridge working partnerships between likely cooperators on regional water supply projects. The new subregional groups are

- Volusia
- Brevard
- Northern Lake/Seminole/Northern Orange
- Southern Lake/Southern Orange/Osceola/Titusville/Cocoa

The objective of this phase of the Initiative is to implement action plans for the high priority recommendations from the targeted issue areas from Phase I, which were

- Reclaimed water
- Enhanced recharge using reclaimed water
- Developing new water supplies
- Water conservation
- Linking land and water planning
- Intergovernmental coordination strategies

One-on-one meetings, small working groups, and subregional meetings are being held to develop and implement the action plans. SJRWMD is managing the Phase II effort in coordination with the South and Southwest Florida water management districts. Jake Varn and Linda Shelley, of Fowler, White, Boggs and Banker, P.A., will facilitate the process.

Plans are to continue the Phase II process into 2004 and future years as needed to facilitate the implementation of projects identified in the action plans developed. In 2004, a program will be developed to assist local governments in complying with Senate Bill 1906 from the 2002 legislative session regarding linking land and water planning. Coordination with local governments on developing their comprehensive plan amendments for water supply early in their process is necessary in order to avoid delays due to inadequate planning. Also, efforts will be made to further facilitate implementation of the projects developed in Phase II, which may include new water supply projects, use of reclaimed water, enhanced aquifer recharge using reclaimed water, increased water conservation, and enhanced intergovernmental coordination.

SJRWMD has also facilitated regular meetings of the Northeast Florida Water Utility Managers since 2001. This group is composed of utility managers in Duval, Clay, Nassau, St. Johns, and Putnam counties. These meetings have provided a platform for presentation and discussion of SJRWMD initiatives, such as regional groundwater flow model updating/revision, regional well/water data collection and management, consumptive use permitting issuance policies, and population/water demand projections through 2025. Completion of the regional groundwater

flow model revisions and the application of 2025 water demands will provide the basis for developing regional water management solutions during FY 2003 and future years.

Beginning in FY 2003, SJRWMD will facilitate a water supply planning subgroup in Flagler County among utility managers and other interested parties to provide water supply planning updates and facilitate regional interaction. SJRWMD anticipates that meetings will be held periodically over a one to two year period. Expected participation will also include neighboring Volusia County (where utility service areas extend into Flagler County).

Funding and Additional Information

SJRWMD began this effort in FY 2000 and originally anticipated completion within two years. Interest in the program resulted in additional funding, now totaling $1.340 million. Additional work in years FY 2005 through FY 2008 may be necessary, but funding is projected only through FY 2006.

Cooperative funds source:	None
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	0 mgd

SJRWMD DWSP page:	137
SFBS reference:	2.2.1
FY 2003–2004 budget page:	79

FACILITATION OF REGIONAL DECISION-MAKING PROCESS

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$1.340	$0.615	$0.235	$0.242	$0.249	$0.000	$0.000
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$1.340	$0.615	$0.235	$0.242	$0.249	$0.000	$0.000
Disbursements							
Internal	$0.112	$0.005	$0.035	$0.036	$0.037	$0.000	$0.000
Contract	$1.228	$0.610	$0.200	$0.206	$0.212	$0.000	$0.000

FEASIBILITY OF SEAWATER DEMINERALIZATION PROJECTS

Background

Seawater demineralization is considered as a general option available to all water supply utilities. However, because of the lower cost and ready availability of other options, seawater demineralization is not considered among the utility-specific options identified in the current DWSP.

Significant quantities of seawater will probably not need to be developed in SJRWMD before 2020. However, it is reasonable to assume that seawater will be developed as a water supply source within SJRWMD in the future. Special case situations, such as co-siting a seawater demineralization plant with an electric power plant, may make this water supply source competitive with the development of other water supply sources.

SJRWMD proposes to investigate the technical, environmental, and economic feasibility of seawater demineralization projects. This feasibility investigation will consist, at a minimum, of the following tasks:

- Perform investigation to determine available technologies.
- Investigate potential sites, including sites on the Atlantic Ocean and along the Atlantic Intracoastal Waterway system, with special emphasis on opportunities to co-site with an electric power plant.
- Investigate opportunities for demineralization concentrate management.
- Perform site feasibility assessments and budget costs.

Update

The first element of this project, which is being performed contractually by RW Beck, Inc., began during the first quarter of FY 2002 with a contract duration of 22 months. Decisions concerning further investigation of seawater demineralization projects will be made following completion of this feasibility investigation. For co-location sites with high feasibility, additional investigations may be pursued in FY 2004 and FY 2005 through potential partnerships with public utilities to perform pilot studies, refine design concepts, and prepare updated cost estimates.

Funding and Additional Information

SJRWMD estimates the cost of the first element of this project to be $0.260 million. The additional investigations are estimated to cost $0.400 million over that two-year period. This brings the total program to $0.660 million.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	0 mgd

SJRWMD DWSP page:	138
SFBS reference:	2.2.1
FY 2003–2004 budget page:	80

FEASIBILITY OF SEAWATER DEMINERALIZATION PROJECTS

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.660	$0.260	$0.225	$0.175			
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$0.660	$0.260	$0.225	$0.175			
Disbursements							
Internal	$0.005	$0.005	$0.000	$0.000			
Contract	$0.655	$0.255	$0.225	$0.175			

Element Complete

HYDROLOGIC DATA COLLECTION AND ANALYSIS

Background

SJRWMD has identified the need for hydrologic data collection and analysis in association with required five-year revisions of the DWSP and in association with DWSP and WRDWP implementation. The following data collection and analysis efforts, ongoing at SJRWMD, shall continue, with improvements added as necessary to better support the DWSP and this WRDWP.

- SJRWMD's hydrologic data collection network
- Water use data management
- Hydrology of native plant communities
- Groundwater modeling
  - Integrated ground and surface water modeling
  - Integrated decision modeling
- Surface water modeling

Update

Specific estimates of the amount of water to be made available as a result of this project will not be made by SJRWMD. However, this project will support all existing and proposed future resource development.

Funding and Additional Information

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	Unknown

SJRWMD DWSP page:	139
SFBS reference:	1.2
FY 2003–2004 budget pages:	47–49

HYDROLOGIC DATA COLLECTION AND ANALYSIS

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$24.449	$11.264	$2.538	$2.583	$2.635	$2.687	$2.741
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$24.449	$11.264	$2.538	$2.583	$2.635	$2.687	$2.741
Disbursements							
Internal	$9.490	$3.663	$1.003	$1.078	$1.161	$1.248	$1.337
Contract	$14.959	$7.601	$1.535	$1.506	$1.474	$1.440	$1.404

Note: The FY 2004 budget shown here does not match the total shown on pages 47–49 because the entire program is not dedicated to WRDWP.

INVESTIGATION OF AREAS WHERE DOMESTIC SELF-SUPPLY WELLS ARE SENSITIVE TO WATER LEVEL FLUCTUATION

Background

Certain areas of SJRWMD have high concentrations of domestic self-supply wells. As growth has continued and demands on the aquifers have increased, regional lowering in the aquifers has occurred. This regional lowering, in combination with natural or induced seasonal fluctuations, has caused loss of flow to some self-supply installations. Installations relying upon free-flowing wells to supply a household are particularly susceptible to this problem. Also, pumps or drop pipes designed for historically higher water levels may no longer be adequate for the fluctuations that now occur. This investigation will identify areas where high concentrations of domestic self-supply wells exist and hydrologic conditions are such that the potential for loss of flow is high. Management strategies will be developed for these areas so that interference with these self-supply wells can be avoided. This information will assist permitted water users in managing impacts and mitigating for any interference with existing legal uses.

Update

This work is being performed contractually by D.L. Smith & Associates, Inc. Preliminary findings indicate that more conservative well construction practices will be needed, on a region-specific basis, to avoid reduction or loss of service in domestic self-supply wells. The project is expected to be complete in September 2003.

Funding and Additional Information

SJRWMD proposes to complete this investigation in FY 2003 at a cost of $0.135 million. No estimate has been made of the quantity of water that will be made available.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	0 mgd

SJRWMD DWSP page:	144
SFBS reference:	2.2.1
FY 2003–2004 budget page:	Prior year

INVESTIGATION OF AREAS WHERE DOMESTIC SELF-SUPPLY WELLS ARE SENSITIVE TO WATER LEVEL FLUCTUATION

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.135	$0.135					
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$0.135	$0.135					
Disbursements							
Internal	$0.000	$0.000					
Contract	$0.135	$0.135					

Element Complete

REGIONAL AQUIFER MANAGEMENT PROJECT (RAMP)

Background

Projected 2020 groundwater withdrawals for public supply in Volusia County, if implemented, would result in unacceptable impacts to the water resources and related natural systems in the area. Impacts to wetlands, lakes, and springs and saltwater intrusion are of particular concern. The area includes existing public supply wellfields. The cumulative impacts of the withdrawals from all wellfields rather than the impacts of withdrawals from any one of these wellfields are the source of concern. Therefore, RAMP is proposed as a means of increasing the quantity of sustainable groundwater while protecting the water resources and related natural systems. The project consists of the following tasks:

- Plan development
- Feasibility assessments and demonstration projects
- Design and construction
- Operation and maintenance

SJRWMD expects to incorporate the following water supply strategies:

- Avoidance of wetland impacts using wetland hydration with storm water, raw groundwater, and reclaimed water
- Water conservation and reuse of reclaimed water
- Artificial recharge
- ASR
- Water supply facility interconnection
- Wellfield optimization

Update

The basic RAMP plan was developed by the Volusian Water Alliance (VWA). Implementation plans for specific program elements are under development. Design of RAMP elements, including finished water interconnections, an integrated wellfield management system, and reclaimed water storage/artificial recharge facilities, began during FY 2003. Construction is scheduled to begin in FY 2004, subject to the availability of FF funds, which are expected to be provided by SJRWMD to the local cooperators. FY 2003 State and Tribal Assistance Grants funds for transmission facilities associated with the finished water interconnections were appropriated and the application process initiated. Feasibility studies are continuing to identify future RAMP initiatives to further its objectives.

VWA has been replaced with a newly formed entity, the Water Authority of Volusia (WAV), effective October 1, 2003. WAV will oversee regional management of water resources drawn from the aquifer system and move toward becoming the wholesale water supplier to its member utilities. SJRWMD is providing funding and staff support during the transition period.

Florida Forever Discussion: SJRWMD proposes the use of FF funds to purchase land and construct water storage facilities to capture and store stormwater runoff and reclaimed water for

the purpose of augmenting existing reuse systems. This use of FF funds is currently consistent with the following subparagraphs of the *Florida Statutes*:

> 259.03(6)—It increases the amount of water available to meet the needs of natural systems and the citizens of the state by enhancing or restoring aquifer recharge, facilitating the capture and storage of excess flows in surface waters, and promoting reuse.
>
> 259.105(3)—The budget for this project falls within the prescribed percentage distribution limits of this subparagraph.
>
> 259.105(4)(d)—This project is one component of a regional water supply plan that will help ensure that sufficient quantities of water are available to meet the current and future needs of natural systems and the citizens of the state, as measured by:
>
> > The quantity of water made available through the water resource development component of a district water supply plan for which a water management district is responsible.
>
> 259.105(6)—No significant harm is predicted as a result of the project; the project will comply with all applicable permitting requirements; and the project is consistent with the District's regional water supply plan.

Funding and Additional Information

SJRWMD proposes to work cooperatively with WAV to develop and implement RAMP and estimates that plan preparation and initial implementation will cost $30.782 million through the planning period.

Cooperative funds source:	VWA/WAV
Implementing agency:	SJRWMD
Potential water made available:	10 mgd
Current water made available:	0 mgd

SJRWMD DWSP page:	144
SFBS reference:	2.2.1
FY 2003–2004 budget page:	81

REGIONAL AQUIFER MANAGEMENT PROJECT

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.807	$0.195	$0.500	$0.026	$0.028	$0.029	$0.030
SJ-FF Const.	$15.383	$2.872	$3.010	$1.000	$4.500	$2.000	$2.000
SJ-FF Land Acq.	$5.600	$0.000	$1.000	$2.000	$1.000	$0.600	$1.000
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$8.992	$0.055	$3.089	$3.620	$0.938	$1.128	$0.162
Total	$30.782	$3.122	$7.599	$6.646	$6.466	$3.757	$3.192
Disbursements							
Internal	$5.605	$0.005	$1.000	$2.000	$1.000	$0.600	$1.000
Contract	$25.177	$0.245	$6.658	$7.460	$5.466	$3.157	$2.192

SURFACE WATER INSTREAM MONITORING AND TREATABILITY STUDIES

Surface water is an alternative water supply source in SJRWMD. Its current use for public supply is limited to withdrawal by the City of Melbourne from Lake Washington on the upper St. Johns River, and to withdrawal by the City of Cocoa from the Taylor Creek Reservoir. The DWSP has identified several opportunities for development of additional surface water resources, including the St. Johns River between Cocoa and DeLand, the upper and lower Ocklawaha River basins, and the C-1 Canal watershed in Brevard County.

Surface water instream monitoring and treatability studies are required before adequate surface water withdrawal and treatment systems can be designed. These studies are critical to the development of significant new water sources, including up to 351 mgd from the St. Johns River, up to 14 mgd from the upper Ocklawaha River Basin, up to 107 mgd from the lower Ocklawaha River Basin, and up to 11 mgd from the C-1 Canal—a total of 483 mgd as identified in the DWSP. However, recent minimum flows and levels work on the St. Johns River suggests that approximately 176 mgd is a more reasonable sustainable yield, bringing the total of the four sources down from 483 mgd to 308 mgd.

I. Water Quality Monitoring Component

Background

During development of this project, strong local interest was expressed in the development of a surface water supply system on the St. Johns River near Lake Monroe, but not at the other sites. Therefore, the extent and schedule for surface water instream monitoring was based on performance of this work only for the St. Johns River between Lake Monroe and DeLand. SJRWMD will initiate and cooperatively fund instream monitoring and treatability testing of other candidate sites as local interest in developing other surface waters develops.

Update

In FY 2002 and FY 2003, SJRWMD added sampling of the St. Johns River at multiple locations to detect various emerging contaminants. This additional work, as well as the original scope, was completed in FY 2003.

Funding and Additional Information

SJRWMD began the water quality monitoring program in FY 2000 and completed it in FY 2003, with a total program cost of $0.714 million, including $0.100 million of cooperative funding from the U.S. Geological Survey (USGS). SJRWMD estimates that as much as 308 mgd can be made available as a result of this study combined with others.

Cooperative funds source:	USGS
Implementing agency:	SJRWMD
Potential water made available:	308 mgd
Current water made available:	0 mgd

SJRWMD DWSP page:	145
SFBS reference:	2.2.1
FY 2003–2004 budget page:	Prior years

I. Water Quality Monitoring Component

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000-2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$0.614	$0.614					
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.100	$0.100					
Total	$0.714	$0.714					
Disbursements							
Internal	$0.000	$0.000					
Contract	$0.714	$0.714					

Element Complete

II. St. Johns River Water Supply Project

Background

This three-part project is an extension of the treatability portion of this effort and was developed in response to interest by affected utilities in examining the potential and costs of surface water treatment in northwest Seminole County and southwest Volusia County. Based on water shortage projections and this significant interest by utilities, SJRWMD believes that the reach of the St. Johns River from the south end of Lake Monroe to the City of DeLand may be one of the first locations for one or more surface water treatment plants.

A. Surface Water Treatability and Demineralization Concentrate Management Study—This component involves studies on a representative site along the reach of the St. Johns River described in part C. The program will require about 30 months to complete, at an original cost estimate of about $2.200 million. The demineralization concentrate management portion of this project is distinct from the demineralization concentrate management project of the same name listed herein in that it is focused only on the specific waste stream from this project. (See photo next page.)

B. Service Area Demand and Affordability Study—This component includes population and demand projections and, using data from the other two components, will determine affordability of treatment and siting alternatives. Staff estimate that the program will require about 30 months to complete, at an original cost estimate of about $0.300 million.

C. Surface Water Treatment Plant Siting Study—This study will evaluate the feasibility of siting a surface-water treatment plant along a reach of the St. Johns River from the south end of Lake Monroe north to the City of DeLand. Sites along this reach that are within five miles of the river will be considered. This study will require approximately 30 months to complete, at a cost of $0.500 million.

Update

All three contracts under this project are well under way, with expected completion by February 2004. Additional work not contemplated during solicitation totaling slightly over $1.0 million was added to the project due primarily to a changing regulatory climate. That work consists primarily of a cooperative algal toxin study with the cities of Cocoa and Melbourne and the American Water Works Association Research Foundation. This work is not expected to impact the original completion date of the project.

Funding and Additional Information

SJRWMD originally estimated a total cost of $3.000 million to accomplish all three parts of this project and a project term of approximately 30 months. Cooperative funding of $0.150 million from Seminole County and $0.150 million from Volusia County offset SJRWMD costs by $0.300 million. The additional work outlined in the previous paragraph plus several small change orders brings the total project cost to $4.017 million.

Cooperative funds source:	Various
Implementing agency:	SJRWMD
Potential water made available:	176 mgd
Current water made available:	0 mgd

SJRWMD DWSP page:	145
SFBS reference:	2.2.1
FY 2003–2004 budget page:	82

II. St. Johns River Water Supply Project

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$3.302	$3.291	$0.011				
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000			Element Complete			
Cooperative	$0.715	$0.715	$0.000				
Total	$4.017	$4.006	$0.011				
Disbursements							
Internal	$0.017	$0.005	$0.011				
Contract	$4.001	$3.551	$0.450				

Figure 1. Pilot facility at City of Sanford water reclamation facility

WETLAND AUGMENTATION DEMONSTRATION PROGRAM

Background

Water levels augmentation in wetlands is one approach to avoiding wetland impacts resulting from lowering of adjacent surficial aquifer water levels. Although this technique could be used to offset or avoid some of the undesirable impacts of groundwater withdrawals, operational experience is limited. The purpose of the impact-avoidance demonstration program is to initiate and monitor several hydration projects to generate monitoring, design, construction, and operational history that can be used in future water supply planning to fully evaluate this technique as an alternative water supply development strategy. The project plan includes the following:

- Conduct baseline hydrological and ecological monitoring (including amphibian monitoring) for one year and perform hydrological monitoring continuously through the end of the project
- Install augmentation systems (pumping systems or weirs)
- Augment by pumping or weir emplacement and continue for five years
- After the start of augmentation, recommence ecological and amphibian monitoring and continue with annual updates through end of project
- After five years of augmentation, produce report summarizing work and evaluating effectiveness of approach

There are four demonstration projects under way as cooperative efforts between SJRWMD and water supply utilities:

- Project 1—Tillman Ridge wellfield, St. Johns County
- Project 2—Bennett Swamp, Volusia County
- Project 3—Port Orange wellfield, City of Port Orange
- Project 4—Parkland Wetland wellfield, City of Titusville

Update

All projects are in progress through cooperative agreements between SJRWMD and the participating owner/utilities. Hydrological monitoring continues at all four sites. Baseline ecological and amphibian monitoring is complete for all sites. Augmentation systems are in place for projects 1, 3, and 4, and associated augmentation and monitoring has begun. On those projects, we are in either year two or year three of augmentation, with all monitoring occurring. For project 2, a target water surface elevation for Bennett Swamp rehydration was established and a weir across Thayer Canal is under construction by Volusia County with completion expected in fall/winter of 2003. Wetlands monitoring is scheduled to recommence in October 2003 or when the weir is completed. A photograph of the Parkland wetland weir is shown on the following page.

Funding and Additional Information

The program is expected to be complete in FY 2008, and the estimated total cost is $1.671 million. The specific quantity of additional groundwater that will be made available for withdrawal and use as a result of this demonstration project cannot be determined prior to completion of the project.

Cooperative funds source:	Volusia Cty.
Implementing Agency:	SJRWMD
Potential water made available:	Unknown
Current water made available:	Unknown

SJRWMD DWSP page:	147
SFBS reference:	2.2.1
FY 2003–2004 budget page:	83

WETLAND AUGMENTATION DEMONSTRATION PROGRAM

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000-2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$1.671	$0.368	$0.307	$0.307	$0.314	$0.247	$0.127
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$1.671	$0.368	$0.307	$0.307	$0.314	$0.247	$0.127
Disbursements							
Internal	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000
Contract	$1.671	$0.368	$0.307	$0.307	$0.314	$0.247	$0.127

Figure 2. Parkland Wetland weir

PROJECT MANAGEMENT AND PEER REVIEW

Background

Although not a project specifically identified in the 2000 DWSP, project management and peer review is a critical effort required to accomplish all identified projects. This element has existed since the inception of the WRDWP effort and will continue through all program years. The work effort covered in this element comprises

- Staff project managers
- Contract project managers
- Staff subject area experts
- Contract subject area experts

Update

This is the first year that this element has been included as a separate entry. No update at this time.

Funding and Additional Information

The program began when the DWSP was adopted. Reflected here are the costs from FY 2000 through FY 2008. The estimated total cost through the current planning period is $8.682 million.

Cooperative funds source:	N/A
Implementing agency:	SJRWMD
Potential water made available:	N/A
Current water made available:	N/A

SJRWMD DWSP page:	N/A
SFBS reference:	2.2.1
FY 2003–2004 budget pages:	26–27, 73–74

PROJECT MANAGEMENT AND PEER REVIEW

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$8.682	$3.033	$1.077	$1.103	$1.129	$1.156	$1.184
SJ-FF Const.	$0.000						
SJ-FF Land Acq.	$0.000						
SFWMD	$0.000						
SWFWMD	$0.000						
Cooperative	$0.000						
Total	$8.682	$3.033	$1.077	$1.103	$1.129	$1.156	$1.184
Disbursements							
Internal	$2.920	$0.998	$0.362	$0.373	$0.384	$0.396	$0.408
Contract	$5.761	$2.035	$0.715	$0.730	$0.745	$0.760	$0.776

APPENDIX A

Table A1. Water resource development work program summary

	Funds Needed/Expended -- $ Million						
Funds/ Disbursement	**Total for Period**	**2000- 2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Source							
SJ-Ad Valorem	$55.483	$24.286	$7.054	$6.702	$5.927	$5.756	$5.759
SJ-FF Const.	$47.817	$4.409	$11.907	$7.650	$10.050	$6.900	$6.900
SJ-FF Land Acq.	$43.600	$0.000	$4.500	$9.000	$10.500	$7.100	$12.500
SFWMD	$0.150	$0.150	$0.000	$0.000	$0.000	$0.000	$0.000
SWFWMD	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000	$0.000
Cooperative	$23.440	$4.645	$5.202	$6.120	$3.763	$2.624	$1.087
Total	$170.490	$33.490	$28.663	$29.471	$30.240	$22.380	$26.246
Disbursements							
Internal	$55.856	$5.849	$4.835	$12.317	$12.959	$9.688	$10.208
Contract	$114.634	$24.319	$23.161	$20.958	$17.466	$12.691	$16.038

APPENDIX B

Figure B1. Program summary by work category

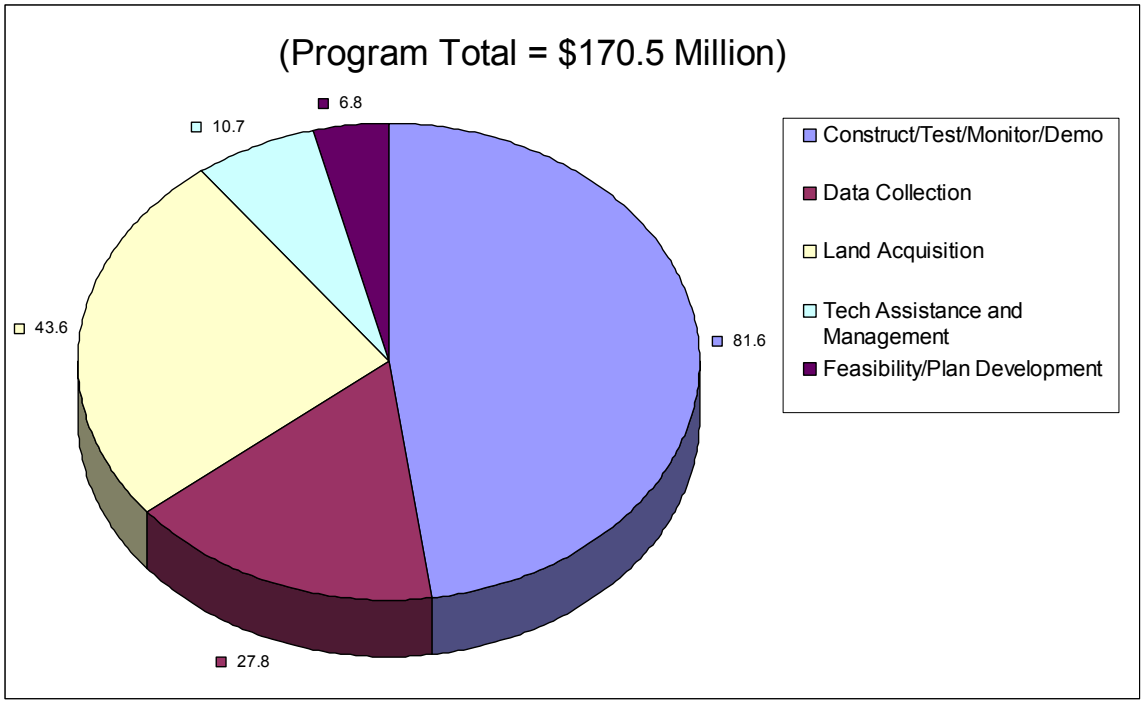


Figure B2. Program summary by funds source